Packaging Radio Technology during the Interwar Period (1925-1939)

How did the rise in popularity of the wireless receiver introduce the Modernist Aesthetic to the British Domestic Environment?

Final Year Report

by

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Introduction

Fig.1 Ekco Model 74 with chromium plated steel stand designed by Serge Chermayeff circa: 1933

To recognise the Ekco Model 74 *see Fig. 1* as a radio product of 1933 almost makes the question of how domestic radio introduced modernity into the British home redundant. The device is clearly a radio; it is intended for the general public's consumption rather than for the broadcast industry and it conforms to the modernist design aesthetic. There it is; radio was a modernist instrument, the public consumed it and modernism entered the British home. If it were as simple as this, then that would be *the answer*. In some respects, this is the case but it is a far more complex situation that begs study in detail.

It is the aim of this thesis to identify and explain how, through the consumption of the wireless as a modern consumer durable, modernism was brought to society. To understand this process the study will map how social change in Britain during the period responded to wider intellectual and aesthetic currents and trends. That change will be contextualised through consideration of the way in which it was driven by emergent commercial, cultural and political economies of the newly mediated World. Furthermore, it seeks to establish that this happened not as a result of social engineering through model housing schemes but as a result of consumer-led demand.

This investigation will consider how, as part of that newly mediated World, the wireless developed following its arrival on the domestic market without having adopted a single stylistic form. It will address how that form, both stylistically and technically, evolved over a relatively short period to address the economic and cultural requirements and expectations of a new electrically powered domestic entertainment technology. In so doing, a discourse will be established considering these expectations and requirements relating to how the wireless in Britain both adopted the Modernist design idiom and propagated the language of Modernism as the accepted version of what a radio could or should look like. Through that discourse it is intended that this thesis will contribute to developing the modernist paradigm in a broader sense. To gain an appreciation of this, it is necessary to understand the contemporary public conception of what *the modern* was in a more general sense. In the absence of a practical repository of individual diaries defining opinions solely on the subject of consumer goods, to decipher this public perception of modernity it is necessary to extrapolate that public conception through examining other popular forms and products. Although this suggests that Radio was not alone in adopting the language of the *moderne*, as a product it is notable for its widespread commercial success and as such can be identified as a significant carrier of the coded message of what was modern.

Design historians such as Yagou and Forty have attempted to incorporate radio into various strands of historical perception but the typologies they have devised to describe and understand wireless fall short in addressing the relationship between modernity and the wireless and instead see the wireless in terms of being an 'independent' consumer product, a 'quasi-scientific' instrument or else a furnishing form, rather than creating categories which accommodate the wireless and its position as a design type in its own right. To overcome this shortcoming a strand of this thesis seeks to argue that the wireless was itself a proto-modernist device during the early years of market expansion. That device then developed along a natural stylistic course embracing contemporary decorative ideas.

By assessing the response of radio manufacturers to the socio-economic conditions of their market, this study has highlighted how through producing a product which addressed contemporary ideas of glamour, ease of use and functionality, the wireless entered a wide range of homes during the 1920s and 1930s. For the public, the immediate appeal of the wireless was that it provided access to the international experience of 'listening in' while simultaneously it provided a template for the consumer to base their understanding of the modern World, both in its mediated form and stylistic appearance.

This thesis seeks to demonstrate that during the period 1925 to 1939, the wireless established itself as an unashamedly modern device which appealed to a broad socio economic cross section of the public. By consuming the wireless, the British public accepted a significant technological and stylistic aspect of modernity into their homes. This was achieved despite the privations of the era because of the perceived desirability of wireless broadcasts and the perception of listening in as a popular leisure activity. As a result of that consumer demand, the British public was given access to a range of stylistic versions of modernity through the design of radio cabinetry. These modern styles were readily consumed throughout the social spectrum in preference to historicist alternatives. This demonstrates that the wireless was instrumental in introducing the modernist aesthetic to the British domestic environment.

Methodology

Prior to embarking on the formal process of doctoral study a relatively large amount of empirical evidence had already been gathered, consisting of a range of objects and documents produced during and relating to the period of study. Although ostensively these materials are the chattels of a collecting interest based upon an acquisitive passion for the applied arts, the approach taken to that pursuit is tempered by an academic need to understand those artefacts within a wider cultural context. Despite the wide scope of these materials, gathered over a twenty-five year period, as a consequence of the need to refine the parameters of this study many remain excluded and unpublished. Those which have been employed include a variety of wireless company brochures and promotional leaflets, many of which are not available through public institutions. By making some of this material available to academics through this thesis it is hoped that elements of both wireless and social history will be preserved and disseminated, thus overcoming some of the limitations of private collecting.

Other original documents of the period which form much of the backbone of this thesis include material issued by the contemporary design publisher, *The Studio*, some drawn from the author's private collection and others from public archives. While these publications, of which there are many, often had a specialist readership and tend to highlight certain more adventurous projects of the period, their coverage and outlook reflected and shaped the ideas and opinions of the public on the topic of interior decoration both through direct and indirect influence. To provide a framework for discussion various secondary sources have been used. As the information provided by these types of document has already been selected and processed by the authors this might reduce the usefulness of the evidence provided, where possible, original sources have been sought out. While this has been done to compensate for the distorting effect caused by the interpretation of later authors, this does not mean that the original data has been treated as absolute truth and the prejudicial interpretations of those earlier authors have been taken into account.

In gathering historical evidence of this kind the temptation is to attempt a positivist approach whereby the material is treated as proof of a type of absolute truth. Within such a scheme, proof may support an element of a thesis but not be wholly indicative of another

i.e. a piece of evidence such as a statement within a journal that a particular designer was responsible for a specific design does not mean that the same designer was or was not responsible for others. The approach taken within this study is best demonstrated by the idea that if that evidence is then compared with another less positive example and the material demonstrates similarities then it is not unreasonable to draw a further conclusion based upon those common traits. Under these circumstances, any conclusion based upon extrapolated evidence is a normative claim, albeit based upon a positive assertion. As such, many of the findings of this study must be recognised as normative evaluations of the intelligence gathered.

Initially, it was hoped that a positivist approach could be effected through obtaining the manufacturing statistics of the set makers. Possession of that data would then mean that modernist designs could be identified and their economic performance compared with non modernist and art deco designs. This undertaking was confounded by most company archives having been lost, particularly those of Ekco and Murphy, who were high profile exponents of modernism. Another means of obtaining these statistics was required and so the possibility was considered that the output of the wireless companies could be extrapolated from their tax returns. Unfortunately, on making enquiries of the record offices it was discovered that the returns for those radio manufacturers and others had been destroyed by hostile action during the 1939-1945 war. This left little scope for manoeuvre as, while there were other avenues which could provide the necessary information, the location and possibly incomplete state of the surviving records made their use impractical.

The culture of wireless consumption as a social activity, known as "listening in" is well covered by Susan Briggs in her book *Those Radio Times* (1981) and elements of this publication have been used as a means of understanding the public motivation for wanting to own a wireless. What Briggs does not address is the success of the wireless as a design object and this is the crux of the matter for this study. Similarly, a potentially worrying publication appeared during the process of research titled *Radio Modernism* (Avery, 2006). Fortunately, here, as with Briggs, the emphasis is upon the message rather than the medium and so does not encroach upon the premise of this study.

While much of the original material used is often described as ephemera, due to the destruction of much of the archival material relating to the period these documents were to become a central instrument in identifying and piecing together the contemporary cultural

values concerning wireless ownership. This is not to claim that all archival material related to the period has been destroyed just much of that concerning the manufacture of wirelesses. As such, despite the presence of supporting documentation for the assertions of this thesis, its conclusions are an interpretation of the values and ideals contained within those artefacts which have been exegetically teased out and related to the belief that the modernist aesthetic and the public perception of new technology are somehow interconnected.

Establishing how that interconnectedness operates is a key objective of this thesis. By adopting the position that it is not technology which shapes the representation of the device, but the expectations and demands of the public, it is suggested that the mechanism at work is one of social construction rather than technological determinism. Although this idea was formed independently, such an idea is not a new one and the Social Construction of Technology as expounded by Weibe Bijker (1995) identifies and explains the philosophical processes of this approach. However, Bijker's interests lie in the processes that result in the development of a technology rather than an aesthetic per se, despite his recognition that the styling of technology played a part in its construction (Pg. 224-225, 1995) . In some respects, it could be argued that the active process in the adoption of the modernist aesthetic is one of technological determinism as the demand for the technology of wireless might have facilitated the arrival of modernity; however, it is the contention of this thesis that, even under those circumstances, it was the demands of the public for entertainment that was the motivating factor in the success of the wireless as a consumer good. As the focus of this investigation is not the adoption of wireless but the adoption of the modernist aesthetic, the success of that technology in itself is not the issue at stake; instead this thesis seeks to suggest that through economic preference the modernist aesthetic was accepted by the public for the emerging domestic media technology in favour of other more traditional forms. In regard to this idea of domestic modernism by stealth, it is an observation by Alfred Gell (1998) concerning the notion of extended personhood that has most resonance with the treatment of the historical situation. Whereas Gell raised the idea of the land mine being an extension of a military commander in Cambodia, this thesis suggests that the application of the modernist aesthetic to desirable consumer goods made them a type of emissary for modernist ideas.

To address how the public appetite for and perception of wirelesses evolved, the study will identify several key socio-economic influences upon the British domestic market thus providing context and seeking to understand how economic and social conditions developed to allow wireless to become a mass consumer good during the period 1925-1939. Unfortunately, it cannot be known exactly what the public attitude to modernism was at a personal level, as this would be both time consuming and difficult to pinpoint based upon the general material available. However, a picture of the public's aspirations can be arrived at by focusing upon changes in housing and home ownership. At the same time, the expansion of available stock will provide a means of recognising the potential existence of contemporary domestic interiors waiting to be furnished.

Once it can be established that there were suitable homes for the wireless to occupy it is then important to appreciate how this new consumer durable would be afforded. In so doing, the role of economic determinism becomes an issue. While there is data available concerning this subject for the period it should be treated with a degree of scepticism owing to the manner in which statistics were gathered and calculated. An instance of this can be seen in a case whereby the authors of *The Home Market* (1939) published statistics suggesting that a huge amount of alcohol was being purchased by British families. Their statistic stated that the average family was expending £7.10s per week on alcohol. Despite this being beyond the income of many families, this quantity per capita would mean that most people would have been in drink almost constantly. Although this is not an impossible situation, it is highly improbable and so it is likely that the statistic has been treated inappropriately. However, economic information such as the availability of credit, particularly amongst wireless retailers, is a far more useful indicator of the processes at work in the expansion of ownership as it allowed for consumers to be able to purchase goods which, otherwise, would be economically exclusive. It is not proposed that the stock market crash of the late 1920s should be considered in particular detail as the take up of wireless licenses continued to increase exponentially and quite unabated during this period, suggesting that, in itself, it was not an influential element upon wireless set consumption. Despite the potential for this factor to yield a potentially interesting field for study, it is referred to as a backdrop to the process in the popularisation of the wireless and so is not considered as being a key factor in the adoption of the modernist aesthetic by the general public.

The stages so far discussed establish that the British public had the desire to own a wireless, access to funds to do so, a place for the wireless to occupy and even suggests how the public might influence the wireless's aesthetic paradigm. What these elements do not address is the question of what decorative form that paradigm might take. To appreciate this it is necessary to consider the core design idioms of the period which might influence the interwar consumer's aesthetic values. This is particularly relevant for the reader who comes to this thesis from an interest in wireless and who might have only an awareness of the generic styles of the era. For those who are already well versed in this period it is germane to place the radio in context and to consider how that context is understood in terms of its relationship with emergent media.

Owing to the status of the 1925 Paris Exposition amongst most writers on the decorative style of the period as a decorative cornerstone this would seem a good place to start. Despite the preexistence of many of the designs and decorative forms seen at the event, it is a useful focal point for the coalescence of new aesthetic ideas for the applied arts. In addition, the presence of domestic wireless equipment at the event has previously not been considered by academics, indicating a useful opportunity to make an original contribution to knowledge.

Like *The Studio* publications, initially the direct influence of the 1925 Paris Exposition upon Britain was limited as the majority of the British public were not in a position to be able to travel to France. However, its general influence is recognisable through its stylistic affect upon designers and manufacturers internationally. Having identified the decorative concept of the Art Deco, it is then relevant to provide an overview and make an assessment of the many facets which developed in sympathy with that decorative paradigm and also those in antipathy with it. This will illustrate that although the decorative style of Art Deco is recognised by art and design historians as a significant aesthetic model for the period, it was not the only option for the contemporary consumer and so that choice is all the more significant.

Differentiation between various key forms within the idiom initially establishing the subtleties of difference found in The Moderne and Streamline Moderne leading to the more esoteric and popularist school of the Odeon Style and how pervasive that aesthetic was in radio design. In order to make a distinction between popular fashion and what is understood as Modernism this will then be dealt with particularly concentrating upon the

issues of functionalism as expressed by the aphorism 'Form Follows Function' and the significance of utility to the various designers associated with modernism. While Modernism is generally considered to be possessed of a philosophical agenda while the moderne is not, this is not necessarily the case. Within the context of wireless cabinet design, issues of popularism, the technological aesthetic and the utilitarian purpose of the device are often common amongst designs which could be considered as belonging to either generic form. Once in possession of more detailed information concerning the modernists, the question of how they related to a new technology like the radio will be asked and how this might be reconciled with the notion of mass market modernism and the needs and expectations of the consumer.

In opposition to the aesthetic of both the modernist and the art deco was the persistence of the Arts and Crafts and the popularity of revivalism. An appreciation of this situation is useful as the external appearance of the majority of new build housing stock of the time can be seen as a significant indicator of consumer preference, therefore it could provide an alternative aesthetic for the wireless to have adopted. To understand the process in more detail, the appeal of Stockbrokers Tudor and the nature of revivalist interiors as expressed through the design press of the period will be addressed. It should be noted that the sample of radio designs this thesis focuses on is principally taken from large scale mass production models and this will have an influence upon the result. There may have been small manufacturers who specialised in historically styled radio sets for special order customers[1] and so there may well have been examples of wireless cabinets produced for this market, however, these would not have been available to the general market and so the affect of such designs upon the adoption of an aesthetic for the wireless cabinet is minimal.

To evaluate radio cabinet design as a response to those socio-economic conditions and stylistic expectations it is also necessary to attempt a classification of radio design because the existing genre types proved a stumbling block to addressing the role of the wireless in relation to aesthetic forms. By modifying and adding to existing classifications a suitable set of categories was developed. Having done this, in order that the process of stylistic development can be understood within a British context, attention is given to radio's relationship to other Modernist developing mass media forms, most notably

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[1] HMV/Marconi were known to produce special order models for specific customers although this was confined largely to the Aristocracy, for a Royal example see *Objects of Desire* (Forty, 1986)

cinema. The reason for focusing upon this particular medium is that, for the General Public, it would have been a primary source of experience concerning the aesthetic of a modern technological media and therefore worthy of special consideration.

Although it is argued that the role of the popular media is significant, this is not to discount the direct role of Modernism in the design of radio cabinets through the contribution a number of individuals who were directly associated with the modern movement. The function of individual Modernist designers in the radio industry is acknowledged by a number of publications including Alan Powers' (2001) biography of Serge Chermayeff but the details of Chermayeff's radio work sits not within its social context but within a biographical one. It is hoped that by expanding the appreciation of Chermayeff's contribution to E. K. Cole, a contribution to original knowledge will be made which illustrates the scope of the success of modernism. By singling out an individual designer there is the danger of fetishising those products and in some way making them different from other contemporaneous designs. To underpin the evaluation of Chermayeff's designs, detailed study of extant examples of his radio cabinetry will be undertaken, which will provide the opportunity to assess the expression of his ideas through their physical forms. As Ekco was a major plastics manufacturer this might lead to the idea that the use of plastics for radio cabinetry and modernism were synonymous. This is not the contention of this thesis at all. Despite the popularity of bakelite radio cabinets amongst the antiques market of the early Twenty-First Century, Modernist designs and the public conception of modernity were not wholly dependent upon the presence of entirely new looking materials such as plastics, although they did play a part. In order that the scope of modernisms influence is not limited by materials, a closer study of Murphy, Gordon Russell and their relationship with Utilitarianism is undertaken modernity to highlight the beneficial philosophical implications of what design and the new media could potentially achieve. Consequentially, in recognising the relevance of the furniture manufacturer and designers Russell of Broadway, it is then necessary to evaluate the role of furniture and the Radio Industry in the process of styling the radio.

Having discussed the investigation of the socio economic conditions of the time, the various stylistic influences and the presence of modernism in the domestic marketplace it would seem germane to consider the study of radio as part of the new approaches to marketing as a response to modernity. In order that the industry could take an approach to marketing it must have possessed certain elements of the visual language of modernity.

As such, there must have been a series of signifiers of modernity which need to be identified particularly certain key visual references common to other fields of marketing. While doing this an opportunity is offered again to ruminate upon the relationship between notions of modernism, materials and how the expectations of the contemporary consumer changed, noting the shift of a Bakelite manufacturer towards selling wooden cabinetry in what was an established plastics market and the introduction of new technical specifications as a means of revitalising the product. In addressing the issue of public expectations and the need to appeal to those demands it is then logical to highlight the role of popularism and its relationship with the packaging of wirelesses. It is the need to appeal to the popular market that makes the adoption of the modernist aesthetic all the more significant as this illustrates how the public accepted this stylistic idiom over and above other forms.

While the radio is a recognisable technology it is not necessary for the reader of this thesis to have a detailed knowledge of the various different circuit and valve types used by the interwar setmakers. This is because, while technical factors affected the cost of production and pricing of the wirelesses, the intricacies of the concepts behind these components have little bearing upon the aesthetic outcome, it is sufficient to know that a lower cost model would be expected to perform differently to a more expensive receiver.

For the radio manufacturers, in attempting to appeal to the popular market, an important factor was the impact the wireless might have upon the domestic environment. This had various implications but the adoption of utilitarian principles by radio designers is particularly pertinent as this can indicate both the physical relationship of receiver and user and the potential to negate obstacles in the process of consumption. Principally, this will be evaluated through considering the way that the need for a fixed position for the receiver to occupy was questioned by the set-makers. Conversely, it is also necessary to see how the home was prepared for radio in order that the product might fit in and so this then will lead to an estimation of the effect of the 1925 Exposition upon the new product the "Wireless" and the new interiors which were being proposed. In doing this it is possible to see how the aesthetic of the wireless related to the aspirations and norms of the interwar home, illustrating the modernity of the wireless according to its domestic context.

Literature Review

In approaching the subject of modernity and the wireless it is surprising to discover that histories of modernism and the 'machine age' in which it developed pay scant attention to the design of radio cabinetry. Compared to the interest in Twentieth Century design schools and movements, relatively few dedicated studies have been produced concerning radio cabinetry. Simultaneously, the histories of wireless pay little detailed attention to the design movements which influenced the appearance of the equipment. Furthermore, none have been published which consider the development of wireless as a key to the development of modernism in Britain.

To complicate matters, in studies of industrial design of the Twentieth Century, a passing mention of the wireless as a facet of that history is almost *de rigueur*. In fact, the definition of the machine age as described by Rayner Banham (Pg 10 1960) is incomplete without its acknowledgement. Occasionally, to the scholar interested in the development of radio, this inclusion can seem like prospectors salting their claim with cultural gold dust. Akin to those artificially gilded plots of land, this can make a publication seem, on first inspection, more significant to this study than it might prove to be. One should recognise that gold is still gold and those inclusions can be every bit as useful to the understanding of the position of wireless within modernism's history as the dedicated tome addressing the technical history of the wireless receiver.

A proviso must be added; this being that some historic texts, such as those produced by Read in *Art and Industry* (1953) and Gloag in *Plastics and Industrial Design* (1945b), which include information about the radio, do so from a desire to promote certain aesthetic ideas to their contemporary audience. To influence that readership certain carefully chosen examples of British design are placed within a national and international historic context. In so doing, those examples gain legitimacy as exemplars of "good" and decorous design. This can be seen to particular effect in the work of John Gloag, who produced several histories of British furniture including an extended essay titled *The English Tradition in Design* (1946). The Wireless is cited as an example of how good English design values can be utilised.

Use of the radio as a case study has two purposes:

a. To illustrate the presence of the proposed design ethos within a contemporary context

b. To engage the reader through use of a desirable modern consumer durable.

In this instance, the English tradition in design is identified as one based upon historic classical values conveyed through the Arts and Crafts movement to contemporary designers. Occasional diversions from that path, such as the "*Italianate phase*" of the sixteenth century are frowned upon, although deviations from the true English path are identified as a reflection of contemporary taste rather than as a product of the manufacturing agent. As such, the English consumer is held responsible as opposed to the artisans supplying the style. This said, he also recognises the influence and Anglicisation of "foreign" styles, while the Art Nouveau is dismissed as a confusing influence upon early Twentieth Century design values.

Gloag's study (1946), while it includes only a single specific example of a wireless cabinet, has relevance because radio is given reasonable prominence. A Murphy wireless is used as a vehicle to highlight the continuation of English Arts and Crafts principals in contemporary design[2]. Use of a Murphy Radio *see Fig. 2* in particular is interesting as the design ethos of the company for both cabinetry and technology was toward a high quality product. Their expression of quality through wooden cabinets designed by various architects from Gordon Russell Ltd. and the technology included various ingenious innovations such as automatic volume control (AVC) was different to that of other radio manufacturers who adopted other materials and marketing strategies.
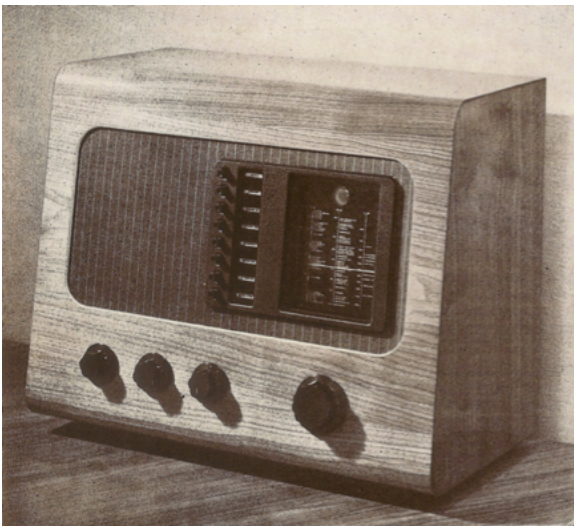
Fig. 2. Murphy Radio 1938 Designer R D Russell pictured in Gloag's *The English Tradition in Design* (Pg. 65 1946)

For the consumer a higher retail price can offer reassurance through the associations between cost, value and desirability. Other radio examples could have been used but they would not have had the same associative value. In his closing paragraph Gloag includes a number of familiar elements of contemporary English culture, the red phone box, the telephone, radio sets ands railway shelters as products

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[2] GLOAG, J. 1947. The English tradition in design, London, King Penguin Books. is a study of English Design and encompasses a range of domestic goods rather than focusing upon furniture, thus allowing for a technology to be included within the study without defining it as a furnishing product or as a domestic service.

that maintain the classical English Tradition in design. These elements are used as a means of promoting a version of the English tradition in design. There is recognition that aesthetically the wireless illustrated employed visual signifiers of modernity but not that this was what the public taste expected from the wireless as a domestic product. Gloag's use of the radio highlights that it was recognised as an important product that had currency with the audience he was attempting to reach.

Gloag also produced several more technologically orientated essays. One of the earliest being *Industrial Art Explained* (Gloag, 1934), whereby Gloag seeks, through examples chosen from a group of now familiar Modernist and Arts and Crafts designers, to familiarise the reader with the processes and products of Industrial Design. This text is referred to frequently in his later work *Plastics and Industrial Design* (1945b). In this publication, he focussed upon the applications to which plastics could be put, including as a radio cabinet material. In doing so, Gloag considers the importance of the consumer in the process of design noting that the "...consumer who pays the piper is entitled to call, or spoil, the tune." (Pg. 34 Gloag, 1945b) This observation is particularly germane as it forms a core value of this thesis. Gloag's assertion recognises that the consumer has power within the design process and is able to shape the product through economic sanction. Consumer preference, he argues, although a significant force in the economic process is an element which can be lessened through avoiding the employment of the "wrong sort" of designer. He goes on to cite members[3] of what later became recognised as the modern movement as exemplars of good design practice within industry.

When radio cabinets are included in these publications, it is not as a central topic of study but as an element of a wider argument. It is a strategy which perhaps recognises that the radio is a product sufficiently important and familiar to the "everyman" with whom they seek influence, that it will help sway the opinion of that reader. Meanwhile, the history of wireless, as it is proposed by Gloag (Pg. 35, 1945b), is considered as a process of moving from the pseudo scientific into the realm of domestic furnishing, in much the way as was done by later writers such as Forty (1986). What they do not do is to consider the widespread nature of the adoption of moderne design by the wireless industry and the significance of the subsequent commercial success of that policy.

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[3] He later names Christian Barman, Wells Coates, Chermayeff, Mischa Black, Dr Gustaf Dalen and Raymond Loewy among others.

Herbert Read indulges in this policy of employing elements of popular culture as a means to engage his readership in a different manner. In Art and Industry (1953), he includes an example from the Ekco range of the 1930s (the Model 74 *see Fig. 1*) pointing out that it represents an instance of plastics encroaching upon "..a province hitherto reserved for wood." (Pg. 84, Read, 1953) which belies a surprisingly limited recognition of the role which the radio industry of the 1920s had in the utilisation of early plastics both as a cabinet material and as an element of many wooden housings.

Like Gloag's *The English Tradition in Design* (1946), David Joel, in his book *The Adventure of British Furniture* (Joel, 1953) cites a Murphy Radio. In this instance a model of 1934 designed by R. D. Russell which he dubs the "...first radio cabinet in the modern manner". His text could be taken to mean that this was the first radio designed in the modern manner by R. D. Russell for Murphy or it could be interpreted as being the first radio in that idiom to be designed. This ambiguity when taken within the general context of Joel's distrust of "foreign" flavours in design might lead the reader to think that the originator of modernity in wireless design was Russell. It is not unreasonable to make this claim as Russell took on the design project in 1931 although other designers are just as likely candidates particularly Louis Kalff of Philips, Holland. Joel also includes the Ekco Model 74 (Pg. 117 1953), although in this instance it is almost certainly an inadvertent inclusion. He makes scant reference to radio throughout the publication. There is no mention in the text of the presence of the radio by an indoor swimming pool set from an exhibition by Whitley's of 1934 staged by F. R. Peacock and styled by "Sergius Chermayeff". In fact, the radio is almost unrecognisable owing to it being at an oblique angle. The presence of its chromium stand reveals its identity. Chermayeff has included his own design of wireless to complement the tubular steel rocking chair within the general scenario of leisure. Within Joel's text, there are disparaging remarks made about the "foreign" character of Chermayeff's work and that this was not in-keeping with English design values. To Joel's audience the radio would go almost unnoticed and the reader is not invited to acknowledge the presence of such technology. Through his general exclusion of the wireless, Joel, by implication, identifies the radio as being a product other than furniture. In so doing, he adopts a stance in opposition to the ideas proposed by Gloag seven years earlier.

As an adjunct to his criticism of the "foreign" other, Joel records the pervasiveness of "modernistic" or "jazz" stylings during the early 1930s. His disapproval was aimed at a commercial process whereby standard carcasses were daubed with "plaster ornaments"

and "appurtenances" which interpreted the ideas of the modern movement as superficial decoration. Such superficialities, according to a survey by Pevsner and quoted by Joel, had affected some 90% of furnishings of 1933. Joel's use of the terms are distinctly pejorative and are not in anyway intended to evoke the positive aspects often associated with jazz, of dynamism and innovation. Furthermore, he goes on to denounce an unnamed furniture manufacturer (Pg. 112, 1953) who felt that they were of sufficient economic strength that they were able to "create" public taste. This approach reflects Joel's wider belief in the independent power of consumer choice in shaping the design of goods.

Fig. 3. Indoor Swimming Pool at Whitely's exhibition 1934, Staged by F. R. Peacock and styled by Serge Chermayeff (Joel, 1953) An Ekco model 74 and with its chrome stand is pictured obliquely in the right hand foreground.

At the risk of highlighting a prosaic detail, the central purpose of works by Gloag, Joel and Read is to promote a particular design aesthetic through providing an interpretation of events. This is something about which they were quite candid. In most of the examples cited, the express intention of the authors is to inspire the future designer and consumer by acquainting them with the "best" examples as case studies. While these texts are in themselves histories, often contextualising contemporary designs within a brief historic period, they may then influence later larger histories. For this reason, that group should be considered a primary source in terms of the understanding of contemporary attitudes to cabinetry design as well as part of the evolving history of design.

Radio histories, fall within three principle groups. These being, the "coffee table" book, containing many glossy illustrations; secondly, publications which deal with the history of radio broadcasting, being concerned with the technical developments of the device rather

than concentrating on how the radio was presented to the public as a product and thirdly that group which focuses upon the sociological development of Broadcasting as a medium for entertainment and information. Here I intend to consider a selection of available texts and although strenuous efforts have been made to assess as many as possible to provide a sufficiently detailed a review. These examples are not an exhaustive list of all publications available but they are indicative of the works produced in the last thirty-five years. Initially, it seems suitable to address the first two groups as they are most easily distinguished from this study. In many cases, the inclusion of wireless is as a facet of a larger history such as a biography and so the approach is sometimes coincidental and results in very useful information rather than in an appraisal of the development of wireless.

There are several so called "coffee table" books such as *Radio Art* (Hawes, 1991) and *Bakelite Radios* (Hawes and Sassower, 1999)*;* these, although concerned with the appearance of radios and providing some background information, are of a superficial nature. They are concerned with popularism and shy away from detailed analysis of images aiming to appeal to the interested collector rather than the academic or serious historian. The principle purpose of this type of book is to promote the wireless as a vintage collectable rather than to provide a serious academic study of the design, typology and marketing of the product. Another example of this type of book is *The Radio: an appreciation* (Attwood, 1997). Its author concerns himself with the cabinetry of radios rather than technical development and brevity of material apart there are some interesting insights into those designs. It is intended as a type of pocket book for the design conscious although several of the claims on the dust jacket are hyperbole rather than a clear indication of content. Despite the publishers sales pitch, the information contained is of a relatively high standard with material that does not appear in some of the larger, wordier tomes particularly with regard to identifying cabinet designers.

Histories of the wireless have been produced which demonstrate greater academic rigour, *Vintage Crystal Sets 1922-1927* (Bussey, 1976), *The Cats Whisker* (Hill, 1978) and *Early Wireless* (Constable, 1980). Works such as these form that second group, being histories of wireless as a technology. They focus upon the various advances which defined the stages of development of the radio as a technology. *The Cats Whisker* (1978) is the most socially aware, it being an early version of Hill's later publication *Radio! Radio!* (Hill, 1986). Hill aims to consider the wireless as both a technology and as a familiar device, drenched

in nostalgia. Despite paying attention to the stylistic shifts in wireless cabinetry, this is seen as a process governed largely by technological determinism and secondary to the stylistic expectations and demands of the public.

Vintage Crystal Sets (Bussey, 1976) is an attempt at cataloguing the crystal sets available in Britain during the period 1922-1927. Generally, the text and information provided is oriented toward the enthusiast, including tips on how to operate crystal sets and similar equipment. Other information provided is of wider social interest particularly details concerning the reasons for the disappearance of many wireless manufacturers during the early phase of public broadcasting. In itself, the date range is potentially significant to this study as it is the period in which the radio became a device of wider interest to the public and this publication makes interesting points about the uneasiness of the consumer pre 1925.

Radio! Radio! (Hill, 1986) is the most developed of the studies of wireless and considers the wireless as a technology and as a sociological phenomenon. Hill's work (1986) is still concerned with the technology of radio but is much expanded, including more material related to manufacturers, legislation, social conditions and the sheer range of models produced. The principle social interest is in attitudes to 'listening in' as reflected in the contemporary advertising and press, without considering the relationship between attitudes to other emergent media and the wireless. It should not be thought that *Radio! Radio!* (1986) is the sole work in this category. *The Setmakers* (Geddes and Bussey, 1991) is a historiography of the wireless manufacturing industry in Britain principally addressing the period from 1920 to 1990. While little attention is paid to the content of the airwaves the book does track the economic conditions of the broadcasting industry which reflects the demand for radio amongst the British public. *The Setmakers* (Geddes and Bussey, 1991), is an extensive and detailed account of the history of the radio manufacturing industry in Britain. Akin to Hill (1986, 1978, 1993a) the authors adopt a technological determinist approach but seek to produce a history of the radio manufacturers rather than that of broadcasting, although the two are, out of necessity, interconnected. In addition to the previously mentioned titles, Jonathan Hill also produced a small pamphlet for Shire Books called *Old Wireless Sets* (1993a) which condenses the information in his other works and acts as an introduction to the history of wireless intended for the novice collector. Hill has also reprinted *Radio! Radio!* (1993b, Hill, 1996), these editions include additional material and some minor alterations to the text.

To consider only these technologically interested groups would be to ignore a mine of useful information which can be found in the third set of studies. These are the more dedicated social histories of wireless, which consider the popularity of 'listening in' as a social activity, mapping the content of early broadcasts and how the listening public related to that material. Two principal texts have been taken as examples *Those Radio Times* (Briggs, 1981) and *Radio Modernism* (Avery, 2006). Briggs (1981) provides a fascinating insight into the public relationship with wireless, particularly through use of period advertising and the inclusion of radio in the products of other popular media. *Radio Modernism* (Avery, 2006) addresses the content of wireless broadcasts during the interwar period, focussing upon the literary modernists contribution to wireless programming. Avery is interested in the ethical issues raised by broadcasters rather than considering how the radio attained socio-political influence. As a result of the interest in the content of radio programming *Radio Modernism* (2006) exhibits no substantial interest in the visual appearance of the domestic wireless and even less in the design processes which influenced it.

There are several biographies of note; these being two monographs of Wells Coates by Sherban Cantacuzino (1978) which recorded a great deal of information about Coates prior to the loss of much of the CIAM archive and Elizabeth Darling (2012), who reassesses the position of Coates in the modern movement and adds to the material available through the earlier works. Other works on Coates have been produced including material relating to the 1979 exhibition Wells Coates Architect and Designer: 1895-1958 (Wells Coates Exhibition and Cohn, 1979) and a personal history of Coates by his daughter Laura Cohn (1999). Coates was not the only designer of radios and a monograph on Serge Chermayeff by Alan Powers (2001) and a biography of Frank Murphy called *A First Class Job!* (Long, 1985) also include significant information on the subject. These studies all contain various biographical details and useful background information, particularly concerning the outlooks of both manufacturing companies and designers.

Although it may appear that there is a bias toward technical and wireless industry sources that is not to say design history as a discipline fails to address the subject. This is not at all the case and a number of important contributions to the field have included wireless cabinetry. *Industrial Design* (Heskett, 1980), in which Heskett produced a design history in

the tradition of Gloag (1945b), Read (1953) and Pevsner (1949) using this model to attempt a very broad treatment of how role of the industrial designer developed in the production of domestic goods. These goods included the wireless. A very brief description of the evolution of wireless is outlined, employing the model proposed by Gloag (1945b) of it having moved from technical instrument to furnishing. Heskett's model is more neutral than that of Gloag (1945b) as he avoids the words "quasi-scientific" in favour of "technical" to describe the early stage of radio cabinet design thus side stepping the pejorative associations of the word "quasi". In *Objects of Desire* (Forty, 1986), a categorisation of the various stages of wireless development is attempted and like Heskett (1980), the earlier model employed. Forty (1986) uses the term "quasi-scientific" to describe the early stage and provides greater detail of the development of the wireless as a domestic product. Design in Context (Sparke, 1987) and Design of the Twentieth Century (Fiell, 2001) all of which follow the convention established by Herbert Read (1953), Joel (1953), Pevsner (1949), Gloag (1945b) and Banham (1960) of including the wireless set when advocating industrial design as a way forward for the decorative arts. There are then those design histories which incorporate wireless in a small way, such as *The Sex of Things* (De Grazia and Furlough, 1996) , whereby the wireless is included as a part of the process in which products are associated with gender.

What these texts appear to have over looked is the way in which the British domestic radio developed visually during the interwar period. Despite references to shifts from quasi-scientific to furnishing products what has been missed is the process which resulted in the appearance not just of being a piece of furniture but of being distinctly modern. To appreciate the nature of that modernity and its pervasiveness, it is first necessary to understand the social circumstances of the time.

Chapter 1

Changes in Socio-economic Conditions

Housing and home ownership

During the interwar period the activity of "Listening in" to what the "wild waves" were saying grew massively in popularity. Initially, wireless had been the preserve of a group of enthusiastic amateurs and its applications beyond the experiments of this small faction had been largely civil, maritime and military, allowing the communication, initially via morse code, of messages and time signals. Its primary civilian use was to replace the pre-existing telegraph service allowing communication without the need for wires across international distances transmitting important information about stocks and shares and also the dissemination of time signals from Greenwich and the Eiffel Tower, offering a greater accuracy in the standardisation of time within relevant zones than previously possible. However, what the radio actually offered to those who had access to the means of reception was a new leisure pursuit which connected that individual to a much larger World of information, entertainment and mystery.

left to right **Fig.s 4 & 5: Pages from an early 1920s wireless Notes and Station Calls booklet and Diary**

The wireless, it could be argued, possessed such a fundamentally different function and quality to hitherto existing domestic products that it altered the decorative form of the modern home. This is a bold claim, admittedly, but not an unreasonable one given the way

of domestic life in 1918 as opposed to its organisation by 1939. The question about whether radio cabinet design brought modernism into the British home may be partially answered by addressing this particular issue.

Modernism in Britain as in continental Europe was supported by a variety of different social classes. A number of high profile experiments were commissioned by wealthy clients such as Prof. Ashmole and the High and Over house designed by Amyas Connell (Sharp and Rendel, 2008) or Miramonte built for the housing speculator Jerry Brown by E. Maxwell Fry (Powers and Von Sternberg, 2005). Architects who espoused what is now called the modernist aesthetic also produced designs for social housing; examples such as Lubetkin's Highpoint One and the Isokon Building in Hampstead designed by Wells Coates for Jack and Molly Pritchard (Pritchard, 1984). They also produced designs for individual dwellings aimed at the middle class buyer with Connell, Lucas and Ward adding three smaller properties to the High and Over Estate and Coates designing a system of building that allowed a variety of sizes to be produced to the needs of the customer (Cantacuzino, 1978). These ideas were aimed at the new developer which appeared after the First World War who was engaged in the construction of suburban estates that catered for an expanding social group - the middle classes.
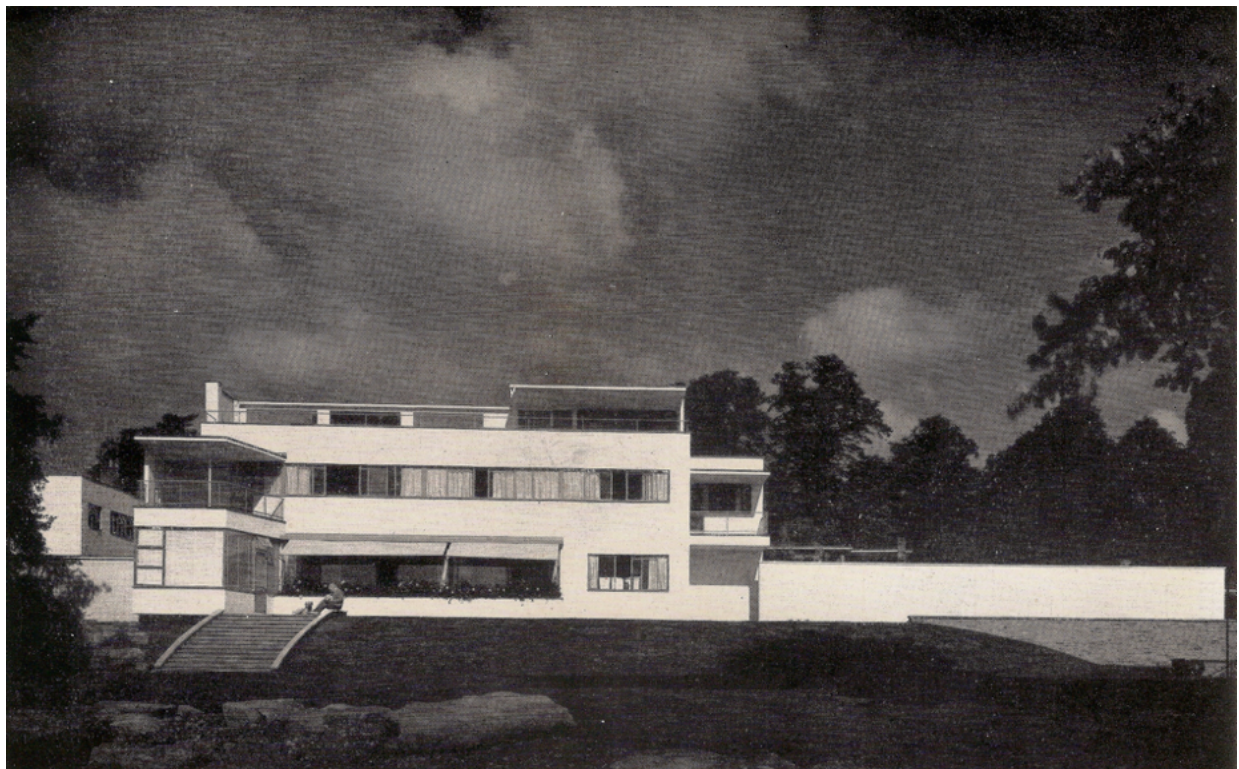
Fig. 6: An example of the International Style Modernist villa "Miramonte" E Maxwell Fry (Monks Hall et al., 1964)

Fig. 7: Wells Coates designed Isokon Ltd. Lawn Road Flats
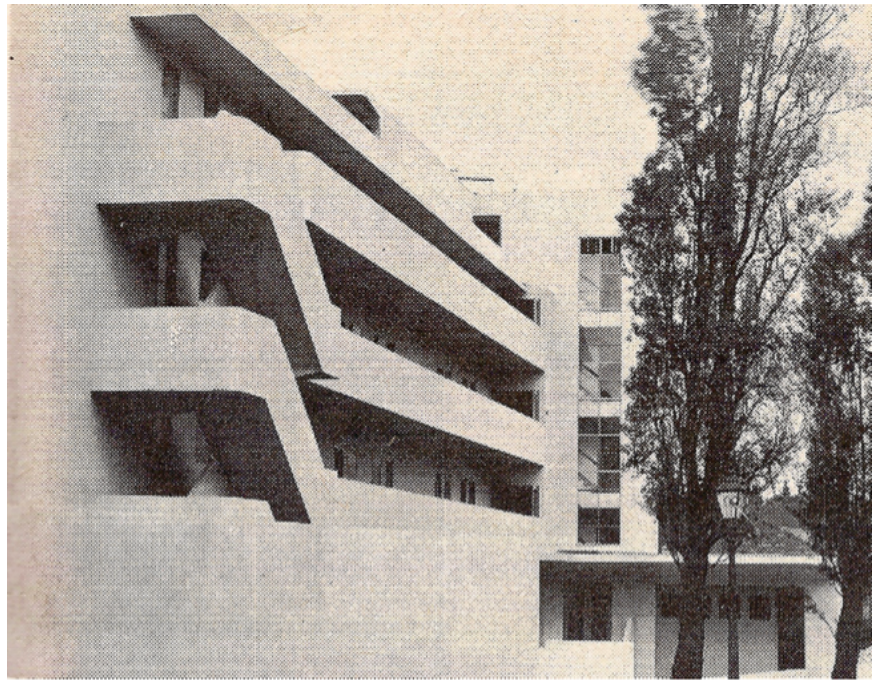
Fig. 8: Lawn Road Flats seen from the external staircase connecting the balconies highlighting the building's dynamic and signifying the dynamism of the modern lifestyle offered by flat dwelling.
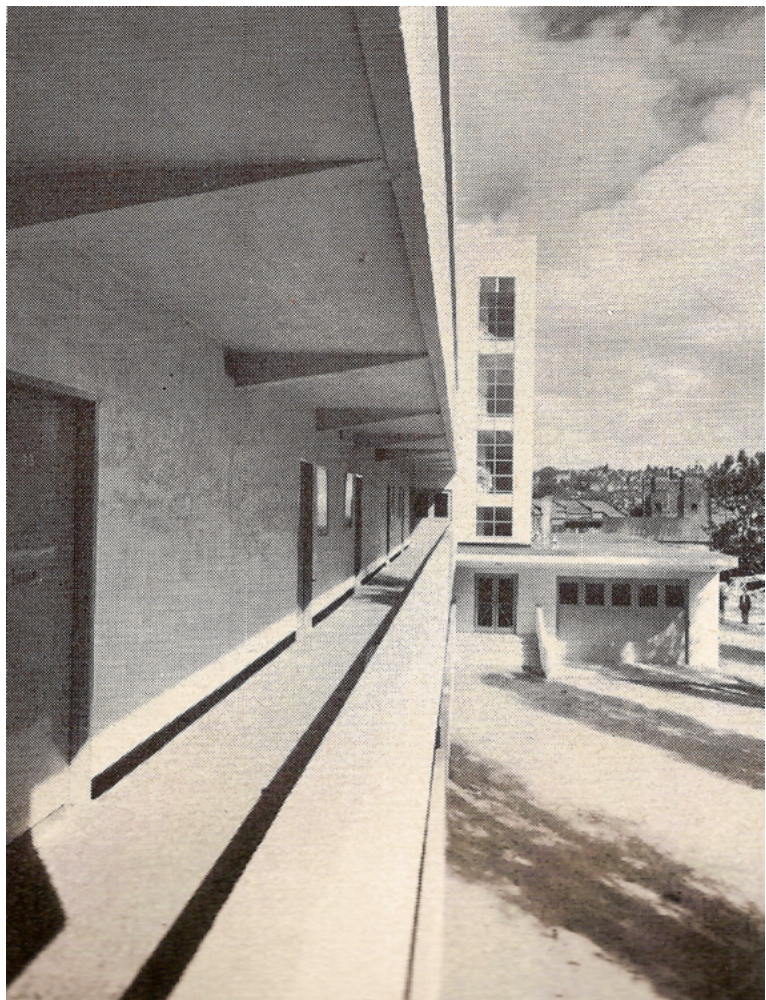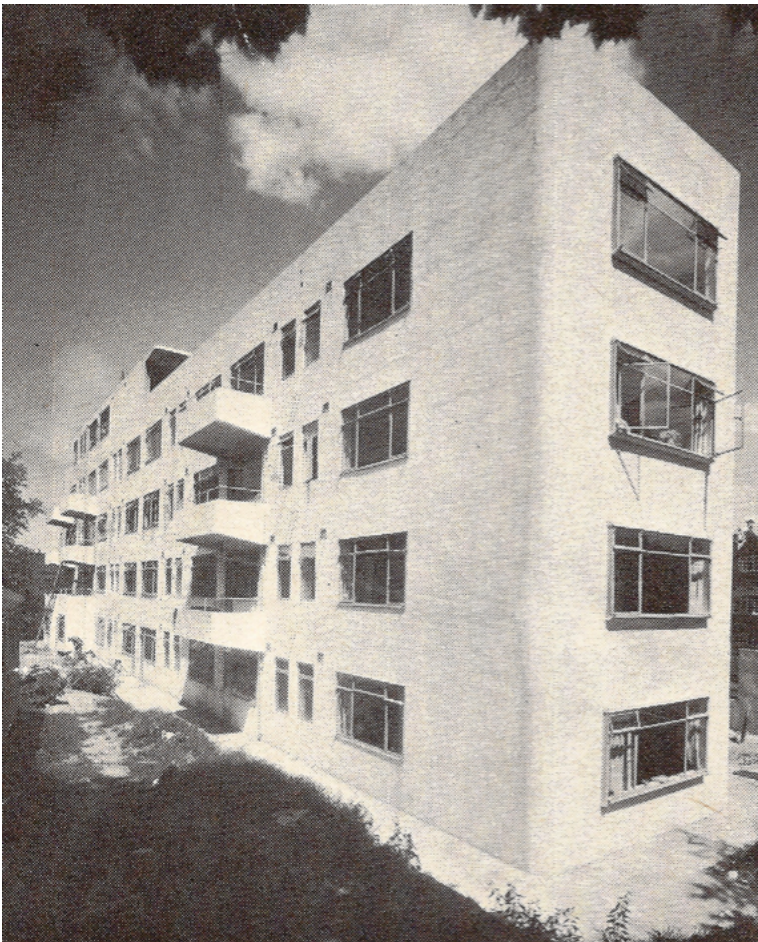
Fig. 9: Lawn Road Flats (seen from the opposite side) with projecting balconies similar to Gropius's Bauhaus school accommodation blocks

Fig. 10: Connell, Ward & Lucas development where High and Over can be seen in the background. The housing in the foreground illustrates the architects' recognition that such housing should be available to a wider cross section of the public than the wealthy owner of High and Over itself.

What that social group may or may not have wanted from their homes needs to be clarified, as despite the proliferation of new ideas for housing such as those proposed by architects and designers such as Coates, Connell, Ward, Lucas and Maxwell Fry, the state of the housing market following the First World War was such that the labour force was not available to construct new properties until the beginning of the 1920s. This shortage of labour caused by the mobilisation of the work force for battle and their subsequent reduction resulted in a lack of supply meaning that the existing demand allowed substandard housing to be easy to sell. This impacted upon the quality of design as it was felt by many speculative builders that they did not need to expend effort and money on improving design owing to the ease they encountered in selling lesser properties to a housing hungry public. By the end of the First World War house building in Britain had reached a near halt. Housing was in crisis with Sir Raymond Unwin (Betham, 1934) noting that:

"The importance of design in determining ultimate value has been obscured since the war by the extreme shortage of dwellings. The scarcity has been such that everything resembling a house could be let or sold." (1934)

In response to this situation the government encouraged house building on a large scale and this led to the growth of the suburban developments of the late 1920s and 1930s noted by Pinney (2003) as being "*Little Palaces*" for the expanding middle classes. A number of different publications attempted to influence this social change, notably *The Studio* magazine, who offered a variety of model types of British housing to address the housing supply in their *1919 YearBook* (1919). The publication advocated the adaptation of the English Vernacular style of country cottages to new building methods and techniques.

Fig. 11: An example of the Typical English House as suggested by *The Studio Yearbook* of 1919

OLD HOUSE AT PENSHURST, KENT (PAGE 34)

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No mention was made of the work of avant garde architects or designers such as the Secessionists who had been gaining ground during the prewar era. Instead an altogether more reassuring style was advocated based upon a nostalgic Arts and Crafts style drawing upon English vernacular architecture. This consisted of pitched and hipped roofs, gable ends and stone built housing with leaded lights and fenestration based upon earlier models such as that seen in the Kentish example s*ee Fig. 11*.

Fig. 12: A house exhibiting similar aesthetic values as Fig 9. Again from the Studio yearbook (Holme, 1919)

right **Fig 13. An example of a bay window from** *The StudioYearbook* (Holme, 1919**). Here the use of leaded glass and a pitched and hipped roof can be clearly seen.**

A BAY-WINDOW (PAGE 48)

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Fig. 14: T Alwyn Lloyd's designs (Betham, 1934) can be seen from his contribution to the Wrexham Garden Village constructed prior to 1914. Externally, this is an archetypal "bay-fronted semi" its interior layout is equally typical of the inter-war housing estate model.

Architect : T. Alwyn Lloyd.

HOUSES AT WREXHAM GARDEN VILLAGE.
A few feet added to the front give better rooms,
in which the windows are on the longer side.

PLATE 8

FRONT ELEVATION
INCLUDING PROPOSED EXTENSION

FRONT ELEVATION

GROUND FLOOR PLAN

GROUND FLOOR PLAN

ORIGINAL DESIGN

AS ADAPTED & BUILT.
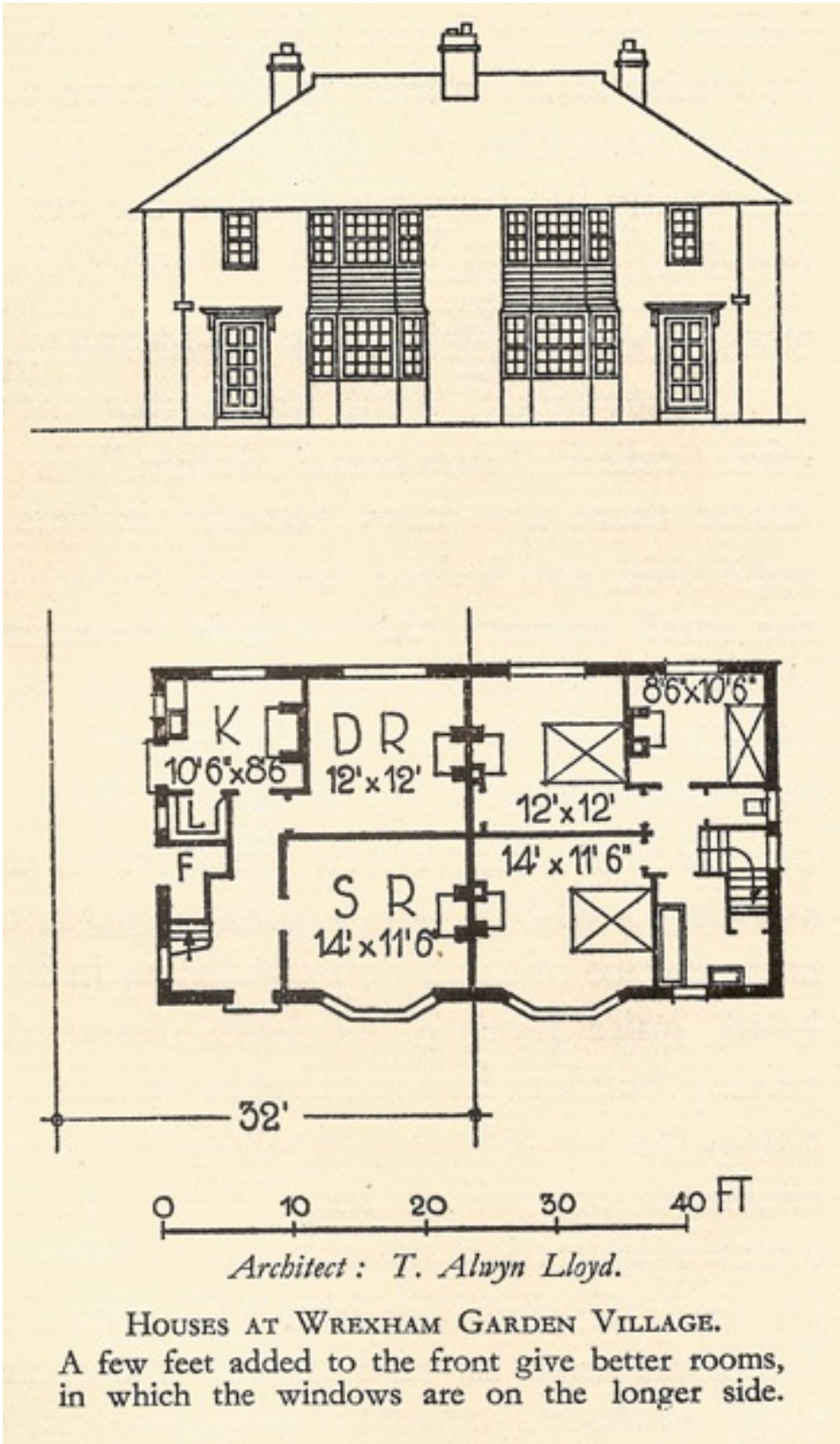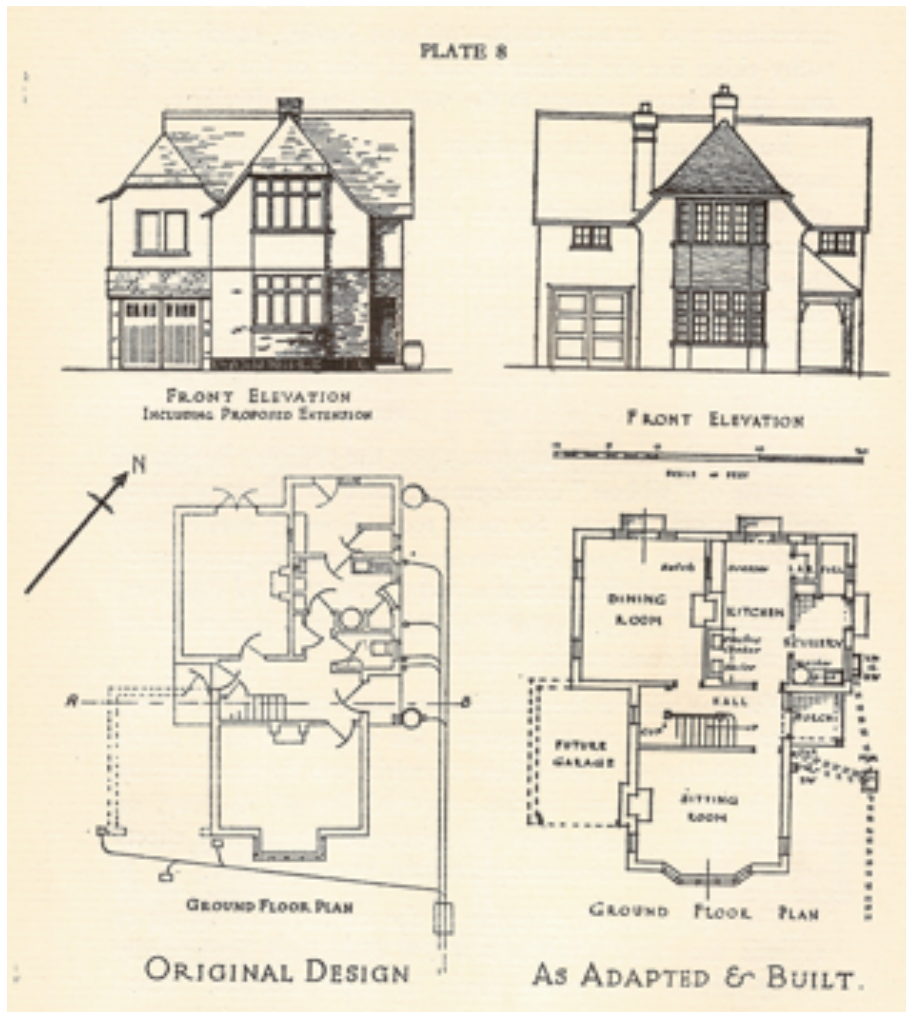
Fig. 15: (*top*) Gordon Allen Interwar designs for a detached bay fronted property exhibiting the typical gable ends, leaded window lights and front bay.

below left to right **Fig. 16:** A "modernist" version of the bay fronted semi with a single curved bay to the front elevation and steel framed windows with zig zag decorative leaded vent windows.

Fig. 17: A typical suburban estate plan positioning housing of slightly different styles at varying depths from the transport access to create visual interest.

HALL SITTING ROOM BEDROOM BATHROOM

Architect: Gordon Allen.

PLATE 3

Architect: Gordon Allen.

Typical Suburban Elevations.
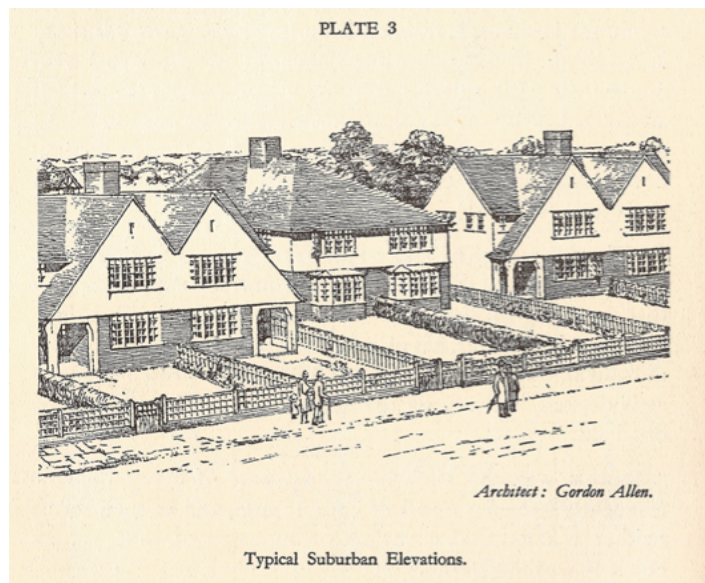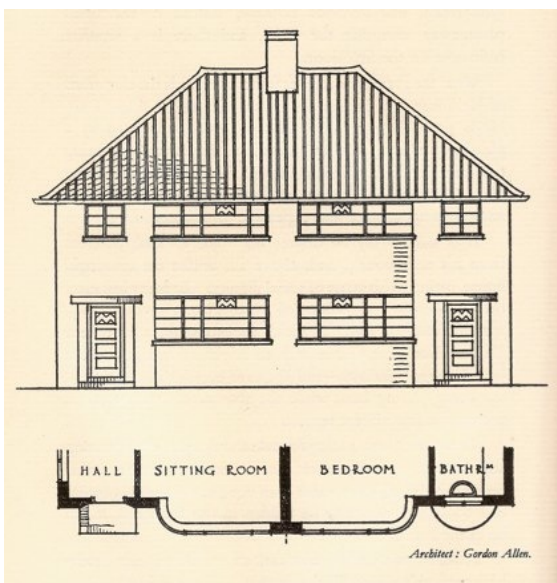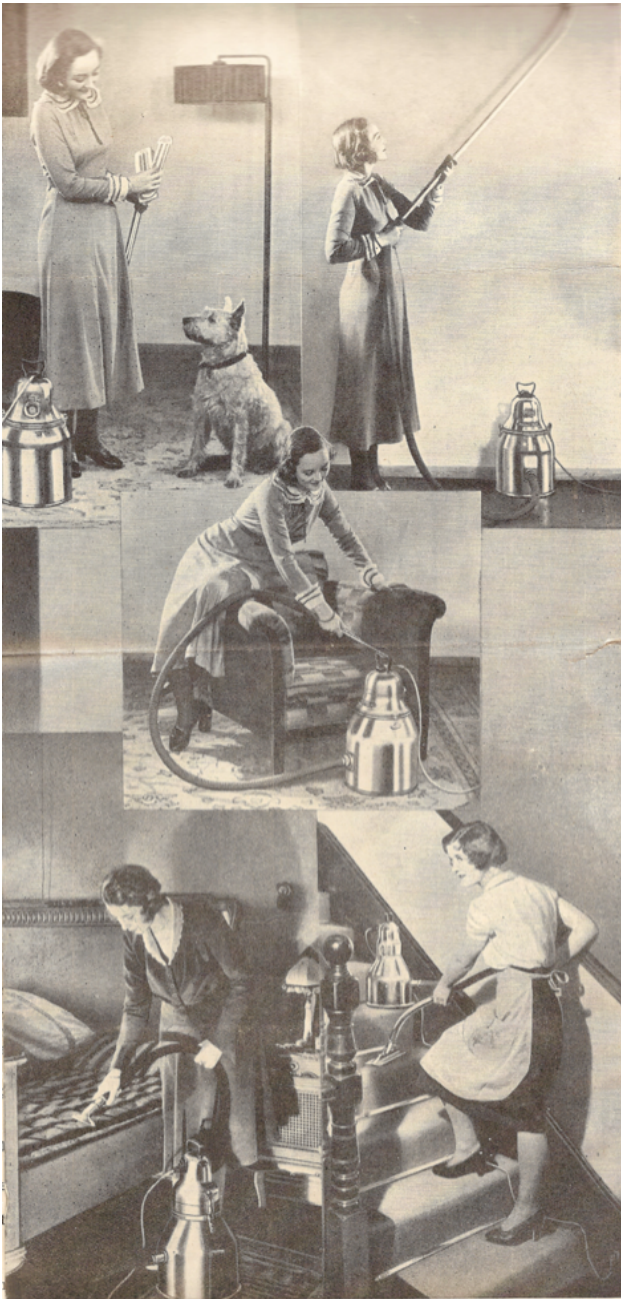
Fig. 18: Images of the 1930s interior from the Tellus vacuum cleaner advertising brochure; note the turned newell post and stair clips - a remnant of the Edwardian era. While these elements persisted, the overall appearance is of a minimal easy to clean interior with much reduced opportunities for dust to gather through the reduction of decorative mouldings. Meanwhile, fabrics and furnishings, such as the lamp standard, exhibit distinct *art deco* stylings; the lamp is electric, a necessity for a household that would be in the market for a "Tellus" vacuum cleaner!

Housing on the new suburban estates of the later 1920s and 30s took on a variety of different forms. The two basic types of home available were the detached and the semi-detached (Stevenson, 2010) *see Fig.14* as opposed to the terraced houses favoured by earlier property speculators. In an effort to provide both services and a hub of community life, there were usually a variety of shops, sometimes with flats built above and perhaps even a nearby park and some sort of civic building. Stylistically, a range of properties were

made available, with the most common being the bay-fronted semi that incorporated a decorative porch and a pitched roof. Normally, as with earlier Victorian era developments the front elevation would be built from a good quality brick sometimes employing the "Flemish Bond" technique of decorative brickwork. The majority of these properties were owner occupier and were vigorously promoted with that aspiration in mind.

above **Fig. 19: an aerial view of a typical inter-war housing development** (Esher, 1947b).

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fig. 21: Semi Detached housing c.1925-35 including stained glass depicting the Rising Sun Motif seen at the 1925 exhibition (Esher, 1947a)

In order for suburban developments of the type depicted in *Fig. 20 & 21* to be viable to the speculative developer, there must have been the demand for owner occupier housing. That is, there must have been a sizeable number of people not only wanting housing but being able to afford it. The pre-existence of that market is recognised by Unwin (1934) in his observation that almost any type of property could be sold easily. Demand for

housing was proved correct by the widespread success of the new housing developments during the interwar era, much of which remains extant in the Twenty-first Century.

One of the examples suggested by *Little Palaces* (Pinney, 2003) of the new developments was a house beginning at £575. Although this was not an enormous sum the mode average wage of this time was between £2 10s and £4 with 4,581,000 households earning this amount per week (Branson and Heinemann, 1973). With the average commercial mortgage repayment on a loan of £200 costing £1 0s 4d per month at 4.5% (Betham, 1934) this is within the realms of affordability for the prospective house buyer - this was based upon the owner having savings of £275 or familial assistance. Given that, according to The Home Market (1939) the average expenditure on rent in 1934 for working families in the North West of England was between 7s 6d and 11s 7d per week which translates as between £1 10s and £2 6s 4d per month and would constitute more than the mortgage repayment for the owner occupier, making purchase an attractive option.

Houses offered in this price band were popular and judging by the millions still extant they were also successful. So a larger group must have been able and willing to purchase housing. In fact, a far larger sociological group were now earning enough to afford a new property with 7,161,000 households earning between £2 10s and £10 per week by 1939; source: Branson and Heinemann (1973).
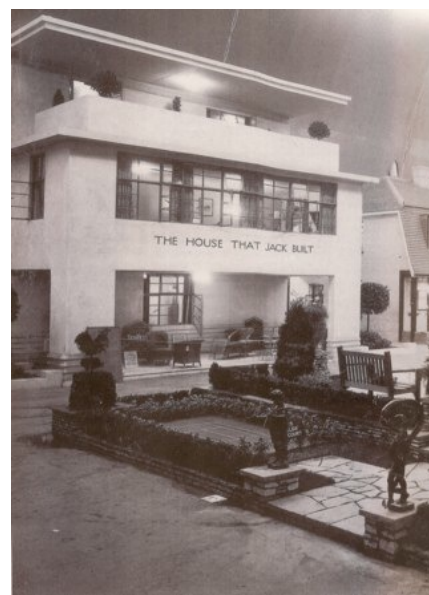

above **Left to Right Fig. 22: The House that Jill Built 1930 (Benton, 2006) & Fig. 23: The House That Jack Built 1931 (Benton, 2006)**

Fig. 24: Battersea Power Station Sir Giles Gilbert Scott 1929-33

During the period, the Daily Mail Ideal Home Exhibition exerted a well-recognised (Peto et al., 1999, Forty, 1975, Benton, 2006, Ryan, 1997) and major influence upon the public perception of aspirational decorative style. Organised by the Daily Mail Newspaper and run since 1908 and intended to promote new ideas for living; in 1929 the *Daily Mail* ran a competition to design a house. This resulted in *The House that Jill Built* of 1930 *Fig. 22* and was followed by a second project in the following year - *The House that Jack Built see Fig. 23*. As a result, two complete houses were constructed at Olympia for public scrutiny. Both of the houses were of flat roof type; the first being brick built with a stepped chimney stack and decorative recessed banded brickwork running horizontally around the first floor window level and employing metal frame windows *see Fig. 22 & 23*. *The House that Jill Built* is reminiscent of a number of Gilbert Scott's buildings of the 1920s particularly Bankside power station (now the Tate Modern) and Battersea Power Station *see Fig. 24*. As Benton (2006) points out the following year's married men's entry is surprisingly modernist with the brickwork concealed by white render and the addition of a roof terrace with long uninterrupted fenestration running almost all the way across the rear elevation on the first floor. It bears strong similarity to a number of designs published in an equally influential publication The Studio Year Book (1935a) at this time and in The Modern House (1944) originally published the year previously. Concurrently, a number of white cubistic modernist buildings had been built in Amersham, Buckinghamshire by Connell, Ward and Lucas, being High and Over, its gatehouse, the associated electricity generator building

and a small number of speculative housing on the slope leading up to the main house *see Fig.10*. Although these buildings where painted white, they were not stuccoed and the colour was applied directly to the smooth and wholly structural concrete material, which was a result of the houses being 'moulded' in a process similar to that of contemporary mass produced synthetic plastic goods.
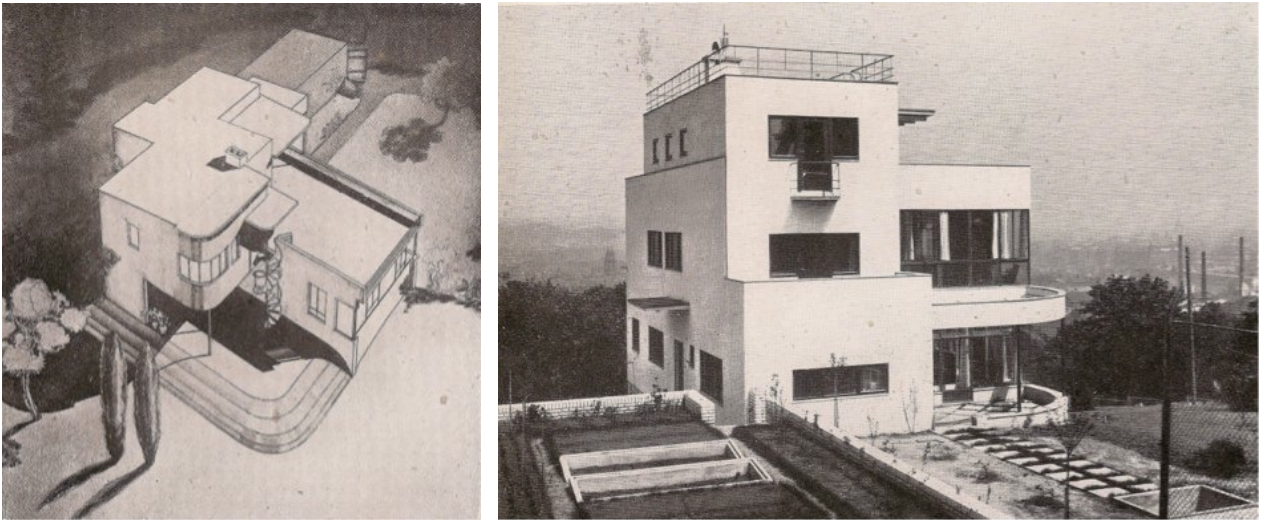
Left to Right Fig. 25: Howe and Lescaze 1932 USA (Yorke, 1944) & Fig. 26: Czechoslovakia J.K. Riha 1934 (Yorke, 1944)

 Property prices of the 1930s for many of the housing estates being constructed were generally around the £500 level indicating that this may have been an affordable price for the expanding middle class house buyer. This price can be seen in the example given by Pinney in Little Palaces (2003) where he cites new build property costing £575 by 1935 in the London area . Despite the geographical idiosyncrasies of the housing market, this can be seen as a good general indicator of the pricing of houses in new build suburban estates in Britain. Pricing at this level can be seen supported in various other locations including my own home, which was built in 1935 and constructed upon land in which the freehold stipulated that the property to be built should cost not less than £500. This is further supported by suggested pricing provided in House Building 1934-1935 (Betham, 1934) whereby a model of £450 per house was used to illustrate how the speculative builder could receive a profit of £45 per house based upon a purchaser securing an average mortgage of £335. In addition, Greg Stevenson (Stevenson, 2000) writes that "...in 1934 you could buy a three-bedroom flat-roofed semi in West Molesey, Surrey, for just £395". Housing of this type was being erected by speculative builders and he also notes that a year after these flat-roofed houses were offered the company was offering similar houses with the addition of pitched roofs. Stevenson acknowledges that this would appear to suggest that the public were not ready for the flat roof at this time. While this suggests that the public were not ready to buy the more extreme flat-roofed type of dwelling, it does

indicate that they were buying houses which had many other modernist ideas albeit surmounted by a pitched roof.

How the demand for housing came to increase is a key factor in understanding the expansion of housing stock in Britain during the period. Without that expansion it is unlikely that the variety of designs for domestic properties would have been possible. For the nature of that market to be understood in greater detail then one must understand the social and economic conditions which facilitated its existence.

Expansion of Housing Stock

Where would the new wireless find itself sitting?

In the following chapter the various conditions which influenced the style and variety of the domicile and its contents will be considered. Although domestic housing stock increased in number this does not in itself indicate any particular aspirations beyond the need to possess a home. To greater understand the contents of the interior, consideration will be given to how the public's expectations were shaped as well as their financial ability to consume.

Following the First World War the house building expanded partly due to demand and partly due to Government encouragement. Demand for housing was fed by the availability of mortgages from banks and building societies who, during the interwar period, made these financial products more widely accessible. Although this was good for speculative builders and the Banks themselves, this did not have a direct effect on the *demand* for housing or upon the demand for wireless but it did mean that the private housing market increased.

What the house should or might look like was shaped by a number of factors; these being: rising wage levels, new home ownership leading to demand for interior furnishings, changing fashions in interior design and mechanisms for creating those changes and the availability of credit. As is suggested by general ideas proposed by the Studio Yearbook of 1919 (Holme, 1919), housing styles immediately succeeding the 1914-18 war were similar to those prior to it with the influence of the Arts and Crafts movement in clear view.

During the 1920s the housing market continued to improve and this is noted in *House Building* (Betham, 1934) and in *Britain in the 1930s* (Branson and Heinemann, 1973). While externally not all of those houses were in the modernist style (Betham, 1934, Forty, 1975) the suggested interiors were produced in a contemporary style including technologies such as interior plumbing with tiled spaces dedicated to bathing, cooking and ablutions (Benton, 2006, Tinniswood, 2002). Their interior styling was fashionable with the inclusion of stepped Bakelite door handles, chromium details and elements typical of the Art Deco style (Hillier, 1968). Many of these interiors owed more to the stylistic aspirations of the continental avant garde as seen at the 1925 exposition than to the Arts and Crafts

references of their bay fronted exteriors. Interior details such as these suggest that what the homeowner post-1925 Exhibition found aesthetically agreeable was subject to a shift in terms of decorative form. This revision of consumer expectations can be seen as a contributory factor in the associated change in what would be acceptable for the appearance of new consumer durables such as the wireless.

Income and Credit

According to Branson and Heinemann (1973) unemployment fell between 1930 and 1939 meaning that more people had an earned income. Their statistics were obtained from the 1939 publication *The Home Market* (Harrison et al., 1939) which presented the general state of the nation and its ability to consume. What the statistics indicated was that the stock market crash of the late 1920s had not impacted upon the majority of the people and the continuing ability to consume property is acknowledged by Betham in *House Building 1934-36* (1934) .This would not in itself mean that more money would be available for radios or home ownership but the potential for this increased during this period. According to their research, the average income in Britain was devisable into four basic bands; Band A Over £10 per week, Band B Between £4 and £10 and bands C1 £2.10 per week and C2 under £2.10. Of these groups, the largest was band C1, which indicates that the lower middle class and skilled labourers were a considerable portion of the populace. In terms of ability to consume, there are two significant indicators of the fiscal state of the population

1. The distribution of material wealth

0.3% of the population (aged 25 and over) possessed 42% of all wealth in the country. (£93,000 each)

99.7% of the population (aged 25 and over) possessed 58% of all wealth in the country. (£375 each)

2. Income

0.4% of persons having incomes received 10.4% of the national income (an average of £5,250 *per annum* each)

99.6% of persons having incomes received 89.6% of the national income (an average of £180 *per annum* each) source: *The Distribution of Wealth* G. W. Daniels and H. Campion 1938

Although the fall in unemployment statistics does not necessarily mean that those people then became able to afford housing and new consumer goods, it does suggest that the

overall economic situation was improving. Generally, the mood of popular publications such as *Nash's*, *The Studio*, *The Radio Times*, *Pathescope Monthly* and *Popular Wireless* was upbeat and the regular product placement and inclusion of advertising for enduring products such as Cadbury chocolate, wirelesses and department stores, indicates that in terms of consumption that improvement translated into an ability to consume mid-priced goods.

Buying "new" goods

To assess the success of modern ideas upon the lifestyles of the populace, in the absence of a daily thoughts diary for every member of the public of the time, the most suitable and rational method is through monitoring consumption statistics relating to the take up of modernist objects. It is suitable as, although the Mass Observation offers some insight into the thoughts and feelings of the populace on a range of subjects, it can only offer a cross section. Meanwhile, the study of the styling of goods across a market or markets identifies what a wider range of consumers expected their possessions to be. However, there were a great many products both luxury and essential on the market which could make a claim on the household economy of the inter war public.

Despite the improvements in general employment levels through the 1930s, household economies were still under significant strain owing to the wider economic troubles following the depression of the 1920s and subsequent socio economic disadvantages. A luxury consumer durable such as a specifically *modernist* wireless would have to be not only affordable but sufficiently desirable for the interwar consumer to expend a significant portion of their income on such a product. To place further strain upon the potential market for the wireless and regardless of the prevailing financial circumstances, a new class of electric luxury consumer durable was being made available to the householder during this period. These conditions make consumption of that class of product especially relevant as it was a purchase based upon desire rather than need - the electric goods provided either leisure activities or else services already provided by existing technology e.g. coal fires and flat irons. Economic circumstances of the period highlight the desirability of a product as many consumers must have presumably done without other goods so that an expensive purchase could be made. Conversely, it may also indicate that the statistics gathered by *The Home Market* (Harrison et al., 1939) were not as representative of the state of the British economy during the period as the authors would claim.

This new class of product was an electrical domestic technology previously unavailable to the contemporary home which became more widely available during the interwar period owing to the expansion of the national grid providing a larger number of homes with the means to power such gadgets. Although similar products powered by alternative means, in particular gas, were available, it was electricity which proved the most successful for the majority of applications outside of the kitchen. There are various reasons for this, the main being that the principle alternative contender, gas technology, had a serious disadvantage being not only flammable but explosive in confined spaces. It proved a negative factor to the consumer who's average domicile was a relatively confined space as is noted by Cowan (2010) in her treatment of the success of the electric refrigerator over its gas rival. As wireless was not a gas powered technology and was marketed within an entirely electrical market place - the only rivalries were according to non-standardised power supplies[4] which gradually became a single system as the national grid was established, it is the effect of electrical technologies related to wireless that forms the basis of this study. The reason for the success of the refrigerator is only of nominal interest as its success was principally due to the availability of mains electricity in many homes. Take up on refrigerators in the United Kingdom was slow until the end of the post war austerity period and so Cowan's study is of limited interest except as a potential model of adoption. This technology included a variety of devices that are considered commonplace in the home of the 21st Century – washing machines, refrigerators, vacuum cleaners, gramophones and radios.

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[4] Differing electrical supplies such as alternating current, which was the system offered by the national grid, versus direct current offered and used by the tram companies was initially addressed by separate DC or AC models and then by universal mains sets, there was also the use of 120 volt power for overhead lighting in some areas meaning that various tappings on the transformer were offered allowing the radios to be run at 110-150 or 220-250 volts or else the use of equipment directly powered by battery which obviated the need for any mains electricity, the reason for the success of mains electric power is an interesting field although it is not the focus of this study.
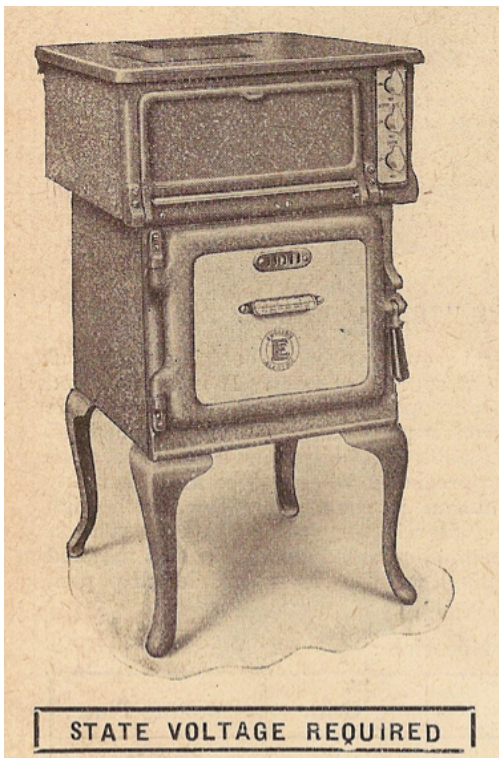
Fig. 27: Electric Oven and hotplate supplied by Hobday Bros (1933) The styling of the product is little different to that of earlier gas appliances and so offers only the prospect of electricity as its power source to recommend it to the customer.

STATE VOLTAGE REQUIRED

Study of the consumption of these goods during the 1920s and 30s has been undertaken by Bowden and Offer (1996) and in America by Cowan (2010), although Cowan focuses upon the refrigerator rather than "white goods" more generally and is addressing economic determinism as a key factor in the establishment of the *electric* refrigerator as the dominant technology within the market place where a gas model could also have been successful.

Bowden and Offer's findings assert that penetration by Radio Receivers into the market does not begin until 1923 – at this time there were actually more manufacturers of radio equipment (Hill, 1996) than in 1935 when the market according to their statistics had considerably increased. While in itself this information does not imply that there was a correspondingly large market for radios between 1923 and 1935 and the contraction of the industry during this interval might suggest that there was not; what it does illustrate is that there was widespread entrepreneurial interest in the field of communication technology. Such behaviour suggests the existence of a potential market and so it would be more appropriate to acknowledge that the determining factors during this early period were economic rather than based upon the gender classification of the goods themselves. The contraction in the number of manufacturers was the result of the success of the larger companies principally through their marketing strategies during the expansion of take up, rather than a decline in interest, as more radios were required in 1935 than in 1923 as can be seen reflected by the number of wireless licenses held and the cash influx for a company such as Murphy.

The statistics employed by Bowden and Offer (1996) refer to the take up of appliances once 1% penetration of households has been reached. This would imply that a good does not have importance until it has achieved social popularity through public awareness and their financial ability to consume that product. Thus, according to the rationale of Bowden

and Offer's article, radio was of no interest pre 1922 and television had no significant importance until 1949 despite the success of Baird[5] in the late 1920s and of EMI from 1935. Due to a philosophy that is centred on the masses an important historical period and its achievements has been ignored.

Having set a statistical level to indicate importance, the approach of Bowden and Offer would have significant ramifications for the study of modernist development in general, it definitely adversely affects the study of early Twentieth Century avant garde design as it is inherently a minority form, having often a limited network of distribution. In part, this is owing to the means of production of these designed goods being a labour intensive process despite the aspirations of many early Modernists toward mass or serial production techniques. It is especially true of that element which appeals to a restricted market – often due to material costs, the retail costs or due to the availability of goods themselves.

Conclusion

Although prior to the date range of this investigation, the success of radio companies pre 1922 is of relevance to this study. As, although not of central importance, their performance will offer a means of gauging the success of the companies prior to design and packaging for widespread domestic consumption and also insight into the influence upon designers approaching the form that the radio housing should take. As such this is not a central strand of the project and so does not form a significant portion of the study. What is of importance is what stylistic currents were influencing the appearance both of what people expected their homes to look like internally and externally and how those expectations would impact upon the acceptability of new technology for the home. These stylistic currents are considered in the following chapter.

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[5] For a study of early television see BURNS, R. W. 1976. The history of British television with special reference to John Logie Baird. [electronic resource] [Online]. University of Leicester.

Chapter 2

Core Design Idioms

To better appreciate how the British Public expected to live during the period it is crucial to identify the differing prevailing styles of the age and to examine how those styles where tailored by manufacturers to the expectations of the contemporary consumer. Without this understanding it is not possible to fully appreciate the stylistic nature of the wireless as its styling was a product of this cultural environment. To assess these aesthetic presumptions, it is appropriate to investigate the contemporary understanding of the condition of being modern and this is most effectively achieved through investigation of The Art Deco of the 1925 exhibition and its sub-genres Odeon Style, Streamline Moderne and modernism.

Art Deco - The Last "Total Work of Art"

Key to the general understanding of the term *Art Deco* as elaborated by a number of writers in the late 1960s and early 1970s (Menten, 1972, Brunhammer, 1969)(Hillier, 1968, 1971) is its multifaceted and yet loosely cohesive nature. The term was introduced in the 1960s reputedly by Bevis Hillier (1968), although he acknowledges that it was already in use amongst those interested in the field. It was not a generic title in use during the period and words such as "modern style" were used in its place (Patmore, 1933, Betham, 1934) to identify the style.

Attempting to successfully define Art Deco is problematic for the simple reason of its diversity; according to Adrian Tinniswood (Macleod, 2009) analysis of its codes into a coherent philosophy is "like trying to nail a manifesto to a bubble...". This fragility of meaning is largely due to Art Deco being different to modernism in that it was not concerned with a particular philosophy of form and purpose but instead rejoiced in effect for decorative and marketing purposes. That is not to deny the artisans and designers integrity; expensive, exclusive and expansive products were produced, using highly skilled craftspeople, for the wealthy elite, while the masses were provided with quality goods at a price at which the popular pocket could afford. An important factor in the spread of the style was the adoption of the idiom by commercial as well as domestic designers meaning that the Art Deco is preserved in a wide range of artefacts from domestic ceramics, lamps, clocks and radios to office equipment and stationary.

Stylistically, Art Deco is typified by a stylised simplification of line in its visual form. This said, the exceptions to this rule are manifold. It is a conglomerate of different aesthetic preoccupations varying from the influence of Ancient Egyptian art following a number of discoveries relating to the tombs of the pharaohs in the late Nineteenth and early Twentieth centuries and subsequent public interest in the unfolding events of the opening of Tutankhamen's Tomb in the 1920s through the coverage by the popular press[6]. Such popularism was a typical element of the form and this was expressed in a variety of ways such as the inclusion of popular activities in particular motoring, aircraft, tourism, health and sports. All of these and other topical preoccupations invested themselves in a range of different ways, varying from straightforward depictions i.e. aircraft or automobiles to stylistic manifestations such as streamlining, a form borrowed from the aeronautical and automotive industries.

left **Fig. 28: Claudette Colbert in the title role of Cecil B. De Mille's *Cleopatra* 1934**

right **Fig. 29: Ekco RS3 1931 reflecting the popularity of the Egyptian style.**

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[6] for an example of the coverage by the popular press see 1923. Tutankhamen's tomb: Carter's 'lucky strike' [Online]. Manchester: The Manchester guardian. Available: http://www.guardian.co.uk/theguardian/2010/jun/06/archive-tutankhamen-tomb-discovered-carter [Accessed 10.04.12 2012].

In common with Modernism were the concepts of decorative reduction and the celebration of technology which is also to be observed in the adoption of streamlining as a stylistic device. In the domestic environment the reduction of decoration was a response to the expansion of homes without regular domestic staff. Much housing stock constructed during the period was produced in such a way as to obviate the need for excessive cleaning with the removal of decorative architraves and re-entrant designs for skirting, picture rails and dado friezes often seen in Nineteenth Century housing *see Fig. 30*.

Fig. 30: Victorian apartment in Kensington Gardens displaying many of the stylistic elements typical of the Nineteenth century, carved architraves, decorative ornaments and backward looking historically inspired ornamented furnishing; prior to redecoration in the 1930s.

Fig. 31: The Minimalist Art Deco style incorporating an electric heater and built-in clock. Designer Rodney Thomas for Mr Ashley Havinden (Patmore, 1933)

Fig. 32: Interior from the 1925 exhibition while ornaments are still present *ornamentation* has been much reduced or else eliminated (Dufrene, 1989).

The historic time line of Art Deco, according to Horsham (1989), Hillier (1968), Tinniswood (2002) and Haslam (1987), begins at the end of the First World War and has it's terminus somewhere in the 1950s. Where the style concludes is complex as some references are

made to items which sit outside of this frame of reference, particularly Clarice Cliff's Crocus pattern, which according to Griffin (Griffin et al., 1988) was still in production until 1963. Despite this blurring of the edges, the crocus design dates to the late 1920s and illustrates the persistence of its manufacture rather than its currency. All are agreed that the style is best illustrated by those products included in the Paris 1925 Exhibition, although there is equal willingness to recognise that there was a shift in the stylistic qualities of the genre throughout its period of influence. Those changes are explained in a variety of ways but the most notable is the transition from angular to more rounded geometric forms.

Despite this apparent shift there were examples of this annular form at the 1925 Exhibition suggesting that this was a shift in consumer preferences rather than one of a "new" development in the ideas of designers. The most likely reason beyond the public taste for this stylistic shift was the change in manufacturing techniques in particular the use of bent plywood and plastic mouldings which for reasons of practicality suited rounded forms over angular ones.

Hillier, in *The Style of the Century* (1998) asserts that the Art Deco style was "the last total work of art". An audacious claim which makes reference to an expression drawn from the German word "Gesamtkunstwerk" (Fahr-Becker and Taschen, 2003, Sharp, 1993) meaning an all-encompassing decorative style applied across all the interior and exterior spatial elements of a design project. Gesamtkunstwerk is a phrase most commonly associated with the Austrian applied arts group known as the "Wiener Werkstatte", who were in many respects a proto art deco branch of the Art Nouveau movement in the low countries, having enormous influence upon Prague and upon Belgian, German and Dutch design. Aesthetically, their most prominent source was from Rennie Mackintosh and the Glasgow School of the late Nineteenth and Early Twentieth Century which they encountered through the Secessionist Exhibitions (Fahr-Becker and Taschen, 2003). Programs of gesamtkunstwerk were not unique to the twentieth Century; the concept of a "total work" of decorative design can be seen in the partnership of Robert Adam and Thomas Chippendale in England during the 18th Century. When applied to the Wiener Werkstatte it is normally used in the sense that they adopted an approach that demanded commonality in the design of all things, from the Architectural form and detailing of interior fixtures to the furnishings of that building, including the most prosaic of objects. In British Arts and Crafts design it was not only in the work of Macintosh where the

gesamtkunstwerk could be seen and the designer C. F. A. Voysey is cited (Powers, 2001) as having considered the design of a pepper pot to be as important as that of the room in which it sat. Such an understanding, it is suggested by Powers (2001 Pg. 17), may have influenced Serge Chermayeff in his willingness to design for the interior and provided a very direct connection to the functionalist ideology of the British Arts and Crafts movement. Through this type of contact with the Arts and Crafts, the British Modern Movement is furnished with an aesthetic unity of purpose which is expressed partially through a consistency of decorative form.

Gesamtkunstwerk's totality of aesthetically unified design is highlighted by Ulf Meyer (2001) when describing the Bauhaus philosophy as using "architecture,...... the ideal discipline for illustrating the idea of the gesamtkunstwerk three dimensionally". This illustration manifested itself in the experimental projects including the buildings of the school itself at Dessau. Meyer's interpretation recognises the historical connection between the Bauhaus school and the Wiener Werkstatte established by Pevsner in the late 1930s. More recently, Bauhaus and modernism have been divorced from the more general Art Deco styles of the contemporary period most notably at the V&A exhibitions of 2003 and 2006 whereby the Bauhaus school was not represented in the Art Deco Exhibition at all and vice versa for reasons of philosophical difference and so subsequently modernism has been addressed in a separate section, although many of the pre occupations of the modernists influenced and were influenced by contemporary aesthetic ideals.

In the case of "Art Deco" the claim that it is an aesthetically integrated style is a spurious one, as despite this being true in many instances, the idea of Art Deco as a unified movement is one almost entirely constructed by historians after the event. That is not to ignore those projects that *were* "total works" in that they conformed to a constructed identity, such as the Odeon cinemas of the period or Broadcasting House. In these cases, the designs were constructed in much the same way as the Eighteenth Century collaborations except that the projects were undertaken by commissioned architectural practises which were operating with the overall identity already in mind. Art Deco as a total work is dubious as it was a style that could be adopted piecemeal. A consumer could purchase a bottle of perfume in the modern style without redecorating their bedroom, although Murphy Radio suggested that one should undertake just such a task in the living room to accommodate the styling of their 1933 model A24 (Murphy, 1934).

Regardless of this caveat, the style was frequently adopted as a total decorative scheme as can be seen in the suggested interiors of the Studio magazine and Design Today. While the purchase of a single item may not result in redecoration, the act of acquisition both reinforced the ubiquity of the decorative style and propagated the stylistic idiom in interiors which otherwise did not pursue the vogue.

clockwise from left **Fig.33, Fig. 34 & Fig. 35 (1939). A range of products in the modern style could be purchased from knitted face clothes for cleanliness to sun tan lotions. In** *Fig. 35* **it can be seen that while the new dawn imagery of the sun tan products are reminiscent of the 1925 Exhibition the other products, which were equally available, still adhered to the design values of the late Nineteenth century.**
Picture source: **Butler and Crispe Catalogue (Authors collection)**

Following the 1925 Exhibition a movement developed which had a number of clearly identifiable exponents, not least the architectural practice of Harry Weedon who were closely associated with Oscar Deutsch's Odeon Cinema chain. Certain conventions of decorative form developed within aspects of popular culture after the 1925 Paris Exhibition. These decorative conventions are distinct from other stylistic forms. What these distinctions are is difficult to identify. In some respects there is no definitive form that is *Art Deco* owing to the fragility of meaning as expressed by Tinniswood (Macleod, 2009). Most historians are agreed that Art Deco was "characterised as an attempt to unite arts with industry, embracing the machine age and repudiating the old antitheses of "fine" and "industrial" art." (Menten, 1972) What is also recognised is that the style drew upon a range of influences from the Cubism of Picasso and Braque to Mayan and Egyptian art, this is acknowledged by a wide range of writers on the subject (Minneapolis Institute of and Hillier, 1971, Menten, 1972, Tinniswood, 2002, Robinson and Ormiston, 2008) which illustrates the enduring nature of this general observation.

Despite the diversity of influence and the equal diversity of form there remains an Art Deco pattern that is unified by an apparently elusive trait. This trait was probably best elucidated by Menten (1972) as being an underlying geometry to all of the forms. Both decorated and undecorated goods exhibit this quality and it extends into non-figurative and figurative decoration, from Puiforcat's gold and silver table wares to the floral embellishments on anonymous furnishings of the era.
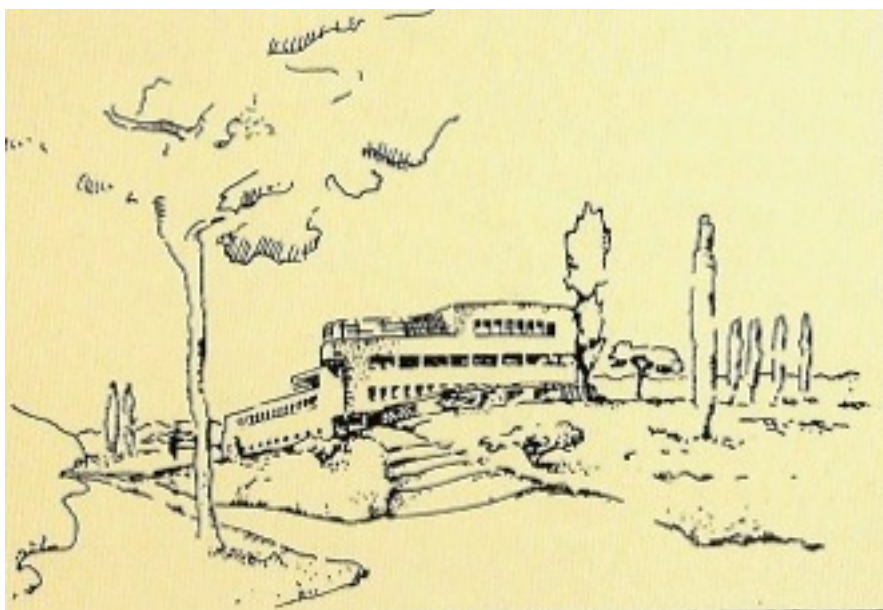

Fig. 36: Bruno Taut Ocean Liner sketch satirising the moderne vision of the home.

Meanwhile, in common usage, particularly in relation to the antique collectors market, descriptions of the style become not so much fragmented, like the cubist image but unfurled like the flags of an ocean liner. Hillier (1968) observed a similar titular miscellany in descriptions of the Art Nouveau and sited the use of the term Jazz Modern as an alternative term for the Art Deco. Since the publication of Hillier's Design Handbook (1968) the phrase *Art Deco* has become the accepted form yet it has still experienced an unfolding of its parameters. This branching of the genre into subgroups has created sometimes esoteric differentiations in the version of art deco being described; these being variously referred to as Odeon Style, Art Deco Moderne, machine age style or streamline moderne. Despite the esoteric promise of some of these apparent subcategories, these are often interchangeable or are referenced in a variety of combinations e.g. Odeon streamline moderne style.

The 1925 Exposition

Fig. 37: Postcard from the 1925 Exposition Paris. *Picture source*: **(Benton et al., 2003)**

Stylistically, the design aspirations of the period were well represented by the *Exposition Internationale des Arts Décoratifs et Industriels Modernes* of 1925. This is illustrated by

the way in which a number of designers from Britain who visited the event incorporated its ideas into their designs. Examples of this can be seen in the work of product designers such as Eric Woodful (Katz, 1984), who designed a number of early plastic boxes mimicking the friezes of the buildings which housed the exhibition, the ceramicist, Clarice Cliff, who visited Paris (Griffin et al., 1988, Cunningham, 1999) after the event and, reputedly, the designer of the Pye radio "Rising Sun" (Geddes and Bussey, 1991) which was sketched while at the event.

These examples illustrate the general design influence of the Exhibition, but where was wireless at this key exhibition? Most histories when referencing the 1925 Exhibition have focused upon the treatment of more traditional products such as the glass designs by Lalique and Sabino or the exhibitors approaches to those pre-existing furnishings such as desks, tables, chairs, beds and lighting products (Hillier, 1968, Haslam, 1987, Menten, 1972, Lemme et al., 1986, Benton et al., 2003, Klein et al., 1986, Tinniswood, 2002, Sparke, 1986). At the Paris Exposition of 1925 a number of designs for interiors were exhibited most of which, like the later modernist houses of the 20s and 30s contained electrical goods, primarily lighting.

The Moderne

 An essentially French stylistic concept The Moderne is an aesthetic associated and incorporated into Bevis Hillier's definition of "Art Deco" (1968). Hillier does not use the term Moderne itself, referring instead to "Jazz Modern" as a possible phrase to describe the Art Deco style (Pg. 11; Hillier, 1968) . Although some of those designers associated with this style such as Corbusier are typically defined as Modernists*,* the general focus of The Moderne tendency in design was towards luxury goods utilising precious materials and aiming products at a wealthy clientele. *The Moderne* and *Modernism* differ in that the Moderne does not uniformly reject ornament but instead favours simplified designs sometimes based upon organic forms. These forms exhibit the influence of cubism in that they become more rectilinear or else simplified and based upon geometric models. Moderne design is differentiated in this way from the Art Nouveau in that its organic forms typically do not employ the "whiplash" curvilinear forms favoured by the Art Nouveau as described by Haslam (1988). In line with other typical Art Deco traits the group of designers associated with the Moderne exhibited a broad range of influences. These

influences are only unified by a tendency toward geometric forms e.g. flowers are simplified to varying degrees based upon their underlying geometry, elliptical leaves and circular centres replace more chaotic organic structures.
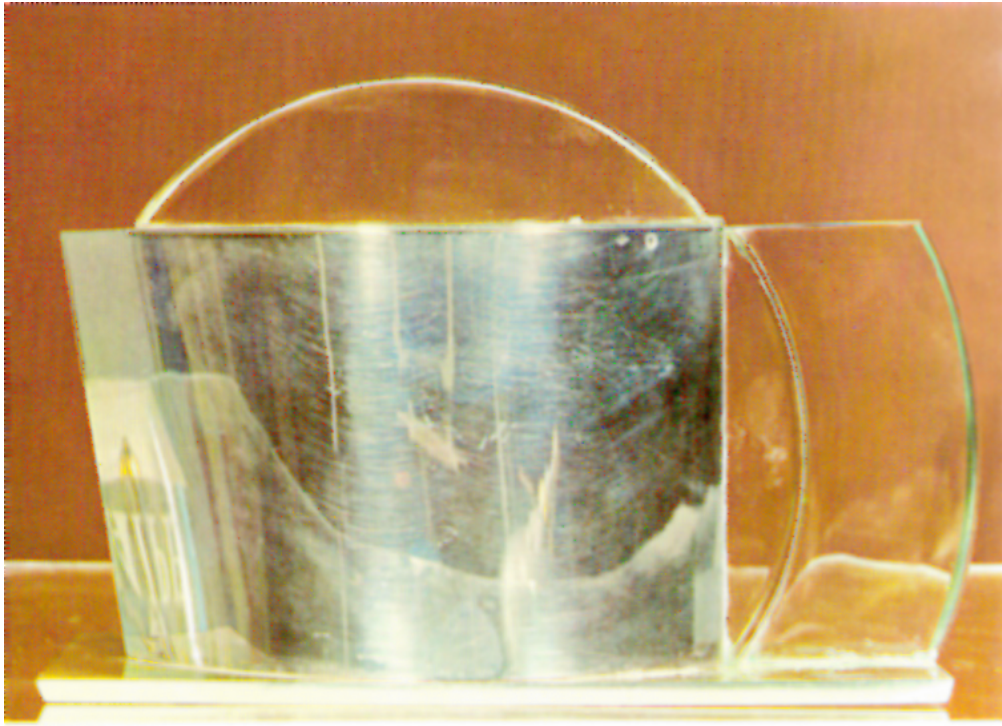

Fig. 38.
Puiforcat teapot of carved rock crystal and silver. Despite exhibiting stylistic similarities to the modernist works of the Bauhaus schools and the De Stijl the pure geometric forms are compromised by use of labour intensive production techniques and expensive materials, without consideration or interest in the production of the prototype for serial production as seen at the Bauhaus school and in Joseph Albers teacup *Fig. 39* **designed to utilise heat resistant glass.**

below Fig 39: Joseph Albers Teacup 1925. Glass ebony and electroplated metal *Picture source***:** (Brunhammer, 1969)
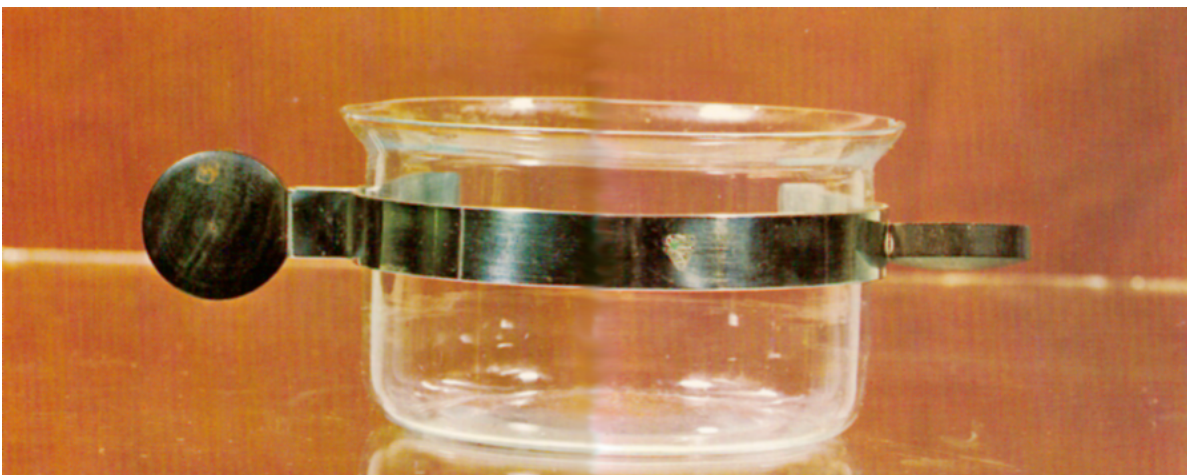
Fig. 40: Djo Bourgeois Design for a seat with built-in radio and gramophone facilities.
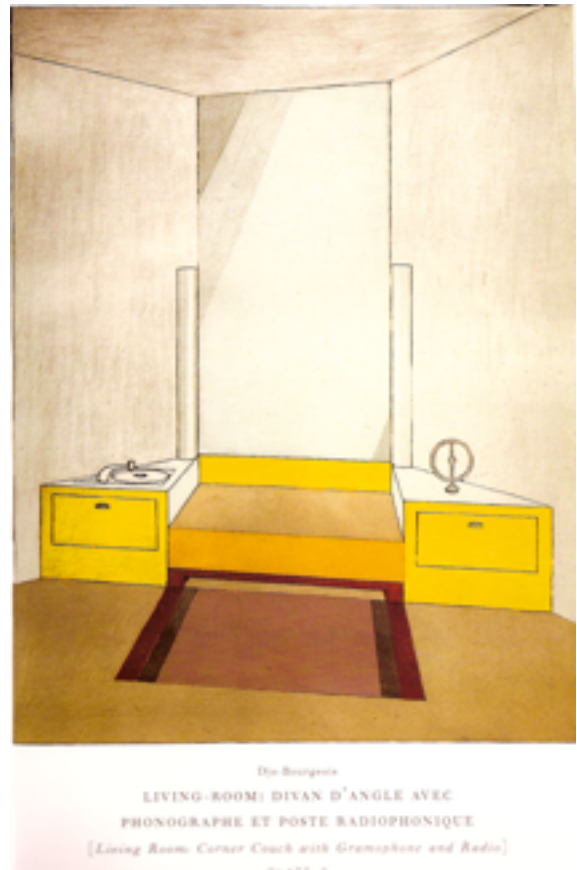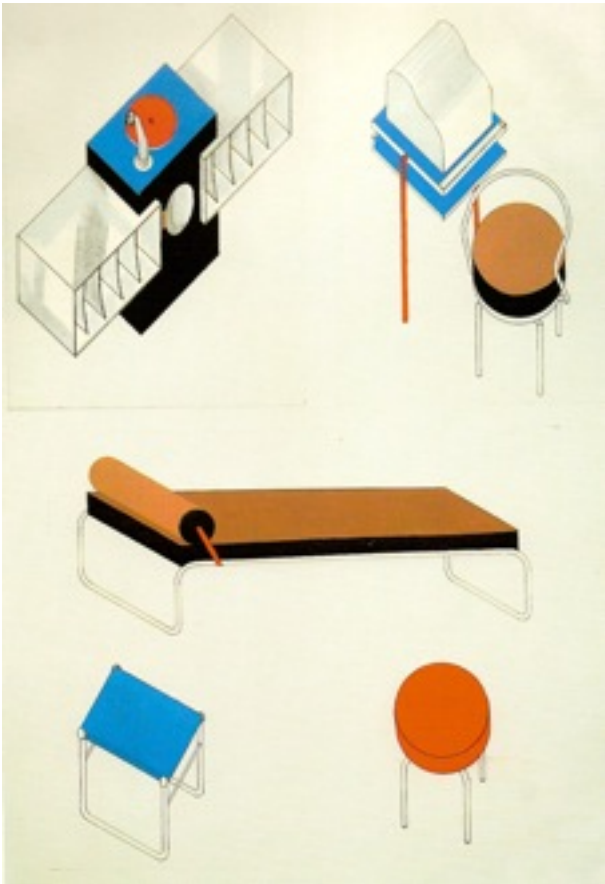
Fig. 41: Charlotte Perriand Designs for furnishing including a gramophone with record storage.

Typically, the Moderne is used to imply abstract geometric forms and the use of asymmetric curved rectilinearity largely for stylistic effect. It is this version of "Moderne" which Adrian Tinniswood employs in the chapter of The Art Deco House (2002) titled "The Moderne Movement" whereby a decorative style is developed based upon the modernist ideal but employing opulent luxurious materials. This approach to modernism is a little over simplified and is based upon the misconception that modernist design is uncomfortable and impoverished in its asceticism. Simultaneously, it identifies the essence of the moderne; it is a decorative style rather than an overarching philosophy of substance. As far as the examples he cites are concerned, Tinniswood largely draws upon later designs of the 1930s whereas Schleuning (2008) in "Moderne: Fashioning the French Interior" identifies a range of interiors produced by French ateliers who had exhibited at the 1925 exhibition. She employs examples of their work largely produced during the late 1920s which display an angular geometry of form and, it must be said, a concentration upon opulence. This appears to illustrate the
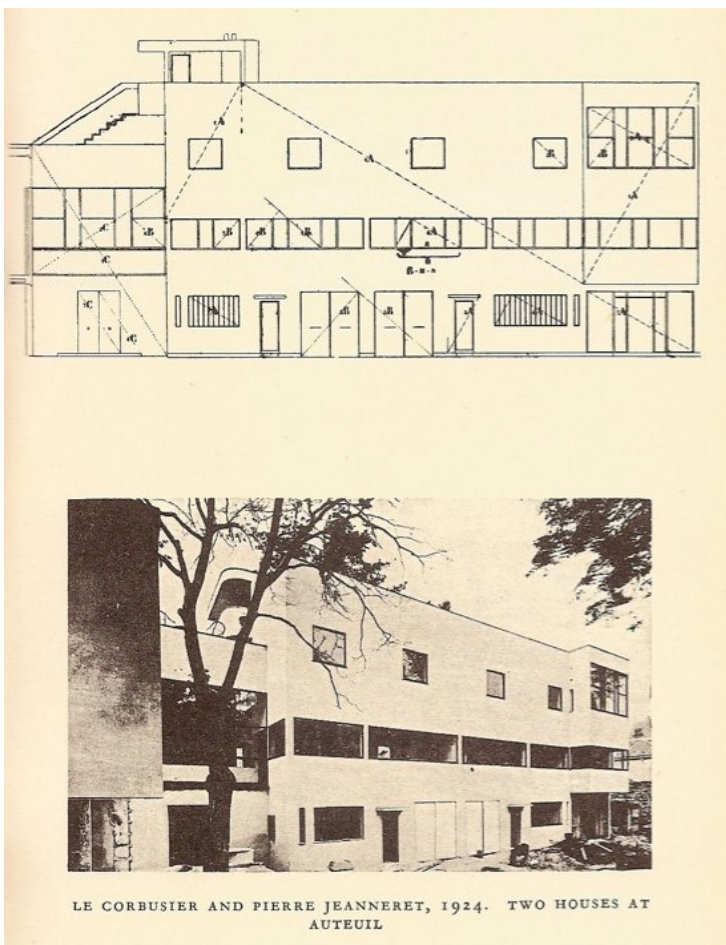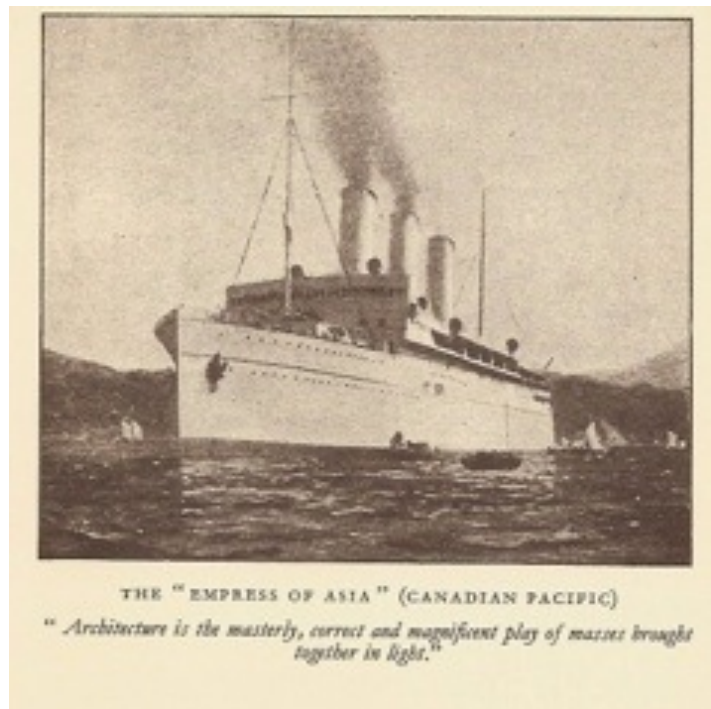
general point that the moderne is not a popularist style but unlike Tinniswood's version of the moderne,utilitarianism is recognised through the inclusion of work by Perriand and Djo Bourgeois. Simultaneously, one can infer from the scale of a single room that the residence would be of grand proportions and in itself this can be taken to imply wealth. However, while a number of the interiors are of a grand scale there are also a range of sizes of interior depicted and in itself scale of a single domestic area cannot be taken to imply a large residence. Corbusier was noted by Brunhammer (Pg. 50 1969) for his adoption of cubist "discoveries" in the organisation of internal space within his architectural projects. It should also be borne in mind that architects such as Corbusier, Van der Rohe and Wells Coates frequently organised the spatial elements of their projects to optimise the amount of space devoted to individual areas which were often multifunctional. Through this spatial manipulation, a modest exterior could house a spacious interior and therefore democratise access to the new styles of living.

g.   **Fig. 42 Robert Mallet-Stevens**

Fig. 43: Corbusier's exemplar of suitable and inspirational design. This image of the ocean liner was used in reverse for the illustration by Bruno Taut *see Fig. 36*.

THE "EMPRESS OF ASIA" (CANADIAN PACIFIC)
" *Architecture is the masterly, correct and magnificent play of masses brought together in light.*"

Fig. 44: Le Corbusier and Pierre Jeanneret. Here the modernist approach to the semi-detached property is seen exhibiting various interesting traits including extended fenestration and asymmetry.

LE CORBUSIER AND PIERRE JEANNERET, 1924. TWO HOUSES AT AUTEUIL

Corbusier both exhibited at the *Exhibition des arts decoratif et industrial moderne* of 1925 and published a series of essays under the title "L'art Decoratif d'aujourd'hui par Le

Corbusier" (1926). As a result of this and despite his association with the modernist movement, through this inclusion and publication he must also be given partial credit for shaping the perception of the style that later became known, through Hillier (1968, 1971) and reinforced by later writers (Lemme, 1986, Hawes, 1991, Stevenson, 2010, Tinniswood, 2002, Benton et al., 2003, Schwartzman, 2007), as "Art Deco".

Fig. 45: Le Corbusier Interior at Monzie 1927 note the white bent frame chair in the foreground.

Stylistically, the architectural idiom he adopted and promoted at the 1925 exhibition and through his contemporary publication demonstrated similarities to the work of Robert Mallet Stevens *see Fig.42* and to projects by Adolf Loos in that his works were cubistic in form and constructed from reinforced concrete. Material and construction technique feature prominently in his exposition. His 1925 interior schemes utilised certain modern materials such as tubular steel and veneered plywood while furnishings where often sourced from Thonet who were, at this time, still primarily producing bent wood furnishings akin to those employed by many bar and cafe owners and the Wiener Werkstatte (Fahr-Becker and Taschen, 2003), although Corbusier favoured the more standardised and uncomplicated chairs and tables rather than those designed by Hoffman et al. He asserts the importance of technology in his book on modern decorative arts (Corbusier, 1926) although it is the machinery of transport upon which he focuses. The use of modern transportation devices such as automobiles, ocean liners and aeroplanes are deployed largely to connotive effect, linking his *Pavillion D'Esprit Nouveau* with the romantic merits of the machine as well as those of purpose, ergonomics and utility.

While this section deals principally with the definition of the 'Moderne' as a facet of the 'Art Deco' genre, it is the relationship with machinery that makes it especially relevant to the understanding of wireless cabinetry. Within the parameters of the early 'Moderne' one discovers documented evidence of designs by Perriand and Bourgeois which relate to entertainment technology in the home. Perriand's gramophone cabinet has cubistic minimalism in common with the design for a radio-gramophone seen in Gropius's Werkbund exhibit *see Fig. 92* In a more direct example of the relationship between moderne and radio, Djo Bourgeois included radio in a design for a corner couch with facility for both gramophone and radio. A similar reference to the radio can be seen included in the restrained *moderne*-ity of the dining room-studio exhibit from the 1925 Paris Exposition by Jean Burkhalter for Primavera and depicted in plates published by Maurice Dufrene in 1926 (Pg. 87 1989) *see Fig. 212*. The machine is celebrated through its inclusion in the home and by the introduction of a more minimalist cubistic form based upon geometric models rather than the archetypically organic designs of the preceding *Art Nouveau* era.

Streamlining and the American Moderne

According to Harold Van Doren (1940) streamlining could be divided into two types; the functional, to do with air flow and dynamics and that which is non-functional being that which is to do with the styling of a product.

Fig. 46: The streamlined United Kingdom Pavilion Empire Exhibition 1938 Image source: *author's collection*

Below:

left **Fig. 47: The "Streamline" Lighter of 1937 by Ronson. Image source:** *author's collection*

right **Fig. 48: A streamlined clock designed by K. E. M. Weber 1934 Image source:** *author's collection*

Fig. 49: Walter Dorwin Teague Camera *The Baby Brownie* **for Eastman Kodak 1938. Image source:** *author's collection*

Fig. 50: the sweeping curve of the *streamline* **Carvacraft range made for John Dickinson Ltd.** *(note that this dates to 1947).* **Image source:** *author's collection*

American Moderne is often interchangeable with the term "streamline moderne" when applied to architecture and product design, a habit seen frequently in books on the topic Art Deco (Benton et al., 2003, Tinniswood, 2002, Menten, 1972, Zaczek, 2000) although the American Moderne also incorporates other non-streamlined but equally modern design conventions of the interwar years such as the stepped silhouette associated with skyscrapers and ancient temples. Streamline Moderne when applied to European and British design can be equally interchangeable with the term *Odeon Style*. In his book, *Industrial Design: A Practical Guide* (1940), Harold Van Doren vigorously promoted the notion of applying streamlining to the design of products as a means of modernising pre-existing goods which were otherwise beginning to appear both old fashioned and often costly. Despite his success in associating the methodology of streamlining with his industrial design practice he was only one of a number of architects and designers who were advocates of the aesthetic. Although there were many anonymous designers who adopted a similar streamline approach, other high profile designers such as Walter Dorwin Teague and Raymond Loewy were proponents of the genus.

In a similar manner to Van Doren, Walter Dorwin Teague published on the subject of design highlighting the importance of its role as a marketing tool to improve sales and promoting the moderne streamline as a means of achieving this. His work Design This Day (Teague, 1940) emphasised the potential for social improvement offered by modern design while emphasising the role of Teague's own practice. Streamline moderne can claim a more overt connection to wireless cabinet design as Teague, Van doren and Loewy were all responsible for a range of designs incorporating the use of streamlining including cameras for Kodak and radios for Sparton, Air King and Emerson.

Raymond Loewy, in a career which paralleled that of Teague, also restyled a copying machine along streamline principles working for Gestetner and as Teague had done for Kodak, designed the moulded phenolic version of the Purma Special for Purma Cameras Ltd., London. Loewy was recognised for his streamline trains and automobiles. The role of the industrial designer in the marketing of mass produced goods was being adopted for a range of products.
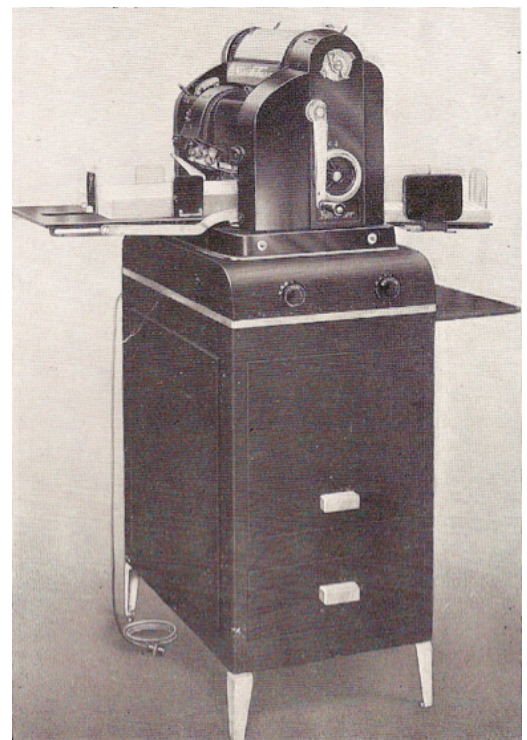
Fig.51 & 52: Teague redesigned and re-engineered the mimeograph copier to make it more rational and streamlined in appearance (Teague, 1940)

Fig. 53 & *below* **Fig. 54. Similarly Raymond Loewy was employed to revitalise the Gestetner copier illustration source: Design For Today July 1935 (Pg. 282 1935)**

Fig. 54

below **Dorwin Teague** *Fig. 55* **and Loewy** *Fig. 56* **successfully redesigned and repackaged the electric refrigerator to appear both clean and modern through the application of an uncluttered streamlined approach to the packaging of the electrical appliance.**

Left **Fig. 55 Streamlined refrigerator By Dorwin Teague for Carrier Corporation. (1930s) Picture source: Design This Day (Teague, 1940)**

Right **Fig. 56 Streamlined Refrigerator by Raymond Loewy (also 1930s) Picture source: Industrial Design (Van Doren, 1940)**

Typically, the form is identified by sweeping clean lines unadulterated by surface decoration. Where streamlining differs from modernism is that it often employs modernist usages such as aerodynamics for their associative and decorative rather than functional advantages. That is not to say that all streamlining is not functional nor does it imply all streamlining is not modernist, nor for that matter does the statement insist that all modernism is functionalist.

American/Streamline Moderne was applied to a range of products including the packaging of the future as can be seen in the depictions of possible city-scape scenarios by Teague and in the work of Norman Bel Geddes, who applied streamlining theories to most things from soda syphons to transportation systems.

Fig. 57 The use of streamlining suggested by Harold Van Doren to create visual effects in the design of skyscrapers. Image Source: Industrial Design (Van Doren, 1940)
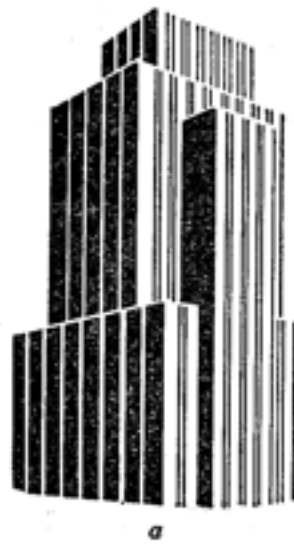
Fɪɢ. 73.

Harold Van Doren proposed that by using vertical or horizontal fenestration lines the appearance of a building would be radically altered without affecting its structural form. This is an application of the flow line found in streamlining which takes advantage of a phenomenon characteristic of the doppler effect; design *a* accentuates the height of the building while *b* contradicts the perpendicular creating an equally dynamic horizontal flow.
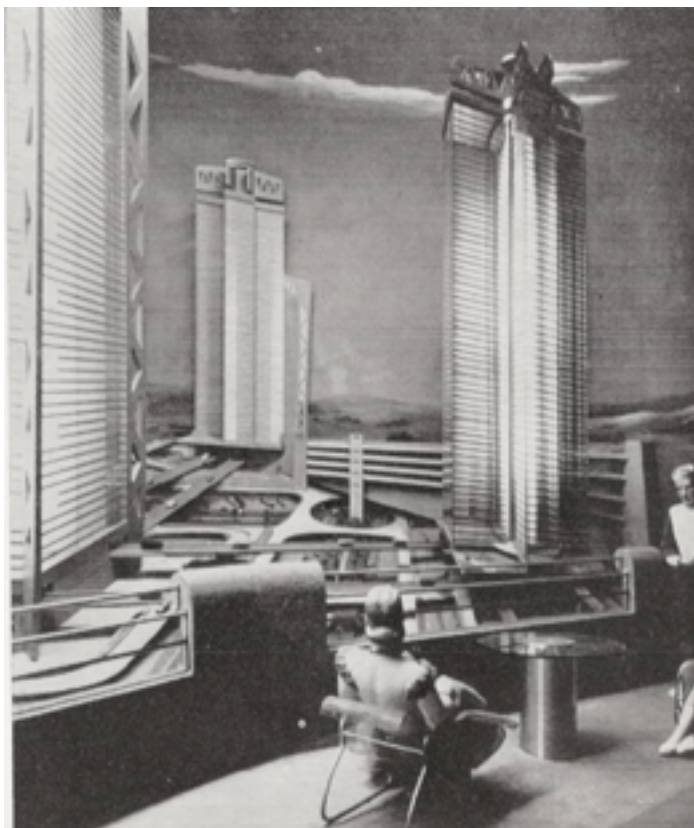
Fig. 58: Dorwin Teague's proposals for the skyscraper city of tomorrow. Picture Source: Design This Day (Teague, 1940)

Fig. 59: Teague's Skyscraper design with suggested uniforms of the future along with complex road systems to accommodate the vehicles of the company who sponsored this undertaking. Picture Source: Design This Day (Teague, 1940)

Dorwin Teague and Bel Geddes, *see Fig. 58, 59 & 60,* envisaged a World of the Future whereby the skyscraper would become the key building type in the cities which would be constructed on rational grid based road networks. Unlike the visualisations provided by Corbusier in his City of Tomorrow (1971) there would be no trees only concrete roads connecting the car owner to other car owners.

Fig. 60: In 1940 Norman Bel Geddes designed a World of 1960 for General Motors Futurama exhibition (1940); curved streamlined skyscrapers were to be the future in his Moderne vision. Picture Source: Futurama Catalogue (Corporation, 1940)

Fig.61: Bel Geddes design for the General motors showrooms at Futurama highlighting the application of streamlining in the automotive industry. In this example streamlining is utilised to both practical and evocative ends.
Picture source Futurama Catalogue (Corporation, 1940)

Fig. 62: In this example there are two key elements of streamlining; the point where wall and ceiling meet is a curve and the shelving to the right of this interior from Patmore is a sweeping curve accentuated by three planes forming the lower shelving unit. Picture Source: Colour schemes for the Modern Home (Patmore, 1933)

Figures 58 & 59 provide two examples of designs that display sweeping curves across both vertical and horizontal planes. While the designers are following a similar design ethos of geometric forms and stylised delineated forms these ideas are put to very different effect. What is important to the concept of Streamline Moderne was that according to it's exponents such as Van Doren (1940) and Teague (1940) it was applied to product design to compliment and in many cases enhance techniques of mass production. Streamline moderne in this sense was ideal for the manufacturers of radio cabinetry and examples of the application of this technique can be

seen in a number of cases particularly the Ritz Airflow, *see Fig. 148* and more generally in the bakelite cabinetry of E. K. Cole Ltd.

Through the application of streamlining techniques to increase production volumes and reduce costs, mass consumption of the Streamline Moderne decorative style became commercially feasible. Although the device would be economically viable, it does not follow that the general public would wish to consume the streamline style based solely on economic factors. Radio designs such as the Lissen 2 Valve were cost effective but not streamlined in appearance. Similarly, the range of receivers manufactured by Lotus and Ultra in the early thirties were relatively inexpensive but not at all a product of the streamline moderne. This leads to the conclusion that the key determinant for the consumption of wireless might have been economic. However, the streamline moderne style did prove successful when applied to wireless cabinetry but it did not become the dominant form in the market place. In the next section other potential influences upon the consumer will be considered through the examination of the Odeon Style.

Odeon Style

Fig. 63: The Odeon Cinema Interior Chester (Maltby, 1936)

What makes the term particularly apposite is its essentially British nature, being a cinema chain whose branches were situated in the British Isles alone. Furthermore, a number of the stylistic usages employed by the architects and designers of that chain have similarities to designs produced for Britain's radio broadcast facilities and for the cabinetry of receivers.

It can be seen in *Fig. 63*, that Odeon cinemas employed the language of streamlining to particular visual effect; the architect has used flow lines to draw the viewer's attention to the screen, emphasising the purpose of the public space. This was not a unique convention and despite the use of the brand specific nomenclature, *Odeon Style*, this term is employed to mean both the house style of the Odeon Cinema chain prior to 1939 and to aesthetically similar cinematic exhibition projects of the period, such as the Northwick Cinema in *Fig. 71, 72 & 146* or the style of the Gaumont and ABC cinema chains. As a generic term it is used to associate the architectural details such as types of clocks, typefaces and even the curved lines of the streamlined interior and exteriors with a variety of similarly styled products of the period which may have had no direct relationship with the cinemas.

It is the successful integration of functionalism that is the key differentiating feature of Odeon cinemas as a house style. That feature makes The Odeon style distinct from simply being "Movie House" style or "Picture Palace" style despite the appeal of such terms. As, while the Odeon cinema chain employed a parred down design philosophy to heighten dramatic effect, it was employed in a manner which stressed the purpose of the exhibition space. Modernity is further conveyed by the inclusion of tubular steel furniture for the waiting areas, this is then underlined by use of cubistic fabrics and the occasional use of murals in a similar style to those seen in a number of modernist public and private buildings in Britain[7].

Odeon cinemas possessed a very different style to that adopted by early examples of cinematic architecture in Europe such as the Tuschinski Theatre in Amsterdam which exhibited an organic influence more in-keeping with the Art Nouveau characteristics of the Municipal House in Prague than with the De La Warre Pavilion at Bexhill on Sea.

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[7] Wells Coates included murals in his embassy Court Flats see page 19 CANTACUZINO, S. 1978. Wells Coates : a monograph, London, Gordon Fraser Gallery., as did Oliver Hill in his schemes for The Midland Hotel see Page 82 GUISE, B. & BROOK, P. 2008. The Midland Hotel : Morecambe's white hope, Preston, Palatine.

Fig. 64: Theatre of the Tuschinski Cinema. The central lantern light is exhibiting the stepped forms typically associated with the Art Deco style and in this instance the decorative scheme is intending to create the impression of architecture as spectacle. Compared to *Fig. 63* **The Odeon interior is a very different approach to the architecture of entertainment with its restrained pared down styling demurring to the purpose of the space while the scale of the Tuschinski theatre aims to assert itself as a key element in the viewing experience of the cinema-goer.Picture credit: (Benton et al., 2003)**
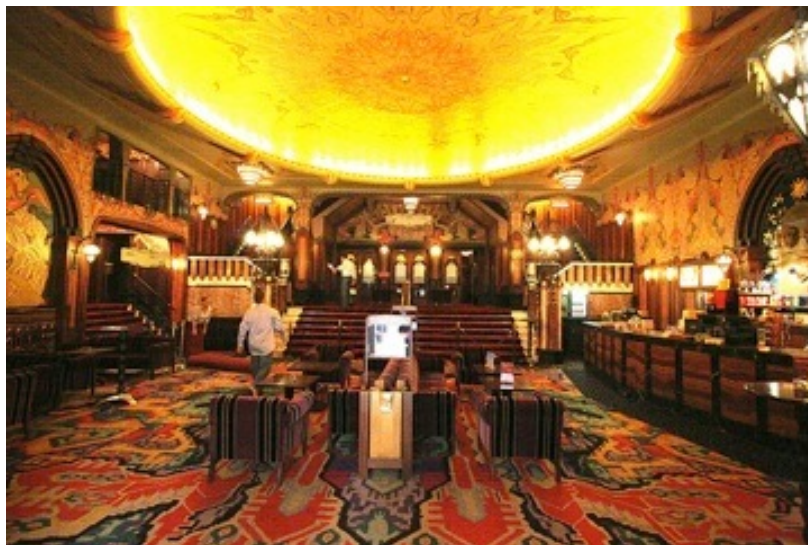
Fig 65: Tuschinski Theatre The decorative scheme form while incorporating geometric styling is far more exuberant than the more streamlined rationalist influenced Odeon interiors. Picture: (Holmes, 2005)

A design such as the interior of the Tuschinski Theatre contains a number of motifs in common to those found in a range of later interior projects that are ideogrammatically attuned to the general concept of *art deco*, even those considered to be within the modernist idiom, particularly the Futurists. What significantly differentiates this interior from those that are more comfortably contained within the Art Deco model is a super-abundance of pattern and colour whereby surface ornamentation subordinates form, albeit

decoration based upon powerful geometric pattern, meanwhile much of the interior structural form is organic despite the inclusion of stepped motifs. What makes this design problematic is that it is a proto-form of the decorative style as exhibited at the 1925 exhibition demonstrating the impact of the expressionist style then current. This complicates the differentiation between Art Deco and modernism as Expressionism was also an important influence upon the formation of the architectural style which became modernism. This is particularly true of the De Stijl group in Holland and the Bauhaus school at Weimar.

At one and the same time as it draws from the Expressionists, the style of the Tuschinski Theatre conforms to the art nouveau preoccupations of decorative embellishment and organic influence. A fondness of ornamentation can be seen in the projects of even the most restrained art nouveau designers such as Hoffman or Macintosh. What is important to the identity of the cinema and to that of the *art deco* more generally is that the approach of the interior designer, Jaap Gidding, is to a total work, whereby architecture and decoration are orchestrated according to a unifying stylistic theme. Interior furnishings are coordinated and specifically designed to compliment the architectural elements devised by Hijman Louis de Jong to create a Gesamtkunstwerk that operates as an integrated decorative entity.
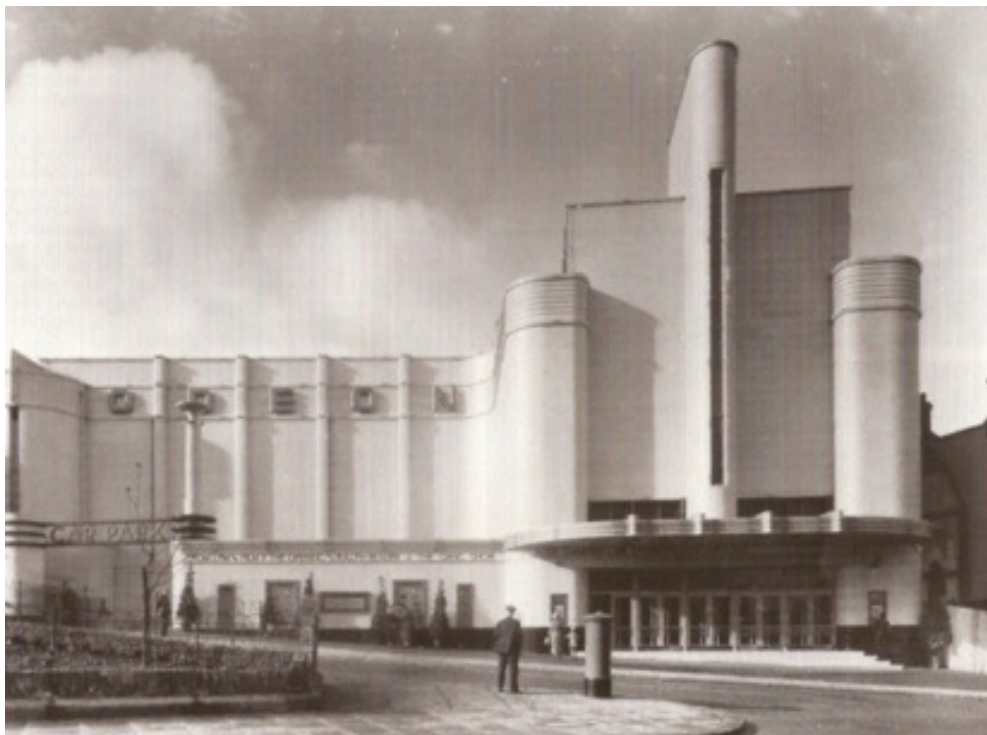
Fig. 66: Odeon Woolwich which bears a striking similarity to the United Kingdom Pavilion *see Fig. 46*

Despite certain stylistic differences amongst examples, the "total work" can most readily be seen in the design and furnishing of the cinema chains of the 1930s. While the cinemas typically adopted a more streamlined and economically practical version of the *art deco moderne,* the creation of a unified identity through decorative consistency is particularly well illustrated by the cinematic architectural idiom. Stylistic unity is most apparent in the Odeon Cinema group who adopted a house style which, whilst every cinema was not identical, did conform to a central brief, despite some level of divergency. When applied to objects with no direct connection to the cinemas, it is the combination of a number of important architectural and decorative elements forming a house style which has allowed the term "Odeon" come to mean a more generic style incorporating elements of these features.

"Odeon Style" as a term, owing to its origin in British Cinema going culture of the 1920s and 30s, has an almost uniquely British resonance and as already noted is sometimes applied to a certain type[8] of Art Deco item by some British users of eBay to describe their wares. The phrase is often used in common parlance by many collectors of and dealers in Art Deco objects to mean goods of stepped and rounded form.

Hillier (1968), in his description of Art Deco, notes the influence of what he called a "rigorously formulated" style emanating from designers such as "Puiforcat, Ruhlmann and Mallet-Stevens" upon a range of prosaic artefacts including cinema architecture and at a later point in his writing, the wireless. Although Hillier does not identify a separate category to define the styling of cinemas he includes the type as a significant social form which, it is implied, would have been a familiar example of the total work of art (Gesamtkunstwerk) in the lives of many people. However, the Art Deco style developed in different ways according to application and the cinemas are identifiable as a significant sub genre which, when applied to objects that are unrelated in so much as they are not buildings or part of the fixtures and fittings of those Odeon Cinemas.

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[8] although in some cases it is bandied about as a ploy to draw in prospective buyers, rather than to indicate a particular style

Above: Fig 67 left & Fig. 68: right Examples of Odeon Cinema exteriors illustrating the use of streamlining often combined with skyscraper towers.

To ensure that a reasonable connection between wireless sets and the cinema, "Odeon Style" is used in this study to mean a style which includes a range of standard features including:

•External architectural features such as a "skyscraper" tower

•Streamlining: as seen through the use of relief brickwork, different coloured and moulded tiling and concrete details, curved rectilinear forms and steel frame windows often in an extended vertical configuration, curved, rectilinear decorative mouldings both as elements of concealed lighting and as housing for the large speaker systems required for the auditoria.

•Internal architectural details and furnishing including concealed and lantern type lighting Neon and electric lighted signage (this was also seen to highlight many exteriors)

•PEL furnishings

Although most wireless sets did not have fitted carpets with geometric designs, the advertising in which they appeared did. For this reason it is worth noting that similar carpets were a feature of most cinemas. Likewise, modern murals were a feature of some radio advertising. Again, although not as widespread as the use of carpeting, a number of Odeon cinemas included comparable modish murals in their furnishings. Inclusion of this type of fresco was not common to all theatres but their presence reflected the desire to associate themselves with aspects of aspirational living which were then current. It is reasonable to assume that this was also the motive of wireless manufacturers in their use of such instruments.

Every Odeon, regardless of exterior appearance, was completed by the inclusion, usually above the main exits from the auditoria, of lighted clocks. This electrical device included the name "Odeon" as part of its chapter ring. The motive of the designer in placing this was to provide a service to the cinema user. It is likely that it was also intended to reinforce the brand name when the customers checked the time on entering and leaving the auditorium. Many radios containing electrical clocks were produced[9], although this may be seen as a reflection of the continuing popularity of clocks rather than a direct correlation between radio cabinetry and cinema interiors. The styling of the Odeon clock was brand specific and so in most cases this should be considered a coincidental similarity based upon the popularity and convenience of electric clocks being combined with wirelesses.

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[9] Clocks were a feature on many radios by HMV and Marconiphone but were particularly included by Ferranti who were a major manufacturer of electric time pieces.

Above: Fig. 69 & Fig. 70: Interior views of Odeon cinemas illustrating the regular inclusion of the lighted clocks above entrances and exits, concealed diffused lighting and banded contrasting decoration to the walls illustrating the wide-ranging application of streamline decorative devices.
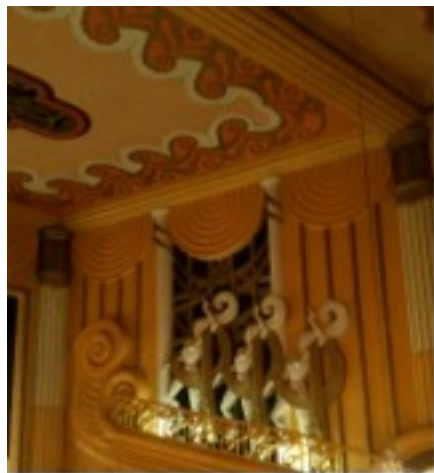
Above Fig. 71: Decorative scheme featuring dancers and Fig. 72: Lantern type ceiling lights here seen at the Northwick cinema in Worcester where the use of surface decoration, columnar motifs and ceiling lanterns recalls the earlier forms of the Tuschinski Theatre.

An important issue to consider is that the use of the term "Odeon Styling" seems unnecessary when Streamline moderne might appear just as appropriate and less complicated. When the term is used to imply a relationship between wireless cabinet design and the styling of cinemas it is reasonable to expect only a few of the stylistic elements to appear at a time; whilst the term highlights the relationship between the public

and emergent media technologies. Making this connection is particularly relevant as this suggests that the appearance of the wireless may have been moulded by the wider social influence of cinema consumption and its associative value with wireless as a popular entertainment media.

Marketing of the Odeon chain employed a variety of popular ideas associated with leisure and with technology. Decoratively and in many cases architecturally, the buildings were devised to a set of common aesthetic values creating a particular corporate identity known as the "circuit". This usage is particularly apposite as the word draws upon the currency of modern electronics, exploiting not just the public perception of electricity but also the positive connotations of electrical technology. By extension, the Odeon cinema group were associating their identity with modern electrical goods such as the radio.

Architectural and interior decorative styles of the interwar Odeon Cinema's reference what was a generally accepted vision of modernity common to most of Europe and America during the period. Examples of this modern vision can be seen in contemporary design publications, design exhibitions, the styling of Lyons Corner Houses, high profile (and cost) hotel interiors such as the Savoy and Oliver Bernard's foyer of the Strand Palace Hotel.

Fig. 73: The Royal Cinema, Alfreton
(Eyles, 2002)

To understand the term "Odeon Style" it has to be recognised that the cinemas reflected both typical elements of what has come to be called "Art Deco" and yet a created a clearly identifiable sub genre.

In contrast to its reputation for having a strong visual character, the Odeon design identity was not a type that was established at the outset and then disseminated throughout the organisation. Instead, what was referred to as the "circuit style" developed over several

years and varied in styling largely according to which architectural practice was employed. To add to the lack of stylistic cohesion, although the style was "moderne" this was not totally without exception. The most pronounced of these exceptions was the Odeon (originally the Royal) at Alfreton in Derbyshire. This was in the mock Tudor style and had been a Pre Odeon Chain project of Oscar Deutsch but was absorbed into the group in the mid 1930s. Exceptions to the modernist rule are relatively few and so do not significantly compromise the Odeon's stylistic model.

Fig. 74: Odeon Kingstanding foyer with metal framed lantern type ceiling lights and terrazzo flooring.
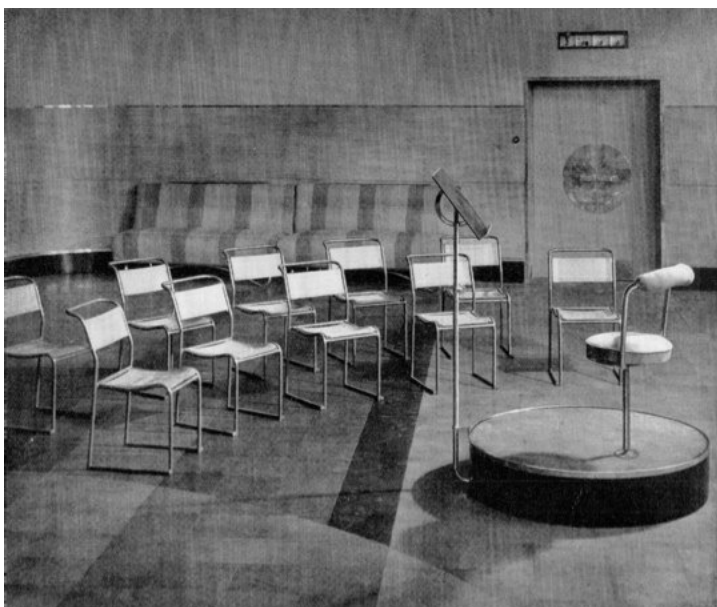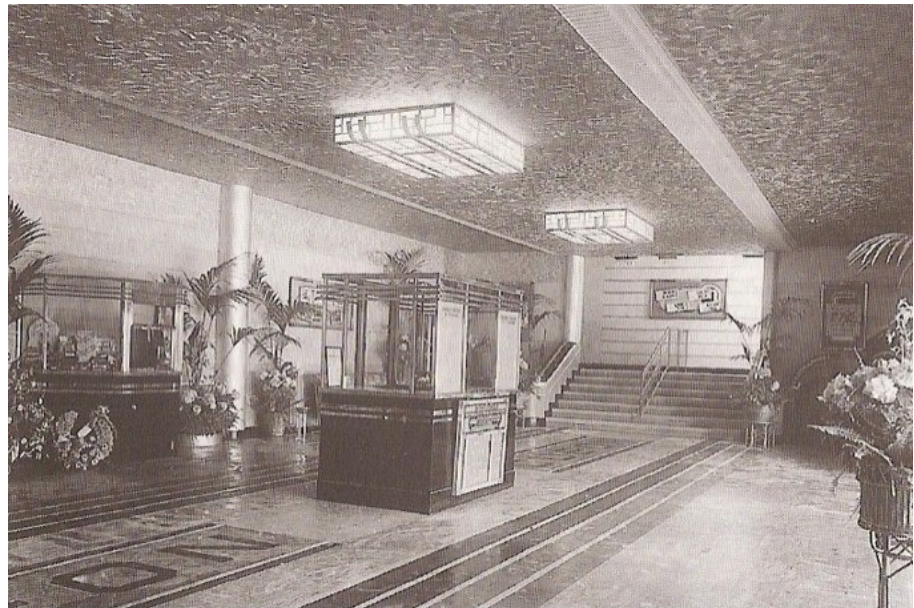
PEL NESTING CHAIRS AT
BROADCASTING HOUSE, LONDON
Architect: Serge Chermayeff, F.R.I.B.A.

Fig. 75: PEL Nesting Chairs and a chair based upon Perriand's design (right) *see Fig. 41*.

Generally, in the early phase of development up until 1933 the key influence appears to have been the Paris Exhibition of 1925 and a number of typical fittings such as metal framed lantern type ceiling lights follow the style of items exhibited in 1925, externally this is also the case with most Odeons employing faience brick to decorative effect, some buildings[10] adopted a skyscraper style more visually akin to the tower of the Palais Stoclet, Brussels of 1905 by Joseph Hoffman[11].

While the use of faience tiling is not particularly relevant to the design of radio cabinetry the inclusion of the tower is and this element, although not totally essential, is a key ingredient of the Odeon Style radio cabinet. Similar effects were created for wireless cabinetry using wooden inlays and stains. The visual effect was usually more in keeping with that of the terrazzo flooring of cinema lobbies. Wireless cabinetry in Britain did not normally venture into contrasting coloured effects, despite green, red, white and blue examples being offered by E.K. Cole in the early 1930s.

Fig. 76: The Saltdean Lido in the Streamline moderne style popular in many examples of British interwar sea-side architecture.

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[10] This was also common to Gaumont British Cinemas; for a range of examples see EYLES, A. 1996. Gaumont British cinemas, Burgess Hill, Cinema Theatre Association.

[11] The Palais Stoclet employed a tower, faience tiling and a pitched roof along with metal railings in the form of stylised waterfall patterns. It is worth comparing the pitched roof of this Hoffman building to the version of modernism suggested by BETHAM, E. A. 1934. House Building, 1934-1936 ... Edited by E. Betham, London, Federated Employers' Press.

Fig. 77: N.B.C Broadcasting studios California.

In later buildings, executed after 1933 when the Cinema Circuit began to be established, the streamlined style which drew upon European and British Modernism is prevalent. The frontages of many mature circuit style cinemas utilised extended steel framed fenestration incorporated into curved walls to provide lighting for the cafes and waiting "lounge" areas. Relief brickwork and tiling created "air flow" lines acknowledging the purposefully streamlined, coeval designs of ships, aircraft and automobiles. The Odeon Well Hall is a good example of this borrowing and exhibited a close similarity to the De La Warr Pavilion designed by the Bauhaus architect Erich Mendelsohn and Serge Chermayeff.

It is significant that, as Chermayeff was a cabinet designer for E. K. Cole, the styling of the cinemas was drawing directly from the source that designed radios. Interdependence of this type suggests that radio may have been a determining force in the establishment of the modern style in Britain. Radio was instrumental in establishing modernism in Britain owing to the public perception of tuning in as a leisure activity. Modernity was associated with leisure through the adoption of the style by the emergent leisure industry.

Streamlined design had been inserted into the public's ideal vision of what it was to be modern through the popular press. Prominent stories were run about a number of related competitions including attempts at the fastest sea crossing to the Americas and land speed records such as that achieved by Malcolm Campbell in 1927. Concurrently, for many people, there was an increase in leisure time owing to improvements in working practices. As a result there was a rise in recreational travel, particularly by train. Thus, the public were exposed to railway advertising which promoted and reinforced certain ideals of

modernity. Meanwhile, public adoption of the wireless was expanding exponentially indicating that this too was a highly popular activity. In observing these wider influences, it is reasonable to assert that employing such stylistic devices may have been simply an attempt by the Odeon chain to offer the public a fashionable product based upon pre-existing aesthetic aspirations of the day.

The visual identity of the Odeon is nonetheless distinct. It is not unreasonable to recognise that the stylistic forms of the cinema were just as likely to inform the public appreciation of modernity as to reflect it. A number of wireless cabinets exhibit clear similarities to the interior and exterior decorative forms of interwar cinemas. This influence not only suggests an implied similarity between two genus of modern media but also illustrates the effect of the social construction of a technology, in this case the popularity of cinema influencing the construction of radio cabinetry and vice versa. Cinema and radio broadcasting served a similar purpose as they both offered to inform and entertain, despite differing emphasis[12].

Attendance figures illustrate the rise in popularity of cinema during the 1920s and 30's and it can be asserted that as a result of this known phenomenon, it can also be asserted that the public was familiar with the version of contemporary style offered through the decor of the "picture palaces". Owing to the situation of the style, it is also reasonable to maintain that the decorative conventions of cinema both on screen and off, would be associated with glamour, leisure and recreation, which are generally regarded as positive attributes. This association with pleasure and the exoticism of Hollywood contributed to the establishment of the modern style as an aspirational goal. Certain expectations of the public were encoded within the styling of the products which they chose to procure, electrical goods for entertainment such as the wireless were, by the 1930s, largely in the moderne style which, with there having been 263 Odeon, 302 Gaumont and 438 ABC Cinemas across Britain by 1939, was seen most commonly in the styling of cinemas. Despite the plurality of cinematic exhibitors, Gaumont were not as uniformly moderne in their appearance and for this reason the term "Odeon" is more suitable than "Cinema" or "Gaumont" Style. Additionally, "ABC/Odeon Style" doesn't scan very well.

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[12] Radio, largely owing to Government control through the BBC charter and its remit, sought to offer more information than entertainment and at the same time cinema through Pathe and British Movietone News offered an amount of information to complement its primary function of entertainment.

The modern style was further associated with leisure and recreation through seaside apartments, hotels and attractions such as the lidos which appeared at a number of seaside resorts and in some cities during the 1920s and 30s.

Cinema's popularity was indexed by the spatial arrangement and scale of the architecture constructed for cinematic consumption. The popularity of cinema and its necessary architectural structure is illustrated by the following case study detailing the early growth of the Odeon Cinema group.

Fig.78: Odeon Chester Photographer: J. Maltby (Authors Collection)

Addressing Odeon cinemas alone, it can be seen that Cinema going grew in popularity between 1930 and 1938. This is reflected by the number of admissions and the scale of the cinemas being constructed[13]. At its height in the mid 1930s Odeon Cinemas registered 100 million admissions in a single year (Eyles, 2002).

Despite the Odeon chain being the largest cinema exhibitor at that date, such a high figure was not uncommon and films frequently played to capacity audiences, although in London attendances were affected in late 1939 and 1940 by people staying at home to listen to radio news reports of the Second World War (Eyles, 2002). Changing socio-political

[13] In 1930 the Crown Coventry cinema became the first to be built and operated by Oscar Deutsch as part of a small consortium. When trading commenced, the cinema had 850 seats; in a relatively short space of time demand had grown such that when in 1938 the Odeon Theatre Leicester opened it had a seating capacity of 2,182. Figures obtained from EYLES, A. 2002. Odeon Cinemas, London : Cinema Theatre Association, 2002-2005 (London : BFI Publishing).

circumstances in Europe shifted the emphasis away from entertainment media to that of information. What this reveals is that the people who had attended the cinemas also owned radios. The large scale exposure to cinema and its architecture is highly likely to have influenced and reinforced the public perception of modernity. That architecture was in turn influenced by the wireless and its broadcasters. This can be seen in the architecture of Broadcasting House which pre dated that of the cinema chains.

Fig. 79: Odeon Well Hall 1936 (J. Maltby: RIBA collection)

Fig. 80: De La Warr Pavilion Bexhill on Sea 1935
Picture source**: Modern Britain** (1999)
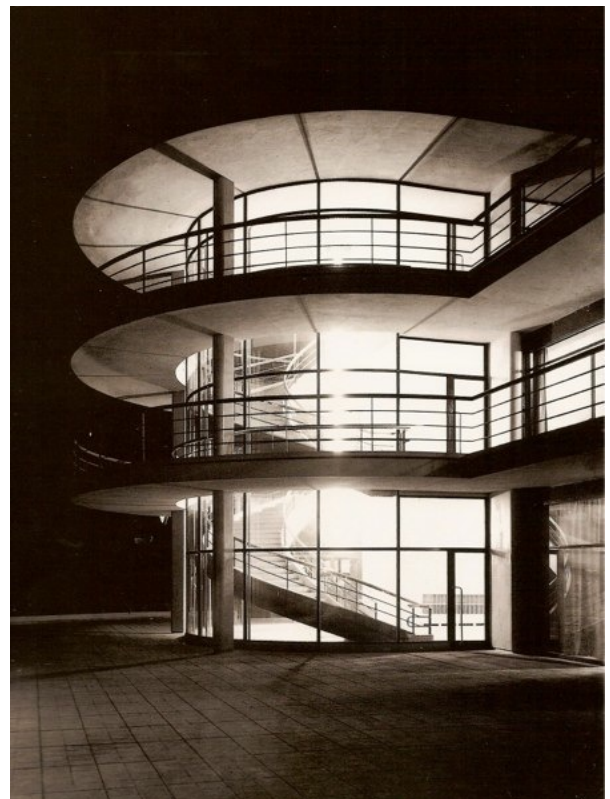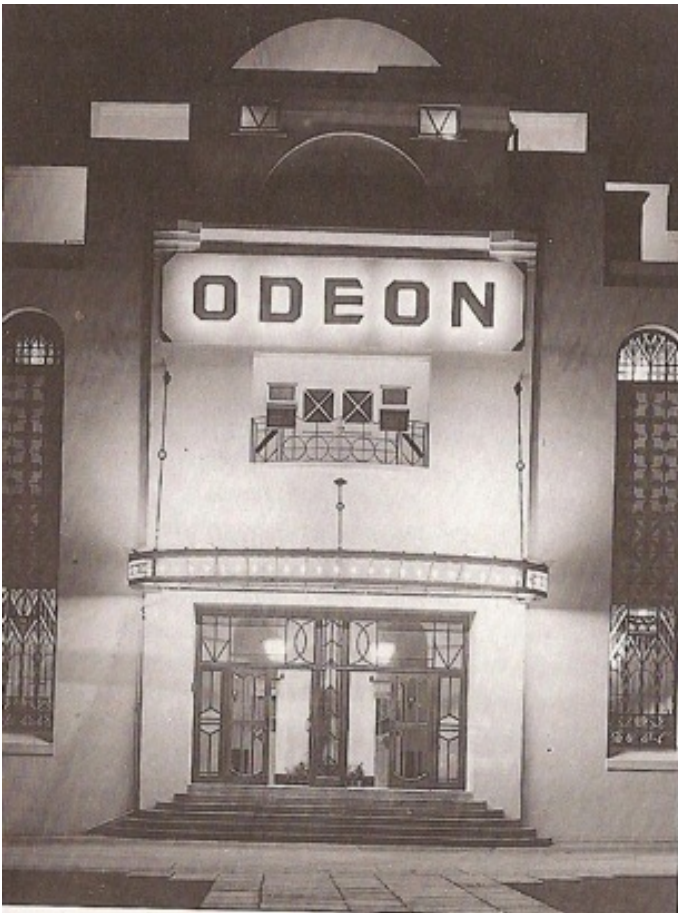
Fig. 81: Odeon Perry Barr Birmingham First Odeon in the chain.
Source: **Odeon Promotional literature 1934**

Fig. 82: Broadcasting House (BBC, 1932); **the interior pre-dates that of the Odeon Kingstanding** (*Fig.74)* **and there is a marked similarity in the type of ceiling light used, suggesting that Broadcasting House may have been an inspirational model for the designers of the Odeon interiors.**

Use of the term "Modern" was understood in a slightly different way during the period than it is when applied to historic movements. "House Building" described the style, when applied to domestic architecture, as being an example of the "Modernist" elevation consisting of a series of elements also common to many Odeon cinemas; these being,

curved bay windows, zig zag leaded glass and implied stucco type render. The illustration depicts a pair of semi-detached houses with a conventional pitched and hipped roof which enjoy these extra elements. As design conventions these are not the stuff of modernism in the ascetic sense in which the term is applied by later historians of art and design, but it is the use of smooth render, curved fenestration and fashionable colourless geometric leaded glass that are used to evoke the style rather than the more complicated and unfamiliar flat roofs and glass curtain walls that might prove complicated to the general building trade for whom the book is intended. In this case "Modernist" is being used to identify the contemporary. It is those conventions, imbued with contemporary status, that the Odeon cinemas drew upon. In recognising that the public were accepting of media products in the modern*e* Odeon Style, it is next sensible to consider what differentiated those products from what is historically understood to be modern*ist*. To do this, the definition of what broadly constitutes modernism will be examined as well as the relationship between the modernists and new technologies.

Modernism

Unlike Art Deco, Modernism can be identified as a cohesive movement which sought to change the way of living for the masses through a common philosophical standpoint. It is important to begin by placing a proviso upon the idea of cohesion. There are two senses in which the term is employed. Firstly, a general idea of modernism versus second the more specific idea of the modern*ist* movement within design and their exposition of functionalism. Modernism includes the latter group but includes other ideas such as expressionism, the futurists and a variety of other movements which were both in action and reaction with technological modernity. The modernists, while not necessarily agreeing politically, all adopted the position that technology and the machine was a force to be embraced. This notwithstanding, it is significant that like the popularist cinema chains the notable modernist Le Corbusier cited popular and glamourous cultural icons such as the motor car and the ocean liner to promote his vision of technological modernity and the aesthetics he aspired to introduce.

above: **Fig. 83: The Weissenhofsiedelung model housing experiment Stuttgart.** *picture source*: **Original postcard 1930 Author's collection**
below left: **Fig. 84: Corbusier's appreciation of the ocean liner The "Empress of India" referenced by Bruno Taut,** *see Fig. 36*, **in his caricature of the modern house.**
picture source: **Towards a New Architecture (Corbusier, 1927)**
Note the extended fenestration in both images.
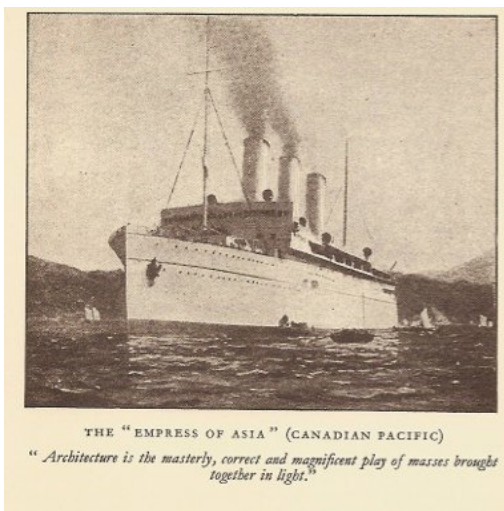
"...two elements, which are equally important in design generally, are combined in different proportions in different things. The beauty of the car, for instance, lies chiefly in its "fitness for purpose" whereas that of the textile, or fresco, must be largely judged by the aesthetic pleasure it gives."

RD Best (Holme, 1934a)

This explanation of what constituted 'good design' by Robert Best has within its message the belief that fitness for purpose was best addressed to those materials that were the product of industrial design while artistic or decorative pieces were a matter of individual taste. It is also important to him that these elements are allowed to co-exist. Within the modernist oeuvre this is not unusual although the definition of modernism offered by Greenhalgh (1990) is the one with which this thesis most closely agrees.

The terms "modernism", "modernist" and "modernity" are used in this context to mean the modernism that drew upon the Functionalist ethos as is suggested by the opening quotes

from Best and the definition of those terms is based upon that appreciation of modernism. Although this is further understood to be divided into two distinct stages of what is termed the Avant Garde - or what Greenhalgh's more Anglo-Saxon terminology calls the "pioneer" stage. A number of definitions of Modernism are to be found and it is not necessarily the conflict between these definitions which makes them unsatisfactory. Instead, it is the attempt to identify Modernity in relation to too many different fields which makes those explanations less suitable for application to industrial design.

It is the lack of a unified vision that is highlighted by attempting to address too many and too diverse a range of fields that leads to Lunn's (1982) observation that modernism "represents neither a unified vision nor a uniform aesthetic practice". He goes on to describe elements of the "modernist" entity, these factors being: aesthetic self-consciousness, simultaneity and juxtaposition or "montage", paradox, ambiguity and uncertainty, and "dehumanisation" and the demise of the integrated individual subject or personality. By this, he appears to mean the effect of the culture of cities upon the individual and that persons sense of self as being important. In seeking an understanding of modernism from Lunn, one is hampered by his underlying belief that modernity is inherently inhuman. Therefore, a broader more politically neutral description might be more appropriate.

The OED defines the meaning of "modernism" as it is used within the context of this study as opposed to modernism in religion or simply the state of being current or contemporary as:

> Any of various movements in art, architecture, literature, etc., generally characterised by a deliberate break with classical and traditional forms or methods of expression; the work or ideas of the adherents of such a movement. In early use usually contemptuous. Now often used spec. with reference to the early 20th cent., esp. in the visual arts. (OED 2010)

This definition, while concise, does not satisfactorily explain the aesthetic styles typically associated with modernism. It is too general a description and it also assumes that modernity implies a break with classical forms which is factually inaccurate in the case of architecture and design in Britain. Many of the architects regularly associated with the movement often called "modernist", attempted to equate their approach with the classical styles seen in Georgian Britain (Peto et al., 1999) and concrete building methods are

regularly compared with Tudor box frame construction techniques by Powers and in period works such as *Style in Architecture* (Leathart, 1940) or *The Modern House* (Yorke, 1944).

Understanding Modernism as a break with tradition as suggested by the OED and Lunn (1982) or even as the conflicted "wrecking ball" of society as suggested by Marshall Berman (1982) is largely based upon the definition advanced by the Futurists in their manifesto by F. T. Marinetti of 1909 that expounded the desire..."to demolish museums and libraries, fight morality, feminism and all opportunist and utilitarian cowardice" (Movimento and Marinetti, 1919). This bold, even brash, desire to destroy both the vessel of social memory and the mechanisms of social control, without concern for the consequences of that action, as implied by their disdain for utilitarianism, suggests that the futurists were indeed demanding a forceful break with tradition but were at odds with many other socially progressive groups such as the perceived threat of female sufferance, and those who might seek to produce utilitarian goods.

Importantly, Futurist ambitions to demolish Utilitarian values disagrees with the aspirations of many later designers and theorists whose philosophy underpins the aesthetics of one of the most widely recognised modernist forms, that of Functionalism. While Futurism embraced the role of the machine as a romantic device capable of offering freedom to mankind - that freedom was devoid of responsibility to mankind. Functionalist designs recognise the potential of the machine as a device that could offer freedom from misery and implied a higher moral justification as well as fitness for purpose.

The Modern Movement in the visual arts during its major developmental stage can be seen as a body of work united chiefly by the organisation C.I.A.M established by Siegfried Gideon and its satellite groups such as M.A.R.S., U.A.M and U.N.I.T. However, Pevsner (1986) sees the Modern Movement as being rooted in the Arts and Crafts movement via the influence of Charles Rennie Mackintosh and the Wiener Werkstatte upon the Bauhaus design school and particularly with reference to Walter Gropius. His outlook is based very much on the effects of Northern European design – particularly with reference to Germany, Austria and Great Britain. This same movement is identified by Judy Attfield in *Male Function Follows Form Female* (Pg. 74 1989) as being the source of an existing hegemony that product and interior design were lesser forms to that of architecture. She sees this as a product of these genres being seen as innately feminine and as such are part of the coded deprecation of women. In some senses this is true except that the model

does not view groups as being a gathering of individuals who are keen to produce large memorable statements that would change the world. Wells Coates, was noted by Serge Chermayeff as having just this characteristic (Powers, 2001) except that Coates believed all design to be possessed of this potential.

Modernists at the Bauhaus school took the same view as the Wiener Werkstatte and aimed to produce a "Gesamtkunstwerk" (Sharp, 1993) or "total work of art", although the term has a pejorative effect in this English translation, as it lends modernism a totalitarian air. This view of an overall unified vision, in emphasising the combination of interior, exterior and structural details as a complete project, placed the design of interior furnishings and fittings at the same level of importance as the buildings in which they sat. Many of the representatives of the modern movement in Britain, Christian Barman, Keith Murray, Coates and Chermayeff were engaged in the design of household products and in so doing acknowledged the importance of these objects as instruments for the dissemination of modernist values.

While it is true that all of the architects and designers so far cited are male, a number of key modernists in Britain were not. One of those modern movement architects who made a contribution to Britain's consumption of Heritage was Elizabeth Scot through her modernist Shakespeare Theatre at Stratford, another high profile female modernist was Barbara Hepworth who was a founder member of the group M.A.R.S. (Modern Architectural ReSearch group) while when one takes the international view Charlotte Perriand, Lilly Reich and Marianne Brandt were all major contributors to the C.I.A.M Public Entertainment appears to have been a particular interest to the modernists as Scot designed the Shakespeare theatre at Stratford upon Avon in 1932.

Fig. 85: Christian Barman's Electric fire for HMV

In fact, while this may have been true of industry in itself this was not so true of the British modernist group M.A.R.S. and according to Powers (2001) in the case of Chermayeff he associated himself with the opinion of C. F. A. Voysey that he saw the design of a pepper pot being as important a design as the building in which it sat.

Powers' work on Chermayeff is biographical and so aims to provide a detailed account of his life as an Architect and designer while providing an interesting insight into his personal life – which may or may not have influenced his decisions. In focusing on Chermayeff rather than a movement or a style Powers (2001) does elevate one man above all others but this is an accepted element of the biographical form and it is not implied that the works of this designer are better or worse than others as they are discussed within a wider context. Generally, Powers is meticulous in his research and appears to have acquired a great deal of information on the activities both of Chermayeff and a number of his associates.

When it comes to radio designs it is questionable whether Powers has ever actually handled any of the products that he talks about and seems to be under the impression that Chermayeff only produced two designs for Ekco – the 74 and the 86 *see Fig. 1 & 127*. He refers to the 64 but it is unclear whether he identifies this as attributable to Chermayeff or not. The opinion that the handles on the sides of the 74 are not integrally moulded is definitely provided, as he says that this is how the model 64 differs from the former, a statement which is quite untrue. Confusion may have arisen as the speaker fret is a separate moulding allowing the grill cloth to be changed to the choice of the client and the model 77 *see Fig. 155* is a two piece moulding. Two other designs are absent and these are the model 77 and the ACT96 *see Fig.154*. This is not in itself a problem for the biographer and it offers a clear area of research to which this thesis is able to contribute and expand upon the current level of understanding.

In terms of methodology, this is an example of how research based largely upon analysis of literary and oral record can prove inadequate. In this case, Powers appears to have

spent a great deal of time visiting overseas meeting Chermayeff and experiencing the architectural works but has not made particularly expansive analyses of the smaller product design projects. shortcomings are compounded by a general bias toward the architectural projects rather than recognising that the greatest monument to a designer could be their apparently most prosaic work. Lunn (1982) offers a most useful interpretation of Modernism but, for the reasons already given, his failure to be able to differentiate the modern techniques seen in architecture from those of the Modernists is the lack of both visual insight and the problem of attempting to devise a "one size fits all" universal explanation, which is unhelpful when dealing with a particular type of modernism.

Form Follows Function and The Significance of Utility

"There are two elements in good design; one having its origins in the flint axe, and centred on the idea of fitness for purpose, and the other in the woad body decoration, or the pattern on the earthenware pot. This last element was at first probably related to the "play" instinct, but is not, therefore, to be considered as less important than the first." R. D. Best (Holme, 1934a)

Best is here describing good design as he understood it. What is particularly significant to his appreciation of design is that it is assumed that the most important element in the design process is that of the purpose or function of the product. In this sense, Best reflects the concerns of his era, which was strongly influenced by the functionalist aesthetic. Fundamental to that aesthetic is the idea of utility and this is expressed well through the aphorism "form follows function". Philosophically, utilitarianism is not as straightforward a concept as the general usage of the word might suggest. Bentham stated that:
"By Utility is meant that property in any object, whereby it ends to produce benefit, advantage, pleasure, good or happiness ...or... to prevent the happening of mischief, pain, evil, or unhappiness to the party whose interest is considered: if that party be the community in general, then the happiness of that individual." (Bentham, 1789)
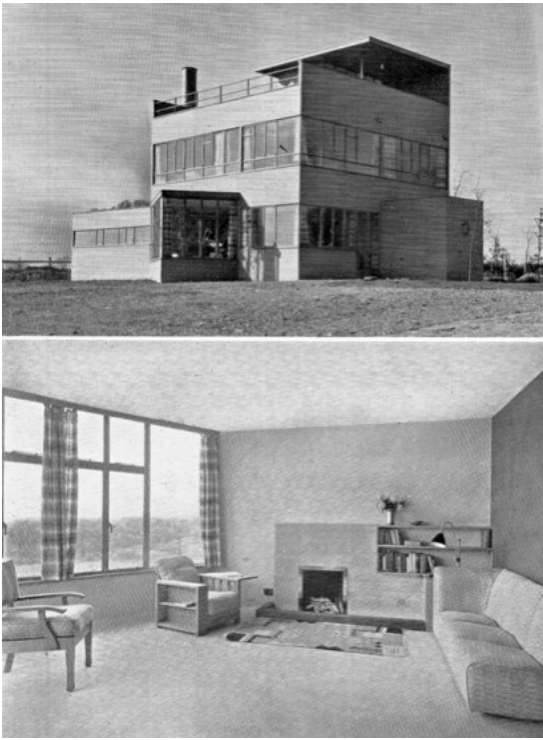
Left: **Fig 86: House in Sussex; Connell, Ward and Lucas (Yorke, 1944)**
Right: **Fig. 87: Wells Coates Interior design work (Cantacuzino, 1978)**

Best's reference to pleasure and the nature of decoration is, in these terms, not at odds with the key principle of utilitarianism. Obviously, some goods which fall within the Utilitarian genre perhaps fall short of this aspiration, offering pleasure to virtually no-one but this is usually an issue of taste rather than comfort. In design terms, utilitarianism, as expressed through the idea of fitness for purpose[14] draws upon a tenet of the theory of evolution, this being what Darwin called the survival of the fittest. This is not to say that the strongest or most powerful design would survive but the best suited to its environment. Those designs could be for houses, aeroplanes or for domestic appliances such as the wireless.

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[14] i.e. as referred to by those designers aligned with groups such as MARS, CIAM and UNIT

The Modernists Relationship with Radio

For a number of the designers associated with C.I.A.M operating in Britain such as Coates, Chermayeff, Black and Mcgrath, radio appears to have presented a useful and extremely successful opportunity to contribute to mass cultural consumption. All of these designers and many others produced schemes for Radio Cabinetry and a number of these projects were developed into mass-produced products or else bespoke, smaller interior projects incorporating the wireless. Internationally, the designers, artists and architects of the modernist movement addressed the new media in different ways. Like their British counterparts, this included designing cabinetry, architecture for broadcasters and situating technology within their projects. Wirelesses were included in the interiors of housing seen in Czecho-Slovakia such as that designed by Ladislav Zak and featured in *The Modern House* (Yorke, 1944), *see Fig. 89.*

Fig. 88: Portrait of a 'Radionist' by Karl Gunther 1927 (Willett, 1984). Broadcasting was at this stage a very new medium and the inclusion of what rapidly became an outmoded form highlights the nature of the state of being modern and the rapidly shifting developments associated with radio. Willett (1984) also observes the conservative tastes of the wireless owner, which seem at odds with the modern device although the implied connoisseurship of fine drink, cigars, literature and wireless define the sitter as a cultured man of the modern age.
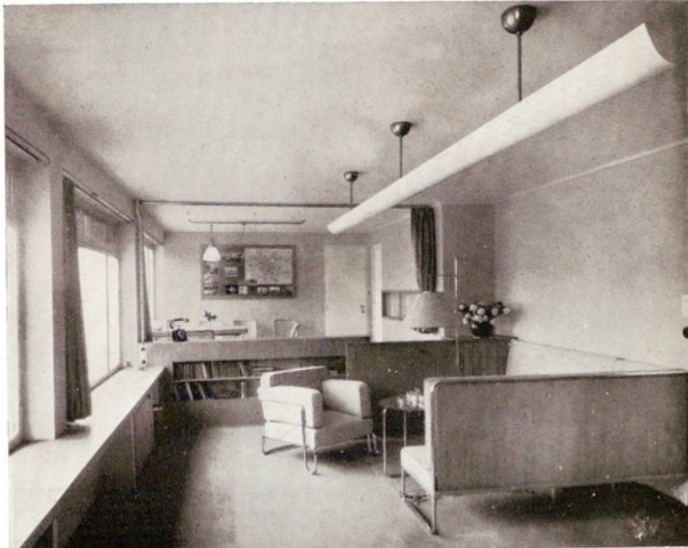
Fig. 89: Ladislav Zak interior from The Modern House by F.R.S. Yorke (1944)

In Zak's interior a radio speaker is included which, at the time of construction in 1932 would have been already a relatively old fashioned type of technology, most radios having already become single unit instruments without need for an external horn speaker of this sort. It would probably have been the property of the original owner of the house rather than dressing to glamourise the interior, although its presence is particularly noticeable. Such prominence for a domestic product serves to emphasise the technological modernity of the property and simultaneously implies the presence of a human resident.
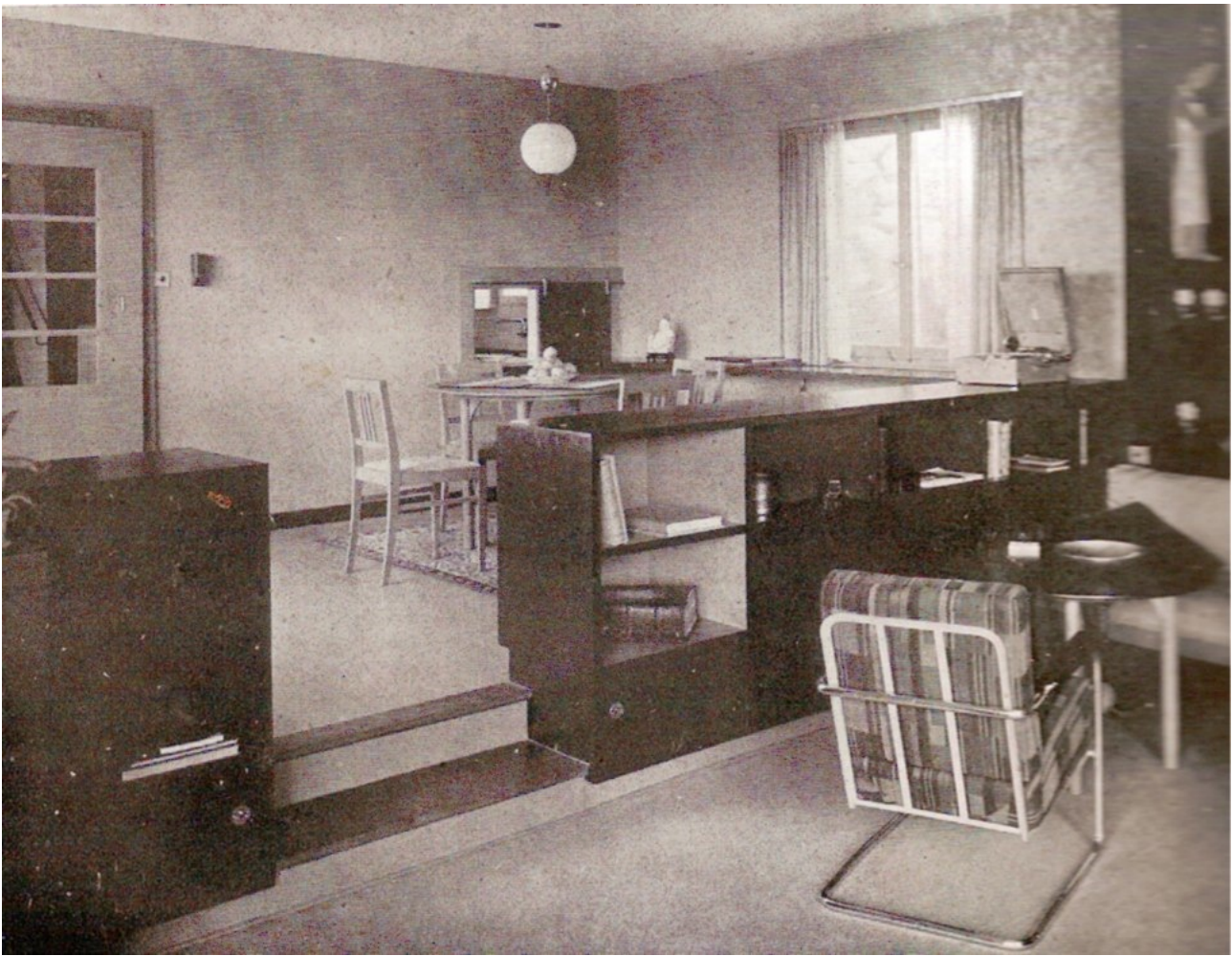
Fig. 90: Otto Zollinger Switzerland. Within this interior is a variety of personal effects including a piece of home entertainment equipment. The portable gramophone was a ubiquitous element of modernity - examples are also seen in pictures of studio spaces at the Bauhaus School.

THE LIVING ROOM. View looking towards the garden. The dining recess can be seen on the left.

left: **Fig. 91: L. H. De Konink Belgium. Interior which extends into the exterior blurring the boundaries. (Yorke, 1944)**

Fig. 92: Walter Gropius interiors for the minimalist flat proposed at the Werkbund Exhibition
In the unit to the right of the picture a cubic radiogram can be seen which appears to have a control knob to the front above a circular speaker opening. Above this are records within a rack.
Picture Source: **Walter Gropius** (Isaacs, 1991)
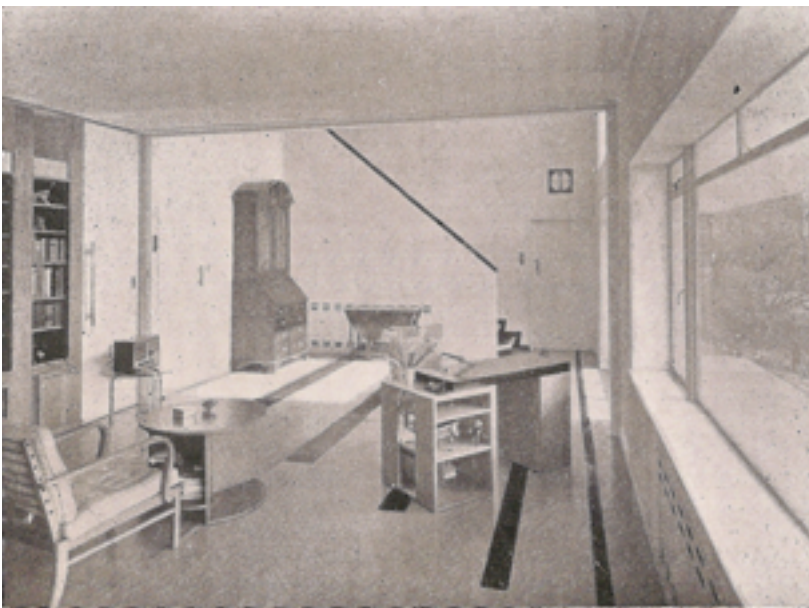
Left **Fig. 93: Interior of a modernist property at Sneyd Park which included a Philips 580a amongst its furnishings.**
Below **Fig. 94: Detail showing the Philips 580a** Picture source: *Design For Today* (1935b)

When Design For Today illustrated the modern interior of a property at Sneyd Park, both the presence of a Philips radio as an aspect of technological modernity and the inclusion of an antique bureau are included, suggesting that the aesthetic of modernity did not completely negate the need for past styles.

In the catalogues of Thonet and PEL and in a range of radio company brochures the international currency of modernism and the assertion of modernity through use of

electrical products can be seen. Thonet and PEL both refer to the presence of broadcast related products and as is seen in the section *Mass Market Modernism* (pg. 117), the radio companies also employed tubular steel and modern furnishings to contextualise their products for the contemporary consumer.

According to Campbell Cole and Benton (Campbell-Cole and Benton, 1979) Thonet, a French company, had been in the business of manufacturing bentwood furniture since 1830. Although the company had an existing association with proto-modernist designers such as Joseph Hoffman (Fahr-Becker and Taschen, 2003), they had established a link with the modernist movement through Le Corbusier's use of Thonet's wooden products in the interiors of some of his early domestic architecture particularly the Villa Savoye and the interior of the Pavillion de l'Esprit Nouveau as seen in the Modular (1958). Subsequently, the company took up manufacturing tubular steel furniture, which conformed to a similar aesthetic, in the mid 1920s; producing designs by Mart Stam, Marcel Breuer and Anton Lorenz (Sharp et al., 1977).
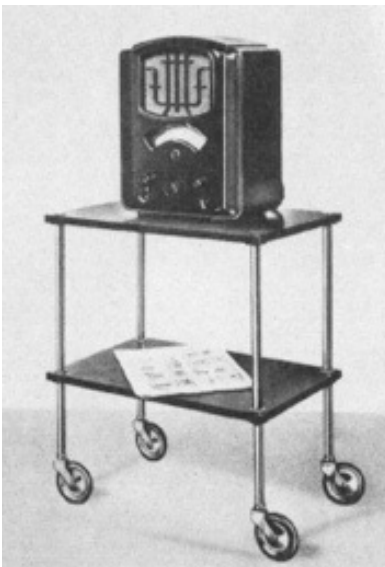
Fig. 95: Thonet Catalogue C.1933 functional trolley with Bakelite Wireless, a SABA has been used as this illustration is taken from a publication for the German market.
Picture Source**: Thonet Catalogue 1933** (1933)

It should be clearly stated that the tubular steel products of Thonet pre-dated those of the British company Practical Equipment Limited (PEL) and a number of PEL designs were straightforward re-workings of patents held by the French company. In the field of marketing, PEL associated themselves with Broadcasting through having supplied furnishing and studio materials for the BBCs new headquarters in Central London, Broadcasting House. They were also connected to E.K.Cole both through the radio company's moulding division supplying table tops and PEL producing some stands for the model 64 and 74.

While PEL highlighted their direct involvement in the furnishing of Broadcasting House, Thonet did not have such a connection although their catalogue included a trolley that was suggested as a suitable unit on which to situate a wireless set *see Fig. 95*. Wells Coates appears to have employed a number of items on which Thonet held patents in continental Europe, but these were probably produced by PEL for the Embassy Court Flats and for the interior of his Kensington Palace Gardens conversion for Laughton and Lanchester *see Fig. 30 & 188*. Crucially, it should be recognised that the products are presented in such a way that suggests both commercial and domestic applications, illustrating that tubular steel furnishings were offered to the public as being suitable for the home rather than solely for offices and restaurants. While the various furnishings are depicted in isolation for ease of identification, room settings and suggestions for use are also included.

Left: **Fig 96. Thonet b43F with suggestion for cafe application**
Picture source**: Thonet Stahlrohrmobel (1933)**

below: **Fig. 97. PEL Version of same chair on a plain background.**
Picture source: **Pel and Tubular Steel Furniture of the Thirties (Sharp et al., 1977)**

SP43F Spring pattern chair, cellulosed seat and back 1933–6: introduced into Pel's range
w20¼
£2.18.09 chromed
£2.07.03 enamelled
PEL p.11 FP p.10
The SP43 was similar but without arms. Both were taken from Thonet's B43F and B43 models
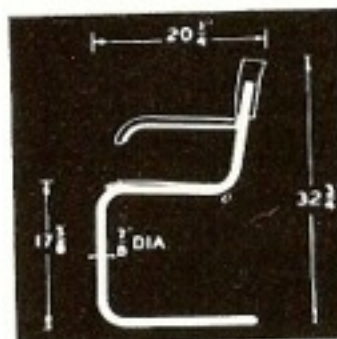
Tubular steel furnishings became an accepted element in the interiors of many private houses constructed according to modernist principles. As a result of this association,it can be inferred that tubular steel acted as a signifier of modernity during the interwar period. Interior design suggestions and settings frequently employed other "new" designs such as electric desk lamps and telephones, identifying the Thonet brand not only with the modernism of tubular steel but also with the modernity of electric light and communication. While designs for steel furniture were produced by recognised modernists such as Stam, Breuer, Coates and Van der Rohe or by British counterparts such as Oliver Bernard, Coates and Chermayeff; making these products easy to associate with the modern movement, many others were not and it is the associative qualities of the material and its marketing that established it as a modern*ist* material.

Fig. 98: PEL side table. By dressing the table with a book, an ornamental Hagenauer giraffe and a cigarette box and vesta the viewer is encouraged to relate to the product as an item possessed of continental style and associated with leisure time. It is implied that this modern furnishing is for a domestic setting rather than corporate.
*Picture source***: PEL catalogue 1935 (Authors own collection)**

Right: **Fig. 99: Thonet Dining room with portal window suggesting that their modernist products were suitable for residential use rather than purely commercial. This advert uses overtly modernist architectural details rather than decorative objects, possibly suggesting the difference in approach between continental retails and their British counterparts.**

Fig. 100: PEL furnishings in situ at Broadcasting House, Capetown illustrating PEL's connection with Broadcasting at an international level.
Picture Source: **PEL Catalogue 1935 (author's collection)**

Fig. 101: PEL fittings supplied to the Hotel Metropole Brighton; the ceiling rose exhibits the influence of the Tuschinski cinema.
Picture Source**: PEL Catalogue 1935 (author's collection)**

At the Hotel Metropole, Brighton

Mass Market modernism.

Like PEL and Thonet, the wireless manufacturers recognised their position as a modern industry and saw this as a means to market their products exploiting ideas of what was modern. In doing so, they sought to address ideas of *good design*, which was at the time predicated upon the functionalist aesthetic. As a result of this and being a modern business they would adopt the modernist idiom to establish themselves within the market place.

How the radio industry related to modernity will be considered in further detail in the section *The Radio Industry and Modernism;* however, the companies appear to have recognised the value of modernity primarily as a marketing tool and as a facet of their commitment to producing 'good design' (Myerson, 1992) as it was understood during the period. Although this attitude was widespread two companies, Murphy and Ekco, illustrate this well as they adopted the modernist aesthetic particularly effectively. Both were closely associated with designers connected to the international modern movement through CIAM. Ekco and Murphy also reinforced their products association with modernity by including contemporary furnishings and decorative arts, this can be seen in their advertising *for Ekco see Fig. 102 & 103; for Murphy see Fig. 152*. In *Fig. 103*, the modernity of the wireless is supplemented by including a Hagenauer style bird seen

peering from atop a circular geometrically formed two tier table of what appears to be contrasting birch and mahogany veneers similar to one produced by Gordon Russell Ltd. at the edge of the picture. Ekco's motor-tuned walnut cased console set, naturally enough, occupies the central position focusing the viewer's gaze. Visual interest is increased by the inclusion of a heavily patterned curtain to the left of the radio which also contrasts with the walnut veneer serving to highlight the restraint of the design itself. While the design of the radio is minimal, relying upon the character of its materials to give it decorative appeal, the associative value of fashionable modern furnishings is capitalised upon to create the overall feel of contemporary modernity. In *Fig. 102* the artistic merits of the table model are further enhanced through the inclusion of an artwork by John Skeaping who was closely associated with the modern movement and the cause of good design in Britain through his association both with Barbara Hepworth and with the Wedgwood ceramics company (Cunningham, 1999).

Firms who manufactured modernist products other than wireless also saw the need to associate themselves with aspects of technological modernity. For these companies, wireless was an appealing choice. Thonet included in their catalogue the suggested use of one of their less stylistically adventurous products as being suitable for mobile wireless - anticipating the need for flexibility in use for many wireless owners. Meanwhile PEL *see Fig. 98* who had a more direct link with the new medium used their connection with the newly completed Broadcasting House project as a means to promote themselves as a manufacturer of modern, functional and above all *desirable* products.
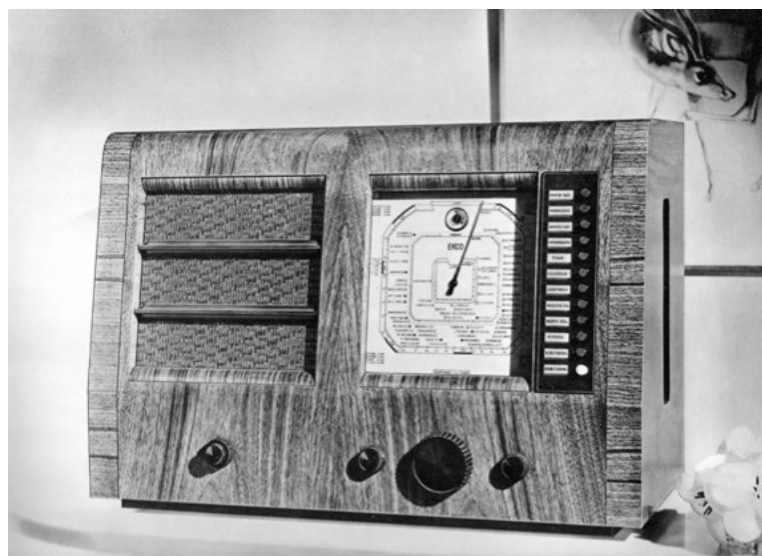
Fig. 102: Ekco Motor tuned Model PB 199 in Australian walnut veneered plywood case giving a luxurious finish. Note the inclusion of a picture by John Skeaping the artist and sculptor

Fig. 103: Ekco Motor tuned Console Model with modernistic Hagenauer style bird. This marketing strategy is similar to that seen in the PEL example *see Fig. 98*.

As can be seen in *Fig. 102 and 103* the manufacturers were keen to associate their products with the style of fashionable modernity. This is most likely as a result of the established market position of E K Cole through the success of their plastics moulded cabinets designed by Coates, Chermayeff, Black and Collins (Gloag, 1945a). Note the partial inclusion in *Fig. 102* of a picture by John Skeaping the artist and sculptor who was closely associated with the modern movement in Britain and was included in a number of issues of the Studio as being an artist of good *modern* standing[15]. Through this inclusion Ekco sought to reinforce the status of their products as both goods of quality and modernity. The company having moved away from phenolic housings for their principal models were aiming in this illustration to market a product of a more financially exclusive nature. Inclusion of relatively expensive modernist furniture, internationally sourced items such as the Austrian Hagenauer figures and tasteful intellectual art such as Skeaping's antelope subtly act as signifiers of a new type of exclusive modernist luxury. These associations offered an opulence into which anyone with the ability to acquire a new and expensive Ekco motor-tuned table or console wireless could buy. Simultaneously, these signifiers of the elite acted as indicators of the discerning modern artistic eye of the prospective customer. A discernment which, by association, was equally available to any member of the public able to purchase an Ekco. Significantly, this availability extended to a battery set at £7.19.6., *see Fig. 104,* thus including customers of lesser means. Such economic availability could be applied to most of the wireless industry whose flagship high cost models were typically marketed as fashionably modernistic while the less affluent

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[15]John Rattenbury Skeaping was an artist of impeccable modernist credentials who was a member of C.I.A.M, married to the sculptor Barbara Hepworth, employed by Wedgwood to produce a series of animal figurines in the 1920s and The Studio, who published SKEAPING, J. R. 1941. How to Draw Horses, London ; New York, The Studio.

were able to embrace the modernity of radio ownership through the availability of lower cost but equally modernistic products.

Fig. 104: Ekco 1938 Portable Model P149. A relatively lightweight portable wireless offered at a lower price and available through Hire Purchase 'at very reasonable rates'
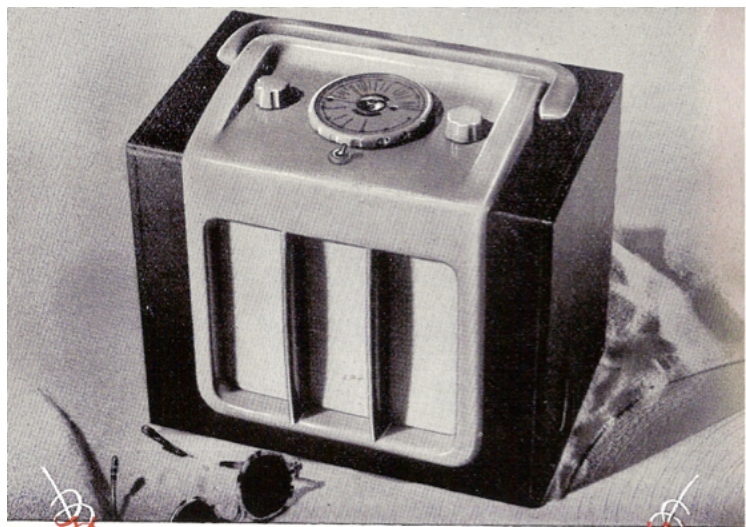
The 'Pick-me-up' — the best-looking, handiest little portable you've ever seen! Take it with you anywhere — on the beach, to the tennis club, in the car, in the bathroom if you like! Full-size reception, too; — even as you carry it by its cleverly designed easy-balance handle. Very low battery consumption. There is an AC/DC model, too — for plugging into almost any mains, anywhere.

Specification: Page 18   *H.P. Terms: Page 19*

P.149
(including batteries)

£7.19.6.

Fourteen

Fig. 105 Marconiphone Model 224. This was the lowest priced model of the 1936 season offered by EMI. It was also given modern stylistic touches and priced in guineas, a convention for the sale of luxury products.

MARCONIPHONE 224

11½ GUINEAS

4-valve (inc. rect.) all mains Superhet Receiver, has the same characteristics as Model "236," in table model form and finds an equally universal application.

Fig. 106: Marconi 292 The most expensive model of the range. The promotional picture still offers modernist elements of good design incorporating a Marion Dorn Rug and chromed minimalist uplighter.

British manufacturers embraced elements of good modern design as a means of selling their products. This strategy was adopted most likely as a result of the general commercial success of the style. Marconiphone, despite bearing the name of wireless's "inventor"[16], was no exception and engaged in this practise throughout the 1930s. In the Marconi 1935 catalogue, the company is keen to incorporate objects that were associated with the contemporary understanding of what constituted *good design*. To emphasise the stylish modernity of their most expensive product it is situated next to a Marion Dorn rug, a complex wrought iron grill and a chrome uplighter. Inclusion of the hand made grill suggests the owner would be a person of means while a functional chromium uplighter and Dorn's rug enhance the modernity of the radiogram. The illustration is a contrivance as the uplighter is awkwardly placed upon a stair riser. A dubious placement which is unlikely to have been done in a private home. Regardless of this, the interior suggests to the customer that by acquiring the wireless they are purchasing a piece of tasteful modern design. Gordon Russell Ltd. also employed similar rugs by Marion Dorn, *see Fig. 106*, to reinforce the modernism of their interior design displays through the addition of modern abstract pattern. While the Marconiphone and Ekco adverts are for products that might not immediately appear to be of the avant garde brand of modernism, this advertising ploy also is seen in the Gebruder Thonet catalogue whereby *modernist* designer furniture is associated with artworks of the

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[16] although Marconi is credited with the invention of wireless telegraphy the principals were well known and a number of amateurs were all engaged at this time in the development of wireless transmission and reception. see CONSTABLE, A. 1980. Early wireless, Tunbridge Wells, Midas.

modern school. Such tactics illustrate the way in which the public perception of modernity was manufactured through advertising by commercial concerns.

In these examples modernity is not only offered to those who could afford the most expensive models like the 292, instead the modernist style could be consumed by a wide range of incomes. Modernity was offered by the radio manufacturers at a range of prices, all associated with different elements of the modern oeuvre, without prejudice, thus offering modernism to the mass market. To accommodate the decorative needs of the consumer companies such a PEL, Ekco, Marconiphone and Thonet offered goods in a range of finishes that allowed the customer to tailor their purchase to the colour schemes of their homes, further providing the consumer the access to the modern style.

Fig. 107: Marconiphone 245a The console model from a range of receivers which were available in a variety of finishes from leatherette to polished mahogany. In the background the window is in an abstract pattern of geometric shapes complimented by a PEL tubular steel occasional table. The modernism of this image is tempered by the use of a Persian rug

Fig. 108: Thonet promotional picture is more uncompromising with no rug and associating their products with modern decorative art as seen on the doors and with a similar wrought iron grill in an abstract design.

The Arts and Crafts and Revivalism

Despite the popularist approach of manufacturers in promoting their goods as elements of a modern lifestyle, the appeal of earlier times appears to have persisted. Marconiphone's use of a Persian rug in *Fig. 107* and the inclusion of a piece of antique furniture in the House at Sneyd Park, *see Fig. 93*, is symptomatic of this; similar rugs are seen in the interiors of High and Over House in Amersham (Sharp and Rendel, 2008). In the following section the continuing influence of The Arts and Crafts and the popularity of Revivalism are considered. Although this title describes only two interrelated terms there are many different styles that were revived and many elements of the arts and crafts which were employed by manufacturers and property developers during the era. The key area of interest is in the Arts and Crafts for two main reasons; firstly, the stylistic elements adopted by many house-builders for new projects reflected an Arts and Crafts version of the vernacular style and secondly, the Arts and Crafts philosophy influenced the modernist view of what design should aim to achieve.

The Arts and Crafts

The Arts and Crafts movement should be seen as distinct from the more general Revivalism that remained popular during the interwar period. As a movement, its relationship with industrialisation was ambivalent, its key proponents such as Morris and by extension the Pre Raphaelites, were accused by Pevsner of "intellectual Luddism" while in contrast Frank Lloyd Wright embraced the dynamism of the machine and industrialism. The key influence of the Arts and Crafts upon radio cabinet production are seen in two respects; firstly, as a direct influence in the industry, as can be seen through the work of Gordon Russell's for Murphy as noted by Myerson (1992) and secondly, indirectly through the influence of the Arts and Crafts philosophy upon the modernists such as Chermayeff as observed by Benton (1975) and by Powers (2001). Their studies evince this as being the recognition that the design of apparently minor objects was as significant as that of the more monumental architectural project. More broadly, the appreciation that the designer should understand the process of making through knowledge of hand craft can be seen in the pedagogic model adopted by the Bauhaus school whereby the school was divided into workshops specialising in individual production techniques with a view to developing design solutions intended for what Isaacs (1991) referred to as "serial production" . In this

sense, the modernist movement are connected to the Arts and Crafts although their aesthetic differs considerably, particularly in the instance of household goods. Morris's "intellectual Luddism" did not prevent Pevsner from including him prominently in his book addressing the development of the modern movement and the modern decorative style. Importantly, Morris recognised the significance of design within the craft process and many of the projects undertaken, although wholly unsuitable for mass production, would not have been undertaken except as a reaction to the arrival of mechanised mass production. Morris and the Arts and Crafts movement celebrated the craftsman as central to the manufacturing process, while the modernists of the Bauhaus school recognised the role of the designer as creative force within systems of mass-production.

In Britain, the first Design In Industry (DIA) Exhibition was held in 1933, which showcased the importance of industrial design and instigated a major sea change in the nature of the relationship between hand craft and design. It was a change reflected in subsequent exhibitions including those that sought to address the craft based decorative arts. A review of the Arts and Crafts Exhibition at Dorland House, Piccadilly of 1935 illustrates this shift in the prevailing design ethos:

"When the Arts and Crafts Exhibition Society held their last show, in 1932, at Burlington House, it was still possible to talk of the useful arts without in the same breath mentioning industry and yet not seem out of date." (1935)

Although the exhibition obviously contains a range of craft based works, it is the incorporation of mechanised industrial processes which makes an item relevant to the reviewer. Recognition of the importance of the modern movement is expressed in the work of R. D. Russell's writing desk exhibited at the 1935 event and is described as making "more concessions to modernism than most of the furniture exhibits." The author's keenness to proclaim how different this item is from the majority of other entries not withstanding, he goes on to stress that it "...is excellently made without having the craftsman element "rubbed in" and on that account seems a bit out of place in this show." Two significant emblems of the Russell approach to modern design can be inferred from this description; firstly, "excellently made" is a key ingredient in the role of the craftsman. Secondly, those "concessions to modernism" are essentially stylistic rather than through

the overt use of modern materials and industrial production[17]. These "concessions to modernism" by R. D. Russell were of particular importance to the aesthetic of Russell's of Broadway where their more traditional Arts and Crafts designs successfully gave way to the more parred down modernist forms of designers such as Eden Minns, Curly Russell and R. D. Russell.

Fig. 109: The London Showroom of Russell's of Broadway including designs for modern furnishings by R.D. Russell
Picture Source**: Arts and Crafts and Modern Needs - The Arts and Crafts Exhibition Society's 16th Exhibition.** *Journal of the Royal Institute of British Architects,* **(L., 1935)**

The influence of Russell upon the radio industry is more profoundly borne of the Arts and Crafts movement than that of other industrial designers such as Coates who had a background in engineering as well as artistic inclinations (Cantacuzino, 1978). This was evident in the early mass production projects undertaken for Murphy whereby hand craft itself was attempted including the use of traditional un-veneered solid woods rather than more modern materials such as plywood.

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[17] It should be noted that the use of modern materials such as plastics was not proscribed within the Arts and Crafts palette of materials and the use of the early plastic "casein" by Charles Rennie Mackintosh for the inlays of a smokers cabinet is documented in the review of the object's restoration conducted by conservators at the V&A see: LANG, S. 1996. Milk and Modernism: Conservation of a Smoker's Cabinet designed by Charles Rennie Mackintosh [Online]. London: Victoria and Albert Museum. Available: http://www.vam.ac.uk/content/journals/conservation-journal/issue-21/milk-and-modernism-conservation-of-a-smokers-cabinet-designed-by-charles-rennie-mackintosh/ [Accessed 19.09 2012].

Fig. 110: c.1935 Keith Murray Designs of ceramics demonstrating a strongly modernist influence.

● This group of new Wedgwood designs, samples of which are to be seen at the Royal Academy Exhibition, includes Sea Lion by John Skeaping, price from 12'9 in cream colour, Fruit Bowl (shape 3819) in "Moonstone" or other matt glazes 12'6, small bowl (3813) in Black Basalt, 6'3, and flower vase also in Black Basalt, shape 3818, price 11'9. The bowls and vase are designed by Keith Murray.

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In the sense that the understanding of the process of making was central to many modernist designers the modern movement remained rooted in the arts and crafts tradition. Examples of this underpinning relationship are suggested by the Bauhaus school's adoption of the ancient craft guilds based Master and workshop system in their schools of applied arts; industrial designers working in British Industry also adopted a desire to understand the "nuts and bolts" of the production processes they were designing for. This was true of those operating in a range of disciplines from ceramics to locomotive design. In industries associated with household decorative goods, according to Johnson and Parrot (2005), Keith Murray took great pains to understand and appreciate the glass making process[18] at Stevens and Williams before undertaking the design of glass ware for them, despite a contemporary observation(1935) that he had little experience of the activities of glassblowing or pot throwing; when approaching the design of thermo setting and thermo forming plastic radio cabinets, Coates and Chermayeff sought to understand the process of manufacture in order that they could then produce suitable designs for that procedure. Regardless that the process of manufacture being machine driven to a greater or lesser degree, these designers sought to understand the human processes as well as the mechanical.

Beyond styling, the key Arts and Crafts influence upon the period was the aspiration for social reform, as expressed during the 19th Century through construction of the model

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[18] Glass wares at Stevens and Williams were mouth blown rather than press moulded see PRESCOTT-WALKER, R. & PRESCOTT-WALKER, R. C. L. G. 2001. Collecting Lalique perfume bottles & glass, London, Francis Joseph. and CUNNINGHAM, H. 1999. Clarice Cliff and her contemporaries : Susie Cooper, Keith Murray, Charlotte Rhead, and the Carlton Ware Designers, Atglen, Pa., Schiffer Pub.

estates schemes such as those at Port Sunlight, Wirral and at Bournville, West Midlands. These are both villages constructed according to ideal plans and conforming to the Arts and Crafts vernacular architectural style of red brick construction and half-timbered medieval English influence. It was the idealised plans of the model estates that established a blueprint for the organisation of housing estates. These plans included broad streets built around airy, light and well planted garden spaces with central amenities such as shops, meeting halls and educational services. At an intimate domestic level it was the provision of separate kitchen spaces with running water through advanced plumbing and sanitation systems that was their most socially ambitious element. Aspects of these improvements can be seen in the suggestions for improving the quality of rural and semi-rural housing stock by the Studio who devoted an entire Yearbook (Holme, 1919) to the subject following the end of the 1914-18 war. The aspirations of these model communities can be seen still in the later modernist projects of Silver End, Essex and the continental Weissenhof Estate in Stuttgart. Whereby green spaces and larger allocation of space along with internal facilities were key ingredients of the healthier aspirations of a planned community.

Fig.111: Port Sunlight Housing set around a green space. Note the regularity of the building's design particularly in terms of the positioning of pillars and the standardised sizing of the fenestration. Picture Source**: Port Sunlight Museum**

Fig. 112: Silver End Essex.

Despite the inclusion of modernist values such as flat roofs and forms recalling Adolph Loos, the use of standardised steel frame windows manufactured by Crittal for their own ideal village incorporated leaded window glass in a more traditional style which, like the more overtly historicist Port Sunlight, was largely intended to house the company workforce.

Picture source**: Silverend webpage** (Taylor, 1930's)

Fig. 113 Stuttgart Weissenhof Estate Picture source**: original postcard circa 1927 (author's collection)**

ON THE DESIGNING OF COTTAGES AND SMALL HOUSES

PAIR OF BRICK BUNGALOWS, SUITABLE FOR MIDLAND COUNTIES (PAGE 47)

Fig. 114: A proposal for improved rural housing based upon regional vernacular styles.
Picture source**: *The Studio Yearbook* (Holme, 1919)

Fig. 115: *The Studio Yearbook 1919*: **certain aesthetic improvements were not based upon decorative schemes of vernacular styles; note hot and cold running water in this standard scullery designed by the Local Government Board as a way of improving the access to hygiene for the masses.**

SCULLERY SINK DESIGNED BY THE LOCAL GOVERNMENT BOARD (PAGE 57)

Revivalism

Fig. 116: Interior of Royal London House, Finsbury Square
Picture source**: *A Survey of British Industrial Arts* (Dowling, 1935)**

While revivalism was popular across Europe, for the purposes of this study this relates to historic revivalism of interwar Britain and includes Stockbrokers Tudor and its dipsomaniac cousin, Brewers Tudor. Importantly, it technically encompasses many of the house styles seen in the new developments of the period despite certain significant differences they have from earlier rivals. In many respects, the inclusion of the revivalist element is important as, although the idiom was not extensively employed in the styling of the British radio cabinet, there are exceptions to this rule, particularly in the production of radiograms and floor-standing consoles prior to 1933.

The prevalence of the revivalist housing style on "new build" estates across the British isles reflects both the need for a reassuring form for the British householder and for the British builder. Historical reassurances can be seen in *Fig. 116* whereby stylistic temporal continuity is achieved through the inclusion of an English Bracket clock[19], serpentine-legged Georgian side board-come-display cabinet and marble fireplace. Simultaneously, the room is located in the modern era through the use of a geometric Greek key patterned terrazzo edging around the floor complimenting the modern geometric "odeon" type ceiling

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[19] this may be an antique item being situated in a Royal property, although there is no reference to this

light. As a result of the various elements functioning in decorative harmony the space is presented as both of its era and possessed of a long established security.

Stylistically, the revivalist tastes prevalent during the 1920s and 30s was similar to those of the Arts and Crafts movement from which inspiration was often drawn. However, the chief characteristic differentiating interwar revivalism from the Arts and Crafts proper was that construction techniques were distinctly modern. While architecturally its proponents borrowed red brick work, half timbering, storm porches and pitched and hipped roofing from the medieval English vernacular seen in Voysey's houses, Morris's Red House, Port Sunlight and in John Douglas's housing for the Grosvenor Estate at Eccleston they utilised modern materials including steel joists and concrete. Even the visual style was updated, through the inclusion of stained glass leaded window lights in the "moderne" style featuring stepped framing, contemporary patterns and rising sun designs. Additionally, exterior metal work was frequently strongly influenced by the geometric moderne most notably in the cast iron drain hoppers, letter boxes and door handles. In many respects, the housing estates of the twenties and thirties with their pitched and hipped roofs and red brick facades reflected the aspirations of the larger "Stockbrokers Tudor" properties.

"Stockbrokers Tudor"

A style of architecture and interior design that was seen by many of the modernists as an anachronism; it was an anathema to the modern sensibility. Although similar stylistically to many of the Arts and Crafts projects of the nineteenth century the form lacked the philosophical aspirations of exponents such as Morris and Voysey. As a result, it was essentially a pastiche of wooden beams painted black against white painted render infills imitating the box frame buildings of the Tudor period or else a redbrick fantasy of the Tudor Mansion. Unlike the Arts and Crafts projects which celebrated the gallery windows and box frame construction techniques which were important progressive elements within the context of the earlier English vernacular style, Stockbrokers Tudor had no such need for truth to materials. Behind the facade of red brick and wooden frames was hidden very modern building techniques such as steel and concrete lintels, steel frame windows and architectural details which were fashionable during the 1920s and 30s. While the modernists railed against this style of architecture they also used the box frame building as

a means of justifying the use of concrete frame construction saying that it was a continuation of the traditional style into the future.

Where the two did not meet at all was in the interior. Many commentators viewed these properties as being inappropriate for a modern lifestyle. Sarcastic remarks were made about its aspirations with questions being asked in *Style In Architecture* (Leathart, 1940) about the suitability of cod pieces and hoes as the new work wear of the day. Osbert Lancaster highlights the stylistically awkward nature of the Stockbroker Tudor style in his book *From Pillar to Post, see Fig. 117,* where a Jacobethan house sits uncomfortably within a landscape of electricity cables, pylons, aircraft and motorcars. He goes on to observe that the sound of a radio can be heard drifting from within what appears to be an Elizabethan blanket chest. Although research has yet to establish a British radio of the 1930s fitting this description, his implied criticism remains relevant as followers of this style appear caught between the conveniences of technology and the romance of the past.

1930s Tudor Revivalism must be seen as stylistically compromised. As, while architects aspired towards the more superficial ideals of the Arts and Crafts movement, they also had to absorb consumer demand for modern technologies of the early 20th Century i.e. The Wireless, mains electricity and the motor car.

Fig. 117: Osbert Lancaster's Stockbroker Tudor Home Highlighting its anachronistic position amongst pylons, automobiles and aeroplanes (Lancaster, 1939)

A Lovell-built House.
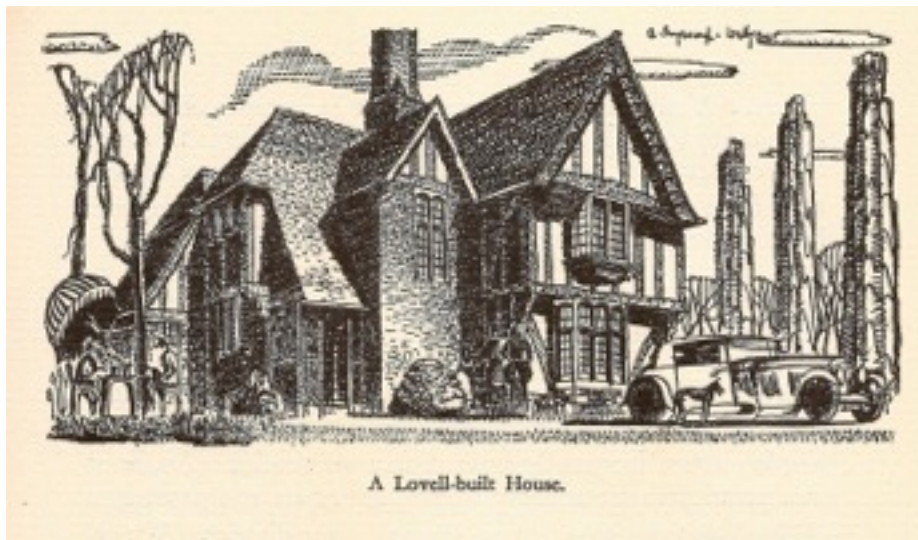
Fig. 118: This 1936 Lovell Built house also includes an Automobile and a very fashionable borzoi style dog, though no humour is intended (Betham, 1934)**.**

These elements can be seen initially in the cartoon by Lancaster, *see Fig. 117*, but are apparent in a number of more serious examples, particularly the inclusion of the garage *see Fig. 122* which is based stylistically upon the Victorian coach house although this example is built into the property. Such structures were arranged based upon their intended purpose, to house the coach and horses required to draw it. Owing to the elimination of the horse through the adoption of the internal combustion engine, its reduction in cost and concomitant expansion in ownership amongst the middles classes, the garage became a smaller, use specific element. This unit was clearly unlike those structures that were required for the Nineteenth Century home or for the medieval model on which they were based. This meant that the new form had to be adapted to fit with the pretensions of the revivalist style. Often in 1920s and 30s housing the garage was incorporated into the main body of the property rather than sitting adjacent to or behind the building.

Internally, the presence of modern bathrooms and lavatories in the contemporary moderne style rather than in the vernacular were commonplace and reflected the nature of public and private spaces within the home. This private bespoke space came into being as a result of the arrival of new plumbing techniques. Its styling reflected a significant change in lifestyle and stylistic expectations of what was modern during the period. Other important modern elements of the era were sometimes more discreetly styled as they had to fit into a more public domestic space. Lancaster's wireless styled as a coffer was not altogether an accurate description of the majority of historicist radio cabinets. The radio industry offered

a range of antique style radios, particularly those imported from America, which were in a Gothic style as well as several models produced by indigenous companies. Bush produced a model AC3, *see Fig. 119*, in 1932 the arched cabinet of which incorporated a similarly arched speaker opening decorated with gothic foliated fretwork emulating medieval architectural details found in windows and in carved wooden seating, particularly that of ecumenical origin.

Fig. 119: Bush AC3. Picture source Radio! Radio! (Hill, 1996)

Akin to many contemporary housing estates, Stockbroker Tudor properties were constructed using modern building techniques married to traditional processes. Concrete and steel were used to provide lintels, although the brick built walls were typically load bearing. Wooden half-timbered effects were applied decorative woodwork rather than structural beams and infilled mortar. Exceptions abound, where structural timber framing was included but these buildings also incorporated modern mass produced bricks, steel and concrete lintels and poured reinforced concrete foundations.

Fig. 120: Interior by Samuel Elliot and Sons (Reading) Ltd. to the design of P. Morley Horder, Architect (Dowling, 1935)**.**

Various interior magazines of the period depict the inclusion of the more modernistic Art deco style married with the Tudor for bedroom and living room interiors in particular. While the "Tudorbethan" stylings of other rooms, such as a main living or dining room were often furnished in a style in keeping with the Tudor aspirations of the architecture *see Fig. 120*. P. Morley Horder's design (Dowling, 1935) is noteworthy for its inclusion of electrical technology, whereby the general impression of the English vernacular is only interrupted by the visible presence of lantern frame electric ceiling lights. A similar general impression of English historicism could have been created by the interior decorator with similar furnishings that were available. Examples are suggested such as the refectory tables supplied by Arthur Brett and Sons, this could be embellished with Liberty's Tudric or Cymric wares in an arts and crafts style. Within many of the Dowling's (1935) suggested interiors, the technology of the 20th Century was typically apparent in the form of electric ceiling and table lights, which sat surprisingly comfortably next to those items following the vernacular style. This matrix being the product of a concoction of antique styles that formed the general effect. Identifying the elements which make this style a pastiche is difficult owing to the well balanced arrangement of the room. However, the refectory tables incorporate a range of period features that seldom met at the time, the fireplace, while in the historical period style is of smaller proportion than the period original and a chair influenced by Georgian concerns creeps about in the background hoping not to be commented upon. Having recognised the Jacobethan style as pastiche, it is not surprising that there were floor and table standing radios which followed a number of historic styles that would not look "out of place" in such properties.
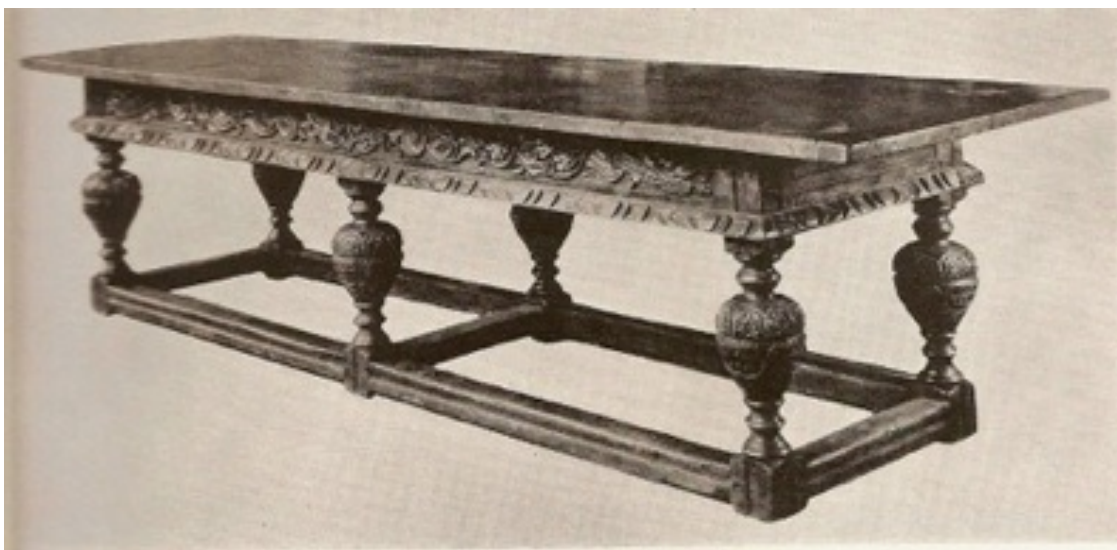
Fig. 121: Refectory table manufactured by Arthur Brett & Sons Ltd. Norwich

The appearance of 1920s radio models in this style *see Fig.143*, reflect the demands of the market by way of their appearance, if not by way of entirely traditional hand made construction. Music may well have wafted from Lancaster's coffer (1939), however, the stylistic similarities of those radios and the vernacular styling of Stockbroker's Tudor suggest that even those with a predilection for historically based home life were keen to have access to a wireless and its very modern waves.

Such properties reflected not so much the desire to escape completely from the assault of the modern but a desire to tame it to ones needs by tempering it with the appearance of antiquity. While doing this, the owner still required the conveniences of the contemporary.

A Lovell-built House at Walton-on-Thames.

Fig. 122: Another 1936 Lovell built home, this time the car is given less prominence.

Conclusion

Generally, while the period has become associated with the art deco style, the dominant form for domestic construction remained rooted in revivalism and the Art and Crafts. This can be seen the examples illustrated in Chapters 1 and 2. However, there were notable exceptions to this rule and this does not negate the aspirational status of the moderne Art Deco style or of modernism. These forms are usually differentiated by acknowledging that Art Deco is typically understood as a decorative style rather than a philosophical artistic movement. However, in this chapter it has been demonstrated that despite this general perception several of the stylistic forms usually considered to be components of that genre such as the streamline moderne and the odeon style exhibit functionalist characteristics more usually associated with modernism. This is most likely the result of the general influence of modernism upon contemporary design but nonetheless this illustrates the complexity of the style. While Modernism shared a number of concerns with the Arts and Crafts movement in terms of its approach both to materials and labour and the purpose of design, its aesthetic was distinguished by its acceptance of the functionalist concerns of the machine age. Despite the widespread adoption of modernity in a range of products and social situations, vernacular revivalism was prevalent, particularly in the form of Stockbrokers Tudor which was expressed at a range of economic levels, most significantly in the styling of the majority of new build housing. Meanwhile, many commercial and public projects embraced the moderne, particularly the architecture of public leisure and entertainment. Such a style was broadly adopted by the emergent entertainment media of cinema and radio.

Despite some radio manufacturers having adopted antique forms in order to appeal to their budgetary demographic, this was a very small component of the industries output and the radio retained its position as a modern technology packaged in a modern style. Regardless of the popularity of historicist housing on the new build estates, as the radio industry matured its position as a *modernist* object was asserted through the broad adoption of an overtly modern aesthetic. This conspicuous shift in taste for the set-makers corresponded with a significant expansion in the number of wireless licenses held and the concurrent increase in wireless production. In an attempt to explain this shift the following chapter seeks to address the socio economic conditions that allowed the radio industry such expansion.

Chapter 3

Radio as a response to those socio-economic conditions and stylistic expectations

Prevailing economic conditions during the interwar period were erratic. Sir Raymond Unwin (1934) observed that following the 1914-18 war, the demand for domestic housing was such that builders did not have to worry about the quality or size of the build as it would undoubtedly sell owing to "the extreme shortage of dwellings". While this indicates that the housing market was buoyant, it does not suggest that there was sufficient capital available to support the industry indefinitely. Instead, what Unwin implies is that the market was kept keen by lack of housing for those returning to domestic life after demobilisation. For house sales to occur at all, finance, limited as it may have been, had to be available. This funding came under threat following the economic downturn of 1928 when less money could have become available for the housing market and as a result supply could have easily outstripped demand. Although Unwin did not refer to contemporary circumstances, he asserted that the situation would not continue without builders recognising the need for better designed and constructed housing. Several studies have been undertaken of the economic conditions during the interwar era. The principal study I shall refer to is that produced by the BBC in its 1931 yearbook. It is a key study of interest as it was undertaken from the point of view of the key British broadcasting provider, The reports appears to be reasonably neutral, a stance signified by the use of analytical language and the inclusion of supporting statistics. However, the reader should be aware that the analysis is undertaken with a distinctly middle class and South Centric audience in mind. An underlying impression is created of the North of Britain as a form of "other" place, lent the quality of a separate entity by an assumed low standard of living.

The BBC yearbook for 1931[20] (1930) exhibits some particularly pertinent examples of South-centricity as prominence is given, within the statistics gathered, to the "Analysis of the London Alternative Programming" whereby comparisons are made between the percentages of different programming content between the London Regional transmissions and that of national dissemination. It is clear from the statistics provided by the BBC (1930) that it was considered that the London Region required fewer hours spent

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[20] please note that the 1931 yearbook was issued in 1930 for the forthcoming year.

on Education and more upon musical entertainment than the National service. London Regional was provided with a far higher percentage of live light music and dance bands than is provided to the National listener with 54.491% of all broadcasts being given over to this, while nationally only 28.832% was dedicated to this type of content. Educative programming is inversely proportionate with educational talks taking up only 13.284% of the London schedule as opposed to 23.324% for the Nation.

Further well-meaning prejudice can be extrapolated by comparing regional differences in the allocation of sub types within Talks. A section titled "Adult" takes up 3.113% of all Broadcasting hours for London Regional, while nationally this figure is only 2.154%. These statistics suggest that the programmers assume the London listener to be of a more sophisticated mind set than that of those living in other regions. It is not made clear whether these "Adult" talks are of an in depth nature addressing issues associated with the arts and sciences such as literature and architecture or if these are aimed at addressing what Dickens (1843) referred to as "ignorance" amongst the adult population. Despite this, the viewpoint of the BBC report is tempered by social conscience and provides an interesting insight into the understanding of the public's behaviour in relation to listening habits and licence purchases during the period.

Some distortion of the Listening figures may have occurred as the report assumes that for each licence held there are actually as many as four listeners. Therefore, it is suggested, while wireless ownership in the 1920s was relatively low, actual receiver use was far higher. An obvious explanation for allusions toward wireless evasion and assumptions of communal listening is that these factors increase the apparent public demand for wireless programming. Thus, the Report assists in justifying the BBCs existence to the government, who were responsible for commissioning the Board of Directors. Conversely, it does not take into account those who may, for reasons of snobbery, have bought a licence to impress but had neither the finance to buy a radio nor the skill to build one themselves.

During the interwar period, average incomes actually increased between 1918 and 1939, particularly between 1929 and 1939 and these shifts in economic fortune for the general public are addressed in depth by Branson and Heinemann's *Britain in The 1930s* (1973). Like Bowden and Offer's study (1996) use has been made throughout this project of statistics gathered by the authors who gleaned their statistical data from a range of period sources including *The Home Market 1939* and Ministry of Labour publications meaning

that their source material was obtained from Government sponsored agencies. Their study seeks to address the shifts in earnings, housing standards and public concerns during the period. An underlying theoretical approach based upon Communist ideology is apparent - the authors were all active in the Communist Party of Great Britain and due to the concomitant leftist bias the study focuses on the working classes and pays particular attention to the shifts in employment patterns and pay of the industrialised working classes. Despite this potential for distortion in the statistics the information provided addresses the range of wage bands by way of highlighting the relationships between the various social classes and the effect of economic recovery upon the assorted economic strata of society. The authors do address wireless broadcasting directly but only briefly within the context of the growth of mass media during the 1930s. They acknowledge the enormous popularity of the medium but dismiss its relevance to the people on the grounds that broadcast news was restricted through pressure from the newspapers - who feared the competition and subsequently was only available after 18.00, following the publication of the evening daily papers. This was relaxed following the Munich Crisis, at which point the need to disseminate information on the matter became of National importance.

Criticism is levelled at the BBC, principally on leftist grounds, that the programming content was delivered in a style that was devoid of regional accents and presented from the point of view of the middle classes, thus implying that regional more working class culture was of lower value. This practice was compounded by the presence of the "Reith Sunday". ON Sundays, it was assumed that the people should be in church until 12.30 and hence no programming would be broadcast until that time, after which programming consisted of religious talks and serious music. Despite the negative view taken of the early BBC, Branson and Heinemann do note that Tommy Handley's ITMA began in 1939 followed by a ten year run. Consequentially, they suggest that popular programming presented by an entertainer with a regional accent might have been what the people had been waiting for through all that superior positing. Given that the BBC was afflicted by an inability to relate to the people, it seems appropriate to believe that the consumer was not buying the wireless for the express purpose of listening to such material but must have had some other reason for consuming a relatively expensive device. Hill (1996) and Geddes (Geddes and Bussey, 1991) both note the popularity of foreign broadcasts and there are notable examples of period advertising for radio products and particularly those more expensive instruments such as the AW87 (EKCO, 1936b) which highlighted its ability to receive overseas transmissions.

Categorising Radio Design

If wirelesses were not being purchased purely as a means of radio reception, then there must have been other factors influencing consumption. It is possible to see that the public expectations of what the radio should look like altered over time. There are various ways of explaining this change in form and historians such as Adrian Forty and Artemis Yagou have offered an explanation.

Adrian Forty (1986) identifies three key developmental stages in the design of radio. These he described as being shifts in focus from technical developments during the 1920s in the first stage to cabinet design in the second stage and toward miniaturisation and portability during the third. His categories while being loosely correct wilfully ignore the radio manufacturer's historic interest in miniaturisation.

Fig. 123. Burndept "Screened Suitcase Portable" 1928 This model is atypical of the suitcase portables gained popularity during the late 1920s having evolved from an earlier portable type which did not fold away. Picture Source: *Radio! Radio!* **(1996)**

Since the advent of the industry, companies had aimed to produce smaller and more portable sets. During the 1914-18 War, this had been for reasons of portability, as the equipment had to be carried either by infantry or by aircraft. In these circumstances, smaller and lighter receivers and transmitters were a distinct advantage. When the domestic market began to develop during the late 1920s "suitcase portables" emerged as a popular form. This style of set was particularly marketed for use with the motorcar and it was suggested that this was an ideal adjunct to the picnic. This type of radio continued to be popular into the 1930s. It's style was initially most likely inspired by the success of the portable gramophone which had been established during the early Twentieth century, although the

portable valve set developed its own form during the 30's becoming smaller and more cubic in shape.

To address the question of how radio changed in its appearance between 1925 and 1939 and to appreciate the development of different targeted markets; it is helpful to categorise the various types of radio available. Forty's categorisation is interesting but lacks detail. A more detailed attempt at an ontology of wireless was described by Artemis Yagou in her contribution to *Design and Emotion* (McDonagh, 2004), *See me, Feel Me, Touch Me: Emotion in Radio Design* (2004), where she suggested a set of classifications for radio designs.

Yagou defines five basic types these being:

The Early Domestic Type

These cabinet she defines as being of "quasi-technical appearance", taking inspiration from scientific and technical equipment. She does not offer any actual examples for this type although she appears to be referring to the period pre 1927 or possibly pre 1930. In some respects the need for definite incept and terminus points is unnecessary as the type did not cease production in 1930 but had largely disappeared by 1935. Stylistically, the form of what Yagou calls the "Early Domestic Type" did not completely vanish and was continued in a separate thread within the civil and military communications market. These could be reasonably identified as being technical in appearance or even utilitarian in the sense of being without unnecessary embellishments[21].
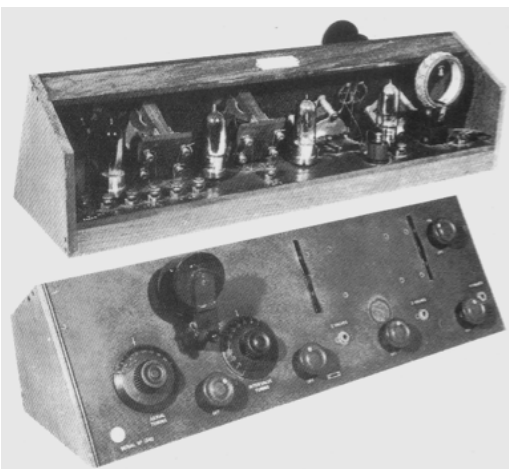
Fig. 124 Gent Four Valve Receiver 1924
Picture source**: *Radio! Radio!* (1996)**

Although the domestic wireless of the 1920s was not strictly an experimental device, it was frequently of a genuinely technical appearance. These receivers were not "quasi" technical as their reference to technology was not a pretence. Wirelesses such as

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[21] civil and military equipment developed in parallel to domestic equipment although there are likely to have been elements which crossed over. Many examples were of strongly technical appearance as many minute alterations needed to be possible so that transmissions could be received from a broad spectrum. This functional consideration often resulted in a plethora of controls.

the Gent Four Valve model of 1924 were purposeful devices for receiving wireless transmissions. Early equipment of this type was not purely for entertainment purposes, the user was tuning in to a wide range of transmissions including time signals, speech and experimental broadcasts by amateurs.

The Classic Domestic Type

 This classification of design she describes as being "housed in wooden cabinets to resemble furniture" this archetype then entered millions of homes and created the convention of radio as a "wooden box with dials". As with her other genres,she offers no date range and again no specific examples for this, although the type appears to be a class of model produced between 1930 and 1960. While there are, no doubt, items which fit this description, they do so because it is both vague and interminable. No explanation is attempted as to whether the cabinets were intended to mimic contemporary or historic furnishing styles or simply to ape an existing form e.g. a lamp standard. Perhaps this genre has no set parameters as there is no need for restrictive boundaries. In these circumstances types can then overlap, allowing them to belong to more than one subset. However, the notion that cabinetry is mimicking furnishing styles is a peremptory explanation that inhibits wider recognition of the role played by wireless as an emissary for stylistic change.

The Modern Domestic Type

Yagou addresses the relationship between Modernity and the wireless through what she called the Modern Domestic Type. The term "modern" appears to be used in the modern*ist* sense and these products belong to "a later stage" and were produced from plastics "thus expressing modernity". Modern is also open to interpretation as there is also a feeling of it principally expressing the contemporaneous. Certain misconceptions about the relationship between modernity and plastics appear to have influenced this category. It is quite possible for a wooden cabinet to express modernity and for a plastic example to refer to historic furnishing styles. Again without any actual example being provided the description is plagued by generalisation. The genre appears to refer to the production of cabinets from any date from 1927 – when Phillips started to produce designs in phenolic thermosets under Louis Kalff's direction through to the present use of ABS for cabinets. In this instance the term "modern" seems to mean most types of household radio beyond the

late 1920s and the earlier quasi-technical form of radio, which may also fit into any number of the other categories provided.

The Modern Portable Type

In this instance, a date period is offered. The time frame is vague and is suggested as the post-World War II era. Examining the description, this genre actually appears to be the small "second set" and "Vest Pocket" transistor models, which are types already recognised by collectors of the genre[22]. It is not unreasonable to combine this models into a single set as this is both brief and convenient for later discussion.

Although brevity may be the soul of wit, this brief explanation is lacking in detail owing to a failure to appreciate the historic development of the wireless. As with Forty's typology, the modern portable does not acknowledge that suitcase portable radios had first appeared in the 1920s *see Fig. 123*. By the mid-1930's[23], manufacturers such as Philips, Pye and Ekco began to introduce smaller portable sets which ran on dry cell batteries and were promoted as a device to take to the seaside or to use in the Garden. These were a transitional product between the smaller, later designs seen in the 1940s which took advantage of the development of miniature glass octal valves and the large suitcase type picnic-portable sets produced in the late 1920s through to the mid-1930s. For an example of one of the last of Roberts Radios ltd. first major production set, the M4B of 1936. If one takes the Modern Portable Type to mean the vest pocket variety then it can be asserted that the small crystal sets of the 1920s that were small enough to be personal portables are the archetypes of this genre. However, Yagou has claimed models such as the Headphone Crystal Set which incorporated a receiver into a pair of headphone or the radio book called the Listener *see Fig. 138* as Independent Type radios.

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[22] see the BVWS Bulletin various issues 1999-2001

[23] the key date appears to be 1937 based upon examples and advertising material extant.

Fig. 125: Roberts M4B 1936 suitcase-portable radio (Hill, 1993b)

The Independent Type

Independence appears to mean without concern for or reference to other fashions in radio design. The examples she offers are those that take on the shape of sunglasses, post cards, animals or cartoon figures.

Fig. 126: The Emerson BD197 Design aka The Mae West
Picture Source: *Radio Art* (Hawes, 1991)

From the evidence provided, Yagou actually seems to be talking about "novelty" items. "Independent" is a very good word in that it takes into account those bespoke designs which might "rupture" the general thinking in radio design. As an example of non-linear classification the Independent Type is a particularly interesting genre as it offers a relatively large potential field for study. However, the demand for such a product, while interesting and germane to the typology of wireless, is a distraction from the study of modernity and wireless as it is too convenient to address those products that appeal to an idiosyncrasy of the market as being "Independent".

Much of Yagou's paper focuses on the "independent" genre in relation to emotional response, it being easy to recognise emotion in the immediacy of novelties. An example employed by Yagou to support her argument is an Emerson radio cabinet of bent plywood produced in the U.S.A in the late 1930s. The reader's attention is drawn to the radio collectors' nickname for the set being the "Mae West", *see Fig. 126*, due to the conical speaker and dial design having a certain anatomical quality. One could also liken this to a pair of eyes. The description of this object is, as Yagou is asserting, an emotional response.

Recognition of this phenomenon does not guarantee that the original designer [24] considered this response or that the contemporary public would have viewed it in the same way, despite the high profile of Mae West during the 1930s. Although human anatomy has not changed, it was not the intention of the manufacturer to make such an allusion. Emerson marketed the set on its technical aspects - six valves is mentioned prominently in a 1938 advert for the model. Despite the lack of clear intent on the part of the manufacturer, the wireless is referred to as "The Mae West". The development of this nomenclature relies upon the masculine disposition of many late twentieth century American radio collectors and upon the success of Cinema as a cultural determinant amongst that group. Admittedly, this is an emotional response, but it is not the express purpose of the design. In the case of the radio designer and the later collectors categorisation, a Freudian analysis of this product perhaps would draw similar conclusions. The interpretation is likely to have been influenced by the surrealists, particularly Dali. Anthropomorphising the Emerson radio is reminiscent of Dali's design of the mid 1930s for a sofa in the form of a pair of lips and called *Mae West's Lips*; an example of artistic design where a particular emotional response is actively being sought by the author.

Collectors frequently provide objects with such nicknames; for instance, the Ekco AC86 is known amongst some radio collectors as the "Dougal Set" a name referred to by Patrick Cook (Clark, 1997) due to a passing resemblance in silhouette to a character in the BBC children's program of the early 1970s "The Magic Roundabout" (Serge Danot, 1965-75). There was never any intention on the part of the manufacturer to refer to this or was it inferred by the public at the time; it is simply a response by certain later groups and their

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[24] The Emerson Radio was designed by Count Alexis De Sakhnoffsky in 1938. He was known for his predilection for streamlining and also designed the Curvex watch.

culturally subjective reading of an object.   An interesting phenomena but not relevant to establishing the relationship between the public and the AC86 design in 1935. It may have induced emotions but the AC86 Ekco is a moulded plastic cased radio made to appeal to the sensibilities of the contemporary public and not an "independent" design produced to exploit a television tie-in of the late 1960s.

Fig. 127: Ekco Model 86; 1935
Design: Serge Chermayeff
The design shows similarities to the dynamic control equipment at Broadcasting House which the designer was associated with and this is the probable inspiration for the cabinet. Collectors have later referred to this model as the Dougal set owing to its resembling the character from the Magic Roundabout. Picture source: Ekco Catalogue (EKCO, 1935)
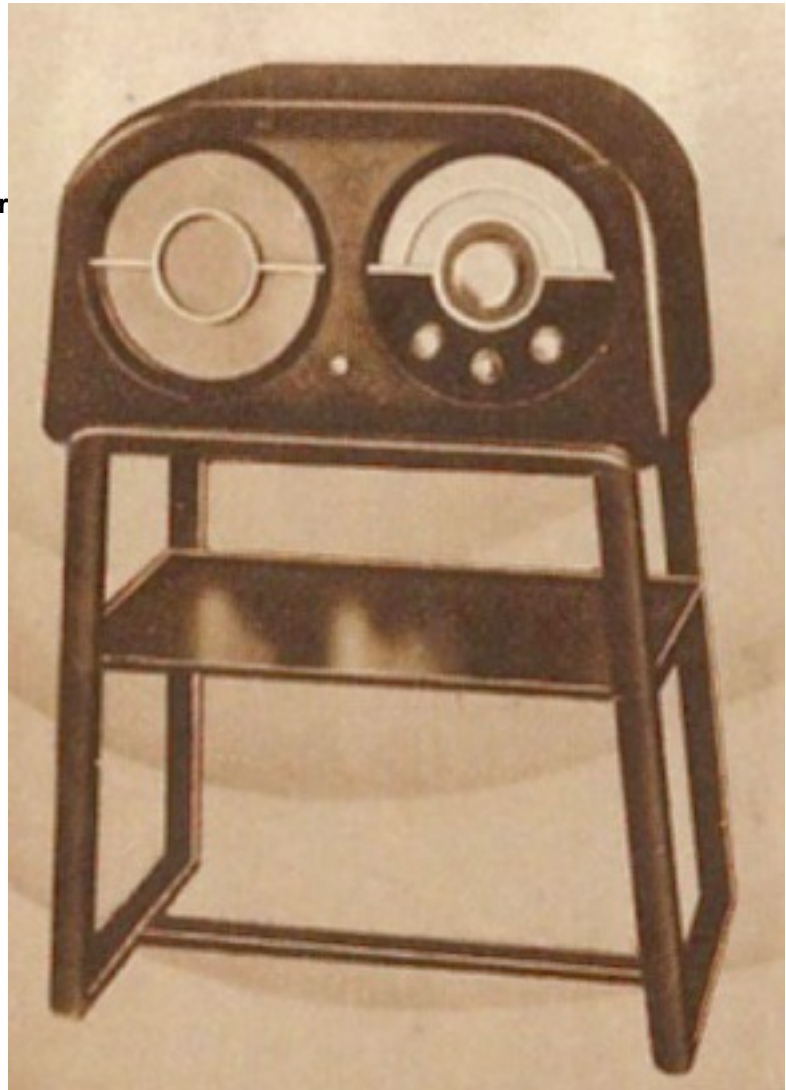
Fig. 128: Model A3a design by Dick Russell for Murphy Radio Ltd. 1933 the cabinet was a re-working of the A3 and included a stand at an extra charge. The radio trade had been critical of the speaker fret calling the set the 'Pentonville'.
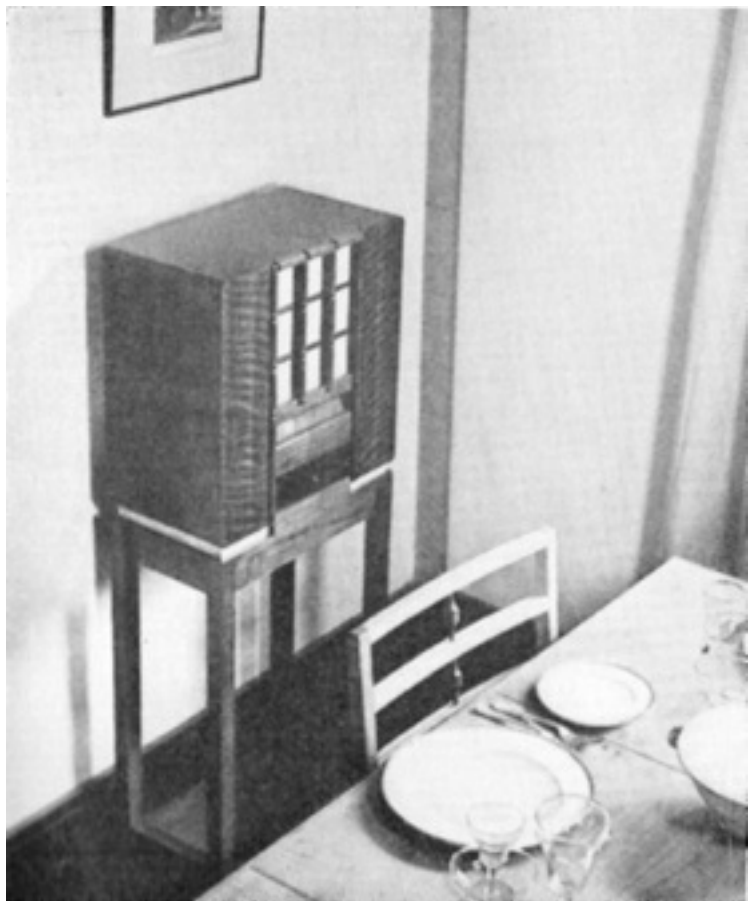
As phenomenology this is a relevant study, the effect of shifting contemporary cultural values upon the interpretation of artefacts by the consumer is a valid field. Shifting interpretation of the artefacts by the consumer du jour is not the focus of this thesis, which addresses a fixed historical period, not an interpretation of the consumption of heritage goods by various markets. Design and emotion is a factor, as understanding the emotional response to 1925-39 goods by their coeval public because that response was shaped by changes in contemporary British consumer culture.

Although Yagou's interpretation of the data is suspect, the response of the collector/ consumer is an example of how emotion can affect product consumption. An example that she does not cite of this phenomenon is how the Murphy Model A3 was disliked by the wireless trade in the 1930s and referred to as the "Pentonville" (Geddes and Bussey, 1991) due to the speaker fret having a passing resemblance to the iron grill of a jailhouse window. There was no intention on the part of Murphy or R. D. Russell to evoke this particular emotional response, but it was a response it received all the same. Its designer, Russell had actually employed a motif that he was using at this time for a radiator unit and several other pieces of furniture (Carrington, 1933). Frank Murphy was not at all fazed

and had enough confidence in the set to commission the same design the following year only this time with the addition of a stand (The A3a).
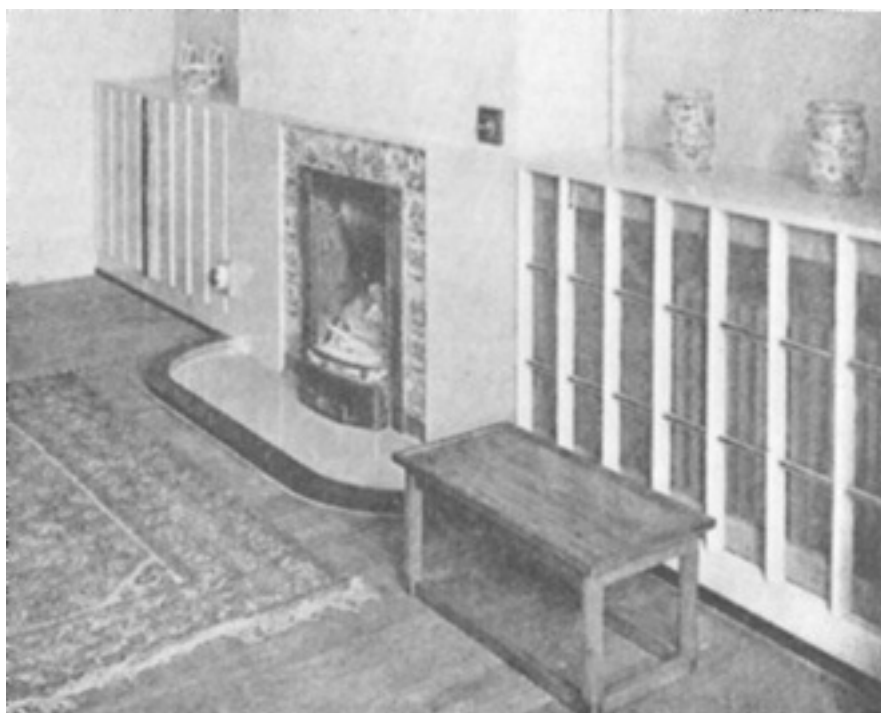
Fig 129: Dick Russell Design for an interior with a radiator cover which reflected the style of the grill bars of the A3 and A3a.Illustration: (Carrington, 1933)

Yagou's approach to the subject of radio categorisation is flawed in some respects by the desire to view an object in terms of its cultural meaning to the historian or later collector rather than that of its contemporary consumer. Despite the drawbacks of such a stance, this temporal standpoint is also the great beauty of Yagou's descriptions, as they are not based upon a linear temporal categorisation of the subject. Such a linear interpretation could be seen at "On the Air" (Museum of Broadcasting, Chester 1993-2000) where items were organised into eras e.g.The Birth of Wireless, The Golden Age etc. or as the subject is approached by Hill in *Radio! Radio!* (1996). Instead she is trying to view various radio design genres that are intended to support her study of emotion in radio design which may experience temporal and stylistic elision. This not withstanding, her attempt to categorise radio design is based on a desire to understand the design typology of radio and as such ignores at once both its innate complexity and its simplicity. There are clear reasons for these flaws in her attempts at devising a typology. Her appreciation of radio genre types is largely superficial and is based on a limited understanding of the historic marketing strategies of radio manufacturers.

Yagou's research into radio history is based on several texts, none of which offer a complete or comprehensive survey of radio design in the 20th Century and do not pretend to do so; although this is not necessary to form the genre categorisations that she

proposes. Robert Hawes book "Radio Art" (1991) contains the most internationally wide ranging survey of radio designs, and includes a number of "novelty" radios and groups the wireless types into a rough chronological order, while highlighting a variety of different approaches to the wireless and its design during the different periods.

She is presumably unaware of *Radio! Radio!* (Hill, 1996) as this has not been referenced, which offers a more detailed survey and some technical history of the development of wireless and its relationship with the consumer, despite the recognition by its author that it is not possible to include every wireless design produced, meaning that a reader may not be able to find reference to the model which they are interested in. The wider range of products might have made the development of a clear emotional response more difficult.

Genre Typing

Attempting to devise a useful set of categories for the wireless is difficult as there are too many instances of resurgences of types when attempting to define a chronological organisation of cabinet design. To appreciate the problem one only needs to examine the notion of revivalist styling. While it is undeniable that wireless sets did in some cases mimic earlier styles, this was more frequently encountered in designs for the home during Forty's "Early Period". As a term it is suitable given that it can be taken to mean the period from 1890 to 1930. As a period of wireless development this is not hugely helpful as the wireless moved from broadcasting signals such as the time signal "pips" that are, at the time of writing, still broadcast on Radio 4 and morse code to the transmission of sounds such as the spoken word and music. Additionally, novelty sets such as "The Listener' crystal set or the ArtAndia speakers, *see Fig. 139*[25] illustrate that the market was already in need of more than the wonder of wireless technology to sell the product and as such the early phase exhibits many similarities to other much later periods. As 1922 through to 1929 encompasses an era referred to by many wireless specialists as the Early phase of the Broadcast years it is more suitable to divide this early phase into two, these being "Pre Broadcast"; i.e. pre the foundation of the British Broadcasting Company in 1922 and early Broadcast being 1922 to 1932 and the establishment of the Lucerne Plan, which established a new arrangement of frequencies for radio stations through agreements

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[25] these were also offered as Buddhas, scribes and various other animals in ceramic as in *Fig. 139* or else made of decorated papier-mâché

reached at a series of conferences in Madrid and Lucerne in 1932 and came into effect in 1934.

This leaves the later stage of the 1930s which is occasionally referred to as the "Golden Age" by some wireless enthusiasts. It is more appropriate to call this the Mass Ownership Stage as it was during the years 1933 to 1939 that ownership levels reached saturation point. During this stage in the public relationship with the wireless receiver, the device became not only accepted as a domestic product but it became *desirable* within that environment. Genre typing of the sort engaged in by Yagou does not recognise the on going chronological development of radio design. While a non linear approach is valid, there were advancements both technologically and socially which meant that public expectations of what the radio might do and be within any given form was subject to change based upon external factors.

The Proto Modernist.

Having criticised the genres proposed by other historians it is now necessary to put forward an interpretation of the development of the wireless that would be suitable according to the requirements of this study. Proto Modernist is probably the most appropriate idea to address, as the wireless, being a technology of the machine age, has the potential to provide a number of modernist aesthetic proto-forms.

Attempting to categorise the Broadcast Receiver is fraught as the interwar market was awash with apparent contradictions. To deal with the nature of the link between modernity and wireless the important issue to recognise is whether the radio cabinet design was Quasi-Scientific or Proto-Modernist. In some respects, the wireless was both as the design of the receiver and its housing continued a tradition established by the amateur experimenter, while at the same time defining what that machine could or should look like. If it is true that the design is drawn from scientific instrumentation, then it is not reasonable to call the type *quasi*-scientific because the receiver would be advancing the development of scientific equipment, it should therefore be called scientific or else another thing altogether. In addressing this semantic issue one needs to consider,what makes the domestic wireless a *quasi*-scientific device rather than scientific.

Insight into the nature of early wireless can be extrapolated from motivations of the early operator. According to an early 1920s Wireless notes booklet, the initial activity of the owner was not the acquisition of entertainment through a BBC station but the interest in obtaining and recording the most distant and exotic of stations. In many respects the method adopted by the wireless operator is scientific.

Unfortunately, the activity remains quasi-scientific as the subject, being an enthusiast and lacking scientific discipline, has forgotten to include any dates making the document less useful to the historian. What the document reveals is that the various adjustments required to listen in were complex. Through attempting to analyse the document it is possible to identify the type of receiver used if not the exact model and the methodology of the wireless operator. According to the notes, there appear to have been at least four individually adjustable elements suggesting that the device used valves rather than being a crystal set as there are two dials for a balanced reaction although quite what 'P' and 'S' refer to is a mystery. "P" may have been potentiometer and S could be signal or reaction, "Switch" most likely refers to switching between coils or between wave ranges and 'A' is probably the aerial although this reading is abandoned as station signals are obtained.

Fig. 130: Wireless notes providing details of settings and stations received.

Despite the brevity of information, the scraps of data provided can provide insight into the author's approach to "listening in". Stations obtained appear to be logged according to the accent heard as the Scottish stations are listed as 'Aberdeen *or* Glasgow' and the Irish as 'Cork *or* Belfast'. This indicates two possibilities, either the listener did not wait for a station to transmit its call sign or the signal was not of sufficient quality to make a positive identification and so a guess has been made. Encoded within these notes is the

undisciplined enthusiasm of the early wireless owner, indicating that the interest, at least in this individual case, was of a quasi-scientific nature.

When beginning to observe early broadcast-era[26] equipment the term quasi-scientific has been applied to early domestic wireless equipment to describe its general form and functionality. In many respects this is true. Wireless cabinet designs of the 1920s follow certain rules that are typical of scientific instrumentation while not being actually intended for scientific purpose i.e. the purpose is entertainment. However, there are principal differences that distinguish the wireless from those truly quasi-scientific devices such as the Patent Electric Magneto machine. Firstly, the radio did possess the property claimed for it i.e. it was capable of receiving wireless signals as opposed to an instrument like the Magneto machine which was of no medical benefit. Secondly, the intention of the manufacturers was to provide equipment for the enthusiast to experiment with, allowing them the opportunity to expand their equipment as new developments arrived or, in some instances, to make modifications to improve the receiver. Furthermore, the radio was developing its own aesthetic based upon its function. Unlike the magneto device of the 1890s the wireless components were not decorated to impress the viewer, technology itself would be impressive enough.

 In the first year of broadcasting by the British Broadcasting Company, the recently established brand "Marconiphone" introduced its first mass produced wireless after Marconi granted a licence to Plessey of Holloway (Geddes and Bussey, 1991). Marconi had been engaged in the production of wireless for civil purposes and continued in this venture, while the separate Marconiphone brand produced various receivers for the household market. The cost of the V2, *see Fig. 131*, receiver was £25.0s.0d.(Hill, 1996) effectively making it a relatively exclusive product, particularly as the device was only powerful enough to drive a pair of headphones, meaning that listening in with the V2 was not a social activity. A variety of techniques were employed to overcome this exclusivity, such as placing the headphones within a fruit bowl to act as a sound reflector. As a means of amplification this had limited effectiveness and could be when applied to the output of a much less expensive crystal set. The advantage of the V2 was its superior circuitry which allowed better and more reliable reception. In the following year a separate amplifier in a

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26 The Broadcast-era in Britain is generally considered to begin with the establishment of the British Broadcasting Company in 1922 although there were broadcasts prior to this date and the first regular Broadcast Station in the UK was 2MT transmitting from the near the Marconi laboratories at Writtle Essex in February 1922 *see* CONSTABLE, A. 1980. Early wireless, Tunbridge Wells, Midas.

matching cabinet was made available, allowing the addition of a speaker. Its principal disadvantage was that all of this required additional financial investment, although the relatively high number of surviving examples suggests that this did not inhibit the wireless consumer.
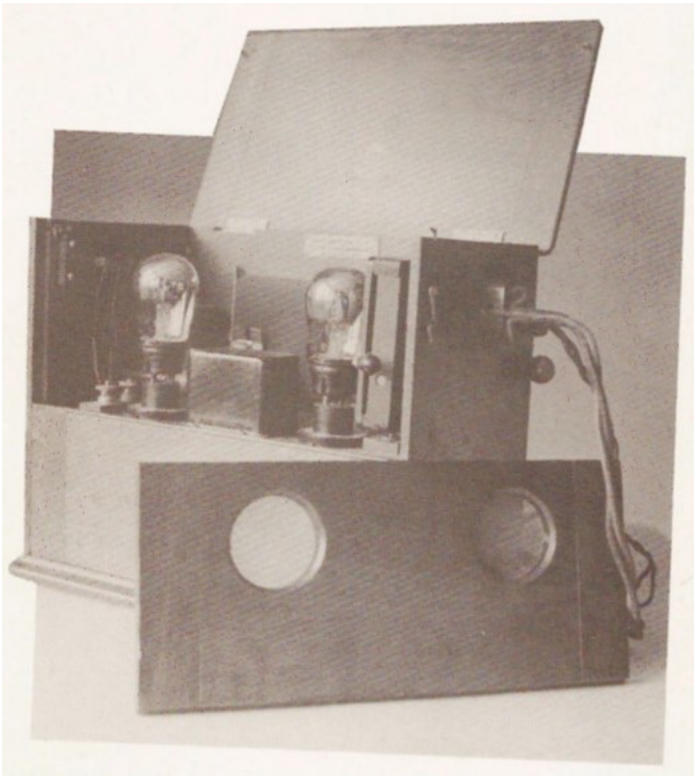
Fig. 131: Marconiphone V2 1922 Designer unknown. Picture source Early Wireless (Constable, 1980)

Fig. 132: Gecophone Smokers cabinet with speaker, headphones,coils and a headphone splitter which allowed several people to listen in via headphones. Picture Source Radio Art (Hawes, 1990)

Decoratively, the cabinet has few extraneous features and these consist principally of an ogee form moulding applied to the pedestal and to the edging of the lid. In many respects the V2 is a minimalist proto-modernist wireless design, in that it does not

attempt to emulate the forms of other types of furniture. This differentiates it from the "smokers cabinet" sets made by other manufacturers, such as Gecophone, *see Fig. 132*, and Sterling. Tuning is achieved by a patented Marconi system which involved sliding plates against various coils thus affecting inductance and tuning the radio. To operate this feature there is a metal rod with a ball attached to the end which projects from the side of the cabinet. In itself this has little apparent aesthetic value except that this is nickel plated and lends the instrument both the appearance of an early experimental electrical device and of a minimalist artwork investigating abstract geometric forms.

Cost, although relatively high at £25, was minimised by eliminating a valve through devising a reflex circuit. A technique whereby one of the valves is used twice thus allowing the receiver to be a two valve unit. Other Marconiphone models were more highly specified; the V3 and V4 of 1923 employed three and four valves respectively and more elaborate cabinetry, they were subsequently more expensive.

The addition of relatively restrained decorative panelling may have impacted on the price of these early broadcast era sets. Other receivers such as Ericsson "Super Valve Three" were available at lower prices. The Super Valve Three had very little decoration - a bull nose moulding to the pedestal being the sole concession to furnishings, priced at £18.15.0 and offering three valves it was both better specified and cheaper than the V2. It is likely that the Marconiphone models were largely sold on the strength of the Marconi brand, the name being associated with the invention of the technology itself. Subsequently, this may have lead consumers to think that Marconiphone might have superior insight into the production of wireless technology. While this was in many respects true of the Marconi Company, they were employing a number of eminent developers, The Marconiphone Ltd. brand had little to do with the original scientific instruments. Marconiphone later manufactured a type V1 (introduced in 1924) at lower cost and containing a less complicated single valve circuit without the sliding condenser tuning system. Importantly, its appearance remained minimalist, with only an ogee form moulding to the foot and lid edging and bull nose mouldings to the side panel edges.

Fig. 133 Siemens CV Valve Crystal set[27] Picture source: Bonhams (Proudfoot, 2005)

below:
Left to Right **Fig. 134 German: Wimshurst machine**
Picture source**: Radio Art (Hawes, 1991)**
Fig. 135: Marconiphone RB10 Crystal Set.
Picture source**: Radio Art (Hawes, 1991)**
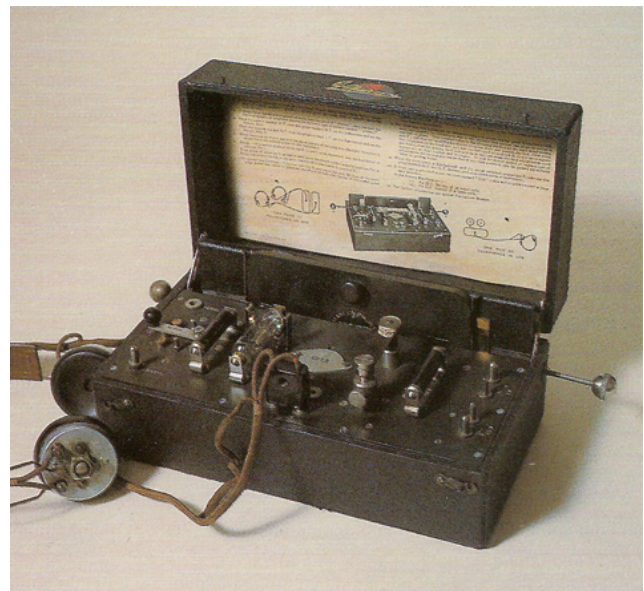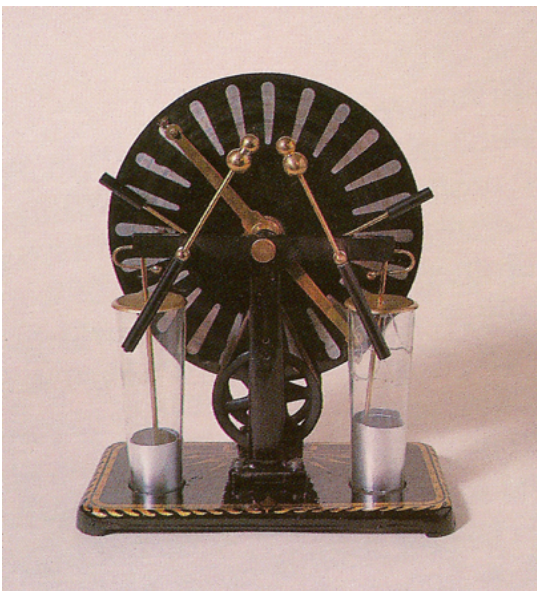
Despite the minimal application of decoration by Marconiphone for their models when compared to those produced by Siemens *see Fig. 133* the cabinetry is fussy and excessive. According to Hill (1996), the Siemens CV wireless could be used in three modes switching between being a 1 valve model, a crystal set or as a crystal set with a valve amplifier stage. Through its technical adaptability, this model attempted to appeal to

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[27] For an alternative version of this set with an internally mounted valve see Pg 66 fig 63 HILL, J. 1993b. Radio! radio!, Bampton, Sunrise Press.

a number of technological markets while being priced at a low £6.10s.0d. potentially made it available to a wider budgetary demographic.

Stylistically, like the V2, the cabinet is relatively plain with few decorative features. Unlike the V2, its cabinet makes no concessions to decorative woodworking, having no mouldings it takes the form of a plain wooden box. Made of what appears to be French polished solid mahogany, this cuboid box is of machine cut comb-jointed construction and this has been left visible. It is following, as Forty (1986) might observe, the stylistic conventions of the scientific and military equipment of the pre broadcast era[28]. Possessing a completely unadorned case having no mouldings or decorative beading the form is typical of Siemens radio equipment of this period[29]. Like most of most receivers of this period, the CV controls are set upon a typical ebonite panel which is functional rather than simple. Unlike the V2 the CV was capable of driving a loudspeaker when in crystal set plus amplifier mode meaning that "listening in" was not a solitary experience but a social one.

A potential advantage of this social aspect would have been that this offered access to the medium to a wider number of people on a small scale. Wireless during this period was, as acknowledged by the Ekco marketing of 1932 (Hill, 1996), largely a masculine preserve; this was principally due to its perceived technological complexity as can be seen in various letters to the editor in wireless publications[30] and as suggested by Geddes and Bussey (1991), Hill (1996) and Briggs (1981); the inclusion of other listeners by means of a loudspeaker therefore makes the medium available to women regardless of their interest in operating a mechanism with an entirely numeric interface. In so doing, the loudspeaker acts as an agent of accessibility and hence offers an element of gender inclusion if not equality. Involvement for the woman within this scenario remains detached and potentially passive as control of the listening matter remains physically vested in the numerically inclined male, given the assumption on the part of the social group that the operation of technology is an exclusively male domain. There is evidence that this was part of the general hegemony of contemporary culture and can be seen in a brief article published in the Ekco Service Bulletin (1931) whereby a man is undertaking electrical work in the home

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[28] see Radio! Radio! Page 29 Fig 30 Ibid. MkII Front Receiver 1917

[29] the same approach can also be seen in the Siemens Type 125 of 1923 (see the science museum collection)

[30] see 1922b. The Wireless world and radio review, London, Iliffe.

rewiring a light-switch while his wife displays her naivety toward both technology and profanity.

Male arrogation of technological ability requires a level of complicity on the part of the female. In this light it should be noted that humour of the period did acknowledge that men were not necessarily any more able to operate such instruments than their female counterparts with various cartoons *see Briggs* (1981) illustrating the faux pas and failures of a variety of male enthusiasts. On examining many contemporary illustrations it can be seen that women where expected to be just as able to operate wireless equipment as men with many illustrations depicting women listening to wireless through headphones without the presence of a male to operate the device. It is largely an apocryphal assertion by various later writers that the operation of wireless equipment was divided upon the basis of gender. Despite this, some illustrations while depicting male and female involvement did place the male hand upon the control and the female ear to the sound suggesting that there was a general belief that the male would be in control of the tuner while the female had a more passive role, technologically speaking.

This notwithstanding, the general appearance of many devices was technological, i.e. they made no attempt to reconcile the device with the domestic environment by aping the form of furnishing styles. This trait also can be observed in the General Type GRC4. Again, a crystal set, this time with no supplementary valve, it was a less expensive option than the Siemens Type CV. Intended to operate a single pair of headphones, which was normal for straightforward crystal sets it was aimed at the individual listener. Stylistically, the cabinet is subordinated by the instrument panel and controls. Having a complete absence of moulding or decorative applications, its comb jointing is visible to the naked eye suggesting that the cabinet has not been veneered. Nonetheless, the instrument panel is carefully laid out in such a way that the controls are of uniform spacing and type, the knobs having the same type of knurling and the nickel plated or ebonite topped terminals producing a homogenous appearance. This utilitarian approach is of particular significance for two reasons. First, because it identified the device as a professionally manufactured good; many "home constructed" being contrivances that were lashed together using whatever took the constructors fancy with a focus on individual components rather than the overall aesthetic. Second, because the considered arrangement of controls and plainness of appearance indicated a different approach to the concept of design whereby the cabinet form was about functionality rather than decoration. That is not to say that the instrument is the product of a self-consciously "functionalist" ethos but

instead it is a rationalist utilitarian approach which demands that the compositional arrangement of the device is most useful to the operator.

The appeal of the wireless to the modernist sensibility is acknowledged by Karl Gunther in *Portrait of a Radionist see Fig. 88*. In this context, the wireless acts as a key signifier of modernity and by extension the sitter, artist and artistic medium are established as modern. Stylistically, Gunther's technique is expressionistic and therefore modern. However, within the composition, other than the radio equipment, there is little to distinguish this scene from one of the late 19th century. Gunther's sitter is wearing headphones and a wireless is prominently depicted to reinforce their purpose. Through this foregrounding of technology the subject is identified as having a modern outlook. Simultaneously, the wireless is treated as a suitable subject for modern art and is acquired as a facet of modernist culture.   By exploiting the radio in this way, the proto-modernist aspect of its cabinet design is highlighted as it acts as an agent of modernity through its clear identification as a machine.

Exposed components and minimal decoration was popular amongst radio manufacturers during the 1920s. When decoration was employed it was typically rudimentary, consisting of minimalist typically ogee form mouldings. By the mid-1920s, this type of finishing was an accepted convention of the wireless[31]. Although many radio designs followed this pattern there were exceptions to this rule and as will be examined later, there were examples where furnishing styles were actively emulated. In most instances cabinet decoration and form was an understated element of the design.

Plastic Cabinetry

Minimalistic decoration was a common convention amongst many British radio manufacturers prior to 1930 and this also can be recognised in the German wireless set included in Gunther's *Portrait of a Radionist see Fig. 88*. During this period another convention of the wireless was established, that of the moulded plastic cabinet. While at this stage, the styling of the cabinet was very different to later examples produced by E. K. Cole, Lissen, Defiant and others the market for such instruments was established. This meant that later bakelite models of the 1920s and 1930s did not challenge the public

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[31] This is not to assert that it was the only chosen shape, other moulding conventions consisted of an abrupt bull nose or a gentle serpentine curve.

perception of what a wireless could be, instead these products conformed to customer expectations.
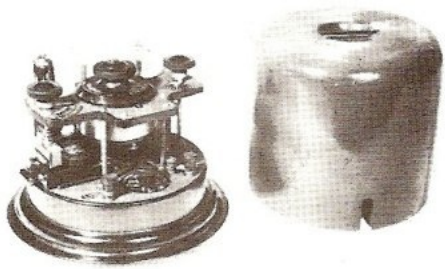
Fig. 136: Met Vick "Cosmos" by Metropolitan Vickers 1925
below:
Fig. 137: Vulcanite Brownie Crystal Set with amplifier. This was a more Art Deco inspired radio bearing a passing resemblance to a temple in shape.
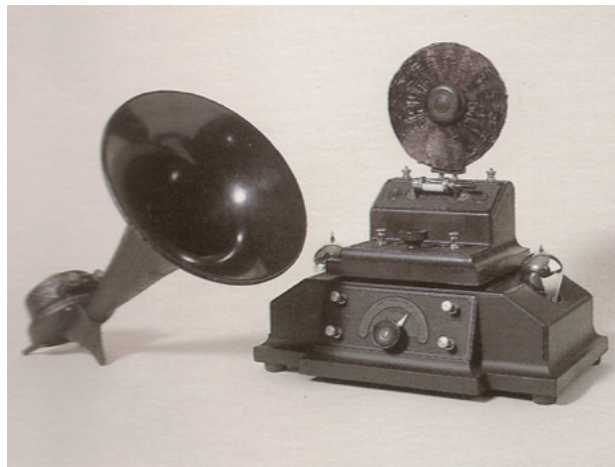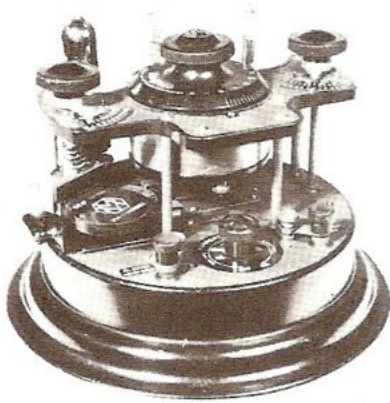
Typically these early plastic cabinets were moulded from vulcanite. At the beginning of the 1920s the use of bakelite was prohibitively expensive owing to the cost of raw materials and production tooling. Phenolic plastics were still a relatively little used material at the time, the dumping of phenol onto the market which brought down the material costs of this group having happened very recently at this juncture (Bijker, 1995). Stylistically, the vulcanite sets made a very important contribution to the visual iconography of radio design. Typically vulcanite sets were black with nickelled brass fittings creating an effect seen frequently in black and chrome modernist bakelite sets of the 1930s. These models were usually more affordable and so also contributed to the reputation for accessibility provided by plastics. Stylistically, cabinets employed some ogee form and serpentine moulding followed the convention established for wooden cabinetry.

When seeking to classify the early stage of wireless, superficially it is possible to appraise these sets as being quasi-scientific. However, when investigated in detail it can be seen that the period established a series of conventions which the public and manufacturers could recognise. These features then appeared later as aspects of cabinetry during the

modernist era of wireless design. Additionally, as is seen in the painting by Gunther, the wireless was recognised as a defining element of the modernist aesthetic. In this sense, many sets of this era were not quasi scientific but proto-modernist.

Novelty Radios:
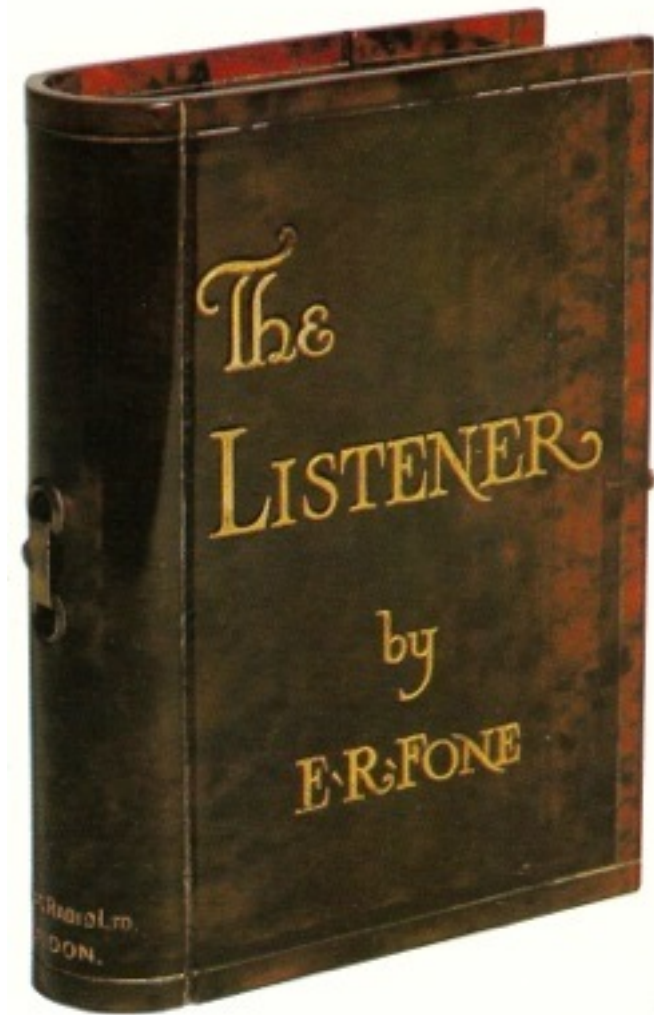
Fig. 138: The Listener Crystal Set Disguised as a book. c. 1925. This was not a form unique to the wireless and a number of novelty items were produced during the late nineteenth and early twentieth centuries on this theme including wooden and tinplate boxes examples of which were produced by Huntley and Palmer.

Novelty sets or what Yagou (2004) called 'Independent Type' radios are not as independent as first inspection might suggest. This genre tends to reflect certain contemporary expectation of the design of a radio while exploiting the foibles of the market to commercial effect. Examples of Novelty radios are not confined to the current period of study but appeared at the outset of commercial wireless manufacture with the exploitation of the existing market for tins in the shape of books, motorcars and other unusual forms. This point is effectively illustrated by *The Listener* crystal set which sought to conceal the
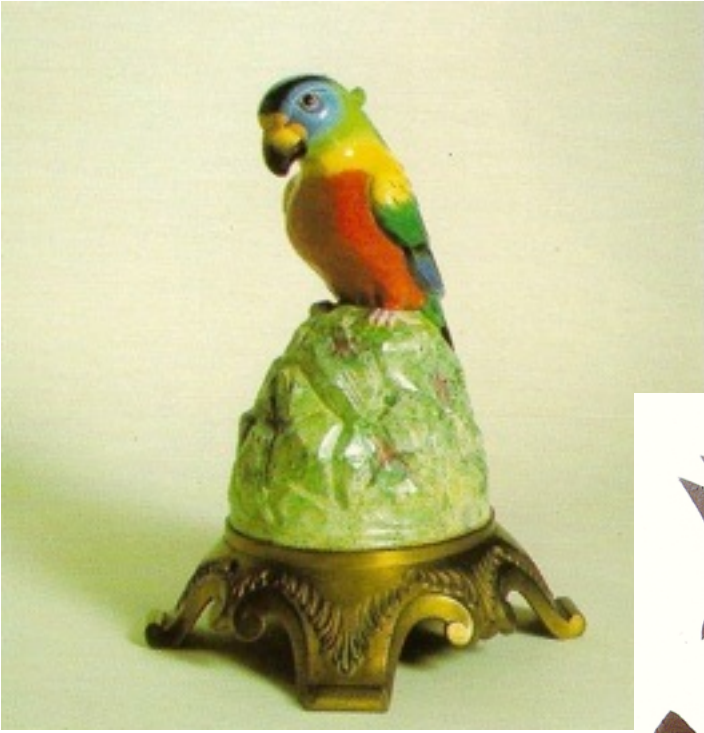
Fig. 139: Art Andia Speaker disguised as a Parrot. c. 1927 Ceramic elements manufactured by Royal Doulton.

Fig. 140: Novelty Radio c.1923 a design which takes advantage of the popularity of the cinematic character of the period Felix the Cat.

Fig. 141: The popularity of film tie-ins is reflected in this later US Emerson Midget Radio Featuring Mickey Mouse, suggesting that the children's market was suitable for exploitation.
circa: 1933

purpose of the object to provide the owner with a pleasant surprise when initially opening the set and then again when showing it to friends. It is inherent within the novelty that the immediate pleasure gained from the product is short-lived thus ensuring that the market remains open to a further purchase. Another example of this novelty is the 'Felix the Cat' crystal set which offered the fan of the cinematic cartoons an opportunity to indulge their interest in the character and in the activity of 'listening in'. Like *The Listener,* this kind of novelty is brief, its user has the amusement of tuning the set using Felix's foot and once this operation had been performed and until an uninitiated spectator arrived its novelty was over. While for the owner the initial novelty is brief, this type of radio set has potential as a conversation piece and so has an enduring appeal to its possessor.

Novelty sets incorporate elements common to most wirelesses. These are conventions of wireless which the user would expect to find such as a galena detector in a crystal set and other tuning controls common to all. Those conventional elements altered within the novelty set genre as wireless developed. This was a response to changes in the expectations of the market as to what the radio should look like. A response to stylistic shifts in cabinet styling can best be seen in the Emerson Mickey Mouse receiver of 1933 *see Fig.141.* In this instance, Emerson, like the earlier manufacturer of the Felix Crystal set, have produced a radio designed to exploit the popularity of Mickey Mouse. However, the popularity of streamlining is now evident and flow lines have been applied to the cabinet, while the eponymous mouse is an embellishment to the speaker grill.

Both Forty (1986) and Yagou (2004) are keen on the notion of the furnishing model as a development of the late 1920s and 1930s. While this is in some respects true, the wireless was to occupy a position in the home in a manner associated with furnishings, the actuality of this type of radio is more true of the early 1920s with radios which drew directly upon furnishing vernacular style being produced at this stage for the British market.

During the 1930s certain sets that became part of the furnishings in that they were incorporated did indeed enter the market. These can be seen in a variety of instances particularly in interior design schemes whereby the radio is 'built in'. However, these are not furnishing models in the sense that is implied by Yagou and Forty as they are addressing the need for minimalism within the fashionable interior. These are frequently the design response to accommodating technology within the smaller home.

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Fig. 142: Tempovox Grandmother Clock radio 1938
The design while novel focusses upon it being a dual purpose
instrument and adopts the style of moderne clocks of the
period.

The Tempovox Grandmother clock is not a novelty piece nor is it an independent design. Instead it is the combination of radio and clock within a cabinet for largely practical reasons. To the prospective customer it offered the convenience of two useful instruments housed in a single unit. By adopting a modern decorative style incorporating the new technology of wireless and that of the electric timepiece this product attempts to assert its modernity. Instead of being offered a novelty , the consumer is provided with a useful and unconventional commodity conflating the radio and the long cased clock. As a result of its stylistic appearance and the inclusion of electric power the Tempovox is presented as a piece of moderne domestic technology. This product is novel but not a novelty. It is a *modern* object for the *modern* consumer.

Wireless cabinets which visibly aped the furnishing style were few post 1928. Before that point it was not unheard of for furnishing forms to be adopted. The most pronounced of this type was the Cosmos "Radiophone". Externally, its cabinet consisted of Serpentine moulded waistcoating with barley twist legs and decorative panelled front and sides. It was technically of high specification and with a cost of £36.15s. 0d for the mahogany model immediately precluding ownership for the majority of aspiring listeners.

Despite its concealment, the mechanism itself conforms to the rationalist approach as seen in models such as the Siemens CV and the Marconiphone V2. This is important, as

it suggests that the consumer understood this to be acceptable of the technology. However its cabinetry catered for the anticipated domestic furnishing tastes of such a customer, suggesting that these were both expensive and conservative. Stylistically, it is what Constable (1980) referred to as the "Jacobean" style although its form draws from a number of historic sources including this period. Gecophone's styling was reflected in the developing taste for half timbered housing in the "Stock Broker Tudor" idiom during the mid-1920s. Such a comparison further supports the notion that the company were catering for the taste of a wealthier customer.

Fig. 143: Gecophone Model 2010 Cabinet De-lux 1923
Picture source: *Radio! Radio!* **(Hill, 1996)**

What makes this receiver's relationship with furniture is it being a single floor standing unit containing receiver, amplifier and speaker. Few radios during this early phase of domestic ownership were of this type although several, presumably bespoke, models of the early 1920s were produced for the higher end of the market. The best known example being the Gecophone "Cabinet de-Luxe" model 2010 of 1923 of the Dulwich Wireless Museum, it having been cited in Hill (1996). Three or four examples of Models of this type and period by this and other manufacturers have appeared on the collectors market in the past twenty years, suggesting that the original demand for such expensive merchandise was not high.

Many receivers bore a passing resemblance to their acoustic cousin the gramophone, having doors to conceal the space in which the solid batteries could be housed, the Efescaphone "Nelson Grand" is one such example. The doors sit beneath the control panel meaning that the batteries can be accessed easily by the user. Such doors were applied to "internal horn" type gramophones as this offered concealment when not in use and a means of effecting a rudimentary volume control. Gramophone styling was also emulated through the application of decorative beading as noted on a number of early models.

The desirability of the furnishing style during this period can be seen at other levels of the market including the home constructor. Sited by Hill (1986), a user assembled receiver was housed in a cabinet with scrolled serpentine moulding to lower edge as seen in some furniture of the Victorian period which referenced the Sheraton style of the Georgian period. Serpentine moulding also appeared on the AJS Type F6 Model 2 of 1925 and a similar form was employed for the cabinetry of the AJS Model Z. It is particularly interesting as it illustrates the way in which the non-mass produced article reflected and even aspired towards the output of the major constructors. In doing so, the *bricoleur* has adopted individual construction not out of a sense of the need to express their own individual vision but instead to access a product which, for financial reasons, might be beyond their reach. Despite the sense of achievement felt or perhaps not felt by the home constructor, what this does illustrate, is not the artistry of the individual but the aspirations of the otherwise excluded. Ironically, the style adopted is a conservative one featuring Georgian styling and ogee form mouldings illustrating those classical aspirations of the maker.

As the influence of new decorative styles began to emerge across the World, Pye introduced the first of their "Rising Sun" models In 1927 following motifs seen at the 1925 Exposition. Although not the first radio to adopt stylistic forms suggested by the Paris Exposition the Pye series of Rising Sun models was particularly enduring. Decorative fretwork was seen on a number of products as the combination radio and speaker set became more widespread, and was not unique to Pye, what Pye achieved was a strong product identity. By 1928 Pye had introduced further models which sported the sun ray motif, suggesting that the previous model had been well received by the public or the trade.

Often cited (Cook and Slessor, 1992, Hawes and Sassower, 1999) as one of the first Art Deco radios the Philips "2514" was still following the convention of separating the receiving apparatus and its monitor. In only a few years since the advent of domestic broadcasting, many other manufacturers offered what had become conventional wooden cabinets. Kalff's design for a radio and with an associated moulded speaker were of high technical quality offering the customer an alternative to a staid market. Rules of separation between apparatus and monitor do not preclude a design from being part of a stylistic genre and the Philips model designed by Louis Kalff exhibits both the scientific rationalism of earlier

radios and the new stylistic geometry of what is now designated Art Deco (Minneapolis Institute of and Hillier, 1971). The Philips 2514 was of minimalistic form with a simplified geometric shape that adopted the ideals of modernist functionalism, so adding to the vocabulary of the wireless that was to develop during the following years.

By the end of the 1920s, through the early proto-modern stage, the success of new art deco motifs and the development of functionalist modernism the public's expectations of the wireless as 'technological modernist' object had been established. This would have repercussions for those radio manufacturers who developed into major producers after 1929 - Ferranti, Murphy and Ekco. For those who survived into the 'Golden Age' of wireless, radio would be a distinctly modernistic form adopting streamlining as in the Ritz Airflow, functionalism at Ekco and Murphy and the moderne forms that appeared at EMI's Marconiphone and HMV Brands.

Wireless had established itself as a product that was deeply entwined with the public's conception of what it meant to be modern. To maintain that status wireless design was in dialogue with other developing mass media forms, the most culturally significant being the cinema. In the next section this relationship will be investigated in greater depth.

Radio's relationship to other Modernist developing mass media forms, most notably cinema.

"What are the wild waves saying,
  Sister, the whole day long,
That ever amid our playing
  I hear but their low, lone song? "

<div align="right">Joseph Edwards Carpenter</div>

What are the wild waves saying? (1849) is now a relatively obscure poem from the Nineteenth Century. Between its publication in 1849 and 1910 it remained a popular piece for piano and the emerging media of film and radio attempted to exploit its currency amongst the public. The song is alluded to in the title of a short comedy film called "*What are the Wild Waves Saying Sister?*" (1903) and by the radio company Igranic Ltd. as a slogan for their tuning coils on which was printed "What are the wild waves saying?". This example of interconnectedness reveals the close relationship between the new entertainment mediums of cinema and radio. Admittedly, the poem is wistful but it addresses play and leisure which were a significant feature in the rise in popularity of both radio and cinema. It is this association with leisure and with glamour that is key to the design relationship between radio and the cinema.

Although a number of different technologies emerged during the 1920s and 30s, radio cabinet design entered into a dialogue with cinematic architecture. As, although many wirelesses of the 1920s can be compared to the styling of the gramophone and even, in some cases, the telephone, by the late 1920s and early 30s the mass appeal of the cinema appears to have been an irresistible source of inspiration for the manufacturers and designers of the wireless. Styling of the radio addresses certain aspects of the relationship between the technically very different fields of radio cabinet design and the architectural model of Odeon Cinemas.

Individual manufacturers in the radio industry during the 1920s and 30s produced receivers which enjoyed a certain level of stylistic conformity. The unified product ranges of the radio companies can be compared to the circuit styling of the cinema groups. For some radio companies, use of a specific style of control knobs throughout their product range was the limit of their brand uniformity; while others employed similar materials

across the range with tuning dials of a distinct form that lent cohesion to their products during a marketing season. While this brand identity was not necessarily directly linked to the cinema exhibitors approach to corporate identity, brand identity was clearly of importance to the setmakers. Concurrently, many companies adopted stylistic elements for their radio sets which are directly comparable with the decorative style of cinemas.

Above left to right: Fig.144: Ekco AC97 from the 1936 Belgian Catalogue & Fig. 145: Odeon Kingstanding at night Picture Source**: Odeon Program 1936 (authors collection)**

Fig.146: Northwick Cinema Worcester Picture Source**: Authors archive (photographed 2011)**

Ekco introduced the AC97 designed by Jesse Collins In 1936. From a marketing perspective, this followed a successful tradition for E. K. Cole Ltd. of promoting named designers, although Collins appear to have been different to others who worked for them as he had no direct connection with C.I.A.M. His cabinet design for the AC97 *see Fig. 144.* has a number of similarities to the interior and exterior styling of Odeon cinemas. These can be identified as: it has a tower - in this case a skyscraper form, the vertical swept streamlined profile of the cabinet, horizontal air flow fins and an extended centrally

positioned vertical tuning scale similar to decorative features seen in *Fig. 144 & 145*. Its close similarities to cinema buildings of the era are striking, especially when compared to the Odeon Kingstanding see *Fig. 74 & 145*, the styling of which, particularly at night, follows almost identical conventions. It's swept and curved tower form with, streamlined fins closely echoes the styling of the AC97's tuning scale.

A further element that can be associated with cinema styling, found in the Ekco pamphlet promoting the AC97 (1936a), is reference to what is called an "edgeon" tuning indicator. Despite its grammatical similarity to the word neon, "Edgeon" was a technique of positioning a bulb at the edge of the printed glass tuning dial, so that light traveled into the glass illuminating the lettering as it did so. This is not explained in the promotional literature and with edgeon's similarity to the word "neon" this is far too convenient to be a coincidence. It is therefore likely that it was an attempt at further highlighting the fashionable styling of the set by association with a dynamic, new and popular form of lighting[32].

Neon lighting was also used in later Odeon Cinemas that did favour neon signage to highlight the streamlined forms and architectural features of those buildings. In a number of these cases, notably the Odeons at Woolwich and Kingstanding neon strips were used to draw attention to and even expand these elements of the streamlined form at night as can be seen in *Fig. 145*. This expansion and highlighting of the streamlining was also seen in radios and Ekco radio created a similar effect by positioning sweeping streamlined fins to the sides of the cabinet. Although these were not illuminated they did provide an element of visual interest in most natural or artificial light. Additionally, these fins, in combination with those of the tuning scale, draw the eye toward the primary function of the device by converging upon the speaker aperture, which is completely open having no speaker fret only cloth. This was a departure from the conventions of 1930s radio design and despite not being unique to the AC97 is an important design element of the set, there being nothing beyond fabric to impede the audio signal.

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[32] According to EYLES, A. 2002. Odeon Cinemas, London : Cinema Theatre Association, 2002-2005 (London : BFI Publishing)., early Odeon signage did not employ neon and the first sign designed by Harold Pearce for the Perry Barr Cinema was, like other signs of 1930, backlit and called a "halo sign" which created a similar effect. This backlighting is similar to the edgeon lighting of the 1937 Ekco range.

By 1936, when the radio was produced, Odeon Cinemas were firmly associated with the use of Neon lighting and it was as an element of Cinema architecture that the majority of the public would be most aware of neon light.

Fig. 147: Ekco All Wave Radio Advertising 1936 Picture Source**: Authors Collection**

Although the similarity to cinema architecture is conspicuous, other stylistic influences should be considered, particularly the glamour of exotic locations such as America. Ekco's 1937 Catalogue (1936a) draws attention to their new "All Wave"[33] sets which were introduced in that season. An associated poster promoting All Wave reception foregrounds the notion of international contact and implying that the radios are able to receive American stations. A key visual signifier of America is the skyscraper, although none of the buildings refer to a specific building. Instead the poster seeks to draw upon the iconic value of skyscraper as popular image of the American cityscape. Such promotion would suggest that styling of the AC97 is alluding toward cinema and to the romance of exotic travel.

That the design of some radios referenced Western exoticism is a wholly valid observation. Owing to the relatively high cost of international gallivanting during the period, most members of the public experienced the flavour of Americanism and the imagined exoticism of skyscrapers through the consumption of new media products such as cinema and radio. It is also germane to recognise that the AC97 and radios of similar form draw upon the same influences as the cinemas and are in this way making oblique

[33] "All wave" meant that the radio could receive Long Medium and Short wave signals.

reference to their media rival[34]. By maintaining their position as a fashionable contemporary product their status as a new product was similarly maintained. As such, the modernity of the AC97 was that of the moderne glamour of the cinema and of streamlining rather than that of the more ascetic modernism of the Bauhaus.

Fig. 148: The R I Ritz Airflow c.1934

Elements of cinema architecture are frequently identifiable in examples of radio cabinetry due to the establishment of a style for the emergent media. Radio Industries Ltd. aimed to appeal to a range of public concerns through their 1934 model the Ritz Airflow, *see Fig. 148*. Radio Industries called upon the aspirational value of both the Ritz hotel and cinemas of the same name, when naming their radios and also drew on the popular device of streamlining for their 1934 model the Ritz Airflow[35]. It showcases streamlining in its cabinet design, both in terms of its curved rectilinear form and through the uncluttered appearance of the instrumentation. Streamlining was achieved by employing a speaker fret that was made up of horizontally cut apertures in the casing creating "speed lines". Through using bent plywood as the main cabinet material a sweeping streamlined action is produced, creating an effect similar to the brickwork technique used on some cinema buildings. The usual littering of knobs was eliminated by situating the controls in a recess

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[34] In the same way, the Daily Express owner commissioned the construction of the High Art Deco headquarters to attest the dynamism and modernity of the Newspaper at a time when the form appeared to be under threat from both cinema newsreels and the radio.

[35] This radio cabinet was later reintroduced in 1947 but the styling dates to 1934 and exhibits a number of preoccupations of the day.

to the lower side of the cabinet, thus giving the appearance of both an uncluttered design and suggesting ease of use. In this instance, ease of use is an illusion because when one investigates the design further the standard set of three controls can be found in that recess. Radio Industries' Airflow cabinet acknowledges similar concerns to those expressed by Frank Murphy and EJ Power when they commissioned Dick Russell to do something about the "ugly knobs" (Pg. 58 Myerson, 1992) on their radios.

The Ritz Airflow possesses a modernity or, at least, a sense of modernity, similar to that seen in the exteriors of the Odeons at Isleworth and Loughborough. The impression of simplicity is generated by the use of similar uncluttered curved rectilinear visual effects. Further comparison can be made between the Airflow and specific cinemas, the interior of the Odeon Surbiton of 1934 bore a striking resemblance to the airflow having three curved strips which terminated in rounded ends built into the auditorium wall to provide lighting. Many Odeon Cinemas were built and decorated in an uncluttered streamlined form although there are exceptions[36]. This stylistic similarity suggests that the Odeon Cinemas and the wireless manufacturers were attempting to appeal to the same audience, which was considered to be a slightly "better class" of patron with most Odeons, according to Eyles (2002), charging marginally more for its lower cost seats than other cinemas of its day.

Fig. 149: GEC Mains 3 1934 Picture source Radio Art (Hawes, 1990)

General Electric had been making wireless sets prior to World War One and had been a key member of the British Broadcasting Company before it became the British Broadcasting Corporation in 1927. Despite their association with the BBC, which was a non commercial body, in that it did not accept advertising or private sponsorship, they were not unaware of the marketing potential of fashion. This can be seen in the distinctly architectural cabinets produced for the relatively inexpensive and straight forward Mains 3

[36] The Royal at Alfreton *see Fig.73* is an example of Jacobethan styling in cinema architecture

see Fig.149 and Battery 3 models. Unlike Ekco, who produced standardised cases which would house any version of a particular receiver offered in that year[37] GEC manufactured two different cabinets for their mains and battery sets of 1934. The stepped outlines of these designs are more akin to the British Cinemas than to the skyscrapers from which inspiration for those picture palaces had come. Bevis Hillier's (1968) Mayan temples can be seen in the ziggurat arrangement of the rising cabinet identifying it as an Art Deco design.

Regardless of reference to tall buildings, these cabinets have a broadness which negates their relationship with the skyscraper. Instead the cabinets give the impression of buildings similar to those seen on the Cinema circuit such as the Odeons at Guildford and South Harrow. In this instance, the radios were the cheapest in GEC's range and were attempting to appeal to the popular market. Accessibility is the most likely reason for the choice of such cabinet styling and for the company having chosen the phenolic compound "bakelite" for its material. This distanced these products from the more expensive wooden models produced by GEC[38] while the monumental scale suggested that the consumer was still being provided with a substantial product, The introduction of the General Electric Mains and Battery 3 models was in competition with other radios released in 1934 whose pricing was below the £8.0.0 level such as the KB "New Pup" which was the nearest factory built battery set in price at £5.15s.0d and the Regentone B/35, also a battery set at £7.15s.0d. By pricing the Battery 3 at £5.10.0, GEC undercut the competition and through marketing the radio in a fashionable architecturally inspired cabinet, offered the patrons of the stalls an opportunity to own an aspirational modern domestic device, a radio.

Cinemas were not usually constructed in the manner of an Egyptian Temple, the content of early radio programming was often concerned with the popularity of that ancient civilisation owing to ongoing public interest in the Pharaohs. Radio manufacturers were equally keen to respond to public fads and fashions and the GEC models were not the first wirelesses offered in architecturally inspired bakelite cabinets. Lissen produced a 2 valve set of 1931 which was housed in a casing that aped the style of an ancient Egyptian temple. It was pitched at a price of 7 guineas making it a potentially attractive wireless for the consumer as it was in competition against wooden table models which were offered at 17 guineas.

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[37] e.g. the Model 78 of 1937 cabinet would house the BV78 vibratory HT chassis, the UAW78 and the B78 the battery powered model all of which being quite different technically but visually very similar;

[38] The GEC superhet 5 of 1933 retailed at 14 guineas which was twice the cost of the mains 3

Lissen had been acquired by the battery maker Ever Ready in the late 1920s although this was so that the latter could obtain the battery making section of the former's business rather than a desire to move into radio manufacturing in a more significant way. Ownership by a battery company does not appear to have impacted upon Lissen's output of mains sets. The 2 valve Egyptian Temple model is unusual in that the Lissen had been in the business of making kits for home construction such as the Skyscraper, which went on being made until well into the mid 1930s. Lissen factory constructed sets were given strong modern styled cabinets which conformed to the popular public view of what communications devices should look like. For their two valve set Lissen chose to exploit the popular perception of fashionable modernity that could be experienced through the mass media and its promotion of the romantic ancient Middle East. Egyptian styling also can be seen in the Ekco RS3/SH25 cabinet of the early 1930s *see Fig. 29* where the bakelite radio case has adopted a manner similar to that of the headdress of Claudette Colbert *see Fig. 28* in the epic film Cleopatra of 1934. This relationship between the popularist aspirations of the cinema and those of the radio manufacturers is particularly striking.

Chermayeff's Designs for E K Cole

The Designs by Serge Chermayeff illustrate both the importance and success of the modernist style and its establishment as a design paradigm within the wireless industry. Chermayeff was a freelance designer who worked for E. K. Cole's design department which was under the charge of J. K. White who had been responsible for the design of the RS3/SH25 and RS2/M23 cabinets (Geddes and Bussey, 1991). E. K. Cole had already established a relationship with plastic mouldings by purchasing designs for their 1930 models 313 and 312. These bakelite cases were the product of draughtsmen from the AEG and according to Lipman (1980) were pressed in Germany. J. K. White remained the head of the design department throughout the interwar period and was responsible for the commissioning of cabinet designs. As such, White, along with Michael Lipman (1980) is largely responsible for the introduction of the modernist aesthetic to the company.

Chermayeff produced a number of cabinet designs for Ekco between 1933 and 1937 in a variety of shapes all with utilitarian intentions. In the 1933 examples, his designs appear to

focus upon the issues of functionalist aesthetics concerning the purpose and operation of the product. As a facet of this approach the relationship between the model 74 cabinet and the domestic interior has been addressed by adopting an element of owner adaptability. In terms of appearance, surface decoration has been eschewed for both models. The innate qualities of the material are utilised for their visual appeal and the leather-like textured moulding favoured in previous Ekco radios[39] has been avoided in favour of smooth Bakelite surfaces.

The cabinets for models 74 and 64 were the first to adopt the prominent use of chromium detailing[40]. This seems to have been for decorative effect rather than functional purpose as it provides no improvement to the ergonomic functionality of the design; ergo, chromium has been employed as a signifier of modernity. This not withstanding, the Chermayeff designs for the 74 and 64 remain the first commercially available products made by E K Cole Ltd. utilising chromium for fittings in an overtly modernist idiom.

Fig. 150: Ekco stand Plastics Industry Fair - date circa 1936/7 Note the inclusion of tubular steel furniture - seats and table tops were moulded by Ekco for PEL. The model 77 duo-moulded cabinet can be seen fourth cabinet from right.

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[39] bakelite cases of the 313, 312, their matching speakers, the RS2 and 3, the M23 and SH25 all incorporate leather like texturing.

[40] A chromium plated speaker fret for the 1931 model RS3 was recovered in the late 1990s by a wireless collector, along with a photograph depicting a variety of "duo-mould" cases for this model in a range of pastel coloured combinations - to date none of these cases have been located and the likelihood is that these were produced to demonstrate the capabilities of the Ekco plastics division to industry rather than as a product that was taken to marketing stage moreover, the duo-moulded cases appear to have chromium plated speaker frets rather than the usual bronzed effect found on brown black and dark green examples more commonly encountered on the collectors market.

What the use of chromium detailing does achieve is firstly, to provide the appearance of the modern[41] and secondly, to create a stronger connection between the cabinet design and its chromium plated tubular steel stand[42]. In semiotic terms, through this homogenisation of radio and stand the device enters into a dialogue with other functionalist products. The radio becomes a mechanism floating upon strips of cantilevered steel, testifying to the relationship between it and other functionalist objects designed for the domestic interior such as Stam and Breuer's cantilevered chairs. This testament is further cemented through the relationship between Chermayeff and the adapted designs of Stam and Breuer available in Britain through PEL and Cox as identified by the Architectural Association study (Sharp et al., 1977).

Chermayeff and those anonymous members of the Ekco design department who worked upon the model 74 were possessed of the same connotive aspirations as many other radio manufacturers. The most direct parallel within the wireless industry was with Murphy who included tubular steel chairs in their promotional material. This was done to associate their products with modern furniture and also with those items which conformed to prevailing ideas of what constituted "Good Design", particularly regarding functionalism (Myerson, 1992).

Fig. 151: Model 74 with Chromium Steel Stand and with Brown wooden Stand (EKCO, 1933)
Fig. 152: Murphy Models for 1933 note right hand picture with edge of tubular steel chair in shot. Interiors are similar to those used by Ekco for their models.

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[41] chromium being a finish that superseded the use of nickel plating for automobiles and light fittings and was the finish favoured by PEL and Thonet for their tubular steel furnishings

[42] the chromium stand was available at an additional cost of 35 shillings

Part of Ekco's attempt to market their modernist device acknowledged the owner/customer as actant in the design process. This was expressed by addressing the need for that actor to tailor the device to their individual and changing domestic environment. Alteration to the design was achieved through a feature of the Model 74 whereby the speaker fret could be removed and the cloth changed without having to access the electronics of the radio. Speaker cloth could be substituted by the owner as befitting their personal taste and decorative scheme. The interchangeable speaker cloth was highlighted in the marketing leaflet for this set (EKCO, 1933) although surviving examples seldom show signs of this owner customisation. Despite this, the feature illustrates Chermayeff and Ekco's awareness of the relationship between their products and the pre-existing domestic interior and the need for flexibility.

As is discussed in Chapter 6, Freeing up the relationship between room and Radio, carrying handles were integrally moulded to the sides of both sets offering easy movement, although this was not intended to make the devices portable. These handles highlight the relationship, both of Chermayeff and of the products, with the Wells Coates designed speakers that were produced for the offices and studios of Broadcasting House. Simultaneously, their inclusion recognises the potential need of the private owner to be able to move the wireless set from room to room, as was required for the monitors at Broadcasting House.

Fig. 153: The Office of the Director of Programs. Design by Raymond McGrath.

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The Office of the Director of Programmes. Photograph by Arthur Gill.

In the subsequent 1934 season there was no clear indication of any Chermayeff designed models. However, the ADT95 does bear some similarities to the AC74. This model shares the same style of speaker bars and control knobs as the Wells Coates designed models of that year. In this sense it does not have any distinguishing features that would identify it as a Chermayeff model except that it follows the same upright format and compositional arrangement of controls. In the following year, 1935, Ekco literature (1935) documented his design for the model 86[43]. It is also possible that he was responsible for the model ACT96 although the literature does not make direct reference to this. These cabinets addressed both the functionality of the devices and their ergonomic functionalism.

As there is no extant literature which positively identifies the design of the ACT 96 as belonging to Chermayeff it is proposed that by drawing parallels between the its design and that of model 86 then the authorship of the former might be established. In the case of the model 86, its tuning and volume controls are tilted backward slightly, by means of a sloped recessed moulding to the front elevation which,offers the user an easier viewing

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[43] Chermayeff's design is highlighted by the V&A through its inclusion in their permanent collection and in HILL, J. 1996. Radio! radio!, Bampton, Sunrise Press. and HAWES, R. & SASSOWER, G. 1999. Bakelite radios, London, Quantum.

and operating angle. Similarly, the ACT96 had a tilted tuning scale to offer easier viewing when in use. The layout of controls is unlike any previous models designed by Chermayeff although they are based roughly upon the AC74 and its successor the ADT95. Comparison can be made to the much earlier 312 of 1930 which suggests that this may be the product of a staff designer at Ekco. This idea can be supported by the use of generic Ekco tuning knobs which were common to all ekco models of this and previous years. However, the layout and speaker bars are similar in style to the subsequent model 77 which is a known Chermayeff work. The bars of the ACT96 and model 77 have a deeper profile than those designed by Coates for his interwar models[44]. The bar then has an angled protrusion to the back where the bar meets the cabinet which is identical to the manner of connection which was employed on the model 77. This feature is also common to the speaker bar of the model 86. In itself the profile of the speaker bars is not enough to positively identify this as being a Chermayeff design; however, the 1936 AC77 is the most ergonomically conceived version of the radio produced by Chermayeff, with the tuning controls and the scale positioned effectively for ease of use in a similar configuration to the ACT96. By comparing the two designs it can be asserted that the similarities between the ACT 96 and the models 86 and 77 suggest it to be a design by Chermayeff. Although possibly it could be the work of an anonymous designer this is unlikely as the features match those of Chermayeff's other products too closely without employing any of Coates' design usages.

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[44] Coates used a particular profile for the speaker bars on all of his models 76, 65, 85 and even in curved form for the 36 which are all corroborated Coates designs according to Ekco publications: EKCO 1934b. Model 65. In: LTD., E. K. C. (ed.). southend: E K Cole Ltd, EKCO 1935. Ekco Models 86, 76, 36 and ACT96. In: LTD., E. K. C. (ed.). Southend: E K Cole, EKCO 1934a. Ekco Models 65, 85 ADT 95 RadioGram and Consols 1935. In: LTD., E. K. C. (ed.). Southend: E K Cole Ltd.,

Fig. 154: ACT 96 & Fig. 155 AW87 (Model 77 cabinet) . The advertising on the right offers the prospective owner the opportunity to hear America through the All Wave receiver.

Like the model 74, an element of adaptability was incorporated into the design of Chermayeff's model 77 cabinet. This was achieved by producing the cabinet in two pieces. For the Belgian market it was offered as a black and ivory duo moulding. According to company literature currently extant this colour combination was not offered to the British market, although a version of the duo moulded cabinet was displayed at a British Industries event in the mid-1930s. There is no indication of the reasons for this marketing strategy except that according to Lipman (1980) the cabinets for the Belgian models were shipped by Sea whereby locally manufactured electronics were then installed at Haren near Bruxelles and the cabinets may have been easier to ship in this form. It is also possible that the company viewed the continental market as being more progressive in their approach to colour.

The model 77 was organised in a format which placed the speaker below the controls meaning that the user was provided a clear line of vision for tuning. The controls have been rationalised through reduction and reorganisation into a straightforward arrangement which seeks to provide uncluttered ease of use to the operator.

While Ekco produced sets of this type designed by Chermayeff their formats are not unique. Other manufacturers, notably Cossor, Telsen, Pye and McMichael produced similarly configured arrangements in their sets. However, sometimes these receivers did not offer the convenience of angled controls or were much larger, thus limiting their ease of movement should the owner wish to rearrange their furnishings. Nor were Ekco the first to introduce technical factors which facilitated their cabinet designs.

Murphy radio addressed the issue of ease of use in their first mass-produced design, the model B4. Akin to the ACT96 its controls were positioned at the top of the set to provide ease of access and had an internal frame aerial but no turntable. It is important as its original incarnation was produced in 1930, predating all of E K Cole's more minimalist designs by three years and as such, suggests that Murphy was the first British based company to produce a radio cabinet design in the modernist idiom. The B4 had a ledge below the controls on which the user could rest their hands while tuning the set. Locating a station in 1930 could take some time and so this was a particularly pertinent consideration. The 1932 version enjoyed a more recognisably modernist geometric grill in the form of a series of concentric circles.

Although Chermayeff was designing according to a set of ideas which have commonalities with many other radio produced at the time, it was he who adopted a distinctly modern approach to his cabinet designs. His modernism applied the philosophy of functionalism to a modern subject i.e. wireless and addressed a modern material i.e. bakelite. These factors make his contribution to wireless design particularly important, as the public through buying into a Chermayeff designed radio were consciously buying into the modernist aesthetic.

This leads to the need to consider the next topic of Plastics. For the consumer, by consuming a modern product such as the radio, made of a modern material like plastic they were automatically buying into the modern age. Despite consumer enthusiasm for modernity this was not sufficient for many of those who promoted the ideals of good modern design. Therefore, it is necessary to consider the nature of the relationship between radio manufacturing and plastics.

Plastics and Radio Design

According to Gloag (1945a), plastics come in two basic types; thermo-setting and thermo-forming. Thermo-*setting* plastics are heated and moulded under pressure and once cooled cannot then be reshaped these are typically Phenol Formaldehyde (marketed using trade names such as "Bakelite" and "Catalin" although Catalin is a semi-transparent resinoid) and Urea Formaldehyde (under trade names such as "Scarab" and "Beetle" which were differentiated mainly by the types of fillers used). Thermo-*forming* plastics are heated; mould formed but then can be reshaped through re-heating. These tend to be early plastics such as rubber treated with sulphur to harden it known as "Vulcanite" or "Ebonite", Casein which is a process of hardening milk proteins with formaldehyde also known as "Erinoid" (Gloag, 1945b) and Celluloid which is cellulose treated with camphor and nitrates or acetates.

A number of thermoforming plastics such as Perspex (Polymethyl methacrylate) have come into use since the late thirties but were in only very limited use prior to 1939 (Clark, 1997). Despite the limited use of these new materials for the cases of radio equipment it was recognisable to the general public as being a product of scientific modernity owing to the manner in which these products were offered to the public. As late as the 1950s the promise of such modernist scientific polymers was still possessed of enough wonder that it is featured as the potential saviour of modern living as well as a dangerous evil to the industry in *The Man in the White Suit*.

That early plastics were of importance to the development of new technologies such as electrical goods and other labour saving devices has been widely acknowledged (Hawes, 1991, Hill, 1996, Peto et al., 1999, Clark, 1997, Cantacuzino, 1978, Forty, 1975). This understanding is based upon the recognition by studies such as *Plastics* (Yarsley and Couzens, 1941) and *Plastics and Industrial Design* by John Gloag (1945a) of both the mass production potential and the insulating quality of plastics. Both studies observed that electrical companies were quick to accept the new thermo setting materials but Gloag (1945a) noted that in the wireless industry, mouldings tended to follow too closely the style of their wooden counterparts.

The issue of good design within the radio industry is distorted by Gloag as, while he draws attention to the work of independent designers who were contributing to the Radio Industry, the examples he holds up as being "good design" tend to be the products of the modern movement such as those produced by Coates and Misha Black. This is perhaps unsurprising as Gloag was associated with both of these designers through his membership of the Modern Architectural Research Society, named by Coates (Cantacuzino, 1978) and the Council for Industrial Design, of which Black was a member.

Despite the possibility of nepotism, the examples of good design he cites withstand scrutiny as both products were commercially successful. By selecting a popular good such as the wireless, Gloag is attempting to subtly promote the aesthetic of the modern movement using these designers as exemplars. Gloag's action contributed to the establishment of the modern movement as a dominant ideology in the understanding of "good" design.

Radio manufacturers had a scale of commitment to plastics, employing the material within cabinet construction both as a principal material and as a supplementary element. This meant that, at one end of this scale the benefit to the manufacturer might have been limited to the use of moulded plastic controls, obviating the need to individually turn each one, while other manufacturers, such as Ekco, were heavily dependent upon mouldings. The most extreme example of this commitment to plastics was Philips' Model V5A which was constructed from bakelite to such an extent that the chassis was rendered redundant.

For the consumer, plastic cabinetry implied modernity while it offered manufacturers the potential to meet the high demand for their products by accelerating the manufacturing process, allowing greater numbers of sets to be produced. Owing to the efficiency of the moulding equipment, the unit cost of the wireless sets could be brought down, leading to higher potential profit. Despite lower production costs, the retail price of bakelite radios was not reduced, e.g. E.K. Cole produced the 313 and 312 in 1930 charging £22.10.0 for their 3 valve model 313 (including the cost of the speaker) which compared with £12.12.0 for the Lumophon AC3 (not including the cost of a speaker) but offering exactly the same technical specifications[45]. The key difference in the two products was that the Lumophon was housed in a wooden case with a phenolic panelled front and the Ekco in a moulded all-phenolic cabinet albeit with a matching speaker, suggesting that the Ekco cabinet was

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[45] both were mains powered and their circuits used 3 valves plus rectifier.

priced based upon desirability rather than production costs. This comparison illustrates,the perception of the machine made plastic cabinet as a superior product.

Despite the public's willingness to pay a premium for plastic cabinets this did not mean that the whole industry switched to using moulded casings. Instead, there were manufacturers who investigated new approaches to traditional materials. Murphy Radio chose to produce wooden cabinets with an ethos of quality through craftsmanship. To this end they established a connection with the furniture company Gordon Russell Ltd.

Murphy, Gordon Russell and Utilitarianism

According to Myerson (1992) the relationship between Murphy and Russell began following a recommendation to Murphy from John Gloag and Percy Wells. This was the result of several factors; these being: the need for Gordon Russell Ltd. to realise an outlet for their furnishings following the collapse of the luxury goods market following the Wall Street Crash, Russell's interest in applying machine production to wooden goods and Murphy's desire to produce better designed mass produced radio cabinets.

Long (1985) states that Murphy was of a mind that looked for the maximum benefit from an action. This means that his outlook was utilitarian in the sense Bentham (1789) defined it. Murphy's utilitarianism had not the pejorative associations of utility, which were acquired due to austerity measures in Britain between 1940 and 1950. Similarly, Gordon Russell was equally of a mind that believed in utilitarianism (Myerson, 1992). It was according to this unifying principal of utility that Russell and Murphy approached the project of radio manufacture.

An initial meeting between Frank Murphy, E. J. Power and Gordon Russell illustrates the aesthetic aspirations of the radio company owners. Their desire was to produce cabinetry that was of "good design" which meant minimum embellishment for maximum purpose. Murphy and Power had gone to a great deal of trouble attempting to hide the control knobs from view as these were considered to be "ugly". Dick Russell's solution[46] to this dilemma consisted of organising the knobs in a formal compositional arrangement which made their appearance pleasing, rather than making any effort to conceal them from view. Given

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[46] Despite there being no written record of the designer's thought processes on this matter, his approach can be extrapolated from the resultant radio products of this commission

Frank Murphy's view on the subject of good design[47], ease of use was paramount. This interest in ergonomics was expressed in the early phase of his collaboration with Dick Russell as a mix of Functionalism and the Northern European Arts and Crafts tradition. Later radio designs focused more strongly upon the relationship between use and functionalism: this being the ideal positioning of dials, controls and monitors for the optimum ease of use and production of sound. Murphy Radio had adopted the sound board or "baffle" principle as a central element in the construction of their cabinetry. This is not to say that other manufacturers did not do this. Recognition of the effectiveness of the principle can also be seen in the construction of plastic cabinetry. To produce a better audio response, Ekco and Ferranti attached their speakers to a piece of wood prior to fitting into the moulded cases. This provided a better vibratory medium for the speaker to attach to, moulded plastics not being as resonant as even a plywood board[48].

By eschewing decorative embellishments in favour of compositional form and the innate properties of materials and their manufacturing processes to provide and underline the quality of the product, Murphy Radio adopted the Functionalist aesthetic. Plywood was employed as a cabinet material for the A8 although the A3 (*see Fig. 128* for similar model A3a) and the B4 (the cabinet of which was designed by E. J. Power) were produced using solid woods. Even though the A8 cabinet was plywood, its surface was veneered with an exotic variety of walnut giving the product a luxurious appearance.

Veneering, as opposed to the use of solid woods would have been familiar to the contemporary public, as this was a technique which had been common practice since the 1830s. The key difference being that, prior to the introduction of sandwiched plywood, the veneer would have been applied to a solid wood carcass which was frequently joined in such a way as to allow for stresses in the material owing to shrinkage and to lend the product greater structural strength. Owing to the founding of Gordon Russell Ltd. upon a variety of Arts and Crafts principles (Myerson, 1992), this would appear to be a significant departure for the company. Solid wooden cabinets, like the A3, being more in line with their aspirations. It was their utilitarian ambitions which survived the move into mass production.

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[47] In HOLME, G. 1934b. Industrial design and the future, London, The Studio. Murphy remarks that it is possible to quantify purposeful functionality through experiment but not the essence of good taste, implying that good taste is innate and cannot be arrived at through formula.

[48] plywood was commonly employed for such "baffle-boards".

To understand this survival, it is worth recognising that the design department in the newly established Gordon Russell Ltd. was, in fact, run by Dick Russell and not Gordon, who was much more invested in the craft tradition (Pritchard, 1984). Dick Russell had come down from the Architectural Association and was more inclined toward designing for mass production.It is observed by Jack Pritchard (1984) that while Dick Russell had the same attitude to quality and skill as Gordon he designed for large scale production and it was this attitude to quality and skill which resulted in the continued use of woods for constructional purposes when the Murphy Radio projects began. Forty (Forty, 1986) observed that Gordon Russell had not considered what a radio should look like prior to being approached by Murphy as he viewed such a product to be beneath the dignity of the craftsman. Therefore, it was Dick Russell's training in architecture during the late 1920s and early 30s which resulted in such a successful partnership with the radio company.

Murphy did move into producing plastic cabinetry but not until well into the 1940s. This means that, during the period of study, Murphy was producing a specifically wooden version of modernity. Despite initial qualms, Gordon Russell Ltd. did invest in the machinery of mass production in their new factory at Welwyn Garden City. This facility was established principally for the production of Murphy radio cabinets. Russell's solid wood cabinet, the crafts based A3, was re manufactured in 1932 as the A3a in a broader cabinet of veneered plywood with the further addition of a matching stand. On first inspection, this appears an unusual thing to have done, as the larger, plywood A8 was not continued. It was all the more peculiar as the A3 was not popular with the Radio Trade amongst whom it was known colloquially as the "Pentonville Set" (Geddes and Bussey, 1991).

Retailer disquiet aside, according to Forty (1975) the A3 had sold 15,000 units. Compared to some other manufacturers, it is possible that the A3 sales figure may have been average, but when contrasted to Ekco's 1933 sales of 150,000 units for Chermayeff's moulded plastic cabinet model 74 this statistic somewhat palls.

Stylistically, both sets were modernist in form but the approach of the manufacturers was very different. Certain features of the A3 are typically "machine age", it's knobs are geometric, functional devices designed for purpose and this can be compared to those of

the model 74. The rest of the cabinet features show more interest in the material and its function as a cabinet rather than its function as a wireless. This is not to say that the purpose is not facilitated but rather that the form could just as easily be adapted into, for instance, a small shelving unit, whereas Chermayeff's cabinet glorifies its purpose as a technological device. His model 74's speaker fret is geometric, with a plain latticed grill which might only previously have been seen on a "meat safe" and is clearly recognisable as a style associated with air vents and heaters, rather than conventional furnishings. When seen in the lower budget brown "walnut" effect Bakelite finish it can be seen that the design relies heavily on its form to indicate its modernity. Ekco, like Murphy were under the impression that knobs were "unsightly" describing them as such in their 1939 catalogue (Cole, 1938) when introducing their new control system which they called "Spin wheel" tuning. By the 1938 season Ekco had switched to using wooden cabinets supplemented by bakelite inserts for their principal models, suggesting that the market for modern luxury products ultimately agreed with Gordon Russell. This indicates that Frank Murphy and Gordon Russell were correct in their steadfast advocacy of traditional materials employed for modern applications.

Furniture and the Radio Industry

John Gloag (1945a) and British Art and Design 1900-1960 (1984) both take the view that radio design was an important product of the furniture industry in Britain. This is true in so far as certain furniture designers and manufacturers, as distinct from dedicated radio manufacturers, approached the task of designing and producing radio cabinetry; it is still relevant to consider that furniture also might be a product of the radio industry.

This is literally true in the sense that certain radio manufacturers produced elements for the furniture industry such as phenolic table tops and chair seats but when taking a broader view, one can also see certain aesthetic and ergonomic concerns coming from the radio industry. Radio manufacturing is included in works on the life of Frank Murphy (Long, 1985) and about Gordon Russell (Myerson, 1992) but these works do not consider how that relationship may have influenced their furniture output. Long (1985), in her treatment of Frank Murphy's activities, divided his radio and furniture interests without viewing them as being one in the same thing. This suggests that Long considered the wireless to be a distinct entity separate from furniture. Through, addressing the philosophical connections

of utility, access and build quality, she suggested that Murphy was able to apply the ideas he had developed in the wireless industry to that of furniture design.

In their advertising literature Radio Manufacturers were keen to associate radio with a variety of modern furnishing styles, cinema interiors and sometimes, even the traditional household. The majority of advertising images produced to market wireless promote modern furniture. Correspondingly, companies such as Practical Equipment Ltd., selling some of those same modern furnishings, were keen to promote their association with broadcasting. This symbiotic association between radio and the furnishing industry did not extend to all sectors but the Co-Operative Wholesale Society (CWS) offered their own "Defiant" range (this was introduced in defiance of the Radio Manufacturers Association (RMA) having imposed a price fixing agreement on retailers. The wooden cabinets were manufactured and designed by the same companies that produced furnishings for them.

The furniture industry and the designers and manufacturers of radio were clearly interconnected. How far that connection extended is difficult to establish owing to the absence of surviving records although this would be an interesting area for further study.

The Radio Industry and Modernism

As a nascent industry in the mid quarter of the Twentieth Century, the domestic Radio Industry in Britain had little to determine what their products should or could look like. In many respects, the manufacturers could have chosen to draw inspiration directly from existing furnishing styles by simply adapting these forms to their requirements. However, during the point in time at which the radio industry was expanding, a range of new and unusual modern ideas were being propagated both philosophically and as a decorative style. How the radio manufacturers related to the arrival of modernity in Britain is significant and is investigated in further detail in the following section.

Following the 1925 Paris Exhibition a number of designs and designers began to appear in British Industry. Certain companies were more inclined towards progressive ideas than others. Some furniture manufacturers, potteries and glass and metalwork companies exhibited at that event while others only drew inspiration from it.

Wedgwood and Poole Potteries (Cunningham, 1999) had exhibited wares by John Skeaping and Phoebe Stabler, but the British radio industry were lacking a presence at the 1925 event with interiors including radio equipment being fielded almost solely by the French with a RadioLaVox speaker having appeared in one of the interiors as well as various other wireless equipment of uncertain French origin.

The after effects of the Exhibition were seen across the British Manufacturing Industry, with the introduction of Clarice Cliff wares at Newport and Wilkinson's potteries in 1927 and the introduction of Susie Cooper designs at A. E. Gray as well as the opening of the Gordon Russell showrooms in London during the same year featuring a strongly modernistic street sign designed by the architect Geoffrey Jellicoe. At this stage, none of these companies had any direct link with the radio industry. That is not to say that the broadcasting medium was not acknowledged by manufacturers. Product patterns and commodities were often given names influenced by radio - Royal Doulton offered a decorative pattern specifically called "Radio" and *The Savoy Cocktail Book* (Craddock, 1930) referenced the form by naming a cocktail "The Loud Speaker" and making word play on the terms "oscillation" and "osculation", simultaneously referring to wireless terminology and to "Little Betty Bouncer", the popular song by Clapham and Dwyer of the late 1920s which uses the same pun.
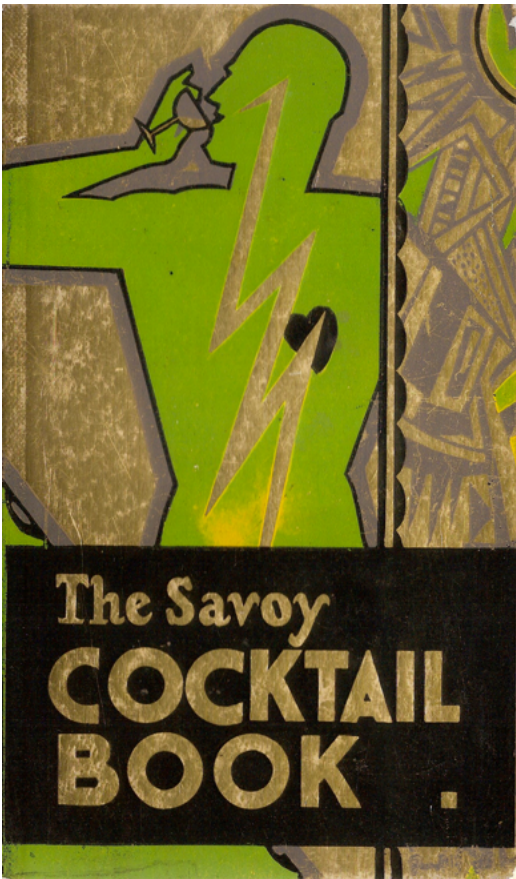
Above **Fig. 156:** *The Savoy Cocktail Book* **of 1930 called upon the lightening flash as a metaphor of modernity and the invigorating nature of their drinks.**
Picture source: *The Savoy Cocktail Book* **(Craddock, 1930)** Author's collection

Below **Fig. 157:** *Hobday Bros Catalogue* **uses the lightening flashes to suggest both the actuality of their products and the modernity of those goods. The lightbulb also recalls the sunlight imagery of the era.**
Picture Source: *Hobday Bros Catalogue (1933)* Author's collection.

In 1927, Pye introduced the first of their radios which incorporated the "rising sun" motif. While the company were not the first to employ decorative fretwork, they were one of the first to use an image that had been culled from a visit to the 1925 Exhibition; at which the rising sun "new dawn" image featured on a number of items including in decorative coverings on furniture by Andre Groult[49]. By the 1930s, according to the styling of the majority of wireless receivers on the market it is apparent that radio manufacturers had recognised the commodity value of modernity. Although the

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[49] although his sun-ray design was more reminiscent of the rising suns of the French Seventeenth Century Regal styling advocated by Louis XIV and of that seen in English Georgian leaded door lights adopted in Eighteenth Century Britain by architects such as Robert Adam

designs chosen do not necessarily reflect a direct investment in the modernist paradigm they do recognise the stylistic currency of the modernist idiom.

As far as investment in modernism as a formal movement was concerned, in the way that would be suggested through employing members of modernist groups such as M.A.R.S or C.I.A.M. there were two main exponents of modernist design, E.K. Cole Ltd. and Murphy Radio. They realised that good design; as defined by Read (1953) , Pevsner (1949) and other members of what Woodham (1997) and earlier, LeMahieu (1988) described as a "cultural elite", could be a selling feature to the masses. Frank Murphy was so convinced of Dick Russell's design for their model A24 that he vigorously defended the product in the press. To this ends, he published the story of a supposed customer who had contacted the company having found that the model did not fit in with her existing furnishing scheme. Initially this would seem to highlight a problem between the consumer and Murphy's product but this does not account for his ingenuity. To remedy the problem she had decided that the only thing for it was to redecorate her living room around the radio. Such forthright faith in modern designers, was unusual amongst manufacturers but radio makers,,according to the goods produced, accepted that the modern style was the correct and even the expected form for radio.

Fig. 158: Ferguson Radio Catalogue of 1938 (Ltd., 1938) employing the promise of a rising sun as a marketing device, reflecting the public need for reassurance of a bright future for years to come, despite the worrying events taking place in Europe at the time.
Picture source**: Author's collection**

During the early 1930s, most wireless companies produced unadorned radio cabinetry which aimed to foreground the purpose of the device suggesting that the industry was content with this aesthetic arrangement. Additionally, the commercial success of this strategy can be inferred owing to the persistence of that style throughout the 1930s suggesting that consumers were content to invest in this type of product too. Amongst the general radio industry cabinet designs were more inclined to follow the moderne furnishing style of the period,

having contrasting, often geometric veneers such as that seen on the Amplion three valve model of 1932 which also had lightening flash shaped grill bars and on many HMV/ Marconi sets. The Amplion model is particularly notable as its lightening flash design calls upon the same technological imagery as the Savoy Cocktail Book and the Hobday Bros Catalogue. Although, these designs may have been more typical of the style now termed "Art Deco", their overtly technological overtones suggest a particular modernity in which, while it can be differentiated from Modernism in that these aspirations are largely decorative, the focus of that styling recognises the technological status of the product despite not designing towards functional purpose.

Fig. 159: Amplion Three Valve 1932 The cabinet is of contrasting veneers with a lightening flash speaker design reminiscent of the Savoy Cocktail Book and the Hobday Bros Catalogues.
Picture credit**: Hawes (1991)**

This is not to say that the manufacturers slavishly followed the furnishing style, adapting existing forms for the radio. Instead, they appropriated certain elements of that style and applied them to their purpose, while simultaneously assuming certain characteristics that were current amongst wireless manufacturers. That is arrangements of speakers, speaker fretwork, controls and wavelength charts and different types of tuning scales and controls. This resulted in two basic types of table model, these being what collectors refer to as upright "tombstone" and what I shall call horizontal "sarcophagus" type cabinets or what might otherwise be called portrait and landscape formats. Advertising material of the period sometimes addressed these styles as "upright" or "grand" lending a musical conceit to the product. This was not common by the 1930s which suggests that radio manufacturers appear to have had sufficient confidence in their products that such allusions were no longer necessary.

Like a number of other manufacturers, Philips adopted a "moderne" approach to design styling in 1927. When Philips entered the market as a radio manufacturer, their technical approach was not unique. Philips initial designs consisted of separate receiver and

speaker units which was a convention common to most companies. What was distinctive was their introduction of decorative Bakelite speakers and radio housings which took a minimalist form designed by Louis Kalff, who was a key designer at Philips from 1925 until his retirement in the early 1960s (he remained a consultant during at least part of his retirement). Philips produced these designs while many other manufacturers in Britain were still producing receivers which were of the scientific instrument or proto modernist type.

Kalff's designs, which were similar to others produced around Europe by companies such, the German AEG, utilised the new material Bakelite. What differentiated the Philips designs from those made at AEG was that generally, during the 1920s, Philips favoured construction of radio cabinets consisting of a pressed metal frame which was then infilled with a Bakelite laminate similar to Paxolin called "Arbolite". These materials were manufactured by compressing layers of paper impregnated with phenolic resin to form hard sheets; the key difference being that "Philite" was faced with a highly polished marbled paper. For technical reasons, it was produced in deep reddish brown colours which gave the cabinet a finish more akin to a stained marble than to a wood grain.

Manufacture by frame and panel technique was a method of construction that Philips continued to use until 1933 when they eventually fully adopted the single moulded unit method of construction for polymer based cabinetry. The last of the sets to be produced in this manner was the model 834a. This was a hybrid and had a metal and "Arbolite" case with a press moulded front made of a material Philips described as "Philite" attached with a screw assembly. Later Philips wirelesses produced in this way are not of a truly functionalist aesthetic as the purpose of the cabinetry is primarily concealment. Despite this observation, the form adopted for the model 2511 is more functional than decorative being of plain rectangular dimensions with a recessed "faceted" section to accommodate and draw the eye towards the tuning scale. Whether or not Kalff's designs were functionalist, the cabinetry did offer a new direction for domestic radio equipment which in 1927, when Kalff's first designs became available to the U.K. market, were generally still acknowledging their roots in scientific instrumentation, having ebonite panels mounted with controls and decorative styling being largely the application of beading and ogee-form mouldings to the wooden housing.

In Britain during the late 1920s, the market leaders, Marconi and GEC, had begun to produce cabinetry that was more decorative in ethos with styles following stationary boxes and occasionally incorporating decorative speaker grills in combined units rather than plain functional housings or smoker's cabinets. Although they were embarking upon a different approach to the design of cabinetry Philips were not unique in offering a new form of decorative styling. In opposition to Marconi and GEC, Pye introduced the first of their "rising sun" wirelesses in 1929 with the speaker fret reputedly based on a design seen at the French L'Exposition d'art Decoratif of 1925.

Fig. 160: Ekco AW 88 With its sleek, knobless cabinet and curved sides it bears a passing resemblance to the plymax heaters designed by Wells Coates for Isokon Ltd.

Companies such as E.K. Cole and Murphy, had, by the late 1930s, firmly established themselves as producers not of furniture but of modern entertainment technology. Consumers appeared to expect that radios from these companies would be modernist in their approach and this can be seen most clearly when Ekco stopped promoting the designers and focused entirely upon the product and its intrinsic merits.

Stylistically, the new Ekco spin wheel tuning models, which is discussed in further detail in Chapter 5, were following the modernist idiom established through their association with members of MARS. The moulded plastics version, Model AW 88 bore more than a passing resemblance to the Plymax heater designed by Wells Coates in 1934 for Isokon, although the design of the radio housing is uncredited, as are all of the designs in the trade catalogue for this year. Anonymity was extended to all the designs, including those identified by Herbert Read (1953) and John Gloag (1945a) as being designed by Misha Black. Ekco's action suggests that the name of the company was considered sufficiently reliable to sell the products to the trade.

Ekco geared much of their trade information toward instilling dealer confidence in their product's ability to "put profit in your pocket" rather than to acquaint the retailers with the promise of named "good" designers. Design had not been completely abandoned as an instrument of sale and in the Coronation Models brochure the validity of "intelligently designed" products is very much at the forefront of the sales information.

Intelligence in cabinet design can be observed in the organisation of the speaker and the controls, which were rearranged according to the new knobless approach. The design focused upon ease of use by placing the controls at the top of the cabinet which gave the operator optimum access. The basic cabinet format of having the speaker positioned below the operating system was not uncommon as far as the brief history of domestic wireless preceding 1938 was concerned.,This structure had been used by several radio companies including Cossor and McMichael. Importantly, Chermayeff had designed the model 77 for Ekco in the previous season, which was of a similar arrangement giving the models a design continuity . For Ekco this concept was a reworking of their model 312 of 1930. Despite being a separate receiver and speaker type set and so not of a set configuration, the 312 was marketed with the idea that the radio would sit on top of the Ekco made speaker unit, meaning that their arrangement was the same as the AW88. Beyond the configuration of speaker and controls, the Spin Wheel table models of 1937 simply revisited the idea of edge on controls.

This revisiting of earlier ideas took place in a manner which illustrates the historical dialectic of radio design. The process can be described thus: in 1930 Ekco produced their first bakelite cabinet radios which followed the conventions of contemporary radio manufacture, in the intervening years to 1937, the designers Chermayeff, Coates and Collins established the convention of modernist functionalism over decoration at Ekco. In 1938, the company then produced a range of radios which re introduced the tuning mechanism of the 1930 model 312. Importantly, instead of constructing a radio that was identical, the successful and unsuccessful experiences of those interceding seven years had transformed the product into a different now modernistic entity. The designs for the AW88 and the 312 "speak" to each other across time, while not bearing any immediately obvious similarities.

That the company no longer saw the need to name the designers of their products also suggests that the radio, at least those produced by E.K. Cole, had acquired sufficient status to stand on its own merits as a modern device. Ekco's confidence in the modernity of these designs further indicates that the customer's expectations of the radio had been established, e.g. it did not need to have a designers name attached to it to be appealing. Its position as a modern device was desirable in itself.

Further examples of radio manufacturers adopting modernist design conventions can be seen in the products of other companies such as Cossor. They had been in the wireless business for a similar term to Ekco and likewise, appear to have enjoyed commercial success. Cossor were primarily manufacturers of wooden cased sets although there are a few exceptions to that rule. Their key demographic appears to have been the so called "middle market" of those who wanted reasonably priced, reliable radios which did not provide any design surprises.

Cossor had entered the market in 1927 with a home constructors model named the Melody Maker, which was a published blue print with specified components. This offered the home constructer the pleasure of making and the satisfaction of operating their "own" wireless. As a by product of this, it immersed those constructors in the technological culture of wireless, of the type established by wireless amateurs prior to the advent of public broadcasting.   The key commercial reason for the publication of the Cossor circuit was to promote the sale of Cossor valves, this being the company's chief activity. Cossor were not alone in devising means to encourage constructors to purchase their components and G.E.C. also offered a similar home constructor set which they marketed as the *Osram Music Magnet* this had the added bonus of making it appear that a new radio manufacturer had come into the market place.

Following its initial success, the "Melody Maker" name was subsequently used by Cossor for different models every year for more than thirty years. This offered a key marketing advantage in that it established product familiarity and firmly associated the product with music and entertainment.   Unlike Ekco or Murphy during this period, Cossor had given

their product a name rather than an alpha numeric model number. This made the Cossor instrument appear more "homely" or soft, even than other named contrivances such as the "Astrophone".

In 1928 the melody maker was again offered as a kit with certain modifications to the circuit. This included a "flat packed" wooden cabinet also for home construction. Self-assembly cabinets had very obvious advantages for the company as this reduced the production costs. While this did not dispense with the need for cabinet makers, the pieces coming pre-shaped and ready polished, production time was saved on construction.

The company did not fail to offer other interesting modern technological features to their customers. In the mid-1930s Cossor adopted a system known as thermometer tuning. In this system, the tuning pointer was replaced by a hollow tube inside which was a small bead on a string inside, this rose and fell as the tuning knob was turned. Cossor also housed their sets in bakelite cabinetry although the styling tended to be plain in its utility rather than dynamic and functionalist, reflecting their more conservative, middle market approach to design.

As an approach to marketing, Cossor, G.E.C and even to some extent LIssen did not focus on the appearance of the radio by employing openly modernist visual cabinet styling. Instead, their marketing focused upon the modern technological aspect of the merchandise through exploiting the notion of the 'blue print' circuit diagram and its language of hieroglyphic symbols denoting components as an emblem of modernity. The currency of the circuit diagram in modernist circles can be seen in the re-organisation of the tube map by Harry Beck and Frank Pick where the stations are depicted in a "rationalised" circuit diagram type format. The popularity of this type of representation can be seen in other situations. In *The Home Market* (Harrison et al., 1939) the rational, scientific nature of the study is emphasised through use of flow diagrams to illustrate socio economic trends. In view of this, the technical diagram can be regarded as a modernist instrument.

In the case of the marketing of a home constructor set using the circuit diagram as a key instrument of sale offering the consumer a constructional challenge and a stake in the modern world of wireless. Amongst wireless manufacturers the use of this format was not

a self-conscious act in the way implied by Lunn (1982) as a condition of modernism.but it was a deliberate act highlighting the technological modernity and the intricacy of the device,as a sales feature.
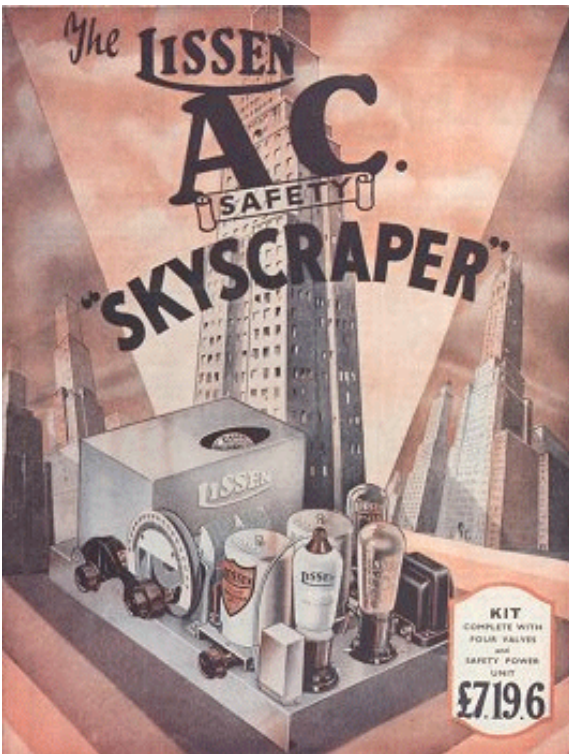
Fig. 161: LIssen Skyscraper Home Constructors Kit

Later, other manufacturers who entered the home constructor market, such as Lissen embraced the Art Deco style which they emphasised through the packaging of their kit sets. The Lissen Skyscraper consisted of a complete set of components and a circuit diagram packaged in an attractively decorated cardboard box depicting skyscrapers and a rhomboid shaped form implying the nature of the broadcast signal and indicating the abundance of radio waves. For Lissen, interest in the moderne continued into their packaging of ready constructed models during the thirties.

Their marketing strategy was clearly biased toward popularism both in terms of pricing policy and the decorative style of the cabinetry produced. Egyptian styling, modern skyscrapers and the Americas were all drawn upon to enhance the Lissen brand who largely produced middle market radio of relatively simple construction. Despite becoming a division of "Ever-Ready", the style of Lissen's marketing strategy suggests that the public expected radios to reflect the concerns of the present.

Lissen were not unique in their use of the Skyscraper as an aspirational symbol. E.K.Cole and G E C used the same marketing strategy but E.K. Cole, like G.E.C, differed from Lissen in that they produced a cabinet design that aped the *form* of the building. However, when built, the "Skyscraper" was entirely unlike a tall building, being a low oblong box which could be attached to a separate speaker. This did not deter the company marketing their product by depicting a Skyscraper on the packaging. Taken literally, the set does not live up to the Skyscraper nomenclature; having acknowledged this, if the name is considered more metaphorically, then the notion of scraping or raking the skies for their radio content is both reasonable and in some respects poetic. The company was seeking

to exploit the romance of the wireless and of the promise of other shores - Skyscraper buildings being associated, during the period, with America and as such, intercontinental communication. In this sense, radio companies sought to exploit the marketing value of the romantic aspects of technological modernity

Fig.162: Lissen 2 Valve AC 'Egyptian Temple'

As has already been noted, Lissen were able to recognise the need for ready constructed cabinet production and fashionable modern styling (Hill, 1996, Geddes and Bussey, 1991) and manufactured a number of this type of receiver. This included the "Two Valve AC Receiver" (this will be referred to as "2VACR") which was housed in a Bakelite case exhibiting the influence of Ancient Egypt, also known colloquially as the "Egyptian Temple" *see Fig.162*.

Reflecting an aspect of Art Deco that Hillier refers to as alluding to Mayan Temples. There are several sets which fit neatly into this type although this wireless is one of the few that were actually in this style, other obvious examples are GECs "Universal Mains Three" and the "Compact Three" of 1934 which followed the "ziggurat" stepping more evocative of ancient South American architecture. While Lissen's 2VACR having a group of three flat fronted columns to either side, captured some of the decorative subtleties of the ancient model, its styling reflects the geometric concerns of fashionable modernity. These interests are expressed through the manner in which the columns are made up of regular smooth geometric shapes and symmetrically bifurcate a centrally positioned trapezoid speaker opening.

While many of the Radio Industry's younger companies adopted new fashions quite readily the attitude of the originator to emerging popular trends needs to be addressed. According to Hill (1996) and to Bussey (1976), the Marconi company sold their domestic radio

division to the Gramophone Company (HMV) in December 1929 becoming part of the Electrical and Musical Industries (EMI) group at that point. It is unlikely hat this was as a result of Marconi Ltd.'s distaste for modern styles as the initial products followed a proto-modernist scientific form. The affect of this sale was seen later. By the end of the 'twenties, Marconi and HMV branded equipment came to the market that was electronically very similar but housed in a slightly different cabinet badged under the respective company names.

When EMI Marconiphone produced its first moderne styled cabinet, the Model 42 it was electrically and stylistically similar to the HMV '3 Valve Receiver' model 435. Its high quality modern credentials were sufficient that the HMV was included, albeit obliquely, in an interior in Patmore's Colour in the Home (1933). This suggested that the HMV wireless cabinet had successfully established itself as an icon of modernity without the need to reference other fashionable modernist forms.

Fig. 163: Colour Schemes for the Modern Home (Patmore, 1933) featured this interior which includes a radio in what is made a prominent position. Prominence is given to the radio by drawing the viewer's eye along the line of the desk on the right,to the doorway where the eye is taken to the HMV 435 which is the main point of illumination in the darkness.

Conclusion

This chapter has illustrated the way in which the wireless as a product was modern enough on its own terms to be employed as part of the iconography of the present. Despite this status, a number of wireless manufacturers recognised the need for wireless to develop its own language of design and deliberately employed elements of the modernist movement design their cabinetry. Generally, the wireless industry recognised their position as the purveyors a new and exciting modern medium and adopted aspects of fashionable modernity to promote their product. By doing this, the modernity of the wireless was not compromised but enhanced. The following chapter will discuss the role of the wireless in the development and dissemination of several key symbols of modernity.

Chapter 4

Marketing the Radio

Radio as part of the new approaches to marketing as a response to modernity

As has been observed, regarding the modernist approach to the design of domestic items as a means of applying and disseminating the modernist aesthetic values of utility, functionalism and style, new technologies, such as the wireless, can be interpreted as being examples of what Alfred Gell (1998) referred to as the agency of objects in their ability to communicate those aesthetic ideas in a non-verbal form to the general public. Through ownership of those specific objects that social group were offered the opportunity to engage with modernity. At the same time, through the employment of named designers in certain advertising material, the products became overt examples of the "extended personhood" (Gell, 1998) of those modernist designers. It is their ideas of what constituted the state of being modern that were then taken into the homes of the general public through the consumption of those products.

This process can be observed most effectively in the example of the wireless set, as it was a device that was consciously marketed by foregrounding specific designers. Not only did the radio manufacturers embrace elements of modernity but they invited architects and industrial designers, such as Coates, Chermayeff and Russell, who were self-consciously aligned with organisations such as C.I.A.M, M.A.R.S and U.N.I.T who were dedicated to the advancement of design according to a common and very particular set of aesthetic values, to design their wireless cabinets. These designers were then given a high profile position in the marketing of their radio products to the public.

Fig. 164: Ekco 1934 Advertising for their AD65 model highlighting the role of "the famous architect" Wells Coates.

below **Fig. 165: Again Ekco draw attention to the "eminent artists" Mr Wells Coates and M. Serge Chermayeff. It is interesting that the advert refers to Chermayeff as Monsieur Chermayeff making positive use of his otherness to exotic effect. Chermayeff is lent further imported appeal when this is coupled with the notion of his being an artist rather than an architect as was previously claimed for Coates' occupation in the 1934 advertising** *see Fig.164 above*

All Electric Radio was a significant marketing strategy for many radio manufacturers, notably Lissen and E. K. Cole Ltd. for whom it was used as a key marketing slogan to describe the essence of their products. In most instances *All Electric* meant mains supplied electricity rather than that got from batteries of various types. This indicated that at the point in the late 1920s at which the companies began to use this phrase, a significant portion of the market had access to mains electricity. Accordingly, the need for electrical power is not promoted as a negative and costly element but as a positive and desirable factor. Fostering a public appreciation for the wireless as a facet of an attractive, modern and electrically powered lifestyle.

Fig. 165: & 166: Ekco Promoted their radios as all electric devices and highlighted the ease of use promised by electricity through the slogan Plug in - That's All. The phrase All electric did not imply all types of electric power - instead this specifically meant *mains* supplied.

H.T. UNITS FOR A.C. AND D.C. MAINS.
(Model D.C. 15/25 is the only model manufactured for use on D.C. Mains).

MODEL	Current Output	Voltage Tappings	Running Costs per 1000 hrs.*	Weight	Price	Easy Payments Initial Payment	Easy Payments 11 monthly Payments of
D.C. 15/25	15 or 25 Milliamperes For Receivers not requiring more than 25 m/a.	S.G. (H.L.); 50/30 (H.M.L.) 120/150. Output adjustable to 25 or 15 m/a.	25 m/a 1/7 15 m/a. 1/-	4¼lbs.	£1-19-6	6/-	3/8
A.C.12	12 Milliamperes For 1-3 Valve Sets or those requiring not more than 12 m/a.	S.G. : 80 ; 120/150	9d.	5¼lbs.	£2-15-0	6/6	5/-
A.C.18	18 Milliamperes For 1-5 valve sets or those not requiring more than 18 m/a.	S.G. (H. or L.); 50/30 (H.M.L.); 120/150.	1/1	7lbs.	£3-7-6	7/9	6/2
A.C.25	25 Milliamperes For Multi-valve sets or those not requiring more than 25 m/a.	S.G. (H.M.L.); 50/80 (H.M.L.); 120/150.	1/6	7¼lbs.	£3-17-6	8/9	7/1

COMBINED H.T. AND L.T. CHARGER UNITS FOR A.C. MAINS.

Model	Current Output	Voltage Tappings	L.T. Output	Running Costs per 1000 hrs.*	Weight	Price	Easy Payments Initial Payments	Easy Payments 11 monthly Payments of
K.12	12 Milliamperes For 1-3 Valve Sets or those not requiring more than 12 m/a	S.G. 80; 120/150	¼amp. at 2, 4 or 6 volts for charging accumulators	1/3d.	8lbs.	£3-19-6	9/-	7/3
K.18	18 Milliamperes For 1-5 Valve Sets or those not requiring more than 18 m/a.	S.G. (H. or L.); 50/80 (H.M.L.); 120/150	¼amp. at 2, 4 or 6 volts for charging accumulators	1/7	8¼lbs.	£4-12-6	10/3	8/5
K.25	25 Milliamperes For Multi-valve sets or those not requiring more than 25 m/a.	S.G. (H.M.L.); 50/80 (H.M.L.); 120/150	¼amp. at 2, 4 or 6 volts for charging accumulators	2/6	9lbs.	£5-7-6	11/9	9/10

TRICKLE CHARGER for A.C. MAINS.

T.C.1	Charges 2, 4 or 6 volt accumulators from A.C. Mains at ¼amp. May also be used for exciting the field of M.C. Speaker, 6v. .5 amp. type, direct from A.C. mains without use of an accumulator of any description.			3/-	5½lbs.	£2-7-6	6/-	4/4

Fig. 167: As can be seen in this 1930 Hire Purchase scheme for Ekco battery eliminators, the idea of mains powered wireless was sufficiently attractive to the consumer that purchasing a unit tailored to their local electricity supply was worth committing to a credit agreement for almost a year.

Prior to the period covered in detail by Bowden and Offer (1996), it can be seen that investment in the medium by its audience indicated a desirability not illustrated by the GPO receiver licensing figures. The statistics relating to the economic consumption of radio equipment are estimates based upon unspecified sources. There is no reference provided to actual consumption quantities and as such the statistics supplied are speculative. It is generally true that the amount of money spent on radio equipment increased exponentially throughout the mid-1920s, the 1930s and into the post war period; this can be evidenced without need for estimated financial figures by observing that although the number of manufacturers actually diminished, the scale and manufacturing techniques of those businesses altered so as to address a far larger market.

There are several examples which can be employed to compare the early stage of mass consumption with the period of high consumer take up. When the British Broadcasting Company was initially established it was made up of a number of manufacturers. This

consisted of the 'Big Six' who were Marconi, GEC, Metropolitan Vickers[50], Western Electric, British Thomson Houston (BTH) and the Radio Communication Company[51] and a minor company Burndept Ltd. who were represented on the committee by their Works Director Lt-Com C Frank Phillips. For this group of companies the principal reason for providing broadcast material was to sell their radio receivers (Hill, 1996, Geddes and Bussey, 1991).

During the 1920s, valve equipment was typically expensive with a basic one valve model costing £5.17.6. At this price level the machine was in truth a complicated crystal set, meaning that the cost was kept to a minimum, providing the customer with an affordable valve product. In most examples of early one valve models, the listener was able to obtain a slightly superior signal through the crystal detector being replaced with a valve. In other examples where the valve was used as an amplifier, the crystal was still included, meaning that the operation of the device was further complicated by the need for fine adjustments and tuning in order that a signal could be acquired. As will be discussed in the section titled Ease of Use *see pg.212*, this resulted in a belief that radio was a male preserve. The hegemony of male technological supremacy was reinforced by the advertising of the period which often featured men constructing and operating wireless equipment for the edification of family and friends. In the early 1930s, the marketing of wireless receivers altered in such a way that the focus shifted from the male to the female. This can be seen in examples of photographic publicity relating to "Radiolympia" where many of the promotional images depict women operating television and radio receivers (Norman, 1984, Geddes and Bussey, 1991).

This adoption of the receiver by the industry as a device for the home, meant that market saturation would be reached according to socio-economic determinism rather than through technological limitations. To avoid limiting its market the radio went from being a masculine device to being a genderless product for the family, allowing it to be accepted more easily into the domestic environment.

The pricing of mains and battery driven electrical wireless receivers was at the same time brought within a range that would make the radio more readily accessible to the average

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[50] Metropolitan Vickers manufactured wireless receivers under the name Met-Vick and typically these were also named "Cosmos"

[51] This company were almost entirely devoted to the production of maritime receivers

wage earner. There are elements which may interfere with the historical perception of the economic factors associated with the radio market. It is not unreasonable to imagine that there were still those wireless users who were capable of home construction of mains driven and crystal set technology who did not purchase a wireless licence and so do not appear on the official statistics. This undocumented alien does not significantly affect the general trend toward wireless ownership nor does it negatively influence the presence of lower priced ready-made radio sets on the market. Instead, the potential existence of a wireless user who applied such ingenuity indicates that the wireless remained a sufficiently desirable instrument that there may have been those who would risk breaking the law to own one.

Symbols of Modernity and the marketing of wireless during the 1930s

In 1930, the BBC opened their new Broadcasting House building which aimed to showcase the Corporation as being the most modern in the World. Although this claim was propagated through a number of channels including broadcast content and the scale of the company, the BBC's modernity was most forthrightly asserted through the decorative style of the architecture and interiors adopted for the new building. Preceding Broadcasting House, the Headquarters of the BBC had been at Savoy Hill which was a nineteenth century building which, while pleasant, was not originally intended for broadcasting. To construct a new purpose built environment, the architects Val Myer and Watson Hart was engaged. This main architectural practice worked in liaison with the BBC team, which included Raymond McGrath, Wells Coates, Edward Maufe and Serge Chermayeff who designed interiors and various fittings. To provide the building with original architectural details in the "Modern Style", the sculptor Eric Gill was commissioned. Broadcasting House was surmounted by a functioning transmitter pylon, emphasising the purpose of the building and reinforcing the association between the Gustave Eiffel inspired design and the technological modernity of broadcasting.

 As a symbol of technological modernity the pylon is often employed in literature relating to wireless during the period. This reflects both the power of electricity and of wireless as desirable and positive elements in the contemporary popular imagination. Although the form was developed in the nineteenth century, these structures became visible in the urban and rural landscapes during the late 1920s for the transmission of electrical power and in the transmitter relays at Moorside Edge which was designed in the Art Deco

"Classical Moderne" style and enjoyed publicity on its opening in 1931 as the key regional transmitter for the North of England.

Fig. 168 *right*: **The cover of the Daily Herald Wireless Handbook 1934 featuring a pylon and forming an abstract composition from the high tension cables**
Picture source: **Wireless Handbook** (Walters, 1934)
Fig. 169 *left*: **Lazlo Moholy Nagy Photograph taken from the top of a radio mast (the Berlin Funkturm)**
Picture source: **Bauhaus (Whitford, 1984)**
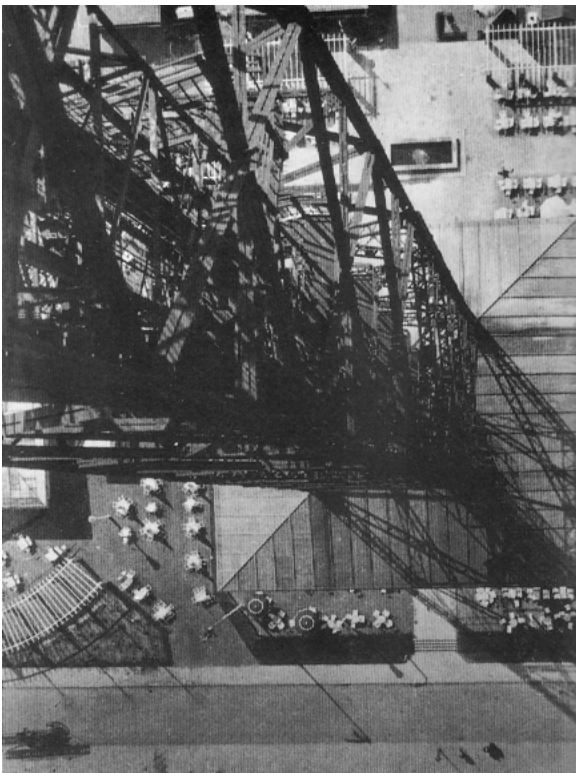
On the cover of their *Wireless Handbook of 1934* (Walters, 1934), The Daily Herald employed the Pylon of a transmitter station as a signifier of wireless and of technological modernity, relying upon the associative values of pylons and porcelain insulators. In the image, Wireless has a visual dynamism conferred upon it which literally and metaphorically implied power. Convergent lines and geometric forms created by the wires of the electric cables produce visual tension while simultaneously evoking the modernity of the national grid. Pylons appeared earlier in photographic work produced at the Bauhaus by *Y*amawaki Iwao and Lazlo Moholy Nagy *see Fig. 169*, reflecting the interest in technology that was current in the school at the time, although, as in the case of the Daily Herald's *Wireless Handbook* (1934) cover, his interest in the Pylon is in its geometric

structure that is used to create dramatic tension through contrasting light and darkness dissecting compositional space.

The creation of two dimensional linear geometric forms which accompany the pylon can also be associated with the formal concerns of modernist artists such as the Dutch painter Piet Mondrian and the recurrent quasi-technological icons employed by Kandinsky and Lyonel Feininger. Kandinsky's iconography is reminiscent of the symbols used in circuit diagrams to represent various components and these symbols also recall the forms of some porcelain insulators. The use of technological iconography by modernist artists suggests the centrality of the wireless to the contemporary understanding of what constituted the modern.

Such cover designs as *The Daily Herald Wireless Handbook* (1934) and non-technological examples like the *Savoy Cocktail Book* (Craddock, 1930) employed Futurist inspired iconography that rejoiced in new technologies, particularly those of power. In the case of the Futurists this extended to the machinery of war. Although the Futurist movement, having been established by Marinetti before the 1914-18 War, were not discouraged by the experiences of wartime. Tulio Crali's *Nose Dive on the City* (1939) with its evocation of an aircraft diving towards modern cities of tall buildings. Technically, the composition of Crali's painting exploited the same techniques of dynamic convergency as that seen in the *Daily Herald* cover, the work of Iwao, Kandinsky and Feininger. This technique exploits the geometry of technological devices and as such it can reasonably be argued that the forms of the wireless exerted an influence upon the stylistic preoccupations of the modernist movement.

Modern techniques of publicity were taken up by the wireless industry and Marconi were cited by an article titled *What is Photography doing for Advertising?* (Tregurtha, 1928), for the use of photography in their advertising campaigns. By the early 1930s photography was not itself particularly modern. What differentiated the Marconi's publicity for their latest screened grid valve,was the use of photomontage. This technique was relatively new and was enjoying popularity with Modernist artists such as Moholy Nagy, Iwao and Man Ray. The Marconi advert, *see Fig. 171*, like the cover of the Wireless Handbook, exploits the geometry of the valve to dynamic effect .

As well as aiming to associate their products with modern techniques such as photomontage in their advertising, The Marconi Company and also with modern ideas of graphic design as can be seen in *Fig. 170 & 171*. In doing this, Marconi identifies itself as a modern company and asserts the currency of the wireless product as being both an originator of modernity in the sense that radio is an electric device as highlighted by the adverts and of possessing the state of "being modern" as suggested the by the style of the advertising.
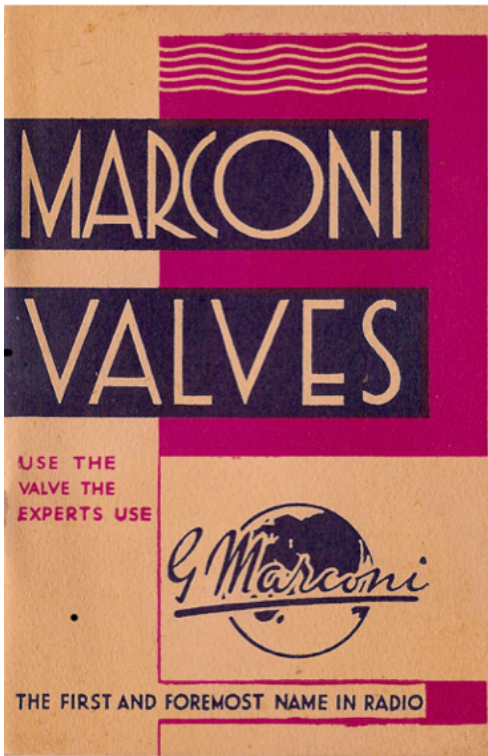
Fig. 170 above left and Fig. 171 below: Marconi promotional material for valves using both new matting techniques in photography and modern graphic styles. Fig. 170 is reminiscent of designs produced by Edward McKnight Kauffer.
Sources:
Fig. 170 Marconi Pamphlet 1930 *Author's collection*
Fig. 171 Commercial Art (Tregurtha, 1928) *Author's collection*
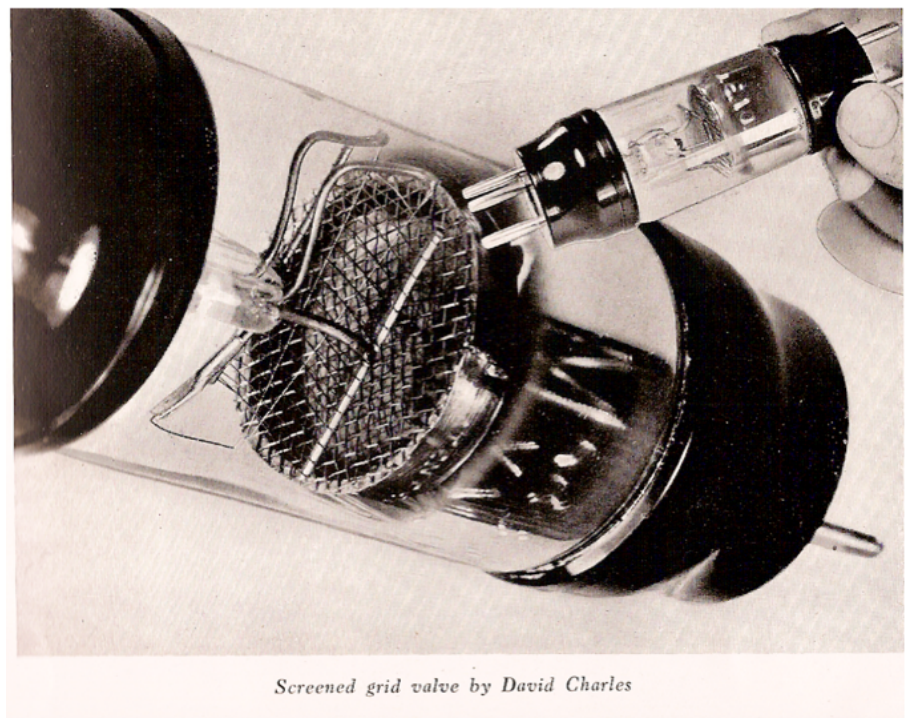
Screened grid valve by David Charles

Fig. 172: Ekco Console Radiogram of 1938 with a modernistic occasional table and Hagenauer Yacht with pilot.
Picture source**: Ekco Sales Catalogue (Cole, 1938)** *Author's collection*

To reiterate the point already made when addressing Mass Market Modernism, many radio manufacturers included modernist contemporary furnishings and decorative arts as a means of reinforcing the modernity of their products. Ekco advertising associated their products of 1938 with distinctive modernist set dressings. These props were usually of an *avant garde* nature reflecting the sensibilities of the modernist designers of the time. In *Fig. 172* a Hagenauer style figural group depicting a semi abstract figure and boat can be seen sailing atop a circular geometrically formed table of glass and wire mesh, this is reflected by a stylistically homogeneous Ekco advert depicting a bird of a similar fashion perches upon what appears to be contrasting birch and mahogany veneers. Ekco were not alone in adopting this modern aesthetic and a similar example of advertising was produced by Gordon Russell who were responsible for manufacture of the wooden sets with distinct modernistic ambitions. Visual interest is increased by the inclusion of a heavily patterned curtain to the left of the set. This pattern is itself in the contemporary style suggesting to the viewer, not only a radio but a complete decorative style for the home. While the design of the radio is minimal and relies upon the quality of its materials to give it decorative appeal, the associative value of fashionable modern furnishings is used to create the overall feel of sophisticated contemporary modernity.

Selling Wood in a Plastic Market and Re-inventing the Tuning Wheel.

When Ekco introduced Spin Wheel Tuning, which was their latest innovation of 1937, they positioned a low cost device prominently to advertise it. To identify their reasons for doing so, one must first understand something about the brief history of the E.K. Cole company prior to 1937.

Having entered the Wireless Industry in the late 1920s, by 1932 Ekco had established themselves as a manufacturer of moulded plastics cabinets. This was achieved according to Lipman (1980) through the establishment of a moulding facility at Southend on Sea. Initially, cabinetry had been bought in from the German AEG. Stylistically, these mouldings followed certain conventions established in the manufacture of wooden sets; after the establishment of a facility as Southend, their moulded plastics cabinets produced in Britain initially followed the figurative early "Art Deco" style *see Fig. 29 & 191* for an example of this in the RS3/SH25 cabinet. Following this, the company elected to employ design consultants such as Serge Chermayeff, Wells Coates, Jesse Collins and Misha Black. Through this association with a number of modern movement architects and industrial designers E.K. Cole Ltd. came to be perceived by both the Wireless Trade and the Public as manufacturers of modern plastics sets.They had continued to offer floor-standing sets and radiograms which were made of wood and were typically more expensive than the phenolic table models although their early phenolic table models were priced at roughly the same amount as rival wooden products (around the £25 level in pre decimal terms according to original sales literature of 1930 (Cole, 1930)). The commercial success of these sets suggested that the material was not considered a compromise by the consumer. Those sets produced in Britain after 1931, followed the typical wireless cabinet conventions of having a speaker fret which was built into a single cabinet, a visible tuning scale and an arrangement of control knobs to the front of the cabinet in easy reach and plain view of the user.

With this information firmly in hand, the approach of the company can now be addressed. Their actions were governed by three critical factors: market familiarity, consumer confidence and vested interest.

•**First** market familiarity, as a major manufacturer of Bakelite products - as is indicated by Design and the Public Good (Chermayeff and Plunz, 1982), radio production and sales were in the hundreds of thousands. Consequentially, the company would have been seen

by the prospective dealer as a "good bet" when offering plastic merchandise. So, for that reason, the established product would have been offered first over an unfamiliar territory such as the wooden cased set which may have lacked the elegance of many other more established wooden cased manufacturers who offered cabinetry with interesting contrasting veneers.

•**Second** and perhaps most important consumer confidence; Ekco's sales figures had been based upon their successful plastic cabinetry indicating that the public accepted this. Also, the Bakelite product, being cheaper, would have offered the radio dealer with greater opportunity for sales as according to Branson and Heinemann (1973) the general public still were under the economic shadow of the 1920s depression. For this reason, it makes good sense to give precedence to the lower cost as this is where that persons interests lay. With the depression still looming in 1937 business literature from the company was attempting to allay the fears of dealers by evoking Roosevelt's economic recovery strategy by offering,an ongoing "New Deal Stability policy" (Pg. 1 EKCO, 1937) for their licensed retailers.

•**Third:** vested interest, the Bakelite cabinet was factored in-house, while the wooden cases were bought in[52], meaning that Ekco would keep more of the profit.

It is easy to see that these factors obviate the need to offer primary space to the product at the economic high end. This gave the company the opportunity to exhibit a "new" marketing device through a product which appeared economically viable.

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[52] the wooden cabinetry is described in the Ekco Catalogue of 1938 as being a "specially selected cabinet" rather than of specially selected woods suggesting that it was bought in ready factored.

Spin Wheel Tuning: Reinventing the Wheel
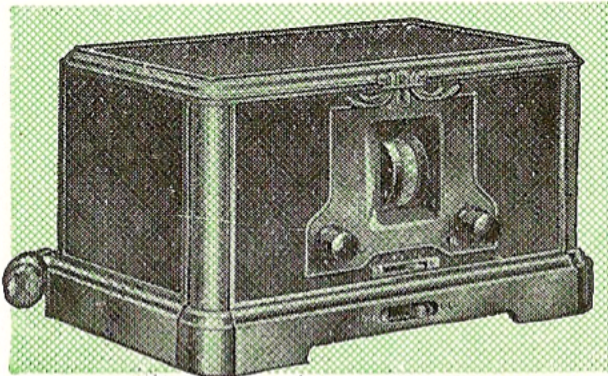
MODEL 312

Fig. 173: Ekco Model 312 which utilised the spin wheel tuning system which had been used for the company's previous model the P2

Picture source**: Ekco Sales Leaflet (Cole, 1930)** *Author's collection*

Ekco approached the sale of their products by distancing themselves from pointless gimmickry and attempting to encourage their dealers with the promise of selling to those people who already had a wireless.

"Only *really* new developments in design can capture the vast multitude of latent replacement sales. Ekco is now able - exclusively - to present developments that will open up this immense market." (EKCO, 1937)

Their choice of the phrase "*really* new developments" is particularly telling as the system which they were attempting to sell was superficially akin to the direct drum drive scales which were common during the late 1920s for tuning controls - and which was applied to Ekco's own model P2 of 1929 and highlighted in the promotional material for that receiver. The system used for the P2 was applied to one of Ekco's first phenolic cabinets, the 312 which was externally similar to the P2. As the plan was to address the replacement market it would be reasonable to assume that some consumers in that position would have bought their radios between six and eight years previously and may have encountered such a radio or even been in possession of one, while the trade would have been aware of them through repair work undertaken.

Fig. 174: All Wave Model AW 88 offering Spin Wheel tuning and 'television sound' both new and exciting elements for the consumer. Pricing is still provided not in £. s. d. but in Guineas which remained a pricing convention associated with luxury goods of the period despite the fall in prices of such equipment, both in real terms against general inflation and in actual amounts - this price compares to the AC86 of 1935 which had cost 13 guineas.

The spin wheels provide Volume control and station tuning; the wave length changer is a wafer switch visible to the left of the right hand knob in the illustration, this is compositionally balanced by a similar tone control to the opposite side. The tuning control is geared to allow fine adjustment on short wave. Despite the presence of two large tuning wheels, these controls are recessed giving the cabinet the appearance of being "knobless", so providing a sleek and stylish cabinet.

Picture source**: Ekco Promotional Leaflet (EKCO, 1937a)** *Author's collection*

A.C. MAINS
ALL-WAVE SUPERHET
AW88

Built-in Controls give distinction to the exquisite moulded cabinet of Model AW88. 'Spin-wheel Tuning' is delightfully simple, whether on long, medium or short waves, or Television 'Sound.' This is an all-purpose receiver, designed throughout to combine long-distance reception with the utmost clarity of tone. Magnificent moulded cabinet in Walnut or Black and Ivory.

$12\frac{1}{2}$ Gns.
(Walnut)
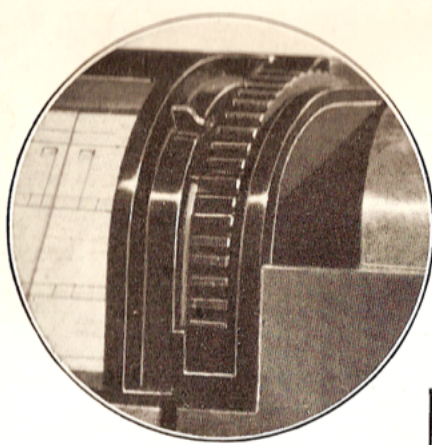
BALL-BEARING FLYWHEEL—MACHINE-CUT GEARS—BACKLASH-FREE MOVEMENT

Ekco Built-in Controls are visible only as milled rims following the curve of the cabinet. The main tuning control is a flywheel running on ball bearings. It spins with the slightest touch, yet is entirely free from backlash or involuntary movement, owing to the use of a special tension device. The drive has machine-cut gears (40-1) and the large rim (14 inches in circumference) permits settings to be obtained with the highest degree of exactitude. The mechanism, which is precision-built throughout, can be seen clearly in the diagram.

*Hinged scale gives ready access to mechanism and pilot lamps. **Spin-wheel**, with milled edge, is counter-balanced for smooth running. **Wave-change Lever** is concentric with Spin-wheel and operates switch through **Extension Rod**. **Clutch** prevents damage from overdrive. **Tension Spring** gives backlash-free grip. **Drive Cord** is pre-stretched and 'sprung' to prevent slip. **Hair-line Cursor** is held rigid by slider bar. **Pilot Lamps** diffuse light evenly over scale.*
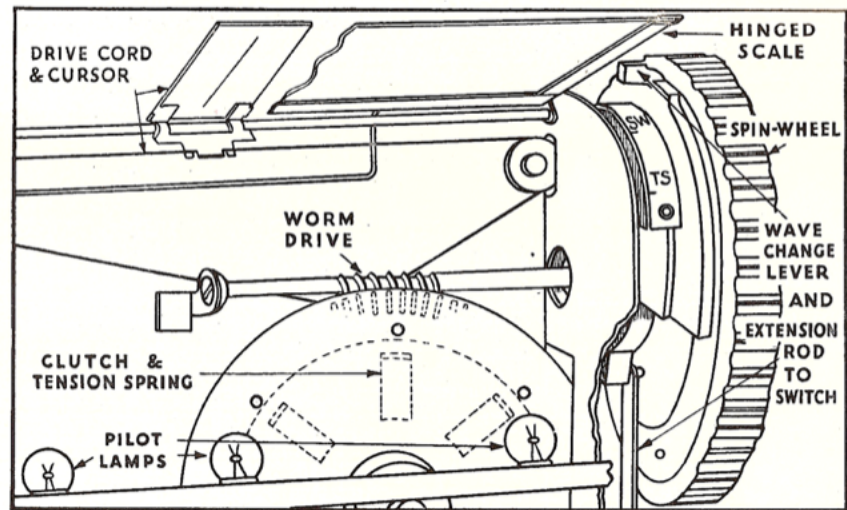
Fig. 175: Here, Ekco's system of spin wheel tuning is explained in greater detail introducing both the wonder of the system and the intricacy of the engineering involved, thus providing the customer and dealer with a sense of the technological modernity involved in the contemporary wireless.

Picture source**: Ekco Programme 1937-38** (EKCO, 1937) *Author's collection*

Promotional material aimed at the licensed dealerships consisted of two key elements, to quote the Ekco catalogue again:

"Firstly - "SPIN-WHEEL TUNING WITH BUILT-IN CONTROLS - an exclusive innovation of unparalleled significance - a dramatic advance that will attract nation-wide attention!

Secondly - All-wave receivers with TELEVISION 'SOUND' - a new thrill for jaded listeners, and an appetiser for the future!" (EKCO, 1937)

SPIN-WHEEL TUNING was the way in which the company was describing their system which offered knobless design and consisted of side on controls internally attached to a

worm drive allowing for these controls to be geared to provide fine tuning facility on shortwave. On shortwave, the listener could be tempted with an exciting new development, television. Of course, the literature is keen to highlight that this was only available within 20 miles of the transmitter. This was at Alexandra Palace, meaning that the "All Wave" models offering television sound would only offer listeners in the area adjacent to London an exciting listening experience!

Design remains a key focal point in the catalogue. However, in this instance, the design of the cabinet has become secondary to that of the internal technology. The design of the new tuning system is the key focus of the sales patter and television is offered as a tantalising peak at things to come; offering the promise that when broadcast "high definition" television did come to the regions, the sets were ready to receive the sound element. All the promise of the modern and new - in this case a product that heralded a "new dawn" of approaching technology without anything as unsightly as control knobs to spoil its glow.

In line with Ekco and Murphy, later developments at the Philips Radio Company reflected this interest in reducing the impact of the knobs on the appearance of the cabinet - attempting so-called "knobless" radios. Probably the most complicated fix for this problem was the "Mono-knob" system; which although not actually knobless, allowed the user to tune, adjust volume, change tone and waveband all through the manipulation of a single control. While this presented an innovation for the user, it also introduced a lot of mechanical issues within the radio cabinet. As the device employed a number of Bowden cables (commonly applied to car manufacturing) and connectors that were more complicated to produce and fit for the manufacturer and to repair for the radio trade the success of the system may have seemed optimistic. Philips did not persist with this technology for the British market and the mono-knob idea was not widely adopted by other manufacturers. A more straight-forward solution offered by Philips though the model 730a and also by the independent company Radio Instruments for their "Ritz Airflow" which was a highly modernistic, "streamlined" model, was simply to position the controls in a recessed panel to the side of the cabinet, thereby freeing up the front giving it the feel of being uncluttered. The need to hide the technological element of the radio is most likely a result of the recognition that they were not a conventional element of domestic furnishings.

Although the elimination of the controls implies ease of use. Another approach to the concealment of the controls was the AC table model offered by A.C. Heayberd & Co. in 1935 whereby the cabinet was stylistically very similar to the Ritz Airflow except that the controls were set beneath a lift up lid which could be closed once the receiver had been tuned. In doing this the purpose of the radio was not concealed, only the controls. This suggests that the reason was to give the set a modern uncluttered look.

Putting a lid on it was also adopted by McMichael for a number of their appliances particularly the 135 of 1935. This was one of the few radio designs of the period which consciously adopted a historicist form; having an optional "Queen Anne" style stand with cabriole legs. In practice, the stand was only notionally optional as, according to Geddes and Bussey (1991), dealers were encouraged by McMichael to offer this extra as part of an attractive bundle through hire purchase.

Fig. 176: McMichael 135 1934 This McMichael receiver was offered with a cabriole legged wooden stand accentuating its historical form. Although the lid allowed the purpose of this device to be concealed when not in use, the large moderne tuning scale and geometric controls can be seen quite clearly when opened.

Stylistically, the overall appearance of the McMichael 135 was of a bow fronted cabinet in the manner of antique furnishing. Nevertheless, once the lid was lifted, it revealed a large "clock face" type tuning indicator which rose up on opening displaying contemporary, geometric features and similarly geometric controls. When closed, the set did indeed resemble a reproduction "Queen Anne" side table with what might have been perhaps a deep canteen on top. This conceit might have been maintained, except that unlike the moderne streamlined A. C. Heayberd & Co. model, the lid had to be open during use which converted the product from furnishing to modern radio receiver. For the customer who only

required the wireless for temporary periods, the advantage was obvious; when not in use, the device was akin to a blanket chest of tasteful form. When in use its purpose and styling was immediately altered and apparent. There are two chief reasons for this attitude. A; that the customer's expectations of the wireless as a modern device had still to be met albeit only when actively in use. B; that the desirability of the radio was such that its stylistic inconveniences were worth tolerating.

The drawback to concealing the controls is that the cabinet can appear, if not naked, then perhaps a little under-dressed. This awkwardness is largely owing to the designs for control-less sets being based upon a conventional composition with the controls removed from their expected position. Being without decorative embellishment, the modernistic feel of this type of model, is further enhanced by the repositioning or reduction of the controls, which might otherwise interrupt the ascetic purity of the surface. In the case of the Philips mono-knob this is enhanced by elements of the cabinetry being given chrome trim which was an established convention of modernity by this point[53]. Reduction of external components by way of a single control lends the Philips mono-knob sets a certain air of efficiency. Despite this, the efficiency of the machine is compromised by utilising internal technology which meant that its functionality was at the expense of serviceability. Of the models so far discussed, Ekco's spin wheel system best addressed the issue of simplifying the controls. It's success was based upon the arrangement of the cabinet, which had been completely reorganised around the positioning of the controls. Instead of taking a conventional format and putting spin wheels sunk into the cabinet in place of knobs the positioning of the controls and tuning scale to the top of the casing above the speaker are ergonomically and compositionally best placed for the user.

Murphy's new radio cabinets still seemed to follow the material concerns of the Powers designed early sets produced prior to the introduction of Russell. As their experience grew, the interest in cabinet design became more concerned with composition as is exemplified by the A8 and the A3 cabinets. The A3 appeared to directly address Frank Murphy's early distain for knobs (Myerson, 1992) by camouflaging the controls on a black strip at the lower section of the front which made the controls less obtrusive. The A8 took a totally different approach by backing the usually smooth black circular knobs with an aluminium disc and arranging them in a triangular composition balancing the speaker fret. This

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[53] i.e. 1935/36

cabinet, whilst undeniably modernist, is at odds with the approach of Coates and Chermayeff, whose focus tended to be upon the function of the device rather than arrangements devised to conceal or excuse the elements. At this stage Russell's initial reaction to modernity and wireless cabinet design was to address compositional concerns rather than the purely functional. That said, the A8 is designed so that the tuning scale is facing up from the top of the cabinet rather than to the front elevation, resulting in the acknowledgement of the ergonomic demands of cabinet design. These demands would become more clearly the focus of later 1930s Murphy cabinet designs.

Popularism and the Wireless

An underpinning element of many modernist philosophies and in particular those propagated through the Bauhaus school and via CIAM, was that design should provide a service through the production of effectively conceived, mass produced goods. This in itself suggested an investment in utilitarianism and in the ideal of Popularism.

Popularism encompassed the modernist sensibility and it should be recognised that while the left leaning modernists such as Coates, Gropius, Meyer, Aalto and Corbusier invested in projects aimed at public works and improvement of the living conditions of the working classes, this was also the ambition of the right leaning thinkers of the period. Modernity as a project of the right can be seen in the provision of the Volkswagen and the Volsempfanger peoples products which were a major project for the Nazi Party of Germany. Similar works were seen in Italy under Mussolini, with the "Balilla" Italian Peoples radio and the development of the national broadcasting network in Italy which is attributed by Cannistraro (1982) to the political ambitions of Il Duce as well as his observation that similar expansion of the means of communication was seen in other totalitarian states as it offered these leaders similar opportunities to control information and, by extension, public knowledge.

While there is no direct evidence to support the notion that British radio manufacturers were under pressure from the Government to provide the people with affordable radio equipment, the state control of Broadcast transmissions came into effect in 1924 through the Broadcasting Act which brought the BBC under indirect Government control and created the British Broadcasting Corporation. This meant that the Government could

disseminate its own propaganda via the BBC, albeit that the Corporation enjoyed a level of autonomy under the aegis of its remit as defined, and periodically redefined, by Charter.

In the World outside the influence of totalitarianism, economic conditions and philosophical currency prompted radio manufacturers to produce receivers of an affordable price.
To examine this claim further one must first consider the role of technological determinism as the key factor in the expansion of radio receiver ownership as opposed to social or economic factors. During the 1920s and 30s radio technology advanced according to the development not of circuit type but of the components from which those circuits were constructed. In other words, the basic receiver circuits of Tuned Radio Frequency (T.R.F) or Superheterodyne did not change. Instead, the components from which they were made improved in terms of reliability, and design while at the same time cost reduced in accordance with availability. In this instance, technological determinism affected the cost and reliability of the receiver and therefore access to ownership. However, this does not mean that prior to the introduction of lower priced receivers those on low incomes did not have any access to equipment or to broadcasts. As has already been observed, the home constructor market was strong giving wider access to the means of reception. For those without the skills to construct a receiver, there was also the social aspect to audience behaviour. Many listeners, as observed by the *1931 BBC Yearbook* (British Broadcasting, 1930) did so by using neighbours devices to obtain significant broadcasts.

Personal ownership of wireless sets appears to have attained and maintained aspirational status during the 1930s according to the statistics provided by Bowden and Offer (1996) as take up of this electrical consumer durable was stronger than that of other labour saving devices of the period such as the refrigerator or the vacuum cleaner. Attainment of aspirational status had already been established prior to the date range proposed by Bowden and Offer. This can be seen when the licence statistics for the 1920s are considered against the relative cost of the equipment. For example, the number of licence holders increased between the introduction of the licence on Oct 21 1922 and March 31st 1923 by 104,094 with an initial figure of 18,061 on inception of the scheme. In 1923 there were 80,000 PMG stamped receivers in operation, meaning that of the 122155 licence holders 42,155 either operated a home constructed radio or else did not have a receiver at all and had purchased the licence speculatively or for the social cache of *appearing* to own a wireless. At the same time Plessey manufactured the V2 for Marconiphone Ltd. implying

that it was considered viable to produce 2,000 valve operated sets which were necessarily more expensive than a crystal set.

The statistics provided by *The Sex of Things* study are based not on manufacturers sales but upon wireless licenses issued and consumption estimations based upon that statistic; meaning that the study, in fact, offers no indication of actual investment on the part of the consumer in any specific type of device adopted, only the record of *legitimate* adoption of the means to "listen in" by the populace during the 1930s. This impacts upon the notion of the "gender" of the technology as it may imply that the actual individual financial investment in the device was negligible owing to the use of a low cost crystal set rather than expensive mains electricity or battery driven products. As such, lower income households were able to access the technology of listening in without recourse to hire purchase therefore allowing accelerated diffusion of the wireless. Meanwhile, other electrical products relied upon both the connection to and installation of mains electricity - in itself a considerable expense. At no point do the authors seriously consider the elements of the desirability of technology and the equally acceptable aspect of modernism as being key determinants in the adoption of wireless over other forms of electrical device. It is significant that Nicolai Tesla imagined the possibility of driving all electrical devices by wireless induction thus meaning that the consumer did not need to rewire their homes. Unfortunately, it should be noted that Tesla was unsuccessful in this respect, not in demonstrating the effect but in achieving the mass transmission of power necessary to drive many different devices; it was simply impractical and, at the time, unsafe. Tesla's failure does not eclipse the importance of radio potentially not requiring mains or battery to operate.

This factor was not lost upon the radio manufacturers - so much so that Ekco printed their marketing slogan "All Electric Radio" upon all of their receivers prior to 1940. Similar references appear on many different manufacturers products including Lissen and Marconi. The reason for this, by the time Ekco began using the phrase widely, was due to the various types of electricity available to the consumer. This may appear vexing, as surely there is only one type of electricity - the kind that produces a voltage and is not recommended as a fun bath toy; this notwithstanding, the state of the mains electricity market during the interwar period was such that there was not only mains or battery but mains running at 240 volts AC which was the format adopted by the national grid, some at 110 volts and others which ran Direct Current mains operating between 110 and 240 volts. For this reason, many consumers may have rejected electrical conveniences such as irons

and heaters because not only were these instruments attempting to compete with an existing non electric product but they were further complicated by being potentially incompatible with the mains type adopted by the area's electricity supplier. Although most retailers offered goods appropriate to their respective area, the possibility of future changes would be enough to make the uncertain consumer shy of such "new" durables.

Pricing policy of the major manufacturers and the availability of the credit.

As this study is concerned with the effect of international modernism upon a "new" domestic product, the wireless or radio "set" it is necessary to describe the change in aesthetic values of the period and how those values were expressed through consumer choice. One must then consider how that choice could be modified economically. The texts chosen are largely employed for the useful statistical information that they provide rather than the philosophical outlook offered.

Even if Serge Chermayeff's (Chermayeff and Plunz, 1982) claim to have sold 120,000 units of his design for the cabinet of the "model 74" *see Fig.1* is only a partial exaggeration, then a reasonably large market must have existed for this product; which suggests that a section of the general public must have had access to the financial where-with-all to make the purchase.

Before the suggested quantity is accepted, the circumstances of this claim should be considered. There are complications that may mean that Chermayeff's claim is compromised – in that he might be including the sales of the radio gram and the floor standing console versions of this receiver, the cabinet designs of which are not attributed to him. At the time of writing, no evidence has been uncovered to suggest that these were his designs, although there is also no direct evidence to suggest that he may have been exaggerating the sales figures either. As such, Chermayeff's statement must be regarded as a truthful representation, despite his exotic reputation as a dancer and his possibly exaggerated CV which were highlighted by his biographer (Powers, 2001). Chermayeff's position as an already established designer through his employment as director of the modern department at Waring and Gillow would suggest that his claim is reliable *prima facie* evidence and must be treated as such.

His claim, if true, offers an insight into the numbers of radio sets being sold by E. K. Cole of Southend-on-Sea. If one adds to this figure the fact that Chermayeff also designed a second moulded cabinet in this year, the model 64 which was sold at a lower price of 11 guineas[54] as opposed to 13 for the 74[55] . One may assume that for the production run to be cost effective then as many or more of the cheaper model might have been produced. It is unlikely that this was the case as Chermayeff would surely have drawn attention to it as well.

From these statistics one can extrapolate an approximate idea of how many people were open to modernist designs for their radio sets. This may not have meant that they were generally receptive to modernist ideas and had simply wished to purchase a new radio. If this was the case, then there were a lot of less "challenging" contemporary designs available to the market and so one can comfortably make the assertion that the modernist designed product must have enjoyed a certain desirability.

Expansion of the radio industry could only continue as long as the demand for wireless could be maintained. As the product was relatively expensive, an element of the market was reliant upon the availability of credit at point of sale. To accommodate this socio economic bracket, the retailers provided a range of goods in collaboration with the manufacturers who offered approved dealerships with Hire Purchase finance agreements. Most manufacturers' trade literature included this service and the scales of repayments can be seen in the material supplied by E.K. Cole, Murphy and HMV.

Murphy was unusual amongst the manufacturers as while hire purchase was extended to the vendee, they did not offer the retailers credit but insisted upon approved dealers buying sets "up front"; this is noted in the biography of Frank Murphy (Long, 1985). Aversion to credit was not extended to the buying public and Murphy offered a line of HP credit at similar rates to other manufacturers. According to the autobiography of Michael Lipman, *Memoirs of a Socialist Businessman* (Lipman, 1980), Ekco discovered, when offering credit in Belgium during the company's exploration of foreign markets in the mid 1930s, that the provision of credit was fraught with unexpected dangers. When the Belgian dealerships offered credit the system of payment contained a loophole. The purchaser

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[54] A guinea was a sum of one pound and one shilling or 252 pence, until the introduction of decimal coinage when it became one pound and five new pence.

[55] although HILL, J. 1996. Radio! radio!, Bampton, Sunrise Press. quotes the price as being £13.10.0.

only had to make the first two repayments, at which point, the credit company would then release the full cost of the set to the retailer. This led to dealers offering to make the first payments for the customer, as they would then receive the full amount. It then did not matter to the retailer if the customer defaulted on the repayments. As a consequence, a change in the credit laws in Belgium was made, preventing this financial model from being exploited by less scrupulous wireless dealers.

Importantly, to ensure that the widest range of consumers could have access to their products the wireless industry offered credit terms for the purchase of their goods. These terms typically took place over two suggested periods, usually 12 or 24 months, although occasionally 18 month schemes were also offered. As can be seen from the two examples in *Fig.177 & Fig. 178* the hire purchase quotation made the expense of a new wireless seem far more affordable and as a result palatable to the customer. Hire purchase schemes were a typical instrument of trade during the interwar years and were commonly employed in the furnishing industry and the automotive trade. Credit schemes of this type appear at all levels of the radio industry suggesting that the demand for credit was not confined to the middle and lower wage earners. Ekco and Murphy offered more modestly priced equipment with the most expensive goods from Ekco being priced at £25 14 6. Meanwhile Murphy, whose general stock was priced slightly higher, were keen to point out the extended life of their products to encourage the wary purchaser to see the commitment to wireless as a long term investment, the usefulness of which, would outlive the credit scheme. Marconiphone, who offered the expensive radiogram model 292 in 1936 *see Fig. 106* offered a hire purchase arrangement suggesting that even the well-heeled might require some encouragement to invest.

Fig. 177: Ekco HP terms 1937.

In this scheme, repayments could be made over 12 or 24 months for the most expense product of 1937 while all other goods were offered over 12 or 18 months. The difference between 12 and 18 monthly repayments is marked and it is likely that this was a prime incentive for the customer to make a purchase. This may not have encouraged the consumer to buy an Ekco over many other brands as they too offered hire purchase agreements and this suggests that consumer choice may have been subject to other factors.

Image source**: Ekco Promotional Leaflet** *Author's collection*

HIRE PURCHASE TABLE

RADIOGRAM

Type	Retail Price	Initial Payment	12 Monthly Payments of	H.P. Price	Initial Payment	24 Monthly Payments of	H.P. Price
RG109	25 14 6	1 11 4	2 4 7	28 6 4	1 11 4	1 4 6	30 19 4

CONSOLES

Type	Retail Price	Initial Payment	12 Monthly Payments of	H.P. Price	Initial Payment	18 Monthly Payments of	H.P. Price
C78	15 4 6	18 6	1 6 5	16 15 6	18 6	18 6	17 11 6
C88	16 16 0	1 0 5	1 9 2	18 10 5	1 0 5	1 0 5	19 7 11

RECEIVERS

Type	Retail Price	Initial Payment	12 Monthly Payments of	H.P. Price	Initial Payment	18 Monthly Payments of	H.P. Price
AW98	16 5 6	19 9	1 8 5	17 18 9	19 9	19 9	18 15 3
BAW98	13 13 0	16 7	1 3 8	15 0 7	16 7	16 7	15 15 1
AW88 *Walnut*	13 2 6	15 11	1 2 9	14 8 11	15 11	15 11	15 2 5
AW88 *Black*	13 10 0	16 5	1 3 5	14 17 5	16 5	16 5	15 11 11
P148	7 19 6	10 0	14 2	9 0 0	10 0	10 0	9 10 0
AW108	17 6 6	1 1 0	1 10 1	19 2 0	1 1 0	1 1 0	19 19 0
UAW78 *Walnut*	11 0 6	13 6	19 3	12 4 6	13 6	13 6	12 16 6
UAW78 *Black*	11 8 0	13 11	19 11	12 12 11	13 11	13 11	13 4 5
BAW78 *Walnut*	11 0 6	13 6	19 3	12 4 6	13 6	13 6	12 16 6
BAW78 *Black*	11 8 0	13 11	19 11	12 12 11	13 11	13 11	13 4 5
BV78 *Walnut*	13 13 0	16 7	1 3 8	15 0 7	16 7	16 7	15 15 1
BV78 *Black*	14 0 6	17 1	1 4 4	15 9 1	17 1	17 1	16 4 7
AD38 *Walnut*	8 8 0	10 6	14 10	9 8 6	10 6	10 6	9 19 6
AD38 *Black*	8 13 0	10 10	15 4	9 14 10	10 10	10 10	10 5 10
B38 *Walnut*	6 19 6	8 11	12 7	7 19 11	8 11	8 11	8 9 5
B38 *Black*	7 4 6	9 2	13 0	8 5 2	9 2	9 2	8 14 2

UNITS

Type	Retail Price	Initial Payment	11 Monthly Payments of	H.P Price	Type	Retail Price	Initial Payment	11 Monthly Payments of	H.P. Price
AC10/20	2 2 6	5 0	4 0	2 9 0	K10/20	2 12 6	5 0	5 0	3 0 0

Prices do not apply in I.F.S.

Fig. 178: Murphy highlighting the availability of credit and the need for the expense to be justified by longevity of performance. (1938)

Wireless was marketed by exploiting the contemporary public's understanding of what constituted modernity. This marketing strategy was abetted by the status of the wireless as an innately modern device, which was reinforced by modernist artists and other contemporary designers utilising the symbols of wireless to signify modernity in a wide range of projects and products. New construction techniques and materials further underlined the modernity of the wireless, giving the public an opportunity to invest in the latest developments for their homes while providing access to a new leisure activity.

So that the wireless companies could maintain their market, designs needed to remain current. As a result, the design of radio needed to be constantly refreshed through the introduction of apparently new systems such as spin wheel tuning. While addressing the need for continuing sales the wireless industry addressed the popularist aspect of wireless access and ownership, providing a range of carefully priced goods which allowed a broad cross section of the community to acquire a stake in wireless.

To extend that section of the community, Hire Purchase provided a wider cross section of the socio-economic group with the opportunity to acquire aspirational products, even allowing them to buy higher priced goods which may have been beyond their normal means. Despite this, the economic investment and commitment to payments over an extended period meant that the product had to appeal to the group in a way that would expedite any doubts they may had harboured.

In the following chapter, Consuming the Wireless, the domestic conditions of those who would make this investment will be considered in detail, addressing the existing decorative styles of the those domiciles and how the design and marketing of wireless sought to accommodate those spaces.

Chapter 5

Consuming the Radio

Who will buy this new device?

This chapter will examine the domestic conditions of the prospective purchaser and how this affected the design, marketing and pricing of the radio. As has already been identified, the radio manufacturers and retailers aimed to offer their products to as wide an economic base as possible, who this demographic group were and the reasons for the industry targeting them will be considered in the following sections.

How many British homes may have been furnished is suggested by the photograph *see Fig. 179* of a couple in their home. Its documentary impartiality does not appear to be compromised, there being no commercial or political narrative to the image suggesting that its purpose is simply to record the couple and their lifestyle. Furthermore, there are no stylistic inconsistencies or suspicious perfections to the image which might indicate that the image has been deliberately staged at a later date, supporting the idea that this is a straightforward document of an interior. The room consists of "traditional" furnishings, in the background of which nestles a Pye Radio of 1930 - the AC4D or DC4D. As these models were only available as AC or DC mains sets rather than battery powered, this meant that not only did the couple have a wireless, they presumably also had mains electricity. It is possible that the couple did not have power for their radio and had bought the device solely to impress but it is very unlikely given the price of the product at over £23.0.0. Such was the allure of the wireless and by association, it's styling.

Despite the photograph providing evidence that people of traditional tastes were buying radios, the key market for wireless sets was the many families buying and furnishing "New Build" Housing - a market which was expanding during the period. Although this may appear to be a wild claim based on the photographic evidence, the advertising produced by the set-makers illustrates an aspirational style suggesting that the "New Build" market was the main focus.

Fig. 179: Couple with their Pye Radio.

Picture source**: Form and Function (Benton et al., 1975)**

Fig. 179 offers an insight into how radio was adopted by the general public. In the room there is to be seen what appears to be a Georgian (or possibly Victorian) neo-classical table with swept mahogany legs and small brass casters making it mobile, a Victorian "what-not" shelving unit with pieced decorative embellishments and turned spindle type columnar supports, a floral print wall paper and a large fire place with mantle shelf that is filled with a variety of useful, possibly sentimental and decorative items – all of which are of a type associated with the 19th century. Set against the side wall is a Pye "Rising Sun" radio of the early 1930s. This is the only clear example of 20th Century material culture that allows the scene to be dated beyond 1910.

Fig.180: Popular wireless of 1922 the interior illustrates how little the decorative scheme of the interior had changed by the time the couple in *Fig. 179* acquired their radio. What this clearly indicates is that the styling of the wireless was changing far more rapidly than that of the many domestic interiors.
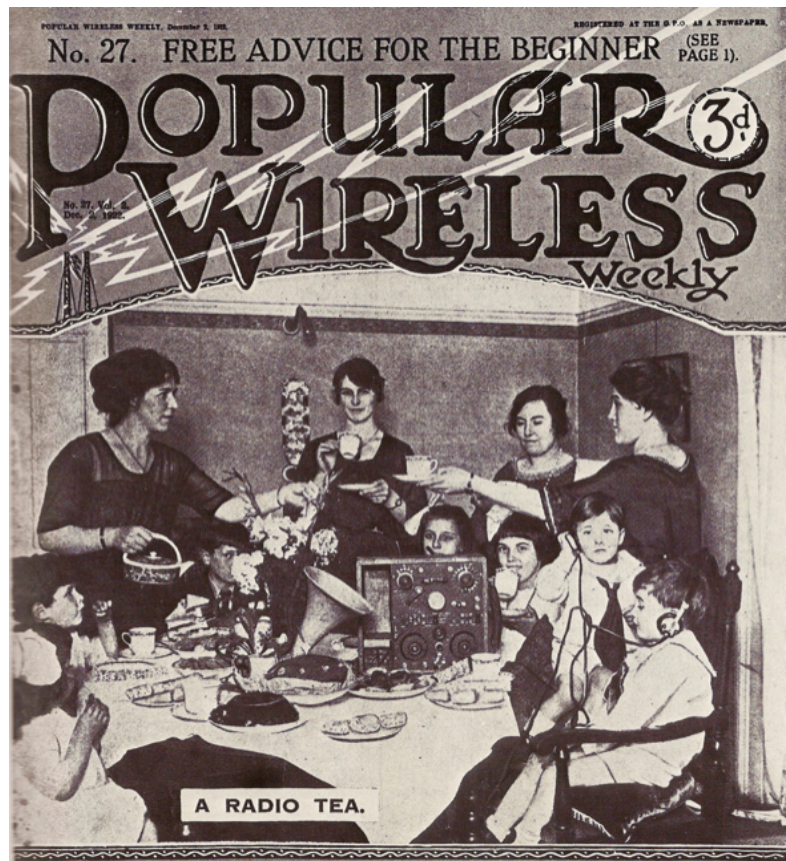
In spite of the modernity of the wireless manufacturers idealised interiors, it would appear that *Fig.179* is typical of the British household in the 1930s. To view this picture on its merits as *primo face* evidence then this is the case. A couple sit in their home in an apparently natural setting, surrounded by the objects that are familiar to them. It should be considered that these are two people who, at the time of the photograph, already belonged to an older generation. As such they represent both a decedent culture and only a small sample of British domestic culture.

Although the cover photograph from Popular Wireless (1922a), *Fig. 180,* is a staged event deliberately based around the wireless, the depiction of a wireless tea needed to contain enough actuality for the viewer to be able to relate to it as a recognisable social event. The technology is of a type familiar to the reader and the social situation would have been too. On the table sits a speaker which appears not to be in use. This suggests that the speaker is there largely to infer that tuning is a social activity although only two of the group are actively involved in listening in. By including the speaker, the photographer has also revealed the stage of development at which the wireless was at, one of being a set of separate units, which even with a speaker was only loud enough to be heard clearly when close at hand. By the time that the photograph of the couple, *Fig.179,* was taken the position of the wireless had shifted from being in close proximity to the listener, owing to the purpose of the photograph and the need for headphones as seen in Gecophone advert *fig.181*, to being in a position of social consumption utilising the innate properties of the speaker to project sound to multiple listeners. When compared to *Fig. 179* the stylistic similarities are notable, however, the key piece of material culture that has changed almost beyond recognition is the wireless, which remains in a focal position within the room.

The photographer of *Fig. 179* has also placed the wireless further from the viewer and into the shadows reducing the possible "pride of place" that it actually may have occupied in the room. Within the interior the radio is the key modern object and although not modern*ist,* the design reputedly drew upon the motifs encountered at the 1925 Exposition of Rising Suns and other new dawn images; associating it with both a homely and positive image of the dawning light and the promise of new beginnings and fresh ideas as personified by the new technology of wireless. Here it sits, expounding the new, to people still occupying the previous century but desiring the ability to be able to listen in. As was highlighted by Forty (1975, 1986) this is the only piece of modern furnishing in an otherwise antiquated interior. What this illustrates is how much the wireless changed in a

short space of time and how willing the public were to accept that change in a piece of technology which had adopted a position within their furnishing scheme. Such acceptance suggests that the wireless was not subject to the same rules and regulations applied to other consumer durables. The social gathering of 'A Radio Tea' (1922a) *Fig. 180* suggests that the difference in the appearance of the wireless in relation to other elements in the room was already established. Hence a modern decorative appearance could be accepted for the wireless of *Fig. 180* as it was expected that the technological modernity of wireless would invest itself in a form of decorative modernity.

Fig. 181: Gecophone advert 1922

Gecophone's advertisement of 1922 (Hill, 1978) is relatively unusual amongst wireless advertising of the time, as it depicts the domestic interior instead of only the wireless set or some larger public gathering (a ballroom full of dancers appears in one example). The room contains a number of items that can be easily identified as "not modernist" and although they are not overtly decorative the tasselled shade of the over head light is not of a type normally associated with the modernist movement.

What is especially interesting is that this is not the old fashioned interior of the elderly couple pictured in *Fig. 179* (Benton et al., 1975). A prominent feature of this idealised room is that it is lighted by electricity. In this way, the example is distinctly *technologically* "modern". The young men are wearing fashionable tweed suits with turned down collars and ties in a "Windsor" style knot that was a style later associated with Edward VIII and the post Edwardian age in Britain. What the advert hints at is that the young men are in a room lighted by electricity, they are well read, as suggested by the bookshelf in the background

and they are engaged in the activity of "listening in" at a social level, as although they are using headphones the advert, by placing them together seeks to overcome the solitary nature of headphone wireless use. While modern technology is alluded to through lighting and foregrounded by wireless receiving apparatus, the text is at great pains to point out how easy this new technology is to install and use, stating "Simplicity is the Keynote of all "Gecophone" Receiving Sets. They are noticeably devoid of all technical complications and can be installed and operated with the utmost ease." Rather than a commitment to the ethos of functionalist minimalism, this preoccupation is more likely to be an attempt to avoid discouraging the prospective purchaser who, the emphasis upon ease might suggest, may have considered this level of technology beyond him. Its rhetoric echoes the interest of the modernists in their desire to produce an aesthetic that was without the complications of ornament, which was also reflected in the unadorned appearance of the Gecophone receivers themselves.

Beyond its attempt to sell a product, the Gecophone advert reveals clues about the key demographic of the still nascent wireless receiving industry. By implication, the ideal customer for Gecophone's product is young, male, presumably single, middle class, with time and disposable income to spend upon a hobby; while simultaneously, the advert offers an aspirational image of the wireless user to the contemporary viewer/potential listener. It is implied that by acquiring this product then the owner will be in the company of such people and hence of that social set. Furthermore, it is suggested by the expressions on the two men that not only will the technology not confound but it will make the owners happy.

The happiness of the consumer is an important element as its context identified the wireless not as a serious activity related to the development of a science but as a leisure pursuit. Coupled with the widening availability of credit the market for the wireless expanded. As the wireless developed into an established market during the late 1920s the question of who would own the wireless became less important as demand for the product increased. This lead to the need to address how the domestic environment would accommodate the arrival of a new leisure technology.

Arrangement of the room around the activity of "listening in".

Built in technologies

Two illustrations of a four-way upholstered chair by Robert Howland and Sons Ltd., High Wycombe.

Fig 182: This Howland and Sons chair illustrates the preoccupation with multi-purpose furnishing. In this example the chair offers a side table and wireless. Its key purpose being a restful easy chair The popular recreations of listening in and alcoholic consumption have been incorporated and included as extensions of comfort. (1935c)

Many interior schemes were produced which incorporated radio as a "must have" convenience. Examples of this can be seen in *Fig. 183, 184, 185, 186 & 187*. Radio's aspirational qualities of leisure and domestic convenience can be seen invested in *Fig.182* which is a Howland and Sons chair (Dowling, 1935). In this instance, radio has become a desirable enough instrument that it should be incorporated into an easy chair. Utility has been carefully considered; the chair, through extended function provides the prospective owner with maximum perceived purpose and therefore the instrument offers maximum benefit to the user, but at a high potential and unforeseen cost. That cost may have been financial but in this instance this is not at the key expense. The combination of radio and its technology with such a substantial furnishing item is a questionable one. It is a questionable combination not because of its weight or its price but as a consequence of the obsolescence factor inherent in early 1930s wirelesses. Technological obsolescence was already established as being far more frequent than the shifts in furnishing fashions. Radio frequencies had been altered in 1934 (Hill, 1996) and as a result, what constituted the broadcast industry standard appeared prone to change, quite dramatically, year on year. Although the technology may have required modification or replacement over a relatively short period, such inconveniences may not have deterred the consumer seeking to purchase both a new chair and a new wireless as this product offered the possibility of acquiring both in a single purchase. By making that purchase, the advertising for the chair

appears to suggest the buyer was also offered a wonderful opportunity to consume alcohol - an apparently desirable leisure activity of the time as suggested by the Savoy Cocktail guide (Craddock, 1930). Perhaps this offered the maximum benefit to the consumer in itself. Potential obsolescence and alcoholic incentives aside, the notion of combining the wireless with the interior was a relatively popular one.

Ontologically, the wireless chair combination provides a good example of the novelty item within the scheme of wireless design, although Yagou's typology (2004) could describe it as being either of her independent or domestic types, depending on what functionality one wishes to highlight. In most respects, it possesses an independence of design which exhibits signs of a frivolous imagination rather than careful consideration of purpose over practically or even immediate development potential. Independence in this instance, would conform to Bijker's (1995) non linear approach; however, his view of technology would support the idea that although this design may not have become an industry standard its presence in design terms may have potential for future ideas concerning built in technologies. Regardless of these considerations, in linear terms, this device can be placed historically in parallel with the development of other furnishings which had similar aspirations. During the early 1930s a variety of book cases and shelving was built into chairs by both the general furnishing trade and in examples of avant garde aspirational designs such as those by Marcel Breuer for Isokon (Pritchard, 1984) and the inclusion of up-lighters within stepped bookcase arrangements by Paul T. Frankl (Minneapolis Institute of and Hillier, 1971).

In its execution, the wireless chair is emblematic of what is generally accepted by historians (Hillier, 1968, Klein et al., 1986, Tinniswood, 2002, Zaczek, 2000) as being Art Deco, although similar cubistic forms for chairs are seen in the interiors of Wells Coates' Sunspan houses (Wells Coates Exhibition and Cohn, 1979). This suggests that although not strictly Modernist, the form was considered suitably functional and modern enough to be placed within the design schemes of a prominent MARS and CIAM member. Positioning furniture selected by the architect within the interiors of completed projects and promotional schemes was not uncommon amongst the modernists and in his early projects, the prominent C.I.A.M. member Corbusier was in the practice of using bent wood Thonet chairs and tables in his interiors, as seen in his studio for an artist (pg. 277 Corbusier, 1927). This suggests several interesting points; foremost of these being that contemporary furnishings were used to signify the fashionable status of the overall scheme

and that the qualities of a design were prized as highly as the products of a specific designer.

A comparable practice can be observed amongst interior designers. In the same way that the technological modernists adopted certain furnishing forms, interior decorators embraced the wireless for inclusion within their contemporary decorative schemes. Several designs incorporated wirelesses as built in components for the modern household. As the technology of the radio had a finite lifespan, these designs recognise not only the popularity of wireless but also the transience of the decorative scheme as described by Duncan Miller (1937), rather than the permanence of the modernist vision for architecture as implied by the Bauhaus philosophy described by Sharp (1993).

Interior design companies used the wireless as a symbol to confer an implied modernity upon the schemes they offered and to reinforce the modernity of others. An example of reinforcement can be seen in the use of Coates's Model 85 by Hendersons *see Fig. 183* for their advertisements of 1935 included in The Studio Yearbook (1935a).

Fig. 183: Henderson Interiors Advertisement incorporating Ekco AC85 (Holme, 1935)

Henderson's Interiors advertising, *see Fig. 183*, illustrates well the way in which the decorative market adopted modernist ideas to fill in the void left by the negation of ornament. Within this design the wireless has been positioned both prominently for promotional reasons and, as in the interior arrangement of the 1925 Exhibition *see Fig. 212*, to offer optimum listening potential, achieved in much the same manner as in *Fig. 213*. In common with the 1925 interior *see Fig. 212* this arrangement calls upon wireless for its popular entertainment and its modern connotations through its primary purpose and through its modern appearance of geometric forms of black Bakelite highlighted with chrome plated

details. Other components within the furnishing scheme are typically fashionable including the use of what is probably a green and black[56] contrasting banded marble fire surround housing an electric fire surmounted by a circular mirror reflecting geometric abstract modernist art. These elements act as signifiers of the contemporary, identifying this as a modern domestic interior. Henderson's model decorative arrangement is sparsely furnished with only abstract decoration and modern technology as ornament. As a result of their association with modernity those elements have become adornments for the contemporary modern interior thus filling the void left by the removal of excessive decorative ornament.

During the 1930s interior designs which included the wireless did not always foreground the machine. Frequently, like the wireless chair, furnishings incorporated the device within other units. In the examples illustrated on page 223, where the interior designers have not employed radio by way of a decorative device, the utilitarian values inherent in the nature of the designs is highlighted. In *Fig. 184 - 187* the inclusion of the wireless focuses upon its functional purpose within the interior scheme; this presence of the receiver, while not made obvious in *Fig. 184-187* is not completely concealed. This is done in such a way as to suggest that visible controls did not disconcert the customers. These designs have sought to offer those commissioning them the utmost perceived benefit from the design with the least inconvenience caused by the clutter of possessions. As the designs were intended for modest sized homes of the 1930s (Merivale, 1944) they may not have demanded the ostentatious display of technology and abstract art that might be required by the Henderson's client of Park Lane or even Kensington Palace Gardens.

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[56] it is not unreasonable to think that this may have been any colour of stained marble although most surviving examples appear to have favoured green and black as opposed to blue or pink.

Left: **Fig. 184 Interior Design: Honor Easton**
(Merivale, 1944)

Below: **Fig 185. Built in Radio in small
house: Joseph Aronson.**(Merivale, 1944)

left: **Fig. 186: Interior Design: Renovart Ltd.** (Merivale, 1944)*right:* **Fig. 187: Interior Design: Kenric Hickson According to the type of knobs used, which are a design peculiar to Murphy, this appears to incorporate a murphy radio (***probably an A3)* (Merivale, 1944)

Fig. 188: Wells Coates redesigned interior from his Kensington Palace Gardens Project for Charles Laughton and Elsa Lanchester.

At Kensington Palace Gardens, (*see Fig. 30* for its original appearance), in Wells Coates redesigned interior for Charles Laughton and Elsa Lanchester, the use of technology is functional rather than being in lieu of decoration. In this instance, the presence of the built in wireless is a clear statement of the media consciousness of the client. Coates scheme does not incorporate any applied ornamental forms within this promotional photograph *see Fig. 188*. As in the example of the Howland and Sons wireless chair of *Fig. 182* or for that matter any built in unit, the problem of technological obsolescence also applies to this arrangement,

although, by including the built in wireless, this scheme addresses the requirements of the client, with whom Coates worked for this project and as such the utility of the design outweighs the inevitable need for replacement of equipment. It should be noted that obsolescence was anticipated over a 15-20 year period according to post war communications from Ekco to their dealerships who were being told in the 1950s that many spare parts would no longer be available for models produced pre 1935 (Radio, 1954). When *Fig. 188* is compared with *Fig. 187*, there are sufficient similarities to allow the assertion that Coates design for this expensive project offered the same utility as is seen in the more modest scheme of *Fig. 187,* only writ large. What this indicates is that the customer of modest means displayed similar aspirations to those of a higher income.

How the accommodation of wireless within moderne furnishing schemes had developed since 1925 suggests that the relationship which existed in the mid 1930s between the wireless and its user of being a leisure pursuit was already established by the mid 1920s. Despite this relationship, how the interior decorator treated the nascent entertainment medium was not so well defined. In Maurice Dufrene's (1989) selected examples of interiors designed for the 1925 exhibition one can observe the presence of the wireless set in a room setting by Paul Poiret *see Fig. 213*. Here the space has been organised according to the various activities in which the occupant might wish to engage. Radio equipment, consisting of a multivalve receiver/amplifier and a speaker, has been positioned near to the well established home entertainment of the piano. By positioning the wireless within the parlour space, it is suggested that the radio was seen as a recreational activity. Furthermore, by association with an accomplishment like piano playing the radio is acknowledged as a device that required some skill in operation. To have grouped it with a gramophone would have been just as relevant but it would not have implied that the occupant was a cultivated person; although, perhaps, this inclusion would have leant the room an extra air of modernity. Poiret's inclusion of a musical instrument rather than a mechanical reproducer makes an implied statement about the advanced abilities of the prospective owner of the interior. The multipurpose living space is heated by radiators and consequently having no hearth does not have a conventional social focus. Instead the room has been arranged around the table seen in the foreground, facilitating social interaction across multiple planes. Possessing aural entertainment and a focus upon social activity, the focus of the room is allowed a number of potential loci. These might be the taking of food stuffs, the consumption of music or the ingestion of ideas and music via the novelty of wireless. When compared to the couple and their wireless seen in *Fig. 179* it

is not unreasonable to draw the conclusion that Poiret's positioning of the wireless successfully addressed the social function that it would retain in many households, although the wireless would be placed intuitively by its owners rather than necessarily by interior designers.

In most cases, the interiors which incorporated radio as a built in element have not survived in their original state[57] The reasons for this are manyfold, but the principle reasons are changes in interior tastes and technological obsolescence. Like the kitchen stove, radio has undergone a number of technological improvements, advances and changes. As a result of which, not only has the furnishing style of the device altered potentially reducing the desirability of the product but so too have the requirements placed upon the functionality of the receiver resulting in the need to remove and replace the technology over time. In many cases this meant that the original vision of the designer has been compromised over time by the replacement of one wireless with another or by the complete removal of the unit because it no longer offers the service demanded by the owner. This effect can be observed in extant equipment designed by both Wells Coates and Marcel Breuer held within the V&A collection.

Failure to survive is particularly true of Frank Murphy and the furniture he designed before emigrating to Canada (Long, 1985) making wholly reliable investigation problematic, particularly regarding materials and method of construction. Likewise, the alteration of a design by the owner/user does reveal the presence of the consumer as agent within the historical development of wireless although the effect upon the aesthetic of an artefact may not be a positive contribution to the vision held by Murphy or Gordon Russell Ltd. as to how a radio ought to appear. Agent interference in the design is based on the need to update the technology or to make the device suitable for an unforeseen purpose - the inclusion in a stage production or the repainting of a wireless to fit in with a given colour scheme. For good or ill this scenario only becomes an issue should the subsequent historian, design student or collector not have access to information illustrating the design as intended by the manufacturers/designers. Such an outcome can result in a distorted understanding of the design aesthetic of a manufacturer or even a period, alterations often having taken place many years after initial purchase.

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[57] at the time of writing, surviving examples of a built in wireless service still can be seen in some flats at Du Cane Court in Balham, South London.

Designing rooms to accommodate the emergent technology of wireless was addressed by a range of designers to meet the requirements of a relatively broad cross section of society. Where the professional designer could not be afforded or was simply not a consideration, the interior and the wireless assumed a natural association based upon the function of the radio and the social activity of the listening in.

To obviate the need for complicated domestic adjustments the wireless had the potential to fit in with the existing arrangements of the average household. In the following section, the manner of this adaptability will be considered in light of the design solutions offered by the setmakers through their products.

Freeing up the relationship between room and Radio.

Unlike the business of watching television, radio does not require the reorganisation of the room in order to maintain an optimum position for reception: at least, not for the aural reception of information. In early sets, it was important to position the equipment for signal reception to be at its peak. A number of radio designs overcome this by incorporating a built in aerial and in the case of several 1930s wirelesses, such as the ACT96 of 1935 *see Fig. 154*, being fitted with a turntable to facilitate orienting the aerial for best signal response. Many houses were fitted with a fixed aerial often hung between chimney stacks or as a large frame aerial constructed in an area such as a loft using a series of wooden posts attached to the roof joists as a former. A fixed earth would be established by burying a copper sheet near to the building and the aerial and the earth would then be connected to wires which could be tapped to serve different rooms allowing the listener to move the radio from room to room should they so wish[58].

The Ekco Model ACT96 raises important issues concerning the relationship between the wireless and the arrangement of the domestic interior and in so doing illustrates the complex problem of how an example can illustrate the relevance of technological determinism and yet simultaneously seem to be the product of social construction. Although this model is not representative of all makes of receiver, it is a good example of

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[58] Aerials of this type are sometimes still extant in houses of the period although external aerials have almost all been completely removed by subsequent owners or television engineers.

its type as the design recognises the need for flexibility in the positioning of the set within the interior space of the interwar home.

First is the issue of technological determinism. Increased flexibility of positioning the wireless within the domestic setting is achieved partly through the elimination of the need for attachment to a fixed aerial point and partly through inclusion of external handles allowing the user some apparent ease in moving the instrument. The handle is hardly a technology unique to the wireless industry and so should be put aside for later consideration.

" ALL-WAVE ALL-PURPOSE " AERIAL
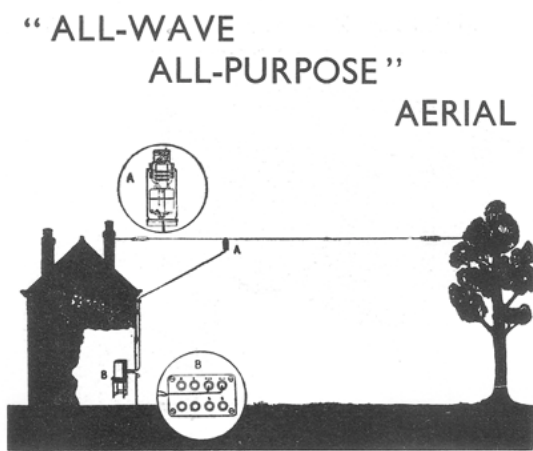
The installation of a Philco All-wave Aerial ensures the best possible reception from any make of set on all wavebands, and brings in more stations. For current Philco all-wave models, with automatic aerial selector, the aerial kit costs ... ... **25/6** (Part No. 400 : 5017)

For other Philco models, or other makes, the kit is supplied with a set transformer to match the aerial to the waveband in use at ... ... **31/6** (Part No. 400 : 5016)

GUARANTEED VALVES

All Philco Valves give complete reliability and are of unvarying quality. They are guaranteed for ninety days after date of purchase.
20

Fig. 189. A typical Aerial system of the late 1930s, here made all the more complicated by the introduction of an additional transformer for different wavebands.
Picture source**: Philco Catalogue (1938)** *Author's Collection*

On examining the ACT96 in greater detail, one finds that it is fitted with an internal aerial that consists of a pair of wooden frames around which is wound wax-cotton covered single core cable that sit on either side of the receiver chassis potentially forming a relatively sensitive box frame aerial. This apparatus then sits upon an externally mounted rotating turntable allowing one to adjust the position of the set according to the signal strength. Owing to this arrangement, the wireless would have been able to be positioned according to the listener's desired position in the room rather than at a convenient point for an aerial tapping to be attached via a plug socket at a fixed point within that room. As a product of having eliminated the need for an external aerial there was then no need to fit an aerial tapping in any rooms. For the consumer this meant that the wireless would have been less complicated and expensive to install.

Once the radio had been installed in a room it could then operate in the space chosen by its owner rather than one negotiated with an aerial installer. Should this fancy have altered, the wonder of the handle would reassert itself. In addition to the internal frame aerial and a turntable, a pair of handles were fitted to the ACT96, meaning that it was notionally *transportable* owing to its external form. The cabinet having moulded, lobed handles on the sides which sweep out in a teardrop shape allowed the user to lift the radio more easily. Despite these elements, being dependent upon a fixed power source, this radio could only be transportable rather than truly portable.

Ideas such as portability were not new to the field of radio ergonomics and the elements which were incorporated into the transportable models such as the frame aerial and its associated turntable had already been developed and applied by the late 1920s. Employment of the frame type aerial in portable sets was a convenient if not necessary development for the fully mobile all enclosed radio. Taking the form of a medium sized leather suitcase, being roughly square and invariably powered by batteries, it was intended to be for use outdoors or for movement from place to place particularly where mains electricity might not be available. These sets were still comparatively heavy until the late 1930s. Transportable devices differed from this archetype in that they were not intended to be fully portable. By introducing an efficient, small box frame aerial to a domestic mains set facilitated this type of transportable radio. Moreover, the aerial meant that it could compete with the large aerials many wireless owners installed in their homes (Bussey, 1976) meaning that transportable owners could dispense with such a thing.

At this point, the straightforward technological determinist model of the aerial facilitating change, must make way to the SCOT (Bijker et al., 1987) version of events and the social construction involved in this technology. In the technological determinist version, the user is offered the option of not having the complication of installing an aerial in their home and the further incentive of being able to position their wireless as they wish within their personal domestic spatial arrangement by the development of aerial technology. Owing to a technological development, the wireless will bend to the will of the customer and fit in with the way they would want to use their possession. Alternatively, a new market for a product which reused a pre existing technology was facilitated by social factors. In this model, the owner's disinclination toward full engagement with a technology i.e. installation of an aerial, shaped the design of a radio which negated the need for such an action. Furthermore, the box frame system of the transportable set, offered the advantage that

because it did not need an external aerial, a person who lived in a property where installation was complicated, e.g. an apartment building, did not need to enter into arrangements with neighbours to fit an antennae. This aspect of the transportable radio engages with the social changes advocated by many modernists. As such, the modern transportable radio acts as an example of what Gell (1998) might have called the extended personhood of designers such as Coates and Chermayeff who had directly interacted with the Ekco company.

Use of the term "transportable" to describe this type of wireless is most likely the invention of an advertising copywriter; in other words it is a product of marketing. Portable would not have been a reasonable description as ontologically speaking this product would have difficulty fitting the requirements of portability. Certain conditions preclude portability for the ACT96. This model was mains operated, needing a static source of power and immediately preventing full portability; it was also probably the heaviest table model produced by E. K. Cole during the period and had a Bakelite cabinet, which while strong was also brittle, meaning that it would be unlikely to survive regular trips beyond the confines of the home environment. Although the availability of mains power would have been the key problem, weight alone was such that the thought of taking this model on a picnic was almost certainly not the intention of the design team. Instead, the concept suggested by this form invites the consumer to occasionally and without need for assistance, move the set about. Such manipulation could then facilitate the best decorative positioning in the domestic space, as well as the most suitable location for reception.

Fig. 190. Philco People's Set 1938
Picture Source**: Philco Catalogue (1938)** *Author's Collection*

The Famous PEOPLE'S SETS . . .

BATTERY MODEL 333
Offers homes without mains a full-size receiver at a truly remarkable price. It has 3 Philco High Efficiency Valves, band-pass tuning, sharp selectivity, combined on-off switch and volume control, enormous power, exceptionally large tuning dial combined with station chart showing metres, kilocycles and 32 station names; also automatic grid bias, no separate grid bias battery required. Consumption only 8½ milliamperes.

£7 15s. 0d.
(Batteries extra)
H.P. TERMS : Deposit £1 5s. 6d. and twelve payments of 12s. 9d.

A.C. MAINS MODEL 444
Special features include : 4 Philco High Efficiency Valves, full A.V.C., absolute 9 kilocycles selectivity ensuring only one station at a time, enormous power, silent background between stations, 3 watts undistorted output and fully energised moving coil loudspeaker giving perfect reproduction, large full vision dial marked in metres and kilocycles, and with station names, only 40 watts power consumption.
Both the above-mentioned Models are housed in beautiful black moulded cabinets.

£9 0s. 0d.
H.P. TERMS : Deposit £1 8s. and twelve payments of 14s. 7d.

A.C./D.C. MAINS MODEL U427
Has 4 Philco High Efficiency Valves, full A.V.C. counteracting fading, absolute 9 kilocycles selectivity, ensuring only one station at a time and all of it, enormous power and purest tone, illuminated full vision dial, extension speaker sockets.
Housed in a beautiful walnut-finished moulded cabinet. Supplied for use on 190 to 260 volts. 40 to 100 cycles on A.C.

£10 15s. 0d.
H.P. TERMS : Deposit £1 12s. 9d. and twelve payments of 17s. 9d.
" That no one need be without the benefits of good Radio."

1

By allowing for flexibility of use, the ACT96 transportable wireless illustrates the innately utilitarian approach (Lyons and Bentham, 1973) taken to its design. In its conception, the consumer's domestic requirements have been taken into consideration. In addressing these considerations it is assumed that the consumer will be offered the greatest benefit from the adaptability of the design. However, as this model was not inexpensive, its utilitarian approach is limited by exclusivity. In the same year that the ACT96 was introduced, Philco offered their bakelite Peoples Set at prices starting at 7 guineas; the ACT96, *see Fig. 154*, priced at 12 and a half guineas for a brown version and thirteen for black and chrome, was going to have difficulty appealing to the widest cross section of the market and hence this economic factor limited its utility. Ekco offered this model as part of the 1935 range and at a reduced price again in 1936; suggesting that either the radio sold badly and they were left with remaindered stock, or that the radio was so popular that production was continued the following year. No surviving documentation conclusively supports either reading of the circumstances. In the absence of archival material, an indication of the original production quantities may be extrapolated from the number of surviving examples in museum collections and amongst private collectors. In terms of survival rates, as of 2010, there are no reliable figures produced owing to the scattered and in many respects secretive nature of wireless collectors, no survey has been conducted concerning the numbers held in museum collections although an informal inspection of four collections of the 1990s suggested that the ACT96 is far less common than the model 74. Of the radio collections held by On the Air, The V&A, The Bakelite Museum and the Prittlewell Priory Museum, Southend-on-Sea only two collections included examples (on public display) while all four had examples of the model 74. Coupled with the very low quantities seen on the open

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market over the last twenty years, it can be assumed that there were fewer sold than many other sets of the period, particularly the Philco Peoples Set, which has remained comparatively abundant. This suggests that either the price or the design impeded sales. Given the success of lower priced models it would appear to be a result of the former. These results suggest that the appeal of the ACT96 was limited by its pricing, which may have been influenced by it having been issued in a year where the mid-range priced set, the model 86, appeared to offer many of the same technical advantages without the higher price tag.

As far as utility is concerned, in the instance of the ACT96, happiness is not acquired through consumption of an aspirational object alone but through purposeful design. This idea was not unique to the ACT96 and was an underlying premise in a number of Ekco's Modernist designed wirelesses particularly the models 74 and 64 of 1933, model 86, 77 and the ADT95 of 1934 (EKCO, 1934a).

Ergonomics and Ease of Use

As has already been stated, Serge Chermayeff designed a number of sets which, on inspection, focused on the ergonomic qualities of the cabinet; despite this, in terms of marketing, ease of use was assumed and not a feature which the manufacturer chose to highlight. However, this was not a matter of advertising policy and many of the technological developments highlighted by wireless advertising are concerned with the easier and more effective operation of the products. One of the earliest design innovations based upon the concept of ease of use was introduced by radio manufacturers during the early 1930s. This was the apparently simple concept of a large tuning scale which accommodated printed station names. Ekco are considered by Hill (1996) and Hawes (1992) to have introduced the system with their model RS3 of 1931. Advertising of that year claimed that the Ekco dial printed with station names was both "new" and "exclusive" implying that the technique had not been used before *see Fig. 191*. Jonathan Hill (1996) highlights how the set was marketed as being easy to use and that it should appeal to women in particular citing Ivee Smith, publicity supervisor at EK Cole at Radiolympia 1931 who had said of the set
"What pleased me most was the interest which women took in the station dial. The idea of being able to tune in by name captured their imagination. Instead of having to submit to

the humiliation of watching the competent skill with which "John", "George" or "Bill" tuned in foreign stations for their gratification, these women had visions of being able to do the job themselves…"

Smith then went on to claim that Ekco was the first company "to produce a receiver which really appeals to women as well as to men." This last statement is particularly significant as it suggests that previously radio had been considered a masculine "gendered" product. This is contrary to the claims of Bowden and Offer (1996) that it was non-gendered, which is a claim based upon statistics that ignore the public relationship with the product until a certain level of "household penetration" was reached.

Ekco was not the only radio manufacturer to specifically target the female market during the early 1930s. Kolster Brandes (KB) also pitched certain models at the female market. Generally, KB advertising of the period does not specify any particular sex, however, a significant publicity photograph of 1933, promoting their attempt at entering the "designer" market is far more gender specific. How this gender typing fitted with their wider product range suggests that the company saw a connection between the moderne styling and the female market. KB's Rejectostat models of 1933 were available as a standard model, the 666, which had relatively restrained but modern art deco styling *see Fig. 197*. Alternatively, the same receiver was marketed as two more expensive versions, the 666B *see Fig. 195* and the 888 *see Fig. 196*, housed in cabinets of Queensland walnut highlighted with chrome banding created by the furniture designer Betty Joel. Joel's Rejectostat table model was then publicised using a specially posed publicity photograph *see Fig. 195*. In this representation, the owner, is a young woman sitting in a living room which includes a pair of Betty Joel designed nesting tables, drawn out to accommodate her radio and an apparently white telephone[59]. The radio is being sold largely on its style rather than its purposeful utility. Overall, a sense of fashionable style has been generated through a range of visual signifiers which would have been read by the contemporary audience as being expensive, aspirational goods. While luxury can be inferred through the use of expensive details, it is also implied that this opulence is achievable for the wider public; this is suggested by the vase on top of the wireless which is not of a particularly expensive type but does reflect the geometric style of the other elements such as the woman's clothing and the general form of the furnishings. Inclusion of the modern combination

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[59] this would have been a signifier of opulence to the contemporary viewer as the white telephone was available to rent from the GPO at a higher rate than the standard black handset see ANON. 1931. Telephone Services, London, General Post Office.

telephone[60] reinforces both the domesticity of technology and its continuing modernity. In cultural terms, the flower vase and its contents refers to the presence of a woman's touch suggesting that women will not lose their femininity to the new technology of wireless communication that was entering the home.

Fig. 191: The 1931 Advert for the Ekco RS3 with printed station names note that the circular form of the advert is modelled upon the tuning scale which is situated around the decorative speaker fret. The station names can be seen at all times not only when tuned to that station. The claim that the system was both new and exclusive suggests that Ekco were asserting this to be the first system to use clearly visible printed station names on the tuning scale.

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[60] The combination telephone pictured in *Fig. 195* is a type 162 introduced in 1931 replacing the older two piece pedestal type which had a separate receiver and microphone *see* Ibid.

Fig. 192: The AD65 of 1934 illustrating how a woman can use it

Figs. 193 & 194: Here Ekco radios of 1935 are being associated with woman as users and owners.

Ergonomically the K B Rejectostat wirelesses were not as effective as those produced by Ekco. Kolster Brandes fitted their wireless with a drum-drive scale and while it did feature printed station names on that drum, this was not as easy to use as the Ekco RS3. Ekco's radio had station names very clearly positioned around the scale, affording the user a straightforward view of the position of those stations at all times and thus making finding the stations far more simple, *see Fig. 191.* The drum drive tuning scale is literally a cylinder with the wavelengths or station names printed around the outside; as the radio is tuned the drum rotates and the pointer system then indicates where on the scale the radio is tuned to. When tuning the KB Rejectostat, the upcoming stations are hidden from view owing to the drum being viewed through a small, slotted window making the overall design appear less exposed and so less complicated. Inclusion of station names meant that the user would be able to see the illuminated station names coming into view as they operated the set but would not have the straightforward perspective afforded by the ekco model. The perceived superiority of this type of scale is evidenced by the fact that Ekco continued to produce sets with outline-view scales throughout the 1930's and this can be seen in the

crescent shaped designs of the AD65 *see Fig. 192*, the AC 76 *see Fig. 193* and the ACT96 *see Fig. 194*.

Fig. 195: Kolster Brandes (KB) Rejectostat Model 666B Designer: Betty Joel. The radio is seen here within a suggested modern interior n.b the woman pictured is an actor of the time and not the designer.
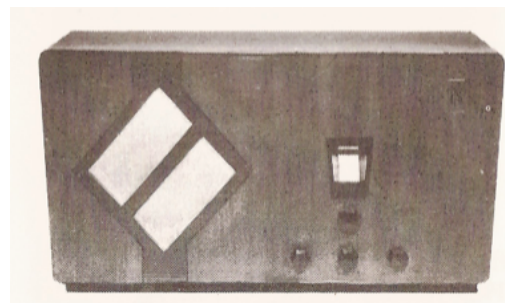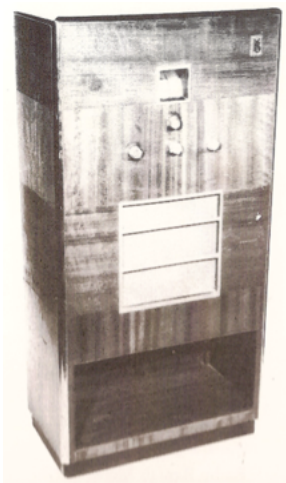
Left to right Fig. 196: KB Rejectostat 888 Des. Betty Joel Fig. 197: KB Rejectostat 666 Designer Unknown

The approaches to wireless regarding its ergonomic purpose also reveals that elements of the wireless industry such as Kolster Brandes, did apply various modernist stylistic motifs as decorative devices to designs which Forty (1986) viewed as being "furniture" rather than radio casings. However, the designs produced for Ekco by Chermayeff were intended to contain the chassis and to improve the ease of use of the device. In parenthesis, this was also true of the aspirations of Dick Russell and Murphy radio (Myerson, 1992). This interest in the ergonomic utility of the wireless broadly influenced the radio industry, whose designs incorporated a number of similar ergonomic ideas.

Having considered how the radio could be adapted to the requirements of the user and their existing domestic situation, it would seem apposite to investigate the place of the wireless in the emergent modern domestic interior.

Radio's Place within the New Domestic Interior.

During the period from 1925 up to the Second World War, both the expectations and the aspirations of the contemporary public shifted toward a new understanding of what it meant to be modern. These fashionable ambitions were reflected in a number of different aspects of contemporary culture, including the satirical commentary of Osbert Lancaster's cartoons.
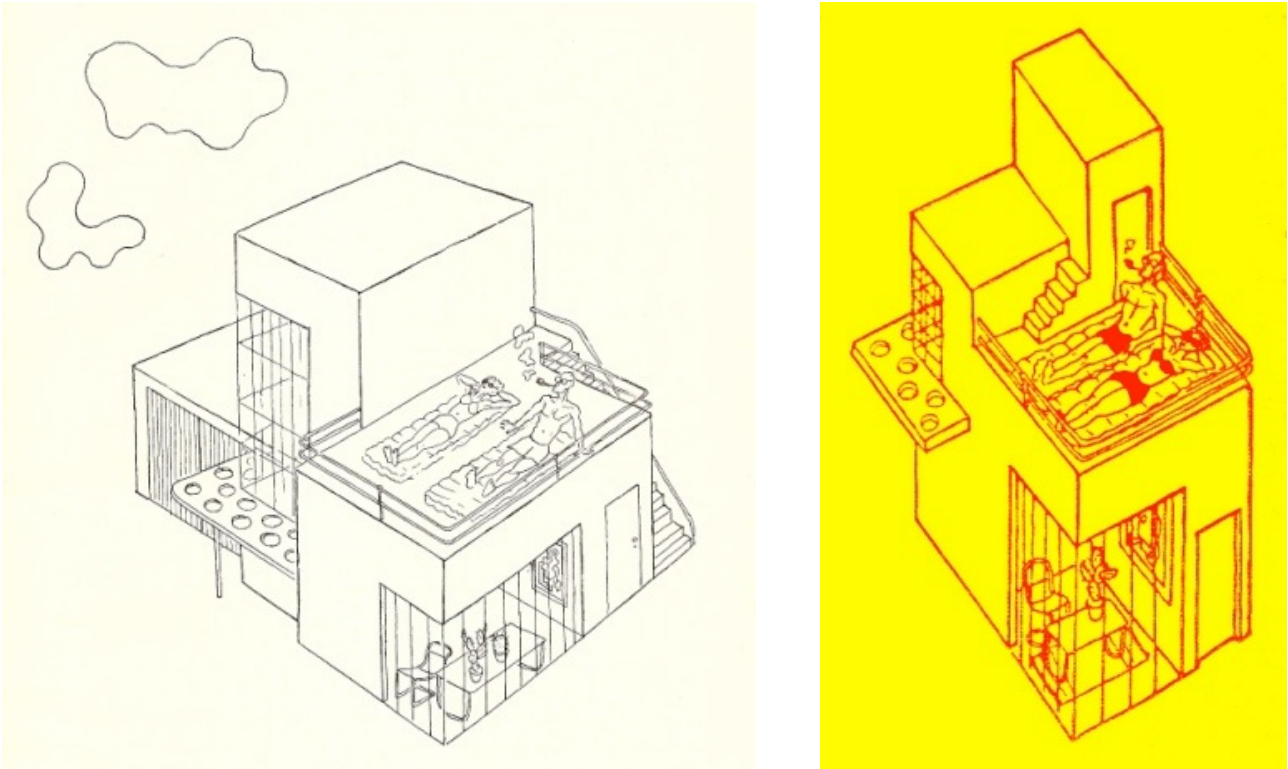
Fig 198: & 199: Osbert Lancaster Caricatures of modern flat roofed properties

Despite the pejorative intentions of Osbert Lancaster toward modernist architectural, aesthetic and cultural ideals, behind these illustrations lies the reason that radio cabinetry successfully adopted the modernist stylistic idiom. When examining the reality of modernist housing and its consumer, it can be seen that innate within those ambitions of the modernist architects and their sun bathing patrons is the desire to promote a better lifestyle through improvements health and leisure facilitated by advances in technology. This was assisted by the locations of many early examples of modernist architecture and the inclusion, within those buildings, of a range of purposeful devices. These new properties and their stylings were associated with the group that Pritchard (1984) referred to as the "New Lifers". Their aesthetic eschewed surface decoration and embraced the health giving benefits of the out door pursuits, while adopting for their architecture the coeval stylistic physiognomy common to the ocean liners of the seafaring set. In the

following section this underlying aesthetic and its positive associations with its contemporary popular culture will be explored and examined.

Although the illustration chosen *see Fig. 200* depicts a very particular type of cubistic modernist home, many British housing schemes aimed to incorporate a version of modernity that reflected the aspirations of this type of architecture. This is not to say that the majority of housing constructed during the 1920 and 30s was aiming to emulate those modernist ideals externally. On the contrary, the bulk of housing aped the Arts and Crafts movement in that it employed pitched and hipped roofing often of terracotta or grey slate, red brick construction and timbered gables *see Fig. 20* . Stylistic features like these were more in tune with the stockbroker Tudor style of upper-middle class housing *see Fig. 118 & 122*, indicating the aspirational nature of the idiom. The ambition of these properties was not only social aggrandisement, their style also paid tribute to the socially progressive ideals of the garden city developments as exemplified by Sir Ebenezer Howard in Garden Cities of Tomorrow (1902) and seen at Welwyn, Letchworth and Port Sunlight in Wirral *see Fig.111*. These projects also maintained architectural currency amongst the modernist designers and architects and this is reflected in the landscaping applied to the schemes of Le Corbusier's high rise models in Towards a New Architecture. In essence, the garden city is conceptually modern despite the historical nature of much of the architecture constructed in those early Arts and Crafts influenced examples like Port Sunlight.

The historicist nature of housing styles seen on the interwar housing developments belies the modernist aspirations of the interiors of many of those houses. Those interiors and their standard fittings also underline the demand for modern technology, particularly electricity and those products powered by it. This can be seen in the styling of wall and ceiling lights, fireplaces and the decoration of the newly introduced bathroom; which, like the radio cabinet, had little by way of historic prescription to dictate what form such a room should take. The nature of these standard fittings is considered in greater detail in the section Preparing the Home for Radio.

Fig. 200 *Functional* from *Homes Sweet Homes* (Pg. 77 Lancaster, 1939)

In examining the caricatures of the cubistic modernist home, certain significant ideas about what constituted modernity during the interwar period can be identified and considered in relation to the central ideas of this thesis. According to the cartoons of Osbert Lancaster (1939) the modern "functionalist" interior of 1939 *see Fig. 200* could be identified by a set of contemporary aesthetic characteristics. These features included a commitment to fresh air and in particular, exposure to the sun.

Lancaster's implied criticism of the owners of modernist housing *see Fig. 198 & 199* suggests that they are, in some way, the "others". He draws them as outsiders in peculiar, eccentric housing, which would have appeared very different from many hundreds of thousands of houses built between 1918 and 1939 by both speculators and private individuals. In his imaginary interior, taken from *Homes Sweet Homes* (Lancaster, 1939), the cartoonist refers to the negation of ornament by certain "functionalist" thinkers such as Gropius and Le Corbusier and to the geometric forms of the futurists. By creating a pastiche of the modernist domestic space, alluding to a number of easily identifiable iconic contemporary designs produced by several high profile architects and designers of the modern period, Lancaster succeeds in producing a very well-informed lampoon of the functionalist style. In doing so, he simultaneously acknowledges and perhaps inadvertently, propitiously announces these items as important facets of modernity to the contemporary general public.

However, there is an element in this ingenious pastiche of Modernism which does not possess an innate otherness. That element is the electrical goods of the period, particularly the wireless set and the electric light. Although these products were, according to many writers (Offer, 1996, Benton et al., 1975, Branson and Heinemann, 1973, Yorke,

1944), reasonably ubiquitous, being included in even the most conservative new build house of the 1930s, the key factor in their modern otherness is that, like those Aalto items, these popular commodities are, in this instance, equally lacking in ornamental detail. The electric light is a single hanging globe, rather than of a form similar to those styled after gas mantles and chandeliers of the eighteenth and nineteenth centuries. For the average owner of an interwar bay fronted semi-detached house, this may not have been what was expected from even their most adventurous fixtures. Conversely, this does not appear to be true of the wireless set that were consumed by the public during the same period. It is significant that this should be the case as it suggests that the modernist form was not only acceptable in this instance but *expected*.

In Lancaster's Functionalist interior space *see Fig. 200,* the main focus is upon a bent wood table, chair and stool. These designs are very similar to those designed by Alvar Aalto; the "Paimio" Chair or Armchair 41, table 88 and stool 60 which is a three legged stacking stool[61]. Manufactured by Artek in Finland, these designs were imported into Britain by Finmar Ltd. (Weston, 1995) and by Nikolaus Pevsner through companies such as Gordon Russell Ltd. (Myerson, 1992). In truth, even given the endorsement of Pevsner, these goods were sold in relatively small numbers. This does not deny their currency as a symbol of aspirational modernity, nor does it imply the lack of popularity of modernist furnishings. Generally, the furniture trade were adopting various versions of the moderne style, offering the public a range of goods which varied from being traditional forms with applied modernistic decoration to genuinely new approaches to design and construction. The up market retailer, Waring and Gillow, offered bent ply furnishings exhibiting modernist traits. These products had been designed for Waring and Gillow as part of their early 1930s modern domestic range, produced under the control of Serge Chermayeff (Powers, 2001). This reflected a shift in the expectations of the public, as indicated by the success of designs by Dick Russell for Murphy and those by Chermayeff for Ekco. These successes were followed rapidly by similarly minimalistic stylings by a range of manufacturers including Radio Industries and Ultra. Many popular public places of the period recognised that the public were accepting and perhaps even expecting of modernist decorative schemes. In their promotional catalogue (1931), Practical Equipment Ltd tubular steel furnishings can be seen in use by a variety of businesses including Lyons Corner Houses, John Lewis's *see Fig. 201*, Harvey Nichols *see Fig. 202*, Odeon and

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[61] although it is likely from the positioning of the visible legs that this is a four legged stool of similar style

Gaumont Cinemas and the Savoy Hotel indicating the democratic, classless nature of the modernist style.

Fig. 201: John Lewis's London incorporating PEL modernist furnishings pictured in a PEL Catalogue (1931). The ladder recalls both Wells Coates minimal flat and has sea-faring connotations.

Fig. 202: Harvey Nichols London snack bar equipped by PEL from the same catalogue (1931). In this instance the fabric coverings and carpets are less subdued than John Lewis's in *Fig. 201* PEL offered customers the fabric of their choice making a bespoke interior possible using standardised frames which were available to all.

Within the Lancaster illustration abstract art and sculpture have been inserted that are reminiscent of tribal art, Henry Moore and Picasso. By the nature of their manufacture these items were always of limited availability; yet even the cactus possesses a similar organic and yet unfamiliar form which identifies it as the "other". Cacti were a popular subject amongst many designers and examples can be seen in the interiors depicted in

The Studio Yearbook of 1935 (Pg. 103 Holme, 1935) and in glass decoration by Keith Murray for Stevens and Williams along with similar designs for Webb. Otherwise, this is a point of little apparent significance, except that the cactus implied the modern within this interior and this can also be seen in the advertising interiors contrived for some radio sales.

Many buildings produced by the British Modernist movement during the early stage of construction between 1930 and 1934 were largely for wealthy private clients, not in urban or suburban environments, but in large grounds divorced from the common people, making modernism like its arts and crafts predecessor, the preserve of the bourgeoisie despite the socialistic aspirations of many of its exponents. Modernism possessed an otherness in this sense, as it appeared to stand apart from the people.

Fig. 203 A bed sitting room designed by Architect J. Groag of Vienna featuring a multitude of cacti on the window sill.
Picture Source: *The Studio Yearbook* **(Holme, 1935)**

Fig. 204: L. H. De Koninck House showing the living room with patio doors fully open blurring the boundary between indoor and outdoor space. (Yorke, 1944) **Note the cacti on the window ledge.**

In Lancaster's cartoon *see Fig. 200* the exterior furnishings which appear to be getting rained upon, are similar to tubular steel products designed by Mart Stam and Marcel Breuer for Thonet[62]. No doubt, poor quality steel is not a good material for such conditions, but this was not the intention of those designers and when outdoor furniture of this type was produced it was done so using enamelled finishes. While the wry disdain of the cartoonist is directed toward the style of the outdoor furniture, it should be considered that any outdoor furniture is in need of protection from the weather, even the traditional favourites of little England.

For some, the weather is a preoccupation of the British and this is demonstrated in various examples of literature on the subject, particularly *How to be an Alien* by Georges Mikes (1946). Despite Britain's notoriously moist climate, the country is not without its dry, sunny spells. For Lancaster, the rain recalls the unwise sunbathers on the flat roof in the illustration for *From Pillar to Post* (1938) *see Fig. 198 & 199*. As a criticism, this is pertinent as the interest in the relationship between indoor and outdoor space is evident in many of the contemporary illustrations of modernist architecture. Without recourse to the Bauhaus, examples such as L. H. De Koninck House in Brussels or O. Salvisberg's House at Zurich (Yorke, 1944) blur the divide through a glazed division between indoor and outdoor space which can be removed by means of sliding the glazed units into cavities in the floor or

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[62] earlier, versions were also produced by Stahlrohe Mobel and later British versions by PEL, Cox and others

walls. This reflected the belief amongst many that fresh air offers positive benefits for the house-holder. Despite this interest in combining interior and exterior space, these illustrations do not suggest that one should leave furniture out in the rain. Although pertinent, Lancaster's criticism is based upon the chauvinistic notion that Britain is an intemperate climate, not suitable for foreign ideas.

To return to the interior of *Fig. 200*, the furnishings illustrated refer to a set of materials, technologies and forms which adhere to conventions of the modern movement. As previously observed, these materials consist of plywood and tubular steel in forms similar to the works of Alto, Breuer and Stam for Thonet, P.E. Gane and Stahlrohe Mobel. The aesthetic of the furniture on which these caricatures are based, developed as a result of the process of their production. When manufacturing bent plywood and steel tube furnishings, to produce a suitably strong structure the material would be bent into suitable angles which are necessarily curved rather than abrupt resulting in the development of suitable forms which exploited the innate qualities of the material. Stylistically, the wall mounted, vented electric fire, electric lighting and wireless recall the aesthetic of minimalistic cubism. Any comfort or convenience provided by these items is called into question by the awkward position of the dweller, who is perched awkwardly upon an "Aalto style" chair. He is surrounded by other modern elements of the period, such as abstract art and "Unit" style cupboards and book shelving. In this instance, the lampoon is perhaps not perfect in its depiction; the stepped book cases are a single unit, "Unit" furniture is typically systematised so that separate items could be bought piecemeal, allowing elements to be combined to suit the consumers' needs. That said, this is not always the case for unit furniture and being a caricature rather than a life study, the general appearance is more important than total attention to detail. It was a system favoured by architects such as Le Corbusier and Wells Coates. The latter designed a unit system for Isokon Ltd. although the type illustrated in Lancaster's interior, being a single stepped unit, is more akin to those produced by P. E. Gane of Bristol.

In this instance Lancaster's vision of electrical goods is more generic than his functionalist depiction of other, traditional domestic furnishing types such as tables and chairs. The heater system is typical of the "Thermo-reg" type installed on the Queen Mary (Pg. 135 Steele, 2001), although the only indication of this is a set of vents instead of visible bars. It is equally difficult to identify the console radio that sits next to the windows, although it is vaguely reminiscent of some of those designed by Dick Russell for Murphy in the 1930s.

The generic anonymity of the technology is interesting, as it avoids offending the majority of readers who were, by 1939, owners of radios, while allowing the mocking tone of the cartoon to focus on those strange outsiders who lived in that other world of sunbathing upon flat roofs and modern art. At the same time many people flocked to the seaside to enjoy just this type of lifestyle at the Lidos of the era.
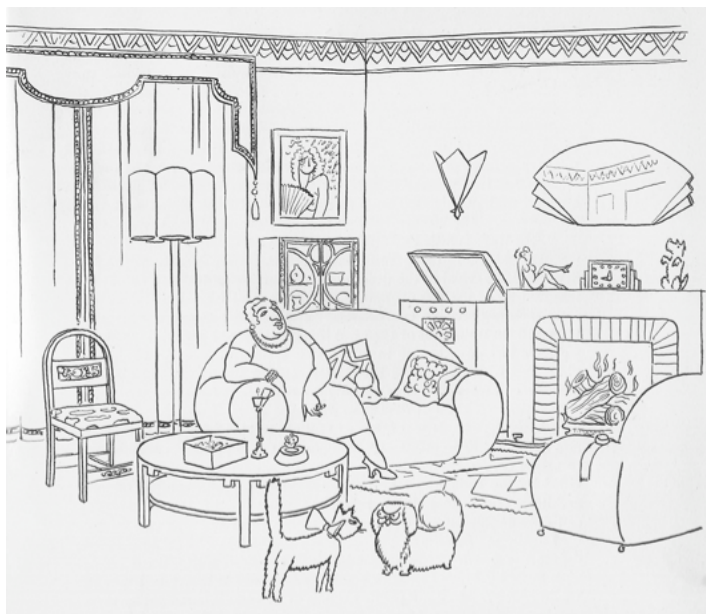
Fig. 205: *The Modernistic* **Interior by Osbert Lancaster (1939)**

Having interpreted Lancaster's *Functionalist* scene as an innately negative stereotype, it should be considered that there is also a favourable aspect to this representation of modernity. What it does to positive effect, is to identify the radio as an essentially modern element which the domestic interior has to have to be "contemporary". Radio's status as an essential element of the present is fortified by its inclusion in most of the contemporary interiors Lancaster illustrates. Wirelesses are included in his Luxury Flat, Functionalist Interior, alluded to in the Stockbroker's Tudor setting and in *The Modernistic* home *see Fig. 205*.

In the interior titled *The Modernistic*, the radio has been incorporated into a furnishing style commonly identified by art historians as Art Deco. In this instance, the device is partially concealed within a radiogram. By this act of incorporation, the radio becomes a piece of fashionable furniture rather than a functionalist statement of technology. Similar designs to this were produced prior to 1933 by a number of radio manufacturers including HMV/ Marconi, Ekco and Ultra. After 1933, the furnishing style gave way to a more functionalist approach with few exceptions; although McMichael and Philco were notably consistent producers of such furnishing type radios, some furniture manufacturers tended to follow the "novelty" approach producing receivers resembling clocks and lamp standards. Even for those taking this approach, the design of radio during the 1930s shied away from historicism and very few radios directly referenced styles such as the Gothic despite the appearance of arched cabinets during the late 1920s and early 1930s.

It is undeniable that few people actually lived in houses with flat roofs and furnished in the strict modernist style, even the most cursory inspection of the housing record suggests that the majority of houses built during the interwar period were of the "garden city" bay fronted style, see chapter 1. Therefore, it seems out of place that consumers should accept this styling for their wirelesses. The answer to this conundrum lies in the complexity of consumer aspirations, in successful marketing and in the fact that Art Deco was not adopted by all people as a "total work or art" as it was described by Hillier.

When the housing that *Fig. 214 and 216* are lampooning is examined there are interesting differences between Lancaster's vision of functionalist modernity and those of the architects themselves. Jack Pritchard, who was a director of Isokon Ltd. and the main client for the construction of the Lawn Road Flats development; observed in his autobiography (Pritchard, 1984) that within the Isobar, where a number of the leading modernists and residents of the Isokon building would meet, there was an atmosphere of "intellectual gamesmanship" consisting, in part, of "the in-joke and the leg pull." (Pg. 18 Pritchard, 1984) There was also an appreciation of British culture. Moholy-Nagy was particularly aware of the position of the amateur in British society. Pritchard notes that Nagy identified politicians and the chairman of the Bank of England as amateurs, which was not always appreciated by those to whom he espoused this observation.

There was also an interest in the weather, as characterised by the installation of a barograph in the isobar from which, Pritchard (1984) recalls, daily readings were taken. Lancaster does not show a real appreciation of the modernists and their concern for the prosaic details of life such as the condition of the forthcoming weather. His depiction is superficial mostly because he had set out to caricature rather than document. Despite the pedantry of this assertion, it is no less important, as inherent in the criticism levelled by the cartoon is the belief that those embracing the new style are essentially idealists. Modernist idealism is characterised by sunroofs and tall expanses of fenestration which rely upon ideal circumstances such as fine weather. While the modernists did invest in such architectural contrivances, which make frequent appearances in various issues of *The Studio* (1935) and in many of those houses designed by British based luminaries such as Berthold Lubetkin (Allan and Von Sternberg, 2002) and Connell, Ward & Lucas (Sharp and Rendel, 2008), these were installed with the recognition that better heating systems were also necessary and that light is available on the most miserable of days.

Criticism of the modernists and their tendency to favour ideals has persisted (Wolfe, 1981, Naylor, 1985, Cruickshank, 2008). In their eagerness to find negative points to make about the modernist ideology, the prosaic realism of many modernists is conveniently ignored in order to claim that modernism was unworkable. Recognition of the humdrum, Pritchard (1984) says, took a number of directions and centred upon the modernist love of the great outdoors. He cites Wells Coates's love of sailing, which is also identified in Cantacuzino's monograph (1978) and the fact that many modernist buildings of the period are situated on the coast. He goes on to highlight the way in which "nautical iconography" is ever present in inter war British Modernist architecture. Pritchard appears to have had no problem with this, although Benton, citing the caricature by Bruno Taut (Benton et al., 2003), identified this as a criticism by the modernist movement of those buildings which were fashionable rather than functional residences. This reveals the multifaceted and idiosyncratic nature of modernism as a movement. Interest in the weather extended to a penchant for sunbathing and it is here that Lancaster manages to make a joke about the inclement nature of British weather. As has previously been recognised, this is a significant element in interwar British culture. As the people began to have greater amounts of leisure time, with factories organising trips to the coast for their workforces, utilising the railways and the improving network of roads for coach travel, this brought them into contact with the emergent modernist culture of healthy leisure. The arrival of increasing numbers at seaside resorts containing buildings like the De La Warr Pavilion, the Salt Dean Lido, Marine Court, Embassy Court flats and other modernist inspired seaside housing exposed a wider audience to aspirational modernism and contributed to the desirability of those properties and devices modelled after it.

PLATE 7
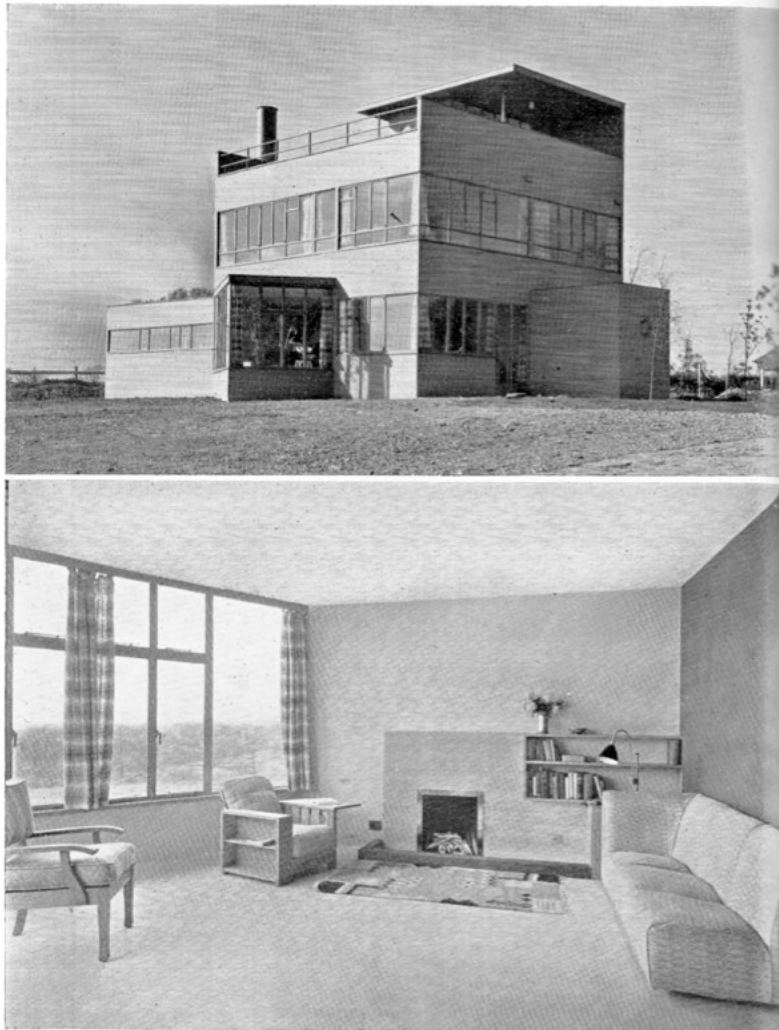
Above : A House in Sussex—Exterior. (By Connell, Ward and Lucas, AA.R.I.B.A.)

Photo: Architects' Journal

Below : A House in Sussex—Interior of Lounge.

Photo: S. W. Newbery

Fig. 206: An enlargement of the House in Sussex by Connell, Ward and Lucas (Yorke, 1944) Named *Dragons*, the lower illustration shows how the arrangement of sparse furnishings was emphasised by multifunctional elements; the arm chair offers a book case to one side and a lift up occasional table on the opposite arm.

In *Fig. 206* the exterior and interior of Connell Ward Lucas's House in Sussex (Yorke, 1944) display obvious similarities to Lancaster's cartoons. In this example of the architectural practice's work, one can see several of the features Lancaster imitated, such as cubistic styling, a flat roof with "sun terrace" and long expanses of fenestration. On careful inspection, there is evidence that the construction of the building is reliant upon certain building technologies those being reinforced concrete construction and steel frame windows. Dennis Sharp provides a detailed description of these construction techniques in his monograph addressing the architectural practice of Connell Ward and Lucas (2008).

A significant feature in this construction is use of cantilevering which allows the wall to seemingly hang in mid air, while the first floor windows span the entire length of the two visible walls. In this case the moulded concrete wall forms both a lintel and a curtain wall, as such is a supporting structure, but not in the conventional sense. Compared with Lancaster's caricature *see Fig. 200* the windows occupy more wall space in *Fig. 206* than in the caricature, Sharp (2008) explains the reason for this being that it allowed the house to command excellent views of the downs. Owing to the viewing angle Lancaster uses for *Fig. 198 & 199*, it is implied that the occupants are overlooked and therefore without privacy which creates the impression that this would be an unsuitable property in which to sunbathe. A similar point about privacy and context is made by Chermayeff, in Design and the Public Good (1982). In this publication, criticises the new build vernacular houses of New England for having bathrooms whose windows open out onto the nearby houses meaning that there is an assault on the householders privacy, suggesting that ill conceived schemes are not confined to modernist housing. Judging from the exposed location, the architect has considered the weather to be secondary to the need for light, air and scenery. To offer some privacy and protection to those using the sun terrace, a wall and canopy provide some shelter from winds, rain and prying eyes.

Where the architectural philosophy of Connell, Ward & Lucas most clearly diverges from the humorous criticism of the cartoon is in the interior. The photographs are taken form publicity furnishings are sparse but upholstered and the layout offers a good deal of space for those sitting around not an electric fire but a solid fuel grate. Most noticeable in this illustration of the lounge is the absence of a radio set or gramophone. Admittedly there is no occasional table either but this function is provided by one of the chairs having a built in bookshelf and table. Connell, Ward & Lucas designed this house around the need for physical and visual contact with the landscape. Its spartan aesthetic eschewed unnecessary luxury in favour of more esoteric pleasures such as the great outdoors. However, the inclusion of many comforts in the variety of modernist housing previously identified, coupled with the fact that Osbert Lancaster saw the wireless as a necessary item for a contemporary interior suggests that the home of the interwar era would contain a wireless. How the home would respond to that arrival was the product of how the public and their homes were already being prepared.

Preparing the home for Radio

Fig: 207: The Super het House from *Glamourous Night* by Ivor Novello (Purdom, 1935)

Fig. 207, depicts the theatre set for Ivor Novello's *Glamourous Night,* a house of geometric forms, gleaming chrome and modern art. For the majority of homeowners the extremity of this theatrical vision appears to have been too much to encompass. Despite this, the elements of the Super het house, with its radio related name and shining modernity, would have promoted and reinforced certain aspirational decorative motifs that should be found in the glamourous and modern home of the 1930s.

Like the home itself, the domestic wireless did not follow a straight forward course of development. While, it is true, particularly during the early period of its development for the interiors market, to say that some wireless designs did ape the form of existing furniture, the radio also established its own design language that was born of technological modernity. Usually wirelesses were housed in machine cut, comb-jointed boxes of oak, mahogany and walnut. Those boxes then sought to reflect certain aspects of modernity, this was achieved by use of elements such as bakelite or plastic knobs of pleasing geometric form which performed their function effectively. Wireless cabinet design developed in such a way that it adopted aspects of modernity such as chromium details

geometric contrasting veneers and even plastics cabinets in the latest modernist style which acknowledged the expectations of the home owner.

According to the style of housing suggested by the interior of *Fig. 179*, and radio advertising of the 1920s in *Fig. 180* and *Fig. 181*, many houses had changed little since the 1900s when domestic wireless first began to be marketed. During the 1920s, the perceived demands of these interiors is expressed by a number of radios appearing in the form of Smokers cabinets and writing boxes. The writing box form was not of the Georgian traveling writing slope type but more akin to the tall wooden slope fronted desk top boxes that acted as a mini bureau allowing the owner to engage in detailed communications anywhere a table top was available. Adopting this style of cabinet, recognised and accommodated the reality that, during this period, the British domestic interior was essentially a conservative space occupied by many of the same elements that had been present at the beginning of the century, an assertion supported by the interiors pictured in *Fig. 179* and in that of the Radio Tea *see Fig. 180*.

What the radio succeeded in doing was to instil in the British public an understanding of the possibilities that the modern aesthetic could offer for the domestic environment. By the late 1920s, decorative elements for the home were beginning to change, in terms of fixtures and fittings such as clocks *see Fig. 208* and electric light fittings, *see Fig. 209*, encouraged by the expected inclusion of mains electricity on many new estates. Installation of this state of the art power source, meant that the homeowner now had access to a range of new products. These were offered in striking modern designs, ownership of which could offer the consumer a position in the modern World of electrical convenience. Electrical goods such as *Fig. 210* and *Fig. 211* and access to the means to power them, complimented the contemporary entertainment of listening in which was being taken up by the public in their millions. Through consumption of these products the public was given access to the styles seen in magazines, cinemas and in theatre shows such as *Glamourous Night* or Noel Coward's *The Vortex*.
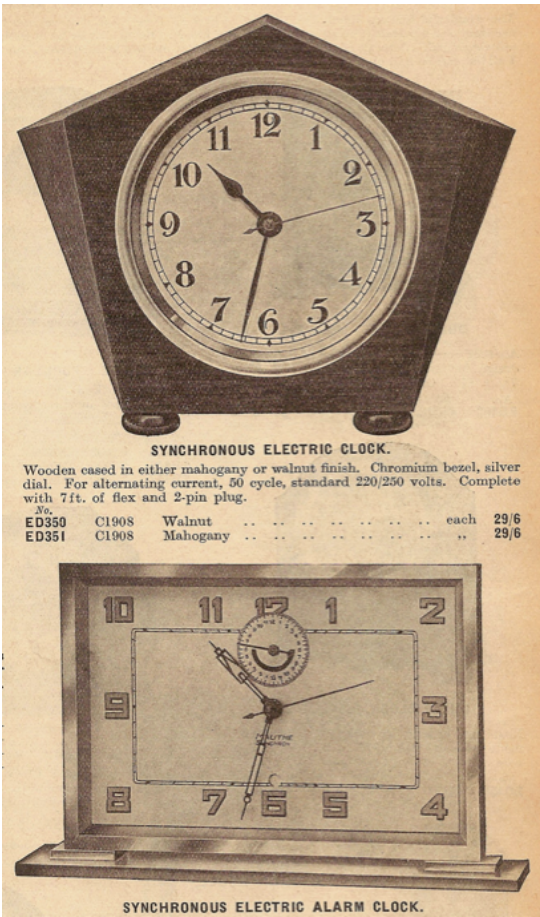
Fig. 208: Electric Clocks in the modern decorative style of the 1920s and 1930s. The lower example illustrate a clock in the more minimalist style of the era, with its modern chromium finish and unadorned lines.
Picture Source: **Hobday Bros Catalogue (1933)**

SYNCHRONOUS ELECTRIC CLOCK.
Wooden cased in either mahogany or walnut finish. Chromium bezel, silver dial. For alternating current, 50 cycle, standard 220/250 volts. Complete with 7 ft. of flex and 2-pin plug.

No.					
ED350	C1908	Walnut	.. ..	each	29/6
ED351	C1908	Mahogany	.. ..	,,	29/6

SYNCHRONOUS ELECTRIC ALARM CLOCK.

Fig. 209: electric ceiling light in the modern style with stylised geometric petals forming the lantern.
Picture Source: **Hobday Bros Catalogue (1933)**

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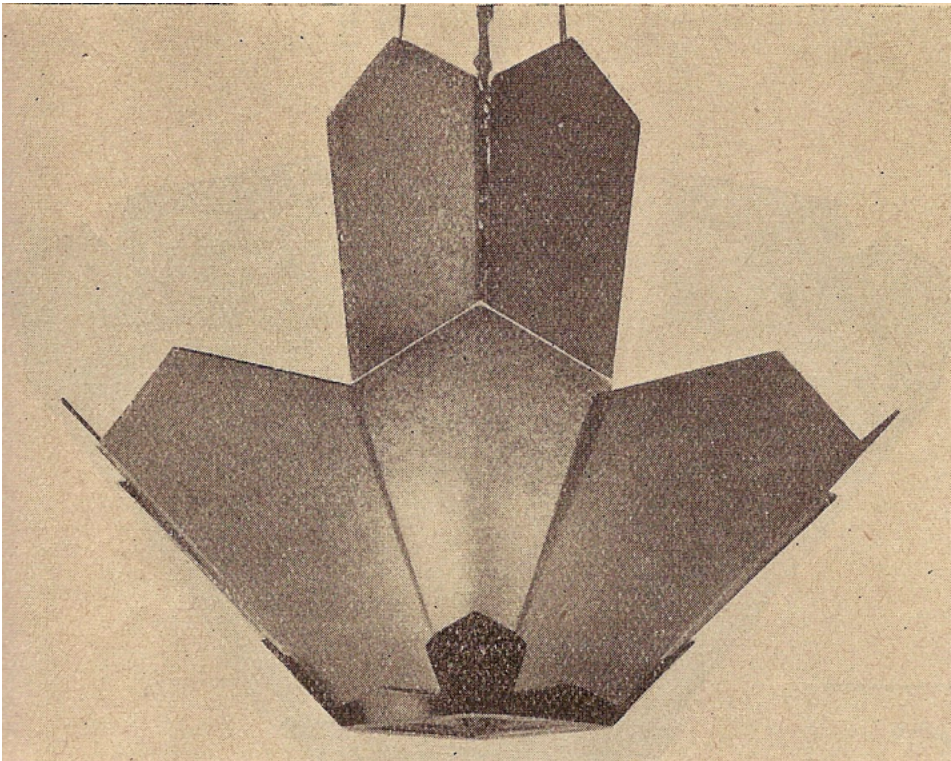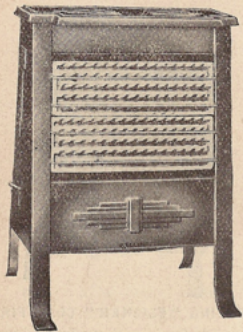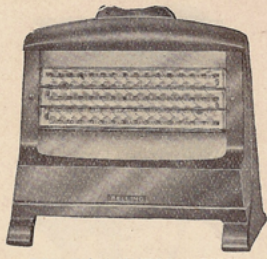
left: **Fig. 210: a range of electric fires including the Belling Cubic model in the modernistic style.**
Picture Source**: Hobday Bros Catalogue (1933)**
Below right: **Fig. 211: Lamp standard in a similar fan shaped design**.
Picture Source**: Hobday Bros Catalogue (1933)**
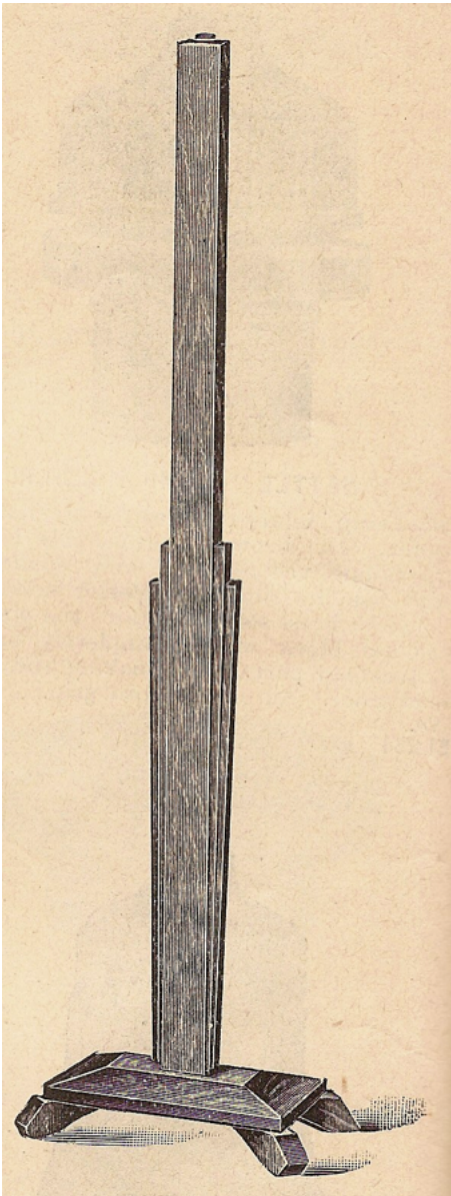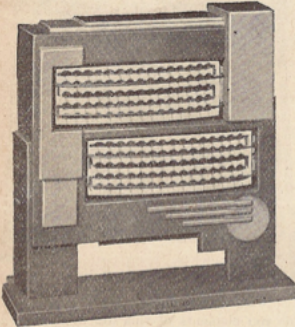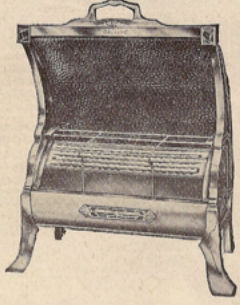
BELLING "BUNGALOW" FIRES.

The "Bungalow" is a popular Fire for all general purposes, in the modern small house, where compactness and neatness are essential. Strongly constructed throughout with specially widened top for use as a hob for keeping plates and dishes hot.

Sizes, 1 k.w., 13¼" wide × 13½" × 7½"
" 2 k.w., 13¼" " × 17" × 8"

1 k.w. Size.

No.				Each
EF251	C1209	Ant. Copper	17/-

2 k.w. Size.

No.				Each
EF256	C1809	Black	25/-

BELLING "VICTOR" FIRE.

A small, reliable and efficient Electric Fire at a low price. Neatly designed, with smooth rounded surfaces, which are easily kept free from dust. The framework is of cast iron, the wire handle which drops out of sight when not in use, and which remains cool, is provided to make the fire easily portable. The angle at which the firebar is mounted avoids the possibility of scorching the floor or carpet directly in front of the fire. 1 k.w. size. Dimensions: width 13", height 11¼", depth 5".

No.				Each
EF306	C1200	Black	16/-
EF307	C1500	Vit. Enamel (Colours)	20/-

BELLING "CUBIC" FIRE.

This fire has the appearance of being made up of a number of cubes built together in such a manner as to form a fire which conforms to the latest ideas in modern architecture. The staggered firebars also add something that is new and attractive. Finished shaded vitreous enamel. Consumes 2 or 1 units per hour. 16⅞" wide, 16" high, 4¾" deep.

No.				Each
EF332	C3000	Green	40/-
EF333	C3000	Blue	40/-
EF334	C3000	Brown	40/-

BELLING "REFLECTOR" FIRE.

A fire of unconventional design, in that the heating elements consist of flat type Multi-Parabola firebars arranged in such a manner as to give out heat over a wide area. Each firebar is set at an angle, some heat waves being directed out on floor level, some out into the room at an angle of forty-five degrees, and some nearly vertical, these latter lighting up the hammered copper reflector. Constructed of stainless steel with hammered copper reflector and light cast-iron sides, the whole framework being finished as under.

2 k.w. Size.
Width 18", Height 22", Depth 9".

No.				Each
EF330	C3706	Oxydised Copper ..	50/-

3 k.w. Size.
Width 18", Height 22", Depth 9".

No.				Each
EF331	C4500	Oxydised Copper ..	60/-

How the contemporary home of the age might appear was shaped by popular understanding of these products. That understanding was, in turn, moulded by wider aesthetic currents emanating from the Paris Exposition and from the general aesthetic flow across continental Europe and the Americas.The rise in license holders between 1925 to 1930 from 1,349,294 to 3,092324 (Pg. 226 Hill, 1996) suggests that the radio was a key modern appliance which represented the eagerness of the public to embrace modernity. At this point it is appropriate to recap upon the effect of wireless upon the new home as envisaged by some of the interior designers of the 1925 Paris Exposition.

Wireless and the new home

In the 1925 Exposition catalogue by Maurice Dufrene (1989), the majority of the exhibits depicted demonstrate the attempts of designers to offer new approaches to styling the domestic environment. Generally, the exhibits consist of novel reinventions of conventional furnishings by a range of ateliers aiming to promote their decorative vision.

Although there were many stands at the event, few considered fresh additions to the domestic matrix through offering an interpretation of increasingly domesticated technologies such as the radio or the gramophone.   Those exhibits which did address the wireless, indicate two basic approaches to the new form. The first situates the radio speaker in a position of decorative importance as shown in *Fig. 212*. In this example a circular, Lumiere Pleat, *Radiolavox* diaphragm speaker sits on the mantle shelf alongside a decorative ceramic figure and is positioned in a manner similar to porcelain in an aesthetic interior of the nineteenth century, it occupies a position as a trophy of modern technology.

Fig. 212: Interior from the 1925 Paris Exhibition including a circular Lumiere Pleat (possibly by Gaumont or *Radiolavox)* speaker in prominent position.
Picture source: Authentic Art Deco Interiors (Dufrene, 1989)

above **Fig. 213: Suggested Interior design scheme.**
right **Fig. 214: detail of the left hand arrangement with Lumiere pleated speaker and four valve receiver. Picture source: Authentic Art Deco Interiors (Dufrene, 1989)**

In the second example *see Fig. 213 & 214* the radio equipment has been positioned with an existing entertainment, the piano. Although radio broadcasts were not exclusively intended for the dissemination of music, this was a key popular function of the new

medium (Briggs, 1981, Branson and Heinemann, 1973, Nobbs, 1972, Hill, 1996)[63]. In the spring of 1925 there had been a rapid increase in the number of broadcast stations in Europe (Hill, 1996) and so one must recognise that, as these were commercially funded stations, there needed to be a suitable public demand for this service. By including a wireless set in this section of the room, the designer is recognising that new technological media demanded that its relationship with the domestic space should be considered. Furthermore, that space should respond to the passive and active processes involved in both an established home entertainment such as performing piano music – the active player and passive listener – and in the use of radio - actively tuning in and a more passive audience listening.

Unlike the example of *Fig. 212*, the room designer of *Fig. 213*, Paul Poiret, has placed the radio receiving equipment in a visible and accessible situation, allowing the owner to engage in the activity of "tuning in". Spatial arrangement in this section of the room focuses upon the social process of being *at table* rather than upon the aural entertainments; the chairs being arranged to allow social interaction. A seat is situated next to the wireless set so that its occupant may have access to make adjustments to this equipment. This chair faces the pianist rather than the radio receiver, meaning that the user would be able to sit and listen to either, there being no particular reason to orientate the room around the speaker - sound not requiring visual contact. By facing the chair toward the piano and not the wireless it is likely that the occupant would find operating the radio uncomfortable. This has been done because the purpose of the space is social rather than entirely technical; nonetheless, Poiret has attempted to address the relationship between the wireless and the new domestic environment of 1925. How functional or successful that might be in practice does not alter this fact.

In *Fig. 212*, through the deployment of a Lumiere Pleat[64] speaker, the presence of the radio receiver is implied rather than explicit. By including this type of speaker, somewhere, one may infer, there is a technological marvel relaying the latest music and information to the user of this room. How this instrument has been placed is significant as the speaker is positioned in a space more commonly reserved for clocks, which are an element

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[63] broadcasts known as the Dutch Concerts were indicative of this see HILL, J. 1996. Radio! radio!, Bampton, Sunrise Press.

[64] The Lumiere pleated diaphragm was originally developed to be directly driven by an acoustic gramophone the type pictured was electrically powered for use with wireless sets.see PROUDFOOT, C. 1980. Collecting phonographs and gramophones, London, Studio Vista.

conspicuously absent from this interior. It is significant because wireless time signals had been historically available since before 1918 and so it is not unreasonable to see this as an example of modern electrical technology replacing an older mechanical system. However, this is an unlikely use for this speaker as radio time signals were used to allow the calibration of time pieces and facilitate standardised time keeping. The absence of a clock suggests that this is not the reason for the wireless in this room. It is far more likely that the reason for placing this speaker upon the mantlepiece is one of decorative convenience owing to its shape and size. Acoustically, the speaker would be able to provide optimum benefit to those in the room from this location and so this is more likely to be the principle reason for placing it there.

Interiors for the exposition, such as these, proposed new, modern designs for the arrangement of the domestic space and addressed ways to accommodate the in-coming technology of wireless broadcasting. What the designers have achieved is the use of wireless as both a desirable occupation and in the case of *Fig. 212* as a potential decorative form which did not require complete concealment. Through this nascent experiment in incorporating new technologies, the interior designers have anticipated the ubiquity of the wireless and considered its position, not solely as a means of supplying information but as an important leisure pursuit that was to become an intrinsic element of the modern experience during the years to come.

Conclusion

This thesis has explored the development of the wireless in relation to the changing expectations of the British Public during the period 1925-1939. In so doing, a number of important factors in the adoption of new technology and the modernist aesthetic have been established. In many respects, the importance of *Fig 1* (see pg. 4) cannot be overlooked as this represents a particularly overt example of the modernist style applied to wireless design which, having sold in the region of 120,000 units, must be seen as a commercial success. That statistic, having come from the designer himself (Chermayeff and Plunz, 1982), may contain an element of personal aggrandisement but should be seen as indicative of actual sales. In recognising its designer's triumph, it is easy to forget that the wireless itself was a popular element that helped to form the contemporary understanding of modernity. By arguing that because many early wirelesses adopted a functional approach, as a result of their relationship with scientific instrumentation, it can be asserted that the wireless was a proto-modernist device which influenced the appearance of modernist aesthetic. As such, it is less surprising that a modernist design for a radio cabinet would be acceptable to the general public.

Study of the growth in wireless receiver consumption between 1925 and 1939, illustrates how the aesthetics of Modernism were adopted by a broad cross section of the populace as a result of their desire to obtain access to the newly mediated World through ownership of the radio. The existence of that ready market was the result of a number of factors related to changes in socio-economic conditions. Those changes were a result of improving economic conditions and the widespread availability of credit for the purchase of wireless receivers. Improvements in prevailing economic conditions led to the expansion of home ownership, which provided a space for the wireless to occupy and the means for consumers to purchase new technologies.

This study of the wireless and its relationship to modernity has also illustrated the shortcomings of many typologies devised by design historians to describe and understand wireless. Vague chronological divisions such as Forty's Early Period (Forty, 1975) have been shown to lack the intricacies of wireless development during the period between 1922 and 1929. Wireless, it can be argued, did not merely enter a quasi-scientific era that gave way to furnishing goods, nor was the wireless an 'independent' form. Owing to the adoption of the wireless by the modernists of the Bauhaus as a suitable modern product to

incorporate into their aesthetic, the group termed as quasi scientific would be more appropriately called proto-modernist instead.

Having argued that the wireless was itself a proto-modernist device during the early years of market expansion, the radio then developed along a natural stylistic course which embraced contemporary decorative ideas. As the wireless was developing so too were new decorative ideas at home and abroad which were shaping the notion of what the contemporary might be. In an attempt to market their products as new and desirable, radio manufacturers adopted the vision of modernity that was current at the 1925 Exhibition and in more extreme examples, being promoted in a number of design schools, including the Bauhaus. It can be asserted that their attempt at marketing modernity was successful as the wireless receiver was readily grasped by the public and consumed on a large scale after 1930.

The public's desire to "listen in" required the acquisition of a wireless. That encouraged the public to buy into the modernist aesthetic because the general culture of the wireless was presented in that idiom. Moreover, they accepted that their radio receivers should be in the modern decorative style rather than that of a revivalist form. This is demonstrated by the success of those radios designed by Chermayeff and Coates for Ekco. Considering the annual increases in wireless license holders and consumption levels in the range of 120,000 units per product, these radios represented more than 10% of the coeval annual radio market. Such large scale consumption of domestic technological modernity illustrates the changing requirements of the public. As a result, this thesis supports the idea that there was a shift in the design ethos of wireless during the 1930s from being a proto-modern instrument to its acceptance as a technological domestic device at the beginning of the 1930s. The key change that occurred within this dialectal process was the shift in purpose of the cabinet from concealment by means of a conceit to the foregrounding of purpose through what was a modernistic conceit.

By investigating the stylistic interconnectedness of the emergent mass media, the research undertaken suggests that public acceptance of contemporary technology as stylistically modernist or moderne, was instilled through their relationship with other aspects of the newly mediated World. Key amongst these was the popular activity of cinema attendance. In the cinema interiors and exteriors they met with a version of modernity which drew upon a range of sources. These sources incorporated the

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international modernist movement through PEL furnishings, the streamlining of ocean liners, popular exoticism, abstract carpet patterns, modern lighting and the technology of cinematic entertainment. That entertainment reinforced a variety of these elements by providing the aspirational glamour of exotic locations experienced through their cinematic portrayal, this is likely to have led to the association of the modern style with leisure, glamour and luxury. Coupled with the marketing of electrical technology as offering ease and convenience, its association with leisure and luxury encouraged the public to accept and consume the wireless in its modernist form. Additionally, the architectural aesthetic adopted by many of the cinemas, particularly the highly popular Odeon chain, was similar to that of the newly constructed BBC headquarters, Broadcasting House completed in 1930. The effect of this was that the architectural styles of these media forms appeared to have a stylistic unity and this may have contributed to consumer expectations for the emergent entertainment media.

Meanwhile, research into the availability of housing stock suggests that the vast majority of housing constructed during the period adopted a historicist style, incorporating pitched and hipped roofs and timbered gables. However, despite the conservative exteriors of these properties, the inclusion of modern services was seen as desirable, with the expansion of the National Grid facilitating modern electrical power for these homes. Access to this power source offered the consumer the opportunity to acquire a range of electrical labour saving goods. However, as Bowden and Offer (1996) observed take up of those labour saving devices was slow while adoption of the wireless was enthusiastic. Why that occurred is explained by Bowden and Offer (1996) as being for reasons of the relatively low value attributed to labour against the high value placed upon leisure. This explanation does not explain how the radio was permitted to be stylistically modern, nor does it account for the success or failure of other electrical leisure products. From the research undertaken, the association of wireless and leisure appears to have been a significant factor in it's success but this was underpinned by it being perceived as an essentially modern component of daily life.

Within the interwar household, electrical goods and decorative features frequently adopted the contemporary style, as is seen in the Hobday Bros Catalogue (1933). Although other architectural and decorative styles were current, the nature of the radio as a technology meant that the idea of concealing it within an old fashioned form such as a blanket chest (Lancaster, 1939) seems unsatisfactory to the contemporary public, even when situated

within a revivalist context. Instead of allowing the machine to become hidden within what might have proved a more acceptable domestic furnishing type, by 1933 the wireless had established an overtly modernist form which drew upon the functionalist aesthetic. This suggests that there were enough interiors able to stylistically accommodate this approach and that the public were prepared to accept the wireless as a device that would stand out in those households which had not embraced the new fashion.

Examination of the wireless market leads to the conclusion that price was not a factor in determining the presence or absence of decoration and hence was not a determining factor in the adoption of modern styling by the British Public. Given that the pricing of a good is generally indicative of its intended demographic, cabinet styling of lower cost items reflected the modernist aspirations of lower income consumers, which were similar to those who could afford higher priced goods, as a number of high retail cost wireless products were equally as plain as those of low retail cost. Prior to the focus of this study this was not entirely the case. During the period 1922 to 1930 those models most exhibiting historic styling tended to be pitched at the more expensive end of the market. Given that the average price of those models was over £30.0s.0d. which was equivalent to over 2 months wages for a skilled worker (Branson and Heinemann, 1973), it is apparent that these sets aimed to reflect the aesthetic preferences of the wealthier customers to whom these products would have been accessible . By 1930, study suggests, the range of modernistic goods encompassed all of the price brackets and by 1935 this also included radio-grams which was the most expensive level of product. Although only touched upon in this research, models such as radiograms and floor standing console sets, despite having a closer relationship to the expensive furnishing models of the 1920s owing to their higher cost and larger size, by 1935 followed the same modernist codes and conventions as table type receivers of the period. This indicates that the unadorned, functional style typified by an absence of decoration was not indicative of cost or economic status, suggesting that modernism was a mass consumer style offered to all economic levels of society.

During the period post 1930 an adjustment in the attitude to decorative styling occurred. This study has established that, while this shift was broadly reflected in the styling of contemporary furnishings, within the wireless industry it was near total, with only a small number of manufacturers engaged in the production of historic forms. Close scrutiny of a sample of those products suggests that although their overall appearance was one of historicism, the influence of modernism could still be clearly discerned. Despite the

modernistic aspects of these products, their presence in the market place indicates that the public demand for wireless was not limited to an expression of the need for fashionable modernity. The market for historicism is evidence that a small section of the market required their radios to be a softer, more traditional furnishing. That demand suggests that some householders did not wish to open their doors too wide to the arrival of modernity. Despite this proviso, the research leads to the conclusion that generally, the modernistic styling and success of the wireless industry's products indicates that the public was accepting of technology which was uncompromisingly modern.

Production of cabinetry in historic styles was not reflected in the wares of the majority of the major manufacturers. Output was divided initially into those manufacturers such as Kolster Brandes, who favoured the modernistic over modernist design forms, while still drawing upon much of the same decorative language and those companies like Ekco, Ferranti and Murphy who adopted who more fully embraced the modernist aesthetic. Adoption of the modernist idiom was expressed principally through employing a group of designers including Coates, Chermayeff, Misha Black and Dick Russell but there were also anonymous in-house design teams employed who were also adept at exploiting the design potential of new materials such as plywood and plastics. The solutions these designers produced addressed issues of functionalism as expressed by the aphorism 'Form Follows Function' and the significance of utility to the various designers associated with modernism. Functional elements, particularly those associated with the ease of use of wireless equipment, were marketed towards women after 1931, which supports Bowden and Offer's (1996) assertion that despite its austerity, the wireless was not marketed as an exclusively masculine form. By marketing these elements for women, the wireless manufacturers were also implying that women could have equal access to modernity.

The evidence supports that the success of these companies, particularly that of Ekco, encouraged other radio manufacturers to recognise the use of modernity as an important marketing tool. As a result, many companies employed a variety of moderne decorative devices so that they could exploit the public perception of modernity to sell their products. In order that the industry could address a modernistic approach to marketing, it must have possessed the language of the modern. That language consisted of a series of techniques and symbols associated with modernity which were common to other fields of marketing. This was acquired as a response to design issues discussed in journals such as 'The Studio' and 'Design for Today'; who, during the 1930s promoted a version of good design

based largely upon the modernist functional aesthetic. To sell products as modern aspirational objects the radio manufacturers employed similar advertising techniques as other producers of new goods, although the wireless was also an inspiration to this field, meaning that a cross pollination of ideas was taking place. Wireless occupied a significant position in the marketing of modern goods because, existentially, it was a key ingredient in the state being modern. Its position as a modern good was further reinforced by modern marketing techniques such as photography which was used to illustrate suggested domestic settings for the wireless. Within those settings, the wireless was positioned alongside a variety of products which were emblematic of modernity such as tubular steel furniture. Furthermore, there is a marked similarity between the marketing of wireless equipment at all economic levels and that of tubular steel furniture, a product closely associated with modernity and the technological modernism of designers such as Breuer, Stam, Corbusier, Coates and Chermayeff, this would form an interesting basis for further research into the marketing of the modernist aesthetic.

While consumption of the architectural aspect of modernism was, in many cases, the preserve of a wealthy elite such as the patron of 'High and Over' Sir Bernard Ashmole, owing to the availability of credit offered by manufacturers, more affordable consumer goods could be installed in the average modern all-electric home at relatively little expense. By identifying the credit arrangements offered by radio manufacturers, this study has successfully illustrated that the wireless industry was particularly adept at offering good terms of credit to the consumer through the widespread use of hire purchase agreements and thus widening their potential market. As a result of increased wireless consumption, the domestic environment was then required to accommodate that product. Due to the need for good signal reception an aerial was required, this meant that a newly purchased radio appeared to demand alterations to the home. Although the evidence suggests that many consumers were happy to install aerials for their equipment, solutions were produced that would negate this problem providing the consumer with a flexible product as well as easy credit arrangements. Consequentially, instead of allowing the customer a reason not to make a purchase this condition was questioned by the set-makers, resulting in the ergonomically aware mains powered transportable market.

By assessing the response of radio manufacturers to the socio-economic conditions of their market, this study has highlighted how through producing a product which addressed contemporary ideas of glamour, ease of use and functionality, the wireless entered a wide

range of homes during the 1920s and 1930s. For the public, the immediate appeal of the wireless was that it provided access to the international experience of 'listening in' while simultaneously it provided a template for the consumer to base their understanding of the modern World, both in its mediated form and stylistic appearance.

Even though the radio may not have immediately opened the doors of every home to the possibilities of modernism it ushered in a style that would become widespread in British public and private buildings. The modernist wireless predated the streamlined Odeon cinemas and as such can be seen as having established the aesthetic conditions which the cinemas were able to use to their advantage.

This thesis has established that during the period 1925 to 1939, the wireless established itself as an unashamedly modern device which appealed to a broad socio economic cross section of the public. By consuming the wireless, the British public accepted a significant technological and stylistic aspect of modernity into their homes. This occurred despite the privations of the era because of the perceived desirability of wireless broadcasts and the perception of listening in as a popular leisure activity. As a result of that consumer demand, the British public was given access to a range of stylistic versions of modernity through the design of radio cabinetry. These modern styles were readily consumed throughout the social spectrum in preference to historicist alternatives. This demonstrates that the wireless was instrumental in introducing the modernist aesthetic to the British domestic environment.

Further Research

While undertaking research into this subject, a number of interesting avenues for further investigation have presented themselves but for reasons of time or suitability it has not been possible or relevant for them to be fully investigated. A potentially fruitful thoroughfare for study would be the development of the relationship between functionalism and ergonomics as a means of mapping the response of modernism to the changing public demands of the present. This could be achieved through the study of how miniaturisation has affected the user interface and influenced the design aesthetic of entertainment technology between 1900 and the present. This might be especially interesting in the light of current developments related to the user interface of personal devices such as smart phones and watches.

A further field of interest presented itself in the study of the representation of new domestic technologies in The Daily Mail's Ideal Homes Exhibitions between 1945 and 2010. On the topic of the Daily Mail, a chance encounter with several original programmes from the 1930s Radiolympia event, suggested a potentially fascinating avenue of research investigating how existing mass media forms responded to the expansion of the wireless industry during its early stages. This is touched on in this thesis in the form of the Daily Herald's Wireless Handbook whereby the old form appears to be encouraging the new - apparently despite the action of the newspaper industry regarding the timing of News Broadcasts during the 1920s and 30s. There are numerous references to the attitude of John Reith to the provision of news programming in the BBC archives suggesting a promising resource which might provide a detailed picture of the relationship between the broadcasters and print. Combined with the architecture constructed for the print media during the interwar period and the eagerness of newspaper titles to place advertising in the Radiolympia publications suggests, in some instances, a willingness to address and accommodate the new form and its style. This may have implications for the approach taken by the established media to emergent media forms throughout its history.

Another route which would be of particular usefulness would be conducting a survey of the surviving cinema exhibition spaces constructed prior to 1950 and their current condition, noting listed status and their internal and external preservation. Such an undertaking could involve making a photographic and literary record of the surviving structures which would provide a useful reference archive for heritage organisations and architectural practices.

The final suggested path for further research arose from a brief mention in a text of a series of designs produced for EMI by Wells Coates prior to his leaving for Canada to pursue his interests in a new town scheme which never came to fruition. At present, according to initial research, there is nothing known of Coates designs for EMI or any of its subsidiary companies having gone into production or what these designs constituted. Establishment of what these designs were and whether they were commercially produced would significantly expand the existing knowledge of Wells Coates design works in Britain.

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