

RADIO ART



Robert Hawes

PHOTOGRAPHY BY PAUL STRAKER-WELDS

RADIO ART

The development late last century of the components that formed the wireless set was the beginning of broadcast history. These initially separate parts became the wireless - a complete unit in a box - and when the boxed receiver became an object in its own right the modern radio was born.

Throughout its history the radio has assumed many shapes and sizes, indeed no other piece of domestic equipment has been produced in quite so many different forms. Cumbersome early sets were disguised as pieces of furniture but gradually the wireless came out of the closet and between the late 1920s and early 1940s it went through what is now regarded as its golden age. Novelty sets were particularly popular as extensive use of colourful plastics enabled the designers and manufacturers to give free rein to their imaginations. Models were produced in the shape of top hats, beer bottles, tea pots and even parrots but sets along more classic lines were also produced, mirroring the design aesthetics of the era. The transistor and the micro-chip, along with the advent of television, somewhat curtailed the development of the radio as a design object and sets became less central in the domestic environment and more throwaway.



RADIO ART presents a concise history of the radio from its initial incarnation as a piece of experimental scientific apparatus, through the design milestones in its development right up to today's retro and postmodern sets. Illustrated throughout with superb colour photographs by Paul Straker-Welds, many of extremely rare sets, this book will fascinate the collector, designer and amateur enthusiast alike.

£14.99

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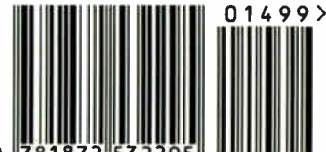
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RADIO ART

NO OTHER PIECE OF DOMESTIC EQUIPMENT HAS BEEN PRODUCED IN AS MANY DIFFERENT FORMS AS THE RADIO. CUMBERSOME EARLY SETS WERE DISGUISED AS PIECES OF FURNITURE BUT GRADUALLY THE WIRELESS CAME OUT OF THE CLOSET AND BETWEEN THE LATE 1920s AND EARLY 1940s IT WENT THROUGH WHAT IS NOW REGARDED AS ITS GOLDEN AGE. *RADIO ART* PRESENTS A CONCISE HISTORY OF THE RADIO FROM ITS INITIAL INCARNATION AS A PIECE OF EXPERIMENTAL SCIENTIFIC APPARATUS, THROUGH THE DESIGN MILESTONES IN ITS DEVELOPMENT, RIGHT UP TO TODAY'S RETRO AND POSTMODERN SETS. ILLUSTRATED WITH OVER 250 SUPERB COLOUR PHOTOGRAPHS, MANY OF RARE MODELS, THIS BOOK WILL FASCINATE THE COLLECTOR, DESIGNER AND ENTHUSIAST ALIKE.



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Robert Hawes

PHOTOGRAPHY BY PAUL STRAKER-WELDS

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RADIO ART



BACK FLAP

1947 Sonora Excellence 301 Mains Powered Radio (USA)

BACK COVER

1922 Gecophone Smoker's Cabinet Set HF DET (UK)

FRONT COVER AND TITLE PAGE

Clockwise

1940 Emerson Patriot Mains Radio (USA)

1948 Pye M78F 4-Valve Miniature Battery Portable Radio (UK)

1947 KB BM30 Radio (UK)

1924 Uncle Tom Grafton China Crystal Set (UK)

C1934 Ecko AD65 Mains Radio (UK)

FRONT FLAP AND THIS PAGE

Radio for the Million (1927)

Radio Pictorial (1939)

IMPRINT AND CONTENTS PAGE

Clockwise

C1936 The Gramophone Company Limited
NSW Radio (Australia)

C1933 Elektrish Rex Radio (Norway)

1946 FADA Streamliner (USA)

C1960 LaK Radio (Spain)



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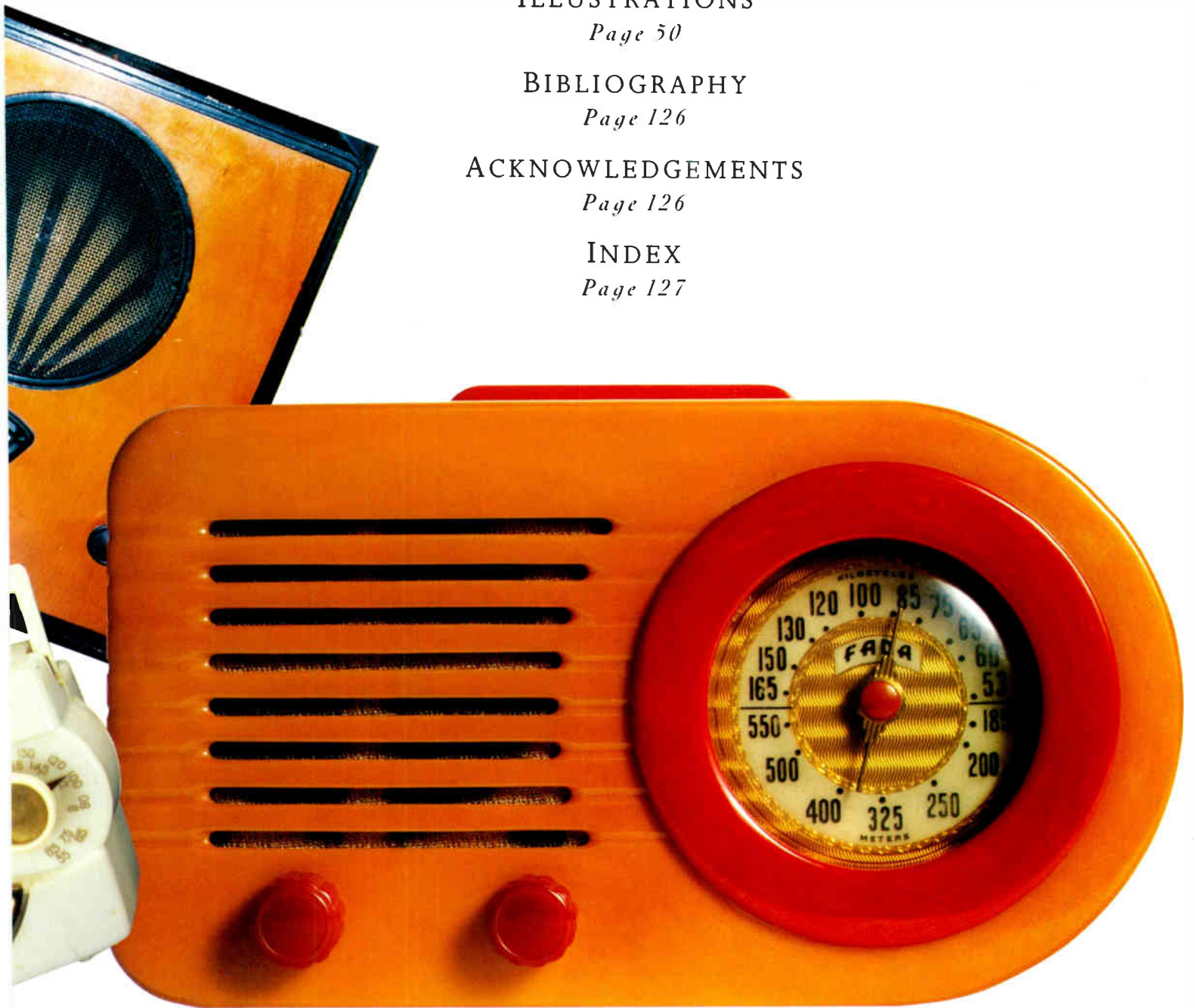
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RADIO ART



Guglielmo Marconi with his 'telegraphy without wires' apparatus, photographed in 1896 when he arrived in England to demonstrate it. A little more than two years later he set up the world's first radio factory, sparking off an entirely new industry, the products of which would affect the lives of everyone.

When the young Marconi set up the world's first radio factory in 1898 he was one of the few people of his day who saw the immense possibilities of his system of wire-less communication using aerial electro-magnetic waves. He could hardly have imagined, however, how important it would become as a medium for news dissemination, propaganda, control-at-a-distance and mass entertainment. And when the first piece of strange new technology came out of that first factory, how could people have guessed that it was to evolve within a couple of decades into an object which would transform their lives in fundamental ways? Still less could anyone have imagined at that time that the container in which the pieces of scientific hardware of wireless communication were destined to be packaged would blossom into an object that would take pride of place in almost every household in the world; an icon that would be seen as a unique art form to be discussed in terms of its pictorial and sculptural qualities, its aesthetic influences and its place in the centre of a form-versus-function debate which still continues. The fact is that the radio has never really been simply a box of technical tricks; its external form has acquired special meaning and significance in addition to its actual function.

The concept of the radio evolved over a period of almost a century during which it was subject to a great many different influences: aesthetic, technical, social and economic. The aesthetic factors which influenced the design of the radio relate to the artistic influences on the designers and to their changing roles.

To begin with, there have been a number of competing aesthetic influences on its design, of which the most significant came from popular art, design art, decorative art and fine art. Popular art, with its emphasis on the here-and-now, was concerned with exploring ways of

informing and educating individuals. It sought also to give them power to pursue pleasure in entertainment and hedonistic consumerism. Design art was concerned with the essential functions of the object and its marketing and representation in terms of effective iconographies. Decorative art alternated between a concern with the adornment of the object and an intention to disguise its actual function. Lastly, fine art became concerned with an overt exploration of the aesthetics of the Machine Age and also a contradictory regard for tradition and classicism.

In addition, commercial art was concerned with the promotion and marketing of the product – factors which feed back into production design. The role of the designer can be seen to have undergone a number of crucial changes. At first, the designer was the craftsman who virtually made cabinets by hand. Then, as industry developed, the designer became a key element in the mass-production process and finally, under a consumerist ethic, the tool of the marketing-man.

In its technical development, the radio went through a number of distinctive forms. Wireless communication had to evolve from an embryonic stage into apparatus of ever-increasing complexity through an expanding industry which developed it from a scientific curiosity into one of the most important pieces of technology of the twentieth century. The development and the evolution of the radio can be seen to have gone through a number of distinct stages: from the 'wireless set' to the 'wireless', then the 'radio' and finally the 'transistor'.

The radio entered history as an informal grouping of separate components which became known as the 'wireless set'. The first radio to enter the homes of ordinary people in the early Twenties was not very different from the one that Marconi used to receive his first signals. It was known as the crystal set because it

used a small piece of crystalline mineral to rectify the electrical impulses fed to it from an aerial wire. This crystal detector needed to be probed with a cat's whisker of coiled wire to find a sensitive spot, then the broadcast signal could be found by an elementary tuning device and fed to an earphone. Because these simple sets were powered entirely by the incoming signal, the sound from the earphones was very faint, but this could be slightly amplified with a trumpet-shaped horn. The great advance came with the invention of the three-electrode thermionic valve, a device looking rather like an electric light bulb, which, when energized with

an electricity supply, had the power to amplify the weak electrical impulses to operate a newly developed loudspeaker at good volume.

The next step in the evolution was the gathering together of this set of basic parts into the single box which came to be known first as the wireless and then as the radio. A receiver of great technical sophistication was now encased in a cabinet. The radio became a decorative object in its own right, masquerading in many different forms intended to delight the eye as well as the ear, and even to endow the owner with enhanced social status.

Eventually, the innards, but not the outer aspect of the radio, became standardized in sophisticated multi-valved form. It remained so for the next twenty years until the transistor, the printed-circuit and later the microchip enabled the actual receiver unit to become so miniaturized that it hardly needed a cabinet at all. Thus the radio cabinet finally ended up simply as a case: a tempting package for a throwaway product. These new devices rapidly made the valve radio obsolete and dramatically changed the whole of electronic technology.

The technical influences on radio design were connected with the possibilities for exploitation of materials and the economics of manufacturing processes. These began with the simple crafts workshop and evolved into the mass-production factory.



This modern Isis model 20 aptly demonstrates how the radio cabinet has so far abandoned the beauty of its Golden Age that it has become merely a package for a piece of technology. Here, it adopts a shape that actually spells its function. Hong Kong. 7.6cm × 25.4cm × 6.3cm (3" × 10" × 2½").



Stages in the evolution of the radio cabinet. (Left): The Wireless Set – a 1923 BTH crystal-valve receiver in solid walnut case 22.8cm × 29.2cm × 26.6cm (9" × 11½" × 10½"), with metal horn speaker 45.7cm (18") high. (Centre): The



Wireless – 1931 Philips 930A in plastic imitation rosewood case 47cm × 40cm × 15.2cm (18½" × 15¾" × 6").

(Right): The Radio – a 1947 KBBM30 in red bakelite 21.5cm × 31.7cm × 17.7cm (8½" × 12½" × 7").

All the radios are British.

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Rapidly increasing demand led to mass-production which, in turn, provided a potential for over-production, so that new and existing markets had to be stimulated by aggressive promotion. The creation of new markets tended to require differentiation of the product to cater for varied customer choice in a competitive environment. But mass-production necessarily implied rationalization and convergence which tended to provide a standardized product. This dilemma was solved both by genuine innovation and by spurious differentiation which often had more to do with marketing than with improvements.

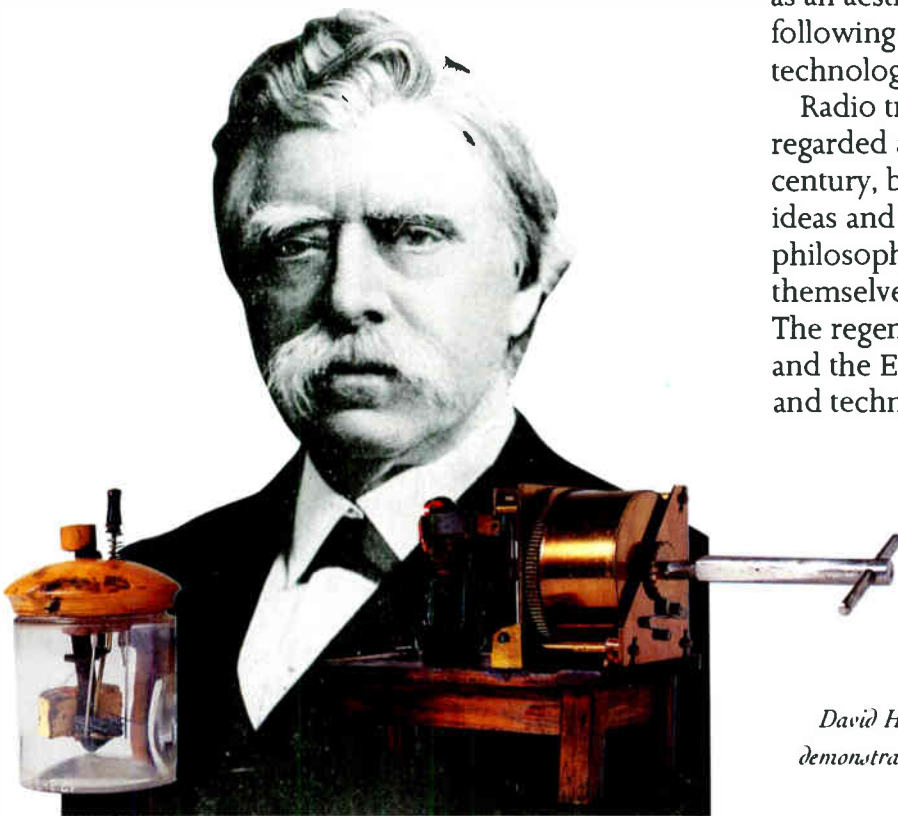
The development of the radio as a medium of mass-communication was also influenced by a number of socio-economic trends. Increasing affluence and leisure time for most people resulted in the growth of mass consumption and the expansion of consumerism.

The development of the radio as a socialized and domesticated object has to be considered in relation to the almost universal acceptance of other pieces of household technology such as the gramophone, the telephone and the television set. No other single object in the home has had such an important and universal

influence on people's lives as the radio, except perhaps its descendant, the television. But whereas the radio entered the home as an alien piece of scientific apparatus and was gradually transformed – first into a piece of furniture to match its surroundings and eventually into an object not only functional but also pleasing to the eye – the television arrived as a plain box of technology which has, more or less, remained so and is admired for the pictures it presents rather than for its appearance.

Had the development of radio been merely a matter of technology, it might have proceeded in a logical way, but this was not the case. The early history of radio is concerned with its development from a piece of scientific apparatus into a basic form known as the wireless set, and it is important to look at the social and intellectual origins of its innovators. Radio was rapidly accepted for its important public uses but there was resistance to its appearance in the private home, where it had to be domesticated in relation to other utilities and made simple and convenient to operate. Gradually, however, it was accepted, evolving into an object of art and social status. Here the influence of new materials, techniques of manufacture and promotion resulted in a true variety of forms. Finally, the design of the radio as an aesthetic object went into a decline following the invention of new miniaturized technologies.

Radio transmission and reception is usually regarded as an invention of the late nineteenth century, but its roots can be traced back to the ideas and discoveries pursued by the philosophers of ancient Greece who had themselves been influenced by earlier cultures. The regenerative impetus of the Renaissance and the Enlightenment in relation to science and technology resulted in a series of separate



David Hughes – who as early as 1879 actually built and demonstrated the world's first radio transmitter and receiver, parts of which are pictured here.

discoveries and inventions by scientists and technicians in several parts of the world and over a long period of time. As a result of the Industrial Revolution these and other ideas came together to form new sciences and technologies from which the concept of wireless communication eventually coalesced.

It is a matter of opinion and definition as to who actually invented the radio, or who devised the first transmitter – the device that is needed to send out broadcasts for the radio to receive. The first person to create an electric spark was actually transmitting radio signals; and nature's lightning storms send out electromagnetic waves of a kind that we now try to suppress because of their interference with man-made broadcasting.

The man who has the best claim to have constructed the first radio was London-born Professor David Hughes, who actually built a radio transmitter and receiver and successfully demonstrated it as early as 1879. (The great Guglielmo Marconi, whose name is synonymous throughout the world with radio, was then only five years old.) Although a professor of music rather than science, Hughes was a keen electrical experimenter who had already produced several successful inventions, including a microphone (an essential component for the broadcasting of speech and music).

Hughes made his radio discovery by accident, then went on to further experiment. In his amateur laboratory in his house in Great Portland Street, London (very near the spot where the British Broadcasting Corporation's 1932-built Broadcasting House now stands) he constructed a crude transmitter. It was made from bits of scrap wood, wire, cork, sealing-wax and an old clock movement. He set it going and connected it to his makeshift aerial (the brass fire-screen in front of his open coal fire). Then he went for a walk carrying what was virtually the world's first real radio – an equally makeshift contraption consisting of a glass medicine-jar containing a steel sewing-needle held on to a piece of ordinary coke by a spring and connected to a small battery and a telephone earpiece. On this he listened to the ticking noises being broadcast by his transmitter. He soon discovered that he could hear the transmissions for up to 500 yards

before they faded away.

Hughes was certain that he had discovered the entirely new phenomenon of aerial waves but did not guess that he had hit upon, and even demonstrated, the essential principle of wireless at a time when the scientists were merely postulating its existence. Understandably excited, he demonstrated his discovery to the learned professors of that most prestigious scientific establishment, the Royal Society of London. He reported later that they were astonished at first but then 'pooh-poohed all the results', scoffing at the idea that he had discovered anything new and ascribing the phenomenon to induction effects which had been demonstrated almost half a century before and which were nothing to do with wireless.

Bitterly disappointed, Hughes was discouraged from publishing any account of what he had done. Consequently he was robbed of his rightful first, and the development of radio was put back a decade until Marconi arrived on the scene. It was, perhaps, a case of fools rushing in where angels fear to tread. Hughes, in his naivety, while tinkering about in a field in which he had scant academic knowledge, had stumbled upon one of the most important finds of the nineteenth century. Conversely, those illustrious men of science who had visited his house to witness his demonstrations were, perhaps, blinkered by their knowledge of what then seemed possible and failed to see what was right under their noses. They displayed none of that open-mindedness and imagination which is often shown by the keen amateur, and which has at times led to the important yet chance discoveries and inventions of scientific history.

Marconi, the single most important man universally associated with radio in popular scientific history, was just such an adventurous amateur as David Hughes, a fact that is not generally appreciated. Indeed, many people might also be surprised to know that Marconi did not actually invent radio. He entered the scientific limelight at the turn of the nineteenth century as a clever, imaginative and ambitious 21-year-old yearning to fulfil a schoolboy dream. He was fascinated by experimentation rather than pure science, but he had a practical imagination, a knack of knowing a good thing

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when he saw it, and an ability to combine and exploit the ideas of others. He also had good business sense and some financial backing from rich parents. A contemporary of his, Captain Peter Eckersley, who in 1923 became the first Chief Engineer of the British Broadcasting Company (later the public corporation), gave an excellent description of Marconi's role in the story of broadcasting when he wrote in 1941:

Neither Marconi nor anyone else invented radio . . . gradualism is unknown in technology . . . the progress of discovery and invention is made in a series of leaps. Indeed, Marconi was one who had the ability to collect bits from the scrap-heap of unrelated discovery and use them to build up a working system. He did not so much invent as adapt the work of others to a specific purpose.

The popularly propagated explanation of radio history, like that of science in general, sees progress in the form of peaks of discovery and invention related to great and famous men. (With few exceptions, science has been regarded as an essentially masculine preserve, and has necessarily been so, due to the lack of educational opportunities for women.) Such a view of history may be true as far as it goes; science certainly does seem to proceed in a series of intuitive, imaginative, or fortuitous leaps associated with particular people and is later interpreted as a kind of continuum of progress. However, such a perspective disregards the social and economic determinants of change. It also ignores the essential work of that concealed band of unsung heroes behind the great men: the anonymous and often undervalued craftsmen and ordinary workshop toilers. It is they who make practical sense of the ideas of the intellectuals they serve, who may themselves be unable to turn their abstract ideas into actual working objects.

And such a perspective does not take fully into account the importance to science in the nineteenth and the early twentieth century of the intuitive amateurs who had a hand in many of the important discoveries of the period; or who at least provided a motivational impulse. These amateurs came from all classes, some of them classically educated but without special



An ornate German Wimshurst machine c. 1890, an electrostatic induction generator – a kind of spark transmitter – although nobody had at the time devised a suitable receiver. 27.9cm × 22.8cm × 12.7cm (11" × 9" × 5").

training in science and others without formal education but self-taught. It is interesting to note that such famous men as Sir Humphrey Davy, Michael Faraday, Léon Foucault and, of course, Marconi himself, could be included among a list of amateur scientists. There was a sudden explosion of interest in what came to be known as popular science during the period, and many people eagerly made it a hobby. They set up home laboratories, attended lantern lectures and demonstrations and encouraged their children to take an interest in such pursuits. In Britain, the Great Exhibition of 1851, for example, celebrating the culmination of the Industrial Revolution through the enormous advances in technology entailed, stimulated general interest in popular science. It initiated particular interest in the subject of electricity, which led to the discovery of wireless by the end of the century.

Much work was being done at that time in the branches of pure science, which paved the way for the development of wireless. However, the contributions of the intuitive, enterprising amateurs and their pioneering work should not be underestimated, although this work had, of course, to be put on a proper footing by the great professional theoretical scientists before it could make real progress. At that period, and for some time to come, it was still possible for non-academic people with crude equipment in domestic surroundings to do work which might prove important, although the concept of

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scientists as professionals, working in teams in academic and even commercial situations with backup prototype fabrication facilities, was already established. It was this age of adventurous and practical science which provided the catalyst for the wireless.

Guglielmo Marconi, born in 1874 of a wealthy Italian landowner father and a Scottish-Irish mother from a well-to-do family, had an interrupted school career and was not truly academic. His background, however, gave him the advantage and financial backing to pursue his schoolboy dream of developing a system of wire-less communication with which various scientists were already experimenting.

He failed to get into university to study the subject (although in later life he was awarded no less than thirteen honorary degrees by universities in Europe and America and won a Nobel prize) but received private tuition. As a schoolboy he set up a laboratory in the attic of his parents' home near Bologna, where he first began experimenting with wireless, using a combination of pieces of apparatus devised and already being employed by others working in the field, and operating according to already familiar theoretical principles. He had recognized that all the important elements of practical broadcasting by wireless were already to hand: a sparking-coil and battery for generating radio waves (a device common in laboratories but known to the public only in the form of a low-power magic cure-all machine used by quack doctors); an antenna for transmitting the waves through space (a device in those days hitched to a gas-balloon to collect lightning for experiments); and a receiver consisting of a detector coupled to a buzzer, bell or earphones (which were already being used in wired telephone installations). Marconi now used these in a communication system that needed no wires to connect the transmitter and receiver – hence the term wire-less transmission.

Like other experimenters, the young Marconi was at first able only to transmit a few yards across his laboratory but soon he began to elevate his antenna, with spectacular increases in range. Then he added a few more components: a Morse-key, for tapping out messages in dots and dashes at the transmitting



*A crystal set of the early 1920s: it is called the Cosmos but the listener would have been unlikely to detect more than a local station, even with a 100-foot aerial. British made.
16.5cm (6½") diameter.*

end, and a buzzer at the receiving end. He continued to improve his equipment and by 1896, barely out of his teens but with a keen sense that he had hit upon a scheme of some commercial promise, he felt confident enough to offer a demonstration of his system to the Italian government. However, after a customary bureaucratic delay, they said they were not interested. This was a blow, for he had envisaged selling his idea for the use of ships at sea. Once out of sight, vessels were at that time cut off from communication with other ships and shore – a situation which often led to disasters.

Following this disappointment, Marconi's family decided to let him try his luck in England and the 21-year-old packed his equipment and set sail, accompanied by his mother, who would secure him important contacts. After a slight hiccup, due to suspicious customs-men who ruined his box of tricks while examining it, he made repairs and got in touch with relatives who gave him support and introduced him into influential circles. This resulted in successful demonstrations to the British War Office, the Post Office, scientific bodies and the Press, who dubbed him The Inventor of Wireless (although he never made such a claim himself). Such publicity attracted worldwide attention and stimulated much interest from public and

private institutions and commercial organizations in the acquisition, exploitation and development of his wireless communication system. He had already established patent rights although he had not really invented the components of the system. What he had done was to bring together all these separate elements as a practical system of transmission and reception by wireless waves. At that time it provided only telegraphy (Morse-code signals) rather than telephony (speech and music).

Neither a scientist (like the German professor Heinrich Hertz who sent radio waves across his laboratory as early as 1887), nor a brilliant technologist (like the American genius Thomas Edison who developed an incandescent light-bulb in 1882 and, by accident, discovered the thermionic valve effect which was to begin the true development of radio), Marconi had the kind of mind which was able to convert the abstract into reality. He was also in a position to employ the theoretical and practical workers required to do the job. He had taken the experimental equipment from the laboratories of the academics and had then improved, adapted and combined it into a working assembly and shown its immense potential. He also had the other essential ingredients needed to develop and exploit his ideas: good business sense, a rich family which set him up in business and bought in the expertise he needed, and connections with people in authority who could further his cause.

The early spark-generating equipment that Marconi employed in the early years of the century, which was also being used by experimenters in other parts of the world, was extremely simple and primitive, permitting only short-distance transmission and reception; but it soon proved possible to broadcast across enormous distances (notably in a 2000-mile transatlantic experiment of Marconi's as early as 1901).

His first factory, and others which sprang up in many parts of the world, soon began to turn out wireless telegraphy equipment, but it would be almost twenty years before transmitters began broadcasting the sounds of speech and music to people with wireless sets in their homes, and into the Thirties before receivers became known as radios.

When Marconi set up his factory and began manufacturing radio equipment, the apparatus went to important customers such as government organizations and the armed forces. It is anybody's guess as to who was supplied with the first commercially produced home radio; yet it could well have been no less a celebrity than Queen Victoria. In the summer of 1898 she commissioned Marconi to install

Inside the world's first radio factory: staff on parade at the Marconi Wireless Telegraph Company, Chelmsford, England, in 1900.



wireless apparatus in her house on the Isle of Wight, off the English south coast, so that she could receive bulletins on the progress of her injured son, the Prince of Wales (later King Edward VII), who was convalescing aboard his yacht two miles away in Cowes harbour. The newspapers, which were already using wireless communication to transmit news, saw this as a good story and Marconi's new factory gained welcome publicity, for it projected the idea that the company was not simply supplying items of old-fashioned laboratory equipment to boffins but was solidly established in the business of selling complete wireless sets that were more or less ready to use and were able to provide a unique communications service to anyone requiring it. These first 'radios', like Queen Victoria's, were really just two-way communication sets, for there were as yet no general 'broadcasts' to be picked up. Even so, they gave Marconi publicity, for which he developed a flair, and he became the first real radio salesman.

Before the establishment of Marconi's factory in England in 1898, and the other factories which quickly followed, wireless experimenters had purchased their equipment from small companies specializing in laboratory apparatus. Many of the items required were already in production for other uses or could be adapted for use in wireless broadcasting and receiving systems. These small firms used simple machinery but because they were engaged in low-volume, high-quality production, the equipment they turned out was virtually hand-made. They employed specialist craftsmen such as precision engineers, metalworkers, woodworkers, optical specialists, coil-winders, french-polishers and even engravers and artists who were highly skilled at finishing and decoration work. Often they made items to special order, so they were adaptable enough to start producing the new kinds of components required for assembly into wireless apparatus. At first, this took traditional forms which had been established since the early days of science.

In those pioneering days of the first radio factory, there was no conception of what a radio should look like. It was something completely new; a strange device with a function quite unimaginable at that time, that of

plucking out of thin air the far-off sounds of disembodied voices and making them audible.

Whereas many other inventions could be envisaged as the transformation of ambitions and ideas into real and practical forms – like the desire to fly in the air – the phenomenon of wireless waves had, in a sense, already been there in space waiting to be discovered. They were there in the form of natural electric forces such as lightning (which anyone who listens to the crackling in a receiver in a thunderstorm can testify to be wireless broadcasting). To paraphrase the philosopher Wittgenstein, radio was not so much invented as discovered. It had been there in the space all around us, waiting for the scientist to become aware of it, devise a means of making it for himself and then control its transmission and reception for his own use.

The majority of the components necessary to make wireless transmission and reception possible were already in existence in rudimentary form before the beginning of the twentieth century. They were pieces of apparatus taken from the standard scientific laboratory, such as large electrical induction-coils, detector devices, electrical storage batteries, buzzers and aerial (antenna) contrivances. Wireless equipment at that time therefore consisted of a loose assembly of discrete parts which were not yet enclosed in a container.

The late nineteenth-century scientific apparatus on which the new wireless devices were based had already evolved into a kind of splendid, highly stylized and distinguished art form of its own, reflecting ideas of classical beauty. Fine materials like brightly polished exotic woods, ivory, marble and even precious metals were used and the craftsmanship employed matched that of the craftsmen making such objects as fine furniture and jewellery. They were not always content simply to make utilitarian objects, but ones of beauty too. Thus a telescope would be supported on a golden Doric column; the wheel of an electric generator ornamented like that of a Roman chariot; the support of a microscope fashioned in the form of a mythical beast. All these stylistic details had nothing to do with the real purposes of the instruments. The apparatus matched the almost baroque splendour of many laboratories

in universities and other scientific establishments, which had not yet taken on the austere plain, uncluttered, undecorated, severely functional and coldly clinical appearance of their twentieth-century counterparts.

Such scientific apparatus did not conform to the modern idea of industrial and commercial design. Certainly the researcher ordering new equipment from the makers would have to provide working plans, but he would simply specify what was needed to construct a device that would do the required job and be accurate, robust and reliable; he would hardly be concerned with the aesthetics of the matter. Even so, his social and cultural conditioning (nineteenth-century scientists usually came from upper- or middle-class backgrounds and received classical education) would have made him sufficiently sensitive to the contemporary dominant artistic hegemony to impel him to reject the crudity of apparent unadorned functionalism in favour of a quality object that would convey an air of good-breeding, sophistication, superiority and authority.

The Victorians saw themselves as the natural heirs to the ancient classical cultures of Greece and Rome, some of the artefacts of which they had recently discovered, plundered and appropriated as museum-pieces. It is hardly surprising that they would want their own scientific artefacts to reflect the styles they were

busily adopting in their contemporary art and architecture, and the interior furnishings of their homes. The instrument makers, too, were probably anxious to project a high-class image for their potential customers for reasons of trade competition and profit-making. Although special and expensive materials had sometimes to be used for functional reasons, the excessive adornment of some apparatus was quite unnecessary to its function.

The first products of the Marconi factory, and of other factories both large and small which were astonishingly rapidly set up to exploit the new invention, were of much the same style as the scientific instruments of the day, although they were beginning to have a more pure, functional appearance. Gone were the gold-leaf decorations, the intricate filigree cast-iron supports, the gilded Corinthian columns, the richly veined marble stands, the ivory handles and the purple-plush padding; but the hand-crafted excellence of construction, with its exotic french-polished woods and golden-lacquered brass, was still in evidence. Although this glitter was, of course, intended to convey an air of quality, it was not entirely cosmetic. The apparatus was being sold very expensively, mainly to government and military establishments with access to the public purse and a duty to spend it only on state-of-the-art equipment which could be seen to be efficient, reliable, robust and long-lasting. So it was often necessary to specify the use of non-corrodible metals and expensive, water-resistant, long-lasting, rigid hardwoods like teak and mahogany in apparatus that was intended for use in adverse conditions at sea and during wartime. Technical developments, to some extent stimulated by amateur experiments, made transmission of speech and music increasingly practical. While Marconi continued to develop radio for 'serious' purposes, others saw its potential as a domestic entertainer and informant, notably Marconi engineer Peter Eckersley who ran a pioneer station known as 2MT in Britain in 1922 which led to the foundation of the BBC.

In the mushrooming development of wireless factories in the very early Twenties, there was not much evidence of the mass-production techniques which were already well established



Large wireless set made in 1926 by the British motor-cycle manufacturers AJS. With four valves that glowed like electric light bulbs, it had a solid walnut case with matching loudspeaker. 35.5cm x 45.1cm x 22.8cm (14" x 17" x 9").

in many other industries. The hundreds of little workshops producing wireless equipment were doomed to extinction among the big industries which had been growing towards almost complete mechanization since the end of the Industrial Revolution. There was excitement in the air about the possibilities of the new communications medium and all sorts of people began to see opportunities to establish themselves in the industry and make money. Owners of existing businesses, from furniture-makers to motor-cycle-makers, turned over to the manufacture of wireless sets, and many small enterprises, begun with a man and a boy working in a garden shed, grew into large factories. Shops, too, from big department stores to small electrical, gramophone or bicycle dealers, moved in on the market by employing workshops to make sets for them to market under their own brand names.

In their developing stage the small wireless workshops were unable to afford anything but the simplest machinery. Unlike the great industries of the Industrial Revolution where (in the opinion of Josiah Wedgwood of the Potteries) men were being turned into machines, they were highly labour-intensive and demanded quite skilled workers. With little standardization and division of labour, craftsmen often made up complete and separate units. These factors determined that individual craftsmen were often the designers as well as the makers of sets, so that they might have their own aesthetic input. This partly accounts for the remarkable variety of design in objects which were technologically similar and had exactly the same function.

Another important reason for the wide choice was one of marketing: if all the makers were really offering the same thing to the public they had at least to ensure a difference of appearance. This requirement was met in various ways. A common practice was to use expensive materials and embellishments to improve or adorn the surface appearance. Another was to apply decoration in the form of colourful transfers and wording which made extravagant claims as to performance. But perhaps the most interesting and amusing of these marketing devices were those which engendered in the user the belief – largely

mythical – that the product had some kind of special quality compared to its rivals, like the 'Mighty Atom' crystal or the 'Mars' coil.

Before the First World War, the wireless factories produced only the discrete components necessary for assembling and connecting complete sets of parts for transmitters or receivers. These were fairly simple and basic pieces of apparatus which were often delicate and unwieldy as an assembly; a few large parts strung together on a table top with untidy lengths of wire. Sets so roughly assembled on this ad hoc basis served perfectly well for use on the laboratory table but were not suitable for transportation in wartime. So it soon became necessary to fix the apparatus to a baseboard and later to install it in a simple box. Thus, the first radio cabinet was born.

The cabinet had no aesthetic pretensions since its essential purposes were merely to enclose its contents, to protect them from the elements and to arrange them permanently into a complete functional unit that was assembled ready for use. But even so, the boxes were usually very well constructed in hardwoods like teak and mahogany (which were then readily and cheaply available to Britain from the rain-forests of its Empire), fitted with corrosion-resistant hinges, knobs and locks and given protective finishes which were also decorative. These early cabinets usually bore somewhat restrained and formal metal nameplates describing the contents and giving the type number and name of the manufacturer. Nameplates of this sort were eventually to become the logos and decorative symbols of corporate identity by which products of individual manufacturers could easily be identified by potential buyers. They also had a kind of symbolic function; like the solemn brass plates which lend an air of dignity and authority to the front doors of professional people, they were intended to impress and to suggest a serious purpose quite removed from the more frivolous aspect of the radio, yet to be revealed.

Wireless communication in those early days served only the very serious purpose of saving souls at sea, conveying business information, controlling military operations and carrying vital messages between government offices and other important institutions. There was no

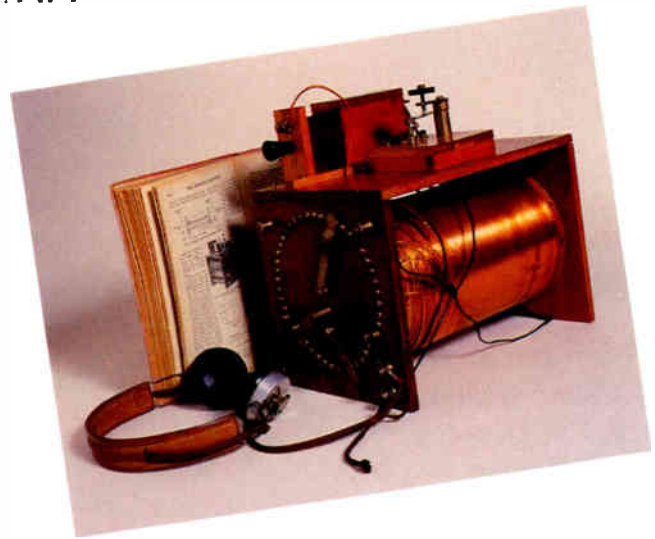
conception yet of the radio as entertainer or even as a medium for dissemination of news to the general public. Indeed, the illustrious pioneers, like Marconi himself, would probably have regarded any suggestion that their important devices should be used for such purposes as an affront to their serious intent and a devaluation of what they had produced.

But the idea of wireless caught the public imagination very strongly just after the First World War – it was rather like the effect of computers in more recent times – and the hobby of wireless-building at home grew rapidly despite the fact that there was very little to be heard on the air, once the receiver was built. The first broadcasts were simply communications between ships at sea and time-signals from transmitters like the one installed atop the Eiffel Tower. But even these were enormously exciting to those early home experimenters who delighted in searching the more or less empty air for the often very faint sounds of the first broadcasters. The challenge, in fact, was to find a lone voice in a vast and largely silent wilderness of space (compared with today's problem of disentangling a single voice from a cacophony of hundreds of stations).

Wireless waves would be caught on perhaps a hundred feet of aerial wire strung from the chimney-stack to a pole at the end of the garden; then fed down to the simple tuner, where it was detected by a piece of crystal that had to be probed with a cat's whisker of coiled wire and then converted into sound by an earphone.

The newly operational wireless factories hardly produced anything for use in the home for there was as yet no such thing as a domestic market; but home experimenters could buy components to assemble for themselves into complete receivers. Indeed, ordinary people just after the First World War could hardly afford ready-made receivers which might cost the equivalent of many week's wages; so if they wanted to be part of a movement that was about to explode into an important piece of history, they were forced to make their own equipment.

The actual apparatus needed for radio reception in the early twentieth century was



1918 crystal set constructed from plans in the popular book The Amateur Mechanic. Mahogany and brass, 27.9cm × 20.3cm × 27.9cm (11" × 8" × 11").

remarkably simple, consisting of three or four components which could be assembled and connected up without much in the way of theoretical or constructional skills. These early crystal receivers were powered entirely by the incoming signal from the aerial, so they needed no batteries (mains electricity did not exist at that time) and were easy to operate, although care and patience was needed to tune them in.

The very early wireless experimenters had mostly been men of leisure, typical of the gentry of Victorian times, who saw themselves as leaders of a kind of cultural renaissance based on the restatement of classical notions of the ancient arts and sciences. Many Victorian gentlemen, with time on their hands and plenty of money in their pockets with which to indulge themselves, took an interest in burgeoning scientific developments such as microscopy, astronomy, geology, anthropology, chemistry and photography. Now they added wireless to their list of mind-improving hobbies.

After the First World War, however, ordinary people began to take up a spare-time interest in wireless and found that they could successfully assemble and operate sets – and even make their own component parts. They improvised with objects and materials to be found in the average home and took advantage of a sudden glut of high-quality, but now inexpensive, ex-government war-surplus equipment which appeared on the market at the end of hostilities. This included components as well as complete receivers that could easily be converted for peacetime use. An important reason for this

situation was the fact that despite the progress of the Industrial Revolution of half a century before, the men and women employed in the enormous number of small workshops which at that time constituted the bulk of industry had not yet been de-skilled by increasing mechanization and division of labour.

It was common for working people to attend free evening classes to improve their employment prospects at a competitive time when unemployment was high, and also to enable them to do their own home repairs. They now added wireless-making and repairing to their list of classes, which commonly included woodwork and metalwork. Those who had served in the First World War possessed an additional advantage: they had learnt about wireless communication and about some of the technicalities involved. All these factors gave the amateur wireless-constructor, and the workers in the burgeoning new wireless workshops, a good start. They were initially independent of the restrictions on individuality necessarily imposed in large well-organized industries, so their personal abilities to demonstrate artistic expression and innovative creativity were often given a free rein. This was one of the reasons why the crude wireless box began to metamorphose from a merely functional container into a much more decorative object. An even more important reason was the fact that the wireless set had begun to take an important place in the home. The initial rejection of wireless apparatus in the home was partly due to the scientific look of the first wireless sets which seemed out of place in the ordered and over-ornamented parlours inherited from Victorian times where anything functional had to be concealed. Curtain-poles sprouted brass knobs; sewing-machines had art nouveau decorations; lavatory bowls had their embarrassment covered with garlands of flowers; and naughtily curvaceous piano legs had their nakedness concealed with tasselled cloths.

Moreover, there was a good deal of what anthropologists call *misoneism* (a deep and superstitious fear of the new) in evidence at that time, despite the effects on public awareness of the enormously inquiring and inventive activities of Victorian thinkers and their

considerable flair for scientific and engineering innovations. Then as now, the public welcomed newly developing technologies for the advantages they promised, but also saw in them threats to their security and well-being. There was a class basis for this apparent schizophrenia: it was due to social and economic conditioning. Rich, well-educated people could afford to keep up with changing fashions and needed to do so in order to retain their social positions, but the poorer classes needed to hang on to established objects which they trusted, while resisting new-fangled technology they did not understand. It is interesting to note that psychologists today are using the term 'technophobia' to identify a not uncommon suspicion and mistrust of modern technology.

In addition to these tangible and conscious reasons, there is a deeper, psychological explanation for the *misoneism* displayed by both rich and poor, educated and unsophisticated people, in their rejection of wireless just after the turn of the century. The apparatus which we now see as an essential communicator, educator and universal entertainer actually materialized as a somewhat threatening and fearsome object in the home. It appeared to many as a personification of half-understood and even occult beliefs; an unearthly device with apparently magical power to transport disembodied voices through thin air. The idea of electro-magnetic waves as an etheric force had its roots in ancient times. The term electricity itself is derived from *elektron*, the Greek word for amber (a stone possessed of magical qualities, often entombing prehistory in the form of tiny embedded insects), which has the property of producing static electricity when rubbed. The crystals used as detectors with a cat's whisker of coiled wire may have been analogous to these electric stones in the public mind. It is certainly true that from the time they were first employed in wireless receivers, crystals were surrounded in a wealth of folklore which was compounded by manufacturers and sellers who marketed ordinary crystalline substances such as lead sulphide at high prices under brand names like 'Neutron' and 'Electronite'.

Connect the symbolic and mythical meanings of all this to the pre-existing conception of the



The setting for the debut of wireless in the home: the plush and heavily decorated Victorian sitting-room in which the 'scientific' look of early wireless apparatus was quite out of place. It was often disguised as or concealed in pieces of furniture or was regarded as a scientific toy for both children and adults to be taken out of the cupboard and played with. The crystal set to which the boy in the picture is listening is housed in a nicely crafted mahogany box.



Improved Patent Magneto-Electric Machine c. 1890 in mahogany and brass, its driving wheel imitating a gold chariot wheel. Such 'shock machines' were promoted as magical cure-alls by late nineteenth-century medical men. If the machine is placed close to a radio receiver, turning the handle transmits sparking noises, showing that it actually produced wireless waves.
12.7cm x 25.4cm x 12.7cm (5" x 10" x 5").

powerful electric force of nature's thunder and lightning as the uncontrollable, irresistible weapon of the gods, and it is possible to understand the suspicion which wireless apparatus engendered on its appearance in the home. People were wary of electricity and the invisible rays of newly discovered electromagnetic waves. They knew what lightning could do and some were cautiously undergoing fashionable, allegedly therapeutic, electric-shock treatment at the hands of both quacks and proper doctors, who were using mysterious machines made up of magnets, coils, wires and fearsome-looking electrodes as a kind of cure-all for complaints ranging from rheumatism to impotence. We now know that, like the disturbances in the earth's atmosphere which cause lightning, these electric machines – and even the magic elektron stone which the ancient Greeks rubbed on their garments – actually generated wireless waves; but nobody knew that the impulses could travel through space since nothing which could act as a useful detector or receiver had yet been devised.

Irrational fears of being controlled by invisible rays, in the hands of Svengali-like hypnotic

powers, are thought by some psychologists to be deeply embedded in the unconscious, and are commonly regarded as symptoms of schizophrenia. But the remarkable modern developments in electronic surveillance and control give some credence to such fears and may provide reinforcement of unconscious motivations which Jung would have considered as archetypal in origin. Certainly there is evidence that people have continued to express both rational and irrational fears about electromagnetic radiation arising from every kind of source from broadcasting transmitters and electric pylons to X-ray machines and microwave ovens. For instance, wireless magazines of the early Twenties often published letters from people living beneath broadcasting aerials who reported effects of two sorts from the wireless waves to which they were subjected. One claim was that the radiation caused headaches and neuralgia, the other that it had therapeutic benefits such as relief of rheumatic pains.

Later on, and certainly into the Thirties when mains electricity was becoming the standard in most towns, people appeared to regard their house-wiring installations in the same light as the pipes of their coal-gas lighting and heating equipment; and they expressed fears that if they did not keep plugs in sockets, dangerous electric

A cartoon by James Thurber illustrating popular concern over the installation of electricity in the home.



Electricity was leaping all over the house

fumes would leak out and affect their health. Even in the late Thirties many people thought of the energy coming from wireless waves and caught by their high-strung garden aerials as a kind of fluid that was piped through the lead-in wires and via window openings to their receivers. They consequently believed that if the wires were trapped when windows were closed the waves would be squashed and the music coming from their loudspeakers would be distorted.

Bearing in mind people's superstitions, their suspicion of the new and the scientific, and their desire to preserve that which was comfortable and familiar, their initial rejection of the apparatus of wireless is understandable. It must be stated, too, that irrational beliefs are by no means confined to scientifically ignorant and uneducated people. In the case of wireless, for instance, eminent scientists believed for a long time that space was filled with a hypothetical, all-pervasive, invisible and undetectable medium they called ether, which was necessary for the transmission of wireless waves. The theory provoked much speculation and controversy among nineteenth-century physicists before, and even after, the famous Michelson-Morley experiment showed that if ether existed it could not be observed. After that the theory was considered by most physicists, at best, as unnecessary and, at worst, nonsense. One of the most dedicated supporters of the rejected theory was no less an eminent scientist than the wireless pioneer Sir Oliver Lodge, who was also a dedicated spiritualist. This coupling of science with religion and philosophy, which was common among scientists of his day, possibly reinforced the conception of the mysterious nature of wireless in the popular mind.

Quite apart from these public fears of wireless which arose from misunderstanding and suspicion, the new medium did present itself as being rather odd and ethereal in the home. The trumpeting of unfamiliar voices and music from a weird apparatus must have seemed like a conjuror's trick (indeed, Neville Maskelyne, son of a famous stage illusionist, used wireless to play a joke on eminent men who had gone to the Royal Institution in London to hear the transmission of Marconi's voice, but instead heard rude comments from a competitor). Most



An early Twenties radio with a definite 'scientific' appearance, not so very different from today's 'bi-tech' look (from an original painting by Jenny Nyström).

ordinary people were at that time relatively untravelled so that the unfamiliar music and languages from far-away places to which they were now able to tune in both fascinated them and presented a sense of unreality. French voices to the accompaniment of accordion tunes, jolly German brass-bands, opera from Italy – a cacophony of sounds echoing through space to be unscrambled beside one's own cosy fireside with the aid of a strange new machine. Yet, intriguing and exciting as it appeared, the wireless set must have seemed as incongruous in the sitting-room as other Victorian inventions such as the typewriter and the telephone, and, as such, demanded appropriate treatment for domestic acceptance.

Even in the Twenties people were both practised and expert at the Victorian arts of hiding away – or at least concealing – what they considered to be the nonconformist, immoral, unseemly, unhealthy or otherwise visibly unpalatable aspects of life, such as certain bodily functions, unconventional behaviour, poverty, sickness, madness, drunkenness and the sweatshops that were the unacceptable face of industrialization. So it is scarcely surprising that they were alarmed at the sudden appearance in their decorous living-rooms of the strange

RADIO ART



*Radio disguised as a clock: the late Twenties Stentor. Swedish.
Approx. 30.4cm (12") high.*

magic boxes of wireless with their spider-webs of wire, glittering crystals and sinister knobs and levers, all reminiscent of the fearsome electrical apparatus used by Mary Shelley's Dr Frankenstein in his experiments.

Wireless presented a dilemma in the home as soon as it appeared. People were excited at the very idea of possessing apparatus which offered them the almost incredible prospect of being able to listen through space and across the globe without the miles of wire required by the telephone and the telegraph. The telephone was beginning to be accepted within the home as both useful and visually acceptable. So what could be done about the wireless? The two methods typical of the interior decorator of the times were adapted: concealment and disguise.

These techniques of making the unacceptable acceptable were old ideas brought to perfection and they were to be resurrected continuously throughout the history of wireless cabinet design. At first the natural inclination of the user, the home builder and the wireless manufacturer was to conceal the equipment in familiar items of existing household furniture. An obvious hiding place was the kitchen cupboard or the writing bureau, but soon more ingenious ideas emerged. Apparatus was concealed beneath table-tops, behind false fronts of chests of drawers, in clock cases, inside the works of wind-up cabinet gramophones

and even in the arm-rests of easy chairs. And later wireless sets actually masqueraded as pieces of furniture.

In this age of the crystal set, the early Twenties, there was also a craze for novelty receivers. Sets were constructed in imitation books, beer-bottles, teapots, doll's-houses, half-coconuts and even top-hats. There was also a craze for miniaturization which prompted nimble-fingered inventors to devise crystal sets in the form of pocket-watches, bulky finger-rings, converted tobacco-pipes and even match-boxes. All these fanciful ideas were really just the wireless fan's way of enjoying his hobby and challenging his ingenuity and constructional ability. Since these crystal receivers required earphones and a hundred feet of aerial wire to operate, they were hardly practical one-piece, self-contained sets.

In devising ways of making the technology of wireless acceptable in the home environment, amateur enthusiasts and manufacturers had very little precedent to guide them. Yet there were three pieces of technology which had entered the home fairly recently and which gave some indication as to the path of progress: the telephone, which introduced the idea of communication at a distance by means of electricity; and the music-box and gramophone, which had already been accepted as entertainment machines. All initially had been welcomed for the function they performed but rejected for their non-domestic appearance. The functional assembly of working parts, the wires and coils of the early telephone; the whirring gear-wheels and clicking pin-barrels of the music-box; and the clockwork turntables and horns of the gramophone had originally seemed like fugitives from the laboratory. So the Victorians employed their clever engineers and skilful decorators to work together to ensure they could benefit from the technology with no outrage to their artistic sensibilities. The telephone, the music-box and the gramophone had quickly undergone the processes of concealment and disguise. They were given decorative surface treatment and sculptural details; their working parts were concealed in fancy boxes, or devised in forms which allowed them to masquerade as objects of a different purpose altogether. Thus, a telephone of the



Uncle Tom Grafton china crystal sets, British made in 1924. A coil is wound on the top hat, the cat's whisker protrudes from the bow tie and the crystal is a diamond stud on the shirt-front. 22.8cm (9") high.

period might look like a classical gilt and enamel tea-caddy, a music-box could appear in the guise of a Gothic-style wall-cabinet and a gramophone might pretend to be a Jacobean commode.

At the beginning of the twentieth century the acoustic wind-up gramophone had already embarked on its evolutionary process, changing its machine-like appearance for that of a piece of furniture blending with the environment of the home. The phonograph and the disc-playing gramophone – then known as ‘talking machines’ – originally driven by turning a handle and then by clockwork, had their works exposed to view. The sound they made was either directed through a rubber tube and into an earpiece, or was directed at the listener with a trumpet or horn that also gave a degree of amplification. All this plain and purely functional apparatus must have appeared quite ugly and inappropriate in the somewhat dreary, formal Victorian sitting-room with its heavy mock-classical décor and fussy plethora of ornaments and pictures. So the machines soon began to receive the attention of the decorators of the day. They were first ornamented with gold-leaf and coloured enamels. Then the Victorians, using their immense skills in metal-casting, the decorative arts and working in fine woods, transformed the machines into objects that looked more like sculptures and fine

Right Acoustic wind-up gramophone of the very early Twenties by the London firm Mead. A crude crystal set is built into the back corner. Beside it is a device enabling the horn to double as a wireless loudspeaker and a later device enabling records to be played through a valve radio.



The Radiax/Samuel's Miniature Wireless Marvel of 1925 needed bulky earphones and a long outdoor aerial to pick up even a clove station. British. 5.8 cm x 5.7cm x 5.8cm (1½" x 2¼" x 1½").



Ornamental German telephone of 1900 in gilt, demonstrating one way in which technology was soon ‘domesticated’ so as to be acceptable in Victorian homes.





Poster designed by Jules Chéret promoting the Théâtrophone.



Théâtrophone coin-box which enabled the listener to choose from various relays from theatres.

caskets. Almost all the works were concealed, but craftsmen found it difficult to get rid of the horn (which for maximum amplification in those days before the electronic amplifier had to be as large as possible for good sound). Instead of trying to conceal it, they adorned it with embossed patterns, formed it from shiny brass and custom painted it in colours. Eventually, they managed to tuck the horn away inside the cabinet and covered it with a silk curtain or an acoustically transparent grille, a treatment which was eventually to be copied in the radio cabinet.

At about the same time as the telephone and the gramophone were beginning to be domesticated, a near precursor of the radio was going through a similar process. It was a home-entertainment invention of about 1893 known as the 'Théâtrophone', a device which grew out of the invention of the telephone and was demonstrated at the World Exhibition of Electricity in Paris in 1881. For just a few years at the start of the century, Parisians could have Théâtrophone instruments installed which actually provided home entertainment, rather than mere telephone communication, by relaying live performances from theatres. However, unlike the wireless, the Théâtrophone needed wires between the transmission apparatus and the receivers, rather than broadcasting via air waves. Microphones installed on the stages of such theatres as the Paris Opéra picked up the sounds of live performances and relayed them by wire to the



Listeners in a Paris hotel in 1893.

telephone exchange where an operator was on hand to offer a selection of programmes to subscribers renting Théâtrophone receivers. Several different programmes, relayed from various theatres, were available to subscribers who could make their own selection by revolving a switch and inserting coins into their machines to buy a fixed amount of listening time. The Théâtrophone receivers, ornamental boxes with telephone earpieces attached on trailing wires, even offered stereophonic listening by the use of a pair of microphones left and right of the stage, connected by twin lines to the home receivers. These were also installed in hotel lounges and in restaurants: furthermore, programmes could be relayed to London and Brussels via normal international telephone distribution exchanges. By 1895, Britain had its own equivalent of the French Théâtrophone. It was called the 'Electrophone' and it offered subscribers a similar service via their telephone lines and as well as receiving 'local' relays from theatres, churches and

London's Royal Opera House, they could also switch to exchange programmes from Europe via a link-up with the French company. The Théâtrophone idea might have proved a great success as an entertainment and news broadcasting medium if it had not been for the appearance of the wireless which nipped it in the bud.

The designer of the Théâtrophone must have had a similar problem to that of the designers who were faced with making the first wireless sets acceptable in the home. Their immediate solution was to incorporate the necessary technology in a highly decorative box with ornate handles – reminiscent of a large bracket-clock – which stood on an elegant miniature table, beneath which the earphones were kept on ornamental brass hooks when not in use.

As an absolutely novel idea for home entertainment, the Théâtrophone opened up an exciting vista, but as a decorative object for the sitting-room the cabinet in which it was presented to the listener was hardly innovative. Indeed it could not possibly have been so, for if the makers were to be able to persuade the fashionable Parisians who could afford such a luxury to accept the installation of a piece of ugly technology in their tasteful apartments, they would first have to disguise it as an already domesticated object. Even so, the knobs and dials, and the instructions needed for the operation of the apparatus, were boldly displayed on the cabinet. In addition to being as acceptable in its surroundings as the clock, the Théâtrophone had, at the same time, to demonstrate its novelty, so that the subscriber

could assert the kind of one-upmanship that in certain social circles indicated a taste for being au fait with the latest scientific developments as well as being artistically à la mode.

This manifestation of the art of concealment set the scene for the emergence of the style of wireless which was soon to blossom. Well into the Twenties wireless was, for most people in Britain, still the simple crystal set; for the more powerful valve sets were far too costly to be within reach of the average man. Even so, this humble apparatus, whether bought complete or as a build-it-yourself kit, was becoming increasingly sophisticated in order to provide better range and selectivity. These simple receivers had the great advantage of being cheap to run as well as to purchase. They required no batteries to energize them since they were powered entirely by the wireless waves transmitted by the broadcasting stations. But listening-in was only possible on earphones. Various add-on gadgets called crystal amplifiers, intended to step up the tiny output of a crystal set sufficiently to operate a separate horn loudspeaker, became available but were themselves expensive and did not work very well. With a long aerial-wire suspended at roof-level, and a nearby powerful transmitter tuned in at maximum, a good crystal receiver might, perhaps, operate two pairs of earphones; but if a whole family wanted to listen they had to pass the earphones round in turn. Then someone discovered that if the earphones were placed in a large kitchen bowl the small sound they emitted was slightly amplified so that several people could gather round and bend their ears in a listening circle.

It was inevitable that there would be a demand to improve this communal listening technique and it was not long before someone had the idea of attaching a funnel, or gramophone trumpet, to the earphone as a better amplifier. This led to the development of the ornamental horn loudspeaker, which was one of the most fascinating evolutionary processes in the history of radio art. Without an amplifier it was no use to crystal sets but greatly improved listening on the valve sets which soon took over. The loudspeaker was still a separate item from the rest of the wireless receiving apparatus and it usually stood beside, or on top



A tubular Brownie crystal set of 1924 with a Wilson Magnetic Bar amplifier (1925), and an Amplion Dragonfly horn loudspeaker (1924). British. Set 16.5cm (6½") high.



The art of concealment: (Left): ArtAndia china parrots on ormolu bases made by the British Royal Doulton Company c. 1927. Loudspeaker drive-units are hidden inside. (Right): a loudspeaker for children, cast in papier mâché and depicting Pip, Squeak and Wilfred from a long-running cartoon strip in the Daily Mirror. They stand about 55.5cm (14") high.



of, the cabinet containing what was then popularly referred to as the 'works'; the whole assembly, including the necessary batteries, being known as the 'set'. The loudspeakers were usually bought separately and connected up by wires. They were manufactured by specialist firms who were competing for business and who were anxious to produce attractive and distinctive designs.

Designers started out by ornamenting the trumpet which was also steadily enlarged in length and diameter to increase amplification and then further improved by the fitting of more powerful electrical drive-units. Horns were either spun in aluminium and painted, formed in polished copper by electro-deposition, or fabricated from 'petals' of mahogany or oak plywood to emulate the forms of flowers. They were further embellished with patterns, fancy knobs and figurines which were intended to give the impression that the objects were ornaments on the shelf or sideboard rather than pieces of wireless apparatus.

Some enterprising manufacturers concealed drive-units in china and papier mâché figures such as multi-coloured parrots, nursery rhyme characters, clock cases, imitation jewel-boxes and statuettes. Equally imaginative amateur makers were able to purchase commercially manufactured drive-units and fit them on to all

sorts of horns, ranging from discarded gramophone trumpets, large sea shells, kitchen bowls and even tiger heads purchased from taxidermists. Horn loudspeaker designers who did not decorate and disguise the drive-units and horns followed the lead of the gramophone-reproducer designers, choosing the option of hiding them away, by compactly coiling them like the spirals of french horns and housing them in decorative boxes.

Technical improvements to the loudspeaker which gave better quality and more volume resulted in the flatter 'cone' loudspeakers.



Loudspeaker in a shallow wooden box with a hand-painted paper cone. German, c. 1928. Approx. 50.4cm (12") square.

These new loudspeakers with their large, radiating surfaces presented different design problems but the solutions favoured by the designers were similar to those encountered with horn speakers. At first the dish-shaped sound radiators were fitted on candlestick-style pedestals and given antique gold or bronze finishes. Then pictures were painted on the cones in an effort to disguise their original forms by presenting them as oil-paintings on slightly dished canvases. The cones were also placed behind hand-embroidered tapestries, in circular picture-frames standing on little wooden easels or even behind oil-paintings on walls.

Eventually, the designers of the old-fashioned horn units, as well as those using the more up to date cone units, followed the example of the gramophone designers by abandoning the art of disguise in favour of that of concealment. They installed the whole speaker apparatus into a box which was itself beautified by covering the hole in the front first with acoustically transparent materials such as woven silk, and then with ornamental frets of wood or metal.

It was in the early Twenties while the primitive horn-type held sway – before the cone-type was developed – that somebody had the idea of cutting a circular hole in the front of the cabinet that contained the works and putting the loudspeaker inside with the bell of its horn pointing through the hole. That simple act, which in hindsight seems obvious (and had already been done in the case of the gramophone), caused the demise of the 'wireless set'. All the parts which had constituted the set – the detector-unit, the tuning components, the amplifier, the power supply and the reproducing unit – were at last assembled in one unit and inside a single container now to be known as simply 'the wireless', at least until the end of the Thirties when it would become the 'radio'.

It is almost impossible for us to imagine today the stupendous impact which wireless exerted after the First World War and into the late Twenties. People expressed the desire to 'go modern' and to make use of the important technological advances, the new-found idealism and the renewed hope for the future which had been stimulated by the war to end all wars.

They saw the end of hostilities as an opportunity to start building a brave new world of greater freedoms, improved living standards, growing internationalism, emancipation from the slavery and drudgery of Victorian industry and increasing leisure and self-improvement. Science was seen as the way ahead to such targets and its latest miracle, 'wireless', was hailed as a pathfinder; an exciting practical and even egalitarian manifestation of inventive minds which was accessible and useful to all. But in addition to these more noble virtues, wireless also brought another very welcome notion: the promise of fun and excitement after a long period of enforced austerity and seriousness of purpose.

Several important events which had occurred just before the outbreak of the First World War had brought wireless to the attention of the masses as a communicator. It played an important role in the rescue of survivors from the Titanic disaster and it was of service to the police in the arrest of the infamous murderer Crippen. Events of this kind had established the importance of the new medium but there were other wireless events, both pre-war and post-war, which impressed the public in a different way: for instance, the early experiments of tiny, low-powered amateur and commercial broadcasting stations to present wireless as an entertainment medium through the broadcasting of music and comedy. Each new station that was set up drove more people to buy receivers, despite the fact that reception was usually very difficult and the operation of receivers had not yet been simplified.

In a remarkably short space of time it seemed that almost everybody, on both sides of the Atlantic in the early Twenties, was beginning to listen in, fascinated by the entirely novel idea of plucking out of thin air the voices and music of far-off places. They had assimilated the strange technology of the gramophone into their homes and had managed to make this recently invented talking machine seem almost part of the furniture of their sitting-rooms. They were already accustomed to the idea of having phantom manifestations of famous opera-singers, music-hall artists, or even full symphony orchestras in their domestic surroundings. But the magic box of the wireless

set was much more of an aesthetic problem in the parlour. For one thing, it consisted of several different parts linked together with tangles of wire, all of them considered naked, rather ugly and possibly dangerous technical objects. And for another, it seemed to require a more or less expert, or at least experienced, operator and a good deal of patience to get anything out of it. In addition, the listeners had to gather round it wearing heavy and uncomfortable earphones rather than being able to lounge back in armchairs, as was the case with the gramophone.

Despite these drawbacks, the wireless set was welcomed into everybody's home and millions of people began to tune in, mainly adopting simple crystal sets. These were often home-built or cheap versions bought on hire-purchase because well-made, commercially manufactured receivers in fancy boxes were so expensive as to be affordable only to fairly wealthy people.

Why such a welcome and fanatical response in these circumstances? For one thing, it offered a larger variety of listening than the gramophone and was cheaper than buying records. But perhaps more importantly, the wireless offered something that the gramophone could not: instead of the canned, preserved and consequently dead recording, wireless presented a sensation of the here and now, which suggested a reality of experience that was being shared in an immediate rather than a reported or retrospective way. The listener felt he was actually taking part in a live event; eavesdropping with his personal earphones on sounds coming magically through space from parts of the world which, in those days of restricted travel, were exotic dreams. Sitting in his own parlour, the wireless traveller could visit places he had only read about: Paris, The Hague and even New York. Often it took great patience to sit into the small hours twiddling a cat's whisker of coiled wire to find a sensitive spot on a crystal, producing the faint sound of a broadcast which might only be the pip-pip of time-signals or a burst of Morse-code from a ship on the high seas. But it was a great achievement in those early days to reach a very distant station, to tune in to the sound of a foreign voice or a snatch of unfamiliar music. Whole families stayed up to listen at night,

when reception was usually better, and they would boast in the morning to their neighbours and fellow workers of their nocturnal tours through the air.

Perhaps it was the fascination and excitement of all this that made people accept the novelty in their homes. In addition, the possession of a wireless receiver, and the ability to operate it successfully, soon became a kind of social indicator. People who had sets expensively installed in custom-built pieces of furniture by up-market cabinet-making firms, considered



*An expensive British receiver of 1925 with a cabinet finished in the Chinese lacquer style which was in vogue at the time.
48.2cm × 35.5cm × 24.1cm (19" × 14" × 9½").*



The interior of a two-valve set made by Sterling Telephone and Electric Company. It could operate two pairs of earphones but was not powerful enough to drive a loudspeaker.

themselves a cut above working-class people who built their own sets from the cheap government war-surplus parts which appeared in profusion on the market after the First World War and were forced to put up with the ugliness of the equipment if they possessed no skills in the arts of its domestic integration. Moreover, the display of a wireless aerial strung from the chimney-pot of one's home suggested a special status as a technologically literate, socially aware and economically emancipated individual, although cynics suggested that people sometimes put up aerials when they in fact possessed no receivers. This visual indicator of social status was to reappear at the beginning of the age of television and again in that of satellite broadcasting.

In those days before television most ordinary people worked long hours, were poorly paid and had little leisure-time, so they made their own entertainment at home, going out to the public house, the dance-hall or the music-hall only on Friday or Saturday nights. It was common for both working-class and middle-class people to set aside a room in the house which was used only for social, entertainment and study purposes and it was in this parlour that the new wireless set was to take its place. Already established there was the gramophone, which had by then supplanted the Victorian music-box as the principal home-entertainment machine. Also disappearing were the piano, the harmonium, the concertina and the one-string fiddle, all of which, unlike the simple wireless set, were expensive to buy, could hardly be home-constructed and required learning and practice to play.

The technology of wireless accelerated at an enormous rate in the Twenties and by the beginning of the Thirties almost all the important developments had taken place (with the exceptions of the transistor and the printed circuit which were not employed until after the Second World War) and a basic, standard kind of works for receivers had evolved.

The crystal set had virtually disappeared within a few years, replaced by the more powerful and selective multi-valve set which enabled the user to tune in to many of the increasing number of broadcasting stations which were being set up throughout the world.



The 1928 British three-valve Melody Maker was sold in kit form. It could work a loudspeaker, but that was an extra. Steel cased. 22.8cm × 45cm × 24.15cm (9" × 17¾" × 9½").

The loudspeaker had been integrated with the rest of the works to give adequate volume and better tone; and the batteries were being phased out in favour of operation from mains electricity which was becoming increasingly standard in many towns. This single-unit receiver, integrated within one cabinet, had changed from being the wireless set to the entirely self-contained unit known simply as the 'wireless'.

In the Twenties, the nucleus of major wireless manufacturers, the many hundreds of small manufacturing concerns and the enthusiastic amateur builders had been primarily concerned with the functional aspects of the wireless: capability of being tuned in to stations easily, separation of one transmission from others close together on the tuning-scale, production of good volume and tone, efficient working without elaborate aerial systems and overall competitiveness with the products of rival producers.

The development of the concept of the wireless set, and its technology, was extremely rapid in the latter half of the Twenties, one improvement following another in quick succession. These were in the main improvements to its functioning rather than essays in cabinet design, for the set was still conceived as part of the furniture and not as an object in its own right.

There was an increasing demand for more

powerful and selective sets to keep pace with the rapidly expanding network of transmitting stations. Listeners wanted to be able to receive more distant stations and to have reception which was free from the competing noise of atmospherics. Manufacturers endeavoured to satisfy this demand by improving circuits and components, and amateur set-builders tried to keep up with trends by constantly modifying their home equipment. They were helped by the marketing of kit sets which enabled the less knowledgeable and unskilful constructors to make rather more sophisticated receivers than the very simple do-it-yourself home-builds of a few years previously.

During this embryonic stage of wireless development, what the general listening public wanted was good performance, if necessary concealing what might offend the eye. But by the end of the period there was a demand for presentation of the works in neat and often decorative boxes which would not be considered out of place in the average home. This phenomenon heralded the birth of the self-contained wireless which could be accepted as a normal piece of home equipment and yet not regarded as furniture. It might stand alone on table, sideboard or shelf but nevertheless would still be expected to blend in with the general décor of the room.

Meanwhile, portable battery receivers with built-in aerials and loudspeakers had been introduced, mainly to be used outdoors for picnics, motor outings and boating excursions. These, of course, were also used indoors and became second sets for the kitchen or bedroom. In addition, separate loudspeakers came into vogue again, often designed to look like familiar household objects such as jardinières and bedside table-lamps, and were used as extensions for the permanently 'plumbed-in' main receiver in the house. This spread of wireless equipment to almost every part of the household further increased its acceptance and paved the way for a change in attitude. The wireless now became as familiar an object in the home as the gramophone, the telephone, the piano, or even the clock on the mantelpiece.

Despite this domestication and familiarization, the wireless had a distinct and



British-made Selecta four-valve portable of 1929 – typical of the heavy, bulky portables intended for car picnics then in fashion.

Mahogany plywood.

45.1cm × 58.1cm × 20.5cm

(17" × 15" × 8").

very special place in the home which came from its perceived role as communicator. The case of the telephone was similar. It had passed through various stages of decorative treatment but had generally preserved an appearance which was dependent upon, or at least reflected, its essential functional purpose. Perhaps for this reason the wireless was becoming more acceptable as an object which could be honestly and openly displayed.

From the mid-Twenties to the end of the decade, wireless cabinets tended to follow the general trend of furniture design, which was hardly innovative. The currently popular styles were mock-Jacobean and mock-Tudor but these were mostly to be found in the homes of relatively wealthy people who could afford to follow fashions. The décor and furniture in most ordinary homes was very much a late-Victorian mixture of hand-me-downs. The average married couple often moved in with their parents until they were able to afford their own homes and then inherited the furniture they would be using for many years to follow. Until well into the Thirties few people would be able to acquire whole rooms full of furniture simply to be à la mode. But they could afford a wireless set and were becoming increasingly vulnerable to conditioning in ideas of fashion and lifestyle imposed by an already well-established, increasingly sophisticated and persuasive advertising industry.

Because of their economic status and their cultural conditioning, most people looked for reliability and solidity in furniture, not only because of durability but also because their concept of the ideal home was essentially one of comfort and security based on traditional values of the dependability conferred by resistance to change. Certainly the 'thoroughly

modern' age had already begun in the Twenties for the wealthy, but its philosophy of forever chasing the new and throwing away the old had not yet been adopted by the majority. Even so, people were sufficiently fired by the new age of hope that followed the First World War to take such steps into modernity as their incomes would permit. Even if they felt unable to throw out the old sideboard for a more fashionable one, they could buy a wireless set to stand upon it as a symbol of their blossoming modernity. But they still demanded that the equipment should be in an impressive wooden box, even if it was cheap softwood covered with an expensive-looking veneer; and they wanted a long guarantee, with a repairing backup, along with an assurance from the salesman that it wouldn't get out of date quickly.

The wireless set had come to be seen as an essential item by most people. They regarded it as a cheap form of entertainment compared with the pub, the cinema and the music-hall. Its importance as a provider of news had been enormously reinforced in Britain in 1926 when the General Strike deprived a news-hungry public of newspapers. All these factors helped to establish the wireless set as a vital and friendly occupant of the home and to bring it into special prominence as a separate entity that performed a unique service.

Another important reason for changes in the way the wireless set was regarded was the activity of the wireless industry itself, which followed its tremendous and rapid growth and its promise of an accelerating boom-time. With the increasing competition produced by the huge proliferation of manufacturing firms taking advantage of the new and already booming industry, individual manufacturers could see that the market for wireless sets, although not by any means saturated, might begin to dwindle unless the public could be persuaded to go on buying simply for the sake of constantly having something new. This meant that either the manufacturer must continuously come up with new products and introduce a bit of planned obsolescence to stimulate the replacement market, or go on turning out the same old product while hoodwinking the prospective customer that he was getting something new each time. Planned obsolescence worked to

some degree despite the natural conservatism of the public and its resistance, or economic inability, to follow fashion. The deception method worked, too, but only on some of the people for some of the time, and it ran the risk of denting company images when revealed. For the most part, manufacturers seem to have reached the conclusion that they had to offer something that was genuinely new in order to fight competition at home and abroad.

A serious difficulty that manufacturers encountered in their drive to maintain and increase sales was that the area of practical improvements was becoming limited. Towards the end of the Twenties many of the important technical developments in wireless design had already taken place and the design of the works of the typical wireless set of the period had virtually evolved into a concrete and standard basic form which could only then acquire elaboration and a veneer of sophistication.

In the late Twenties, the main preoccupation of both listeners and manufacturers had been that of technical improvement. To tempt prospective buyers at that time it had been enough for manufacturers to promise in their products such virtues as simplicity and economy of operation, and ability to tune in to plenty of foreign stations at good volume. But when every manufacturer was offering what appeared to be the same thing, why should anyone choose one make rather than another?

Manufacturers did indeed find that they were all offering a product that was basically similar within the price-divisions, so ways had to be found of dealing with competition. Apart from tackling this problem by reducing labour and production costs, with the intention of gaining retail price advantage, most manufacturers evidently decided that they must at least appear to offer new products. The problem remained, however, of how to improve on a product which essentially represented the state-of-the-art, such as it was at that time. The answer, of course, was a matter of cosmetics; and that was the moment in the history of wireless when it began to turn into the 'radio', a domestic object to be looked at as well as to be listened to. The novelty of listening in to the marvel of wireless

was wearing off and the apparatus was beginning to take on the role of modern decorative object and status symbol.

At first manufacturers retained the square wooden boxes which had become familiar from the mid-Twenties but used combinations of exotic wood veneers, often with contrasting appliqué or inlays of wood, metal or plastic materials which usually bore stylish logos. Loudspeaker openings were covered with decorative silks and usually framed with frets of contrasting solid materials. These frets and frames were fashioned in a variety of patterns, some resembling classical forms or in the styles of musical instruments like fiddles and lyres which suggested the function of the wireless as a provider of music. Some echoed the swirling, stylized forms of the turn-of-the-century art nouveau period, perhaps suggesting a conception of harmonious nature. Later, abstract and geometric forms appeared which may have been a restrained reflection of the burgeoning of the modern art movement. Almost at the very end of the Twenties some manufacturers began to go in for rather plain black or brown metal cases, and there were also



A 1932 walnut-cased three-valve mains receiver by the British Pye firm. 59.5cm x 40.6cm x 19cm (15½" x 16" x 7½").

a few cabinets which were made up from plastic panels imitating wood finishes, assembled in frameworks of metal. Cabinets began to appear with bakelite trims, perhaps as loudspeaker decorations or surrounds for tuning-dials. There were only very rare examples of bakelite being used for complete cabinets as early as the end of the decade and, even then, they were used only for very small sets which did not

incorporate internal loudspeakers but which could be teamed up with separate bakelite-cased loudspeakers. Control knobs and dials which had, in the very early days, been the main features on the fronts of cabinets and had later been hidden behind doors and flaps, began to be used more boldly again, but because of their decorative treatment the overt reappearance of these features did not return the wireless to its original scientific likeness.

These were subtle changes at the beginning but they paved the way for a major change in cabinet design which happened quite suddenly in the very early Thirties. It was a virtual revolution that finally established the ubiquitous household object which came to be universally known as the radio: a generic term which defined it both in terms of its function as a wireless-reception device and its form as a unique decorative object to be found in almost every household in the world. Again, it was primarily commercial considerations and not the aesthetic aspirations of designers which gave the impetus for the dramatic change in cabinet designs of the Thirties.

The input of certain important designers was, of course, a significant factor but only, perhaps, a secondary one. Indeed, the effect of this factor has often been over-emphasized. It would be untrue to assert that things changed simply because designers had a yearning for something more innovative and appealing in an area of domestic equipment which had become visually repetitive and moribund. The motivational force for change came from the manufacturers themselves who, by the early Thirties, had begun to coalesce from a somewhat amorphous assortment of small or medium-sized independent firms, into a well-established and profitable industry consisting mainly of a few major companies.

By this time, the technology of wireless, in the hands of the larger companies, had advanced and the important innovations had already been incorporated in a practically uniform type of works known as the 'superhet' which would be repeated by the major firms for some time to come. This more or less standard model was to be varied by omissions or additions of parts and also modifications to basic cabinet design to provide both down-

market and up-market models.

Demand up to that point had been for increasingly better performance from receivers, but when an acceptable standard model had been achieved and adopted by most of the manufacturers, they began to face the same kind of problem they had encountered at an earlier period. It was becoming more difficult for them to sell in an increasingly competitive market, for they were all offering much the same thing to the public. Unable to gain further marketing advantage from technical innovations, therefore, individual manufacturers realized that some kind of dramatic repackaging of the standard receiver could make it appear more impressive and attractive to the customer. Major manufacturers, with their ability to invest in larger-scale production facilities, were now beginning to employ Fordist mass-production methods. Mechanization had already resulted in less labour-intensive, and more precise and uniform, works assemblies. But these were not always mechanically compatible with the old-fashioned wooden cabinets in which they had to be fitted, because wood is an unstable material compared with metal and is difficult to manufacture to exact dimensions.

These traditional containers were an anomaly in an industry which was becoming ever more modernized, being produced in the main by smallish independent firms of cabinet-makers sub-contracting to a wireless industry which was becoming increasingly large, polarized, mechanized and automated. It required only cheap and virtually unskilled work-forces motivated by a highly paid nucleus of managers and machine-setters. Conversely, the cabinet-making firms required more expensive skilled workers whose production was necessarily slower because of rudimentary mechanization. Moreover, because of the variable quality and lack of stability of natural wood materials, they could not consistently turn out cabinets with the exactness required to match the mostly metal, warp-free, rigid and robust factory-precision works that were to go in them.

For these reasons manufacturers, having completed the task of producing standard receiver units in the early Thirties, were bent on competing with one another in a kind of cosmetic war and strove to cut costs and

maximize profit. They turned their attention to the problem of producing cabinets to match the functional units that were to be fitted into them in factory production-lines rather than by hand in relatively unorganized small workshops. It was obvious that the time had come for the comparatively new wireless industry to begin adopting methods suited to its increasing scope and size in order to satisfy an ever-growing market. As in the case of enterprises that had already grown up in a modern age, the wireless industry was now being forced to abandon natural materials which were unsuitable for mass-production methods, in favour of alternative and more suitable materials.

Man-made plywood was one of the alternative materials which offered better structural stability and lent itself to being formed into shapes that would have been expensive and even impossible in solid wood; but the shaped panels needed to be made up in multiple sections, which then required assembly, and all this added to the cost of production. Furthermore, even the ability of plywood to be formed into special shapes in hot-steam presses was limited so that the artistic aspirations of the designer were to a great extent controlled by the nature of his material.

A few manufacturers who experimented with the idea of using metal as a cabinet material only appear to have produced unimaginative, squarish boxes despite the examples of complex structural metal forms which the



*A three-valve battery receiver made in 1933 by a British battery company which used Britannia as its logo.
45.7cm × 50.8cm × 25.4cm (18" × 20" × 10").*

automobile industry had already shown were possible. Most cabinet designers rejected metal as a material, perhaps because it was thought unsuitable in a domestic environment, but most likely because of the high cost of the production processes involved. In addition, cabinets formed from either metal or the man-made wood derivatives could not be considered complete unless they were given a finish of paint, polish or glued-on fabric which further added to production costs. What was needed was a material which would enable factories to stamp out cabinets as they did small engineering parts, or to turn them out like jellies from a mould, complete and ready-finished, rapidly and in large volume.

Plastics seemed the answer and such materials were by no means new. Various forms, like the vulcanized rubber ebonite which imitated ebony-wood, the attractive but dangerously inflammable celluloid and the early fibre and glue-based papier mâché were already used in wireless manufacture for relatively small parts. They were generally unsuitable for moulding into shapes as large and rigid as those required for wireless cabinets. The one material which at that time seemed to offer the best prospects was bakelite, a synthetic moulding material invented as early as 1907 which, again, had been used mainly for making fairly small objects but was tough, rigid and stable enough to be employed for much larger things if attention was given to the special design requirements it imposed.

It was not long before several companies, particularly those already using small bakelite trims such as dial and speaker surrounds, began to investigate the possibility of housing their sets in one-piece cabinets of the same material. Such pioneers were in the minority, however, for several reasons. For one thing, there were, at that time, no bakelite moulding plants in Britain which could have taken on the manufacture of such large objects, and to set up such factories was probably seen to require too enormous an investment, especially for an idea that might prove to be an expensive gamble. For the same reason, the alternative of commissioning and importing new cabinet designs from existing bakelite factories in Europe was also considered too expensive an exercise.

Similarly, there was already a general

resistance on the part of the public to things made of plastic. This resistance had a long history and came from a feeling among consumers that such materials were merely cheap substitutes for the real thing, as indeed they had been originally. Take, for example, the fake ivory and mock ebony used for keys on cheap pianos, the simulated tortoiseshell used for toiletry articles and the many imitations of gold, silver and precious stones which have abounded since early times. Both the aspiring middle-class, and the increasingly affluent working-class following the Industrial Revolution, were seeking to demonstrate their improving lifestyles and to raise their social status. This provoked an increasing rejection of commodities that were seen to be indicators of low-class origin and social position.

The modern movement in art, which was becoming established just after the First World War, was beginning to influence the design of household objects and to change traditional ideas about the use of materials but such ideas were for some time the province of a cultural élite who were wealthy enough to be able to keep abreast of fashions. These sophisticated social dilettantes of the early Thirties, who were conscious of the current trends in fashionable art and design houses in Europe, may have been impressed with what was being done with new man-made materials, but more ordinary people, while professing an increasing interest in modernity, apparently reacted to the new ideas with amusement and even ridicule, as



*The British 1936 Philips five-valve Model 795A had a single control-knob which operated like a joystick.
45.1cm × 55.8cm × 27.9cm (17" × 22" × 11").*



Contrasting veneers transformed the plain, squareish box of this 1955 British Linsen Model 8039 four-valver into a piece of modern art. 25.4cm x 55.8cm x 22.8cm (10" x 22" x 9").

they did to the works of such artists as Picasso. Expensive shops offered a small selection of custom-made items to a few fashion-conscious clients but the general taste in domestic furnishings was then deeply conservative. People often regarded the substitution of new materials for old with suspicion and distrust; for whilst they welcomed the increased access to a larger range of commodities which mass-production gave them, they feared it might mean a deterioration in quality and durability. These suspicions were reinforced by the shoddy products which had been issuing from cheap-labour, mass-production factories abroad.

In the case of the wireless cabinet, most people looked for a good solid box of real wood (which they considered gave a warmer tone than plastic), with a hand-made, one-off appearance confirming their traditional ideas of what was real, tasteful, British and best. What they did not want was an article which appeared to be obviously machine-made and that either smacked of imitation or gave the impression of a crazy piece of modern art. At the same time, they wanted their ideal wireless to be affordable, since it was now regarded as an essential piece of domestic equipment rather than a toy for father to play with.

Despite these real and apparent contradictions to progress, a few pioneers went ahead with their plans to go over to bakelite. Meanwhile, most of the other companies set about making a virtue of necessity and continued the practice of tarding up their wooden cabinets. They extolled the qualities

they perceived them to possess – such as the ‘warmth and beauty of real wood’ – while at the same time making production economies to increase profits and gain marketing advantage with competitive prices.

Most manufacturers at that time relied on outside firms of traditional cabinet-makers who tended to deliver a limited range of well-established popular styles which could be given minor cosmetic changes to freshen them up continually, or to follow new fashions as they appeared and present them in the kind of toned-down form which they knew would be accepted by the majority of potential buyers. This policy ensured safe but unadventurous designs in the main, but even with these restrictions, some manufacturers did introduce innovations.

Among the more progressive manufacturers in Britain opting for the modern style was Frank Murphy who decided to call in professional designers of repute to help him with his cabinet problems. Whilst pioneering styles that were at that time avant-garde, he nevertheless insisted that they should be made from wood; so he was, in an oddly contradictory way, resisting progress towards the eventual one-piece plastic cabinet that would be instantly recognizable as a radio rather than just another piece of sitting-room furniture.

Murphy liked the idea of cabinets that were tasteful pieces of furniture which would take a natural place in the sitting-room. He was also aware of the symbolism of the cabinet, which by then had become an indicator of taste and social position. But although he aimed for novelty, he had no desire to create objects that would assault the eye or seem alien in the home. He sought the advice of a journal called *The Cabinet Maker* and was eventually referred to the celebrated designer Gordon Russell who had a workshop turning out high quality modern furniture of good taste which was sold mainly in exclusive London stores. For Murphy, Gordon Russell and his brother, Dick, produced a range of plain but simple and elegant modern cabinets in choice, unstained real-wood veneers that were quite distinct from everything else on the market. They were undeniably pieces of furniture, but at the same time were clearly recognizable as radios. Given the popular taste



Designed by R.D. Russell in 1952 for Murphy Radio in plywood with walnut finish, the eight-valve mains Model A8 reflected new geometrical art forms. 50.4cm × 60.9cm × 55cm (12" × 24" × 15"); plus table.

of the time for rich, dark colours and much ornamentation, the new styles were not immediately liked by dealers nor the general public; but the receivers performed well and sounded better than many others on the market. So they eventually began to sell with the help of a strong promotional campaign. The experiment forged an unprecedented partnership between manufacturer and professional designer which continued successfully for many years, having a profound effect on radio cabinet design for years to come.

Attempts of this kind to rethink entirely the design of the standard wooden cabinet were taken up by an increasing number of manufacturers. What had been regarded almost as an afterthought, and as simply a decorative container, now emerged as an integral part of the entire design project, to be dealt with at an early stage of development. Indeed, there are indications that in some cases the cabinet design came first and the innards of the set had to be modified to suit, rather than the other way round.

The appearance of cabinets was now cleaner; their separate features giving the impression of having been planned and integrated rather than added to a box by way of extra decoration. Manufacturers began to think in terms of general shapes rather than being preoccupied by surface detail. Highly decorative loudspeaker grilles in distinctive designs ranging from neo-art nouveau to arts and crafts styles, which had been used by individual manufacturers as badges of identity, began to be replaced by simple square or circular apertures incorporating geometric or abstract designs. Prominent monograms and trademarks were reduced to discreet name badges, and control-knobs were blended into the general design. This new philosophy, together with the employment of consultants and the continuing popularity of wood with buyers, enabled the wooden cabinet to fight the competition from plastic-cased sets and to survive not only until the Second World War but even for a time afterwards.

Yet, as this rescue operation was going on, the plastics revolution, which had already occurred in other industries, was gaining ground in the radio industry. Plastic had been used for some time for component parts and even for very small receivers. Soon, complete cabinets made from bakelite and assembled from flexible plastic laminate began to appear. However, these were not usually very innovative in style, for instead of taking advantage of the wonderful new moulding properties and colour possibilities of the material, designers seemed intent merely on using it as a substitute material. They therefore turned out cabinets which might just as well have been made of wood, even attempting to simulate the currently popular mottled dark walnut finish by mixing brown pigments into the moulding materials. In this way they hoped to make bakelite acceptable despite public prejudice against plastics.

The real revolution in plastic cabinets arrived quite suddenly when a few imaginative designers abandoned their notion of plastics as substitute materials and began to exploit their advantages and to use them honestly as attractive materials in their own right. Such radical change also meant the abandonment of

the long-cherished notion of the radio as a piece of furniture. But what did that mean in practice? If a radio was not just an item of furniture that happened to house a piece of technology, then what was it? Forced to a complete rethink, the designers of the day must have set themselves the question: 'What should a radio look like?'

Even at the beginning of the Thirties when the bakelite revolution in the industry was about to erupt, the wireless was still a relatively new and unique object in the home for which there was no precedent. Certainly the public were becoming accustomed to the new idea of an all-electric home because of the rapidly developing national programme of mains electricity. But the new electrical appliances were simply electrified versions of familiar domestic objects like cookers, curling-tongs, heaters, flat-irons and carpet-sweepers. The radio, although recently converted from battery to mains operation, was not at all like those other appliances, and there was no pre-existing object with anything like the same function which could be used as a pattern for its presentation in the home.

A more apposite question for designers might have been: 'What does a wireless look like in basic form?' The answer to the question in those days, and to some extent even today, was that functional requirements – largely electronic considerations – determine the appearance of the works.

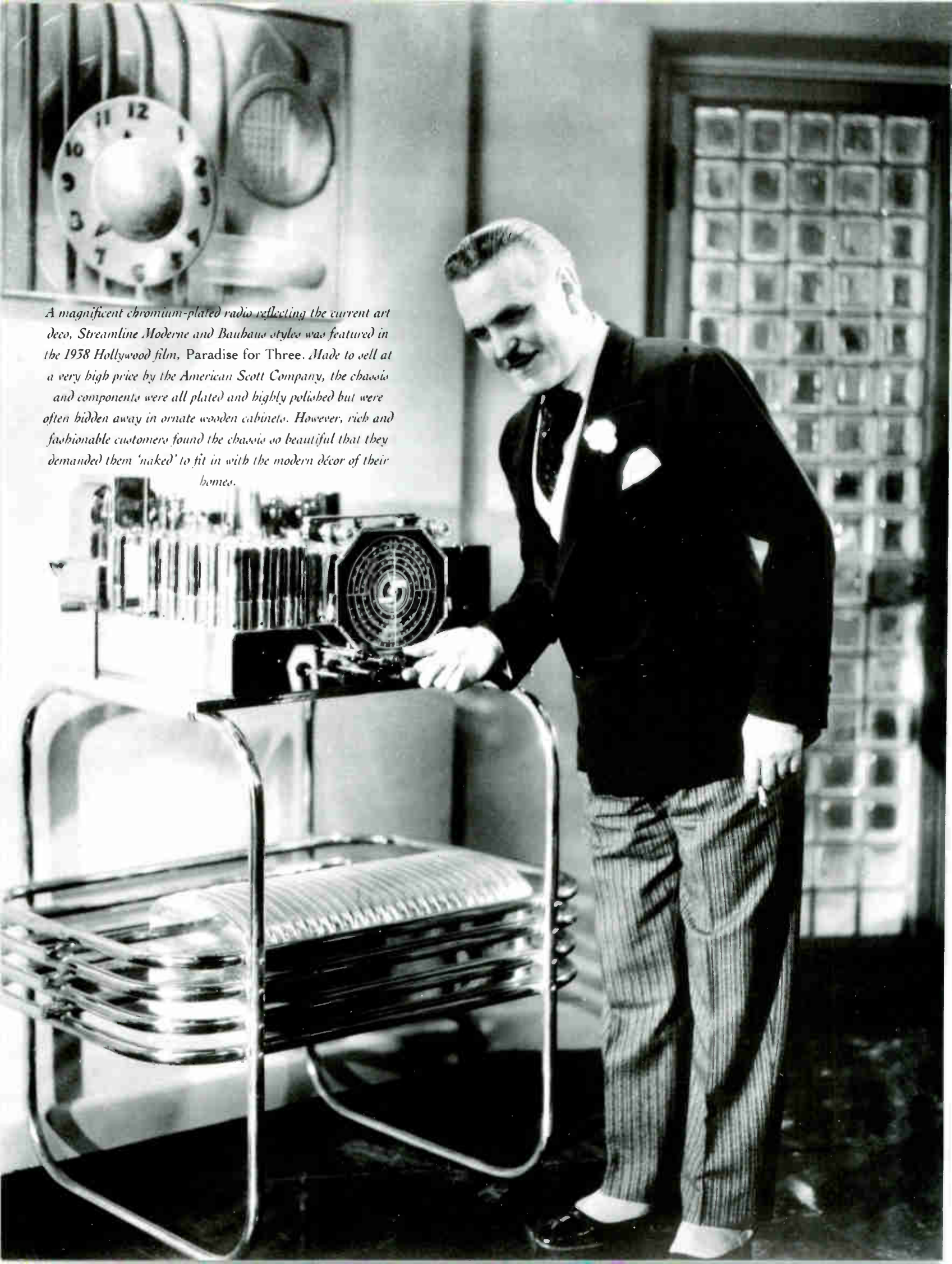
By this time these works had become complex and the crude methods of construction used in the early days had been abandoned. The old form of assembly had been merely to screw down a few individual components to a wooden baseboard and an ebonite front-panel and then slide the assembly into a cabinet. But by the beginning of the Thirties, the advance in technology had enormously multiplied the number of components needed and these were now mounted on a metal chassis so that the assembly looked like an inverted tray on which were mounted various metal objects and projecting spindles with control-knobs. These chassis were complete in themselves as receivers and simply needed plugging into the mains to work; but such naked technology

would have been considered unsightly and dangerous to have exposed in the home. Despite this, there were a few attempts to market the bare chassis; a simple and revolutionary solution to the problem of what a radio should look like. At least one company – an American one – marketed a huge and impressive cabinet-less receiver all plated with gleaming chromium, perhaps inspired by the design philosophy of the Bauhaus or the futurist art deco fashion style popularized by films like Fritz Lang's *Metropolis*. Even so, most of these beautiful bare radios were fitted into period cabinets. There was a smaller, but still impressive British version that was installed in a cabinet with a plate glass back so that people could admire it.

The bizarre option of solving the cabinet problem by throwing the thing away altogether was, of course, open only to the extremely adventurous manufacturer with a captive market for gimmickry. The majority of large manufacturers aimed at the mass market and were not disposed to risk expensive gambles.

The actual functional unit of the radio has no real character of its own except as a device for receiving broadcasts; any appeal it has to the senses results only from the sounds it conveys to the listener who defines his radio in reference to these. Thus, different listeners may perceive their sets as having personalities that appear to coincide with their preferred listening material. A serious-minded listener might regard his radio as an information source, while a less serious one might look upon the same set as an entertainer. This fact must have been recognized in the very early days of wireless designs when loudspeakers were occasionally fitted into violin cases, or decorated with lyre patterns, in an attempt to present the wireless as a musical instrument. This solution may have been suitable as far as it went but since it suggested only classical music, it might not, for instance, have been a good seller in jazz circles. Worse still, such attempts to match the appearance of the wireless to its sound output became more and more impossible as the rapidly proliferating broadcasting stations went in for an increasing variety of programmes. They relayed almost every activity from boxing and horse-racing to plays and political debates,

A magnificent chromium-plated radio reflecting the current art deco, Streamline Moderne and Bauhaus styles was featured in the 1938 Hollywood film, Paradise for Three. Made to sell at a very high price by the American Scott Company, the chassis and components were all plated and highly polished but were often hidden away in ornate wooden cabinets. However, rich and fashionable customers found the chassis so beautiful that they demanded them 'naked' to fit in with the modern décor of their homes.



as well as the already well-established fare of news, dance-band music and religious broadcasting.

In addition, the whole tenor of broadcasting material had been subtly changing, largely due to public pressure. In Britain, for instance, the British Broadcasting Company, and the public corporation which succeeded it, had a policy which gave emphasis to educating and morally uplifting listeners, rather than merely entertaining them. This policy was consistently under attack. An indicator of the change was the altering appearance of the wireless from a dignified piece of furniture into something more informal and even rather jazzy. In the Twenties this design evolution began with slavish copying of the currently popular recycled furniture designs. Then followed a period of representational art in the form of pictorial fretwork designs, leading to a phase of symbolism which began in the Thirties. Thus, the mid-Twenties wireless installed in a Queen Anne cabinet, or one in the form of a Gothic arch, gave way to a box with a loudspeaker fret depicting willows by a riverbank and, finally, to one with a prominent lightning-flash symbolizing aerial communication.

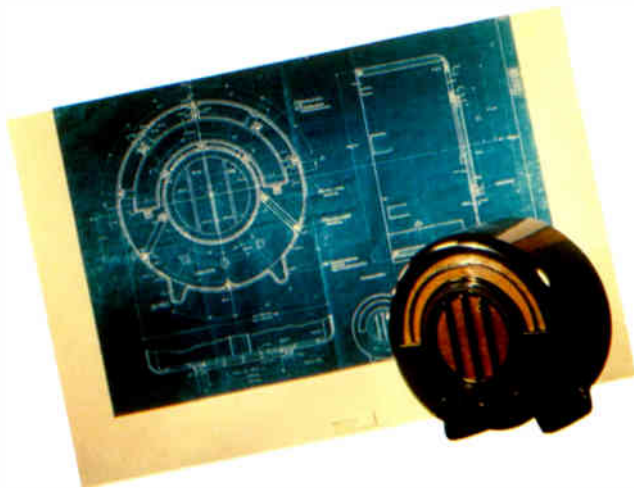
It was this growing element of symbolism which influenced the more innovative designers of the Thirties, as well as their interest in, and mastery of, new materials. They enabled some of the more enterprising manufacturers to begin to present their merchandise in a new way, and to alter the attitudes of the potential buyer to it.

Certainly symbolism appears to have been an important motivation for the major designers who led the way to all-plastic cabinets in the Thirties. Some of these designers were already held in high repute among the avant-garde of the furniture design industry, and others had similar distinctions in the field of architecture. They came to wireless design with new ideas. Two such important British innovators of the period were Serge Chermayeff and Wells Coates whose cabinet designs for the Ekco company – the first to produce all-mains receivers on a large scale in Britain – were the prototypes for most of the trail-blazing designs that followed.

The Ekco firm (E. K. Cole) were one of the first manufacturers to go over to bakelite, but their first cabinets using the material were of

rather old-fashioned shapes that could just as well have been made in wood. They were therefore seen by the public as inferior and consequently gained little popularity. Initially, the company imported cabinets from Germany but they soon set up their own plant and ran a competition for the design of a new set. It was won by Coates and resulted in the production of the remarkable AD65 receiver which was far ahead of its time. The first completely circular radio, it would have been practically impossible to make in wood, and the design fully exploited the special properties of plastics to produce strikingly original shapes. The cabinet, moulded in jet-black bakelite with chromium knobs and trim, resembled no known piece of furniture in form. Instead of emulating a piece of hand-made craftsmanship, it looked like a factory product; a piece of precision engineering with a mechanical purpose implied by its appearance. In this receiver the loudspeaker opening was completely unadorned, instead of being disguised or decorated; the indicator-dial was made to occupy almost half the total frontal area and bore the names of broadcasting stations worldwide; and the large tuning-controls were boldly presented as obvious operating-knobs. Looking like one huge tuning-dial, this pioneering radio seemed to symbolize worldwide electronic communication. Its stark, mechanical, functional and futurist look was in tune with a period marked by enthusiasm for the anticipated benefits of a Machine Age. For the first time since its original entry into the home as an undisguised scientific toy, the radio was now being presented for what it really was: a machine for entertainment and enlightenment.

For all its obvious symbolism on the one hand and its honesty on the other, this celebrated radio, like others that followed, can nevertheless be seen as having been heavily influenced by the art deco movement which was becoming increasingly popular. Another influence was the famous Bauhaus design school which attempted solutions to the aesthetic and practical design problems created by increasing machine production seen as a threat to craftsmanship. The Bauhaus school, founded by the architect Walter Gropius in Germany just after the First World War and



Wells Coates's trendsetting British Ekco AD65. 58.1cm (15") diameter × 20.5cm (8").

attracting artists such as Klee and Kandinsky, had a lasting effect on all design and was closed in 1933 by the Nazis at just about the time Coates's famous circular radio was produced.

Because it was ahead of its time this remarkable radio by no means instantly changed radio cabinet design in general; nor did the bold experiment in the use of plastics oust the decorative wooden cabinet for many years. Coates's black and chromium creation appealed mostly to the culturally sophisticated and sold in the kind of quantities that its mass-production origins were able to deliver. Ironically, a cheaper version moulded in simulated brown walnut bakelite sold much better. Did even the most adventurous among unsophisticated buyers get cold feet and plump for the old furniture look, despite their resistance to plastic imitations? The radio had already become the most sophisticated piece of equipment in the home, and one of the most important. Now, in visual terms, it had become the most modern too. The new-look radios must have stood out dramatically; while most people may have accepted the sensational shapes of things to come in a household object – which could now be allowed to stand alone as a unique necessity – perhaps they thought it needed a little cosmetic treatment. Coates commented that a radio should never be disguised as something else.

Ekco went on with their promotion of modern-looking cabinets in bakelite throughout the Thirties, followed by many other firms. Even so, cabinets veneered with beautiful and exotic woods and with applied decoration

continued to be in demand. Some manufacturers made tentative attempts to incorporate contemporary art forms such as cubism. Some adopted the art deco look which was becoming increasingly popular and even made a chaotic mix with surviving echoes of art nouveau. There were even some reactionary designers who tried to emulate the more complex shapes possible with bakelite by using a process of building up in layers of solid wood, or by bending plywood in steam-presses. Such experiments were, however, short-lived and, generally speaking, cabinets became progressively plainer until the outbreak of the Second World War stopped production altogether. Then only a Utility Set in a cheap, plain box made from packing-case wood, which hardly merited the title cabinet, was produced under conditions of shortage and austerity by a large number of government-appointed manufacturers.

What brightened up the British radio scene just before the war was the appearance, in small numbers from America, of midget radios which were usually described as second sets because they were not intended as a replacement for the main receiver in the sitting-room of a home but for use in the kitchen or bedroom. The Americans had already established the idea with an advertising campaign entitled 'A radio in every room!' The typical British household of that period, however, had just one centrally placed mains set, perhaps with extension-speakers that broadcast to other rooms. They may have had an extra battery-powered receiver mostly intended for out-of-doors use but which would seldom have been used indoors due to the expense of battery replacements.

The newly imported American midgets came mainly in neat, horizontal wood and bakelite cases of clean-cut designs, although some were more old-fashioned. The fronts were almost entirely taken up with a combination of a large, clear dial and a louvred speaker grille of more or less matching size and shape and were seen to be very attractive. They were copied in a limited way in Britain in the late Thirties although, at that time, Britons seemed to prefer the wooden ones – perhaps because plastics still had connotations of the cheap substitute. But some manufacturers went ahead with designs

that began to make use of alternative plastic materials which made possible brighter colours than the generally rather dull opaque blacks, browns, dark reds and greens obtainable with bakelite moulding materials.

If these first, rather restrained, examples of American Thirties modernism were a shock to a rather staid British public whose taste in domestic objects was generally thought conservative, they had bigger shocks to come. Suddenly they were assaulted with the most eye-catching selection of radios ever produced, all in bright, candy-coloured plastic cabinets that made them look more like children's toys, or gaudy ornaments, than boxes to house electronic technology. In modern times these small sets, produced for a comparatively short period, have become the rare and valuable jewels of a period which many collectors and students of industrial art regard as the artistic culmination of the golden age of cabinet design.

What gave new life to these radios was the use of plastic materials entirely new to radio but widely used from the late Twenties to make enormously popular costume jewellery, fancy boxes, tableware and all sorts of other decorative items. These special materials had been suitable only for casting small objects, but now that radios had become midgets, their use for cabinets became feasible. The material used

for the most attractive of the American sets, available shortly before and after the Second World War, was called catalin – often confused with bakelite, which was a trade name that became a generic term for a group of plastic moulding materials. Bakelite comes as a powder which is mixed with colour and filler material and then formed in moulds under tremendous heat and pressure, producing castings which are necessarily in dull colours that are quite opaque. By contrast, plastics like catalin begin as translucent liquids which are poured into moulds by hand, allowed to set and then individually hand-polished to a very high gloss. Although they might have looked like products of the Machine Age, the sets were actually little works of art – no two of them exactly alike. They were produced by skilled craftsmen who could create marvellous marbled and mottled effects of jewel-like transparency, in a myriad of startlingly bright colours, by adding dyes of rainbow colours into the casting mix and swirling it into abstract patterns before pouring. The individuality of each cabinet was further enhanced by the technique of casting it in sections of contrasting or complementary colours that could be clipped together. This trick also enabled manufacturers to create many different variations on a basic theme, a cheap way to keep up with fashion trends and to offer the potential customer a range of choices while getting the same radio each time; a neat variation of Henry Ford's offer, 'You can have any colour you like so long as it's black'.

These classic little radios represented the high point in the history of radio art; a chapter never likely to be repeated. They were industrial objects possible only in a situation where the economics of production allow the employment of skilled craftspeople using outdated techniques and their individual artistic input.

Art historians would probably place the design of these radios in the late American art deco period, although that has come to be a vague classification with many offshoots. The umbrella term 'art deco' seems first to have been used after a 1966 Paris exhibition called *Les Années '25* which recalled the 1925 *Exposition Internationale des Arts Décoratifs et Industriels Modernes*. Many art historians



Britain's Wartime Utility Set of 1944 was produced to a cheap, standard design under government direction. Mains. 54.2cm x 50.4cm x 16.5cm (15½" x 12" x 6½").

would trace its origins back much further, at least to the jazzy, geometric and almost mechanical patterns and dazzling colours of the Bakst designs for Diaghilev's Ballets Russes, which shocked Paris and threatened the supremacy of the earlier, and then well established, art nouveau period with its subtle, stylized nature forms. In addition, cubism, constructivism, functionalism and several other art-forms, including even kitsch, which seem to have a flavour of the Machine Age, have somehow got lumped in with the popular idea of art deco, or its later derivative 'deco'.

It would be possible to see many of these influences in the design of American radios of the late Thirties and Forties and in the British and continental designs that followed soon after them, but the clearest and most obvious influences on these cabinets came from two rather unexpected sources: the automobile and aeronautical industries. These industries, like huge engines of modernity, gave practical expression to a dream-like ambition on the part of ordinary people to participate in a grand plan to drive technology to new limits. Their products became symbols of that desire for a romantic adventure into a happier and more affluent future, free from the drudgery of hard manual work, which seemed to be the promise of the Machine Age. Radios practically assumed the shapes of the cars and planes of the period and took off into a fantasy of the future which was already being portrayed by magically endowed and space-travelling heroes in cartoon comics.

The new cabinets came first in shades of stark white and creamy ivory which were certainly a change from the common black and walnut-coloured ones, but it was the innovatory shapes that gave their appearance such tremendous impact. In some cases the old square box, so solidly at rest, was suddenly given a sense of lurching movement by being knocked drunkenly out of shape. Then its straight lines changed to sweeping curves, often wing-like and ascending, suggesting that the radio was no longer content simply to sit on a table but was about to take off like Dan Dare's spaceship. Next it sprouted a large, brightly illuminated, glass-encased circular dial, looking rather like a car speedometer or a headlight; and a huge



This 1940 American Emerson Patriot main radio was hand cast in bright, translucent Catalin plastic. 18.4cm × 27.1cm × 15.4cm (7¼" × 10⅞" × 5⅝").



The design of this 1940 Addison was influenced by the architecture of Egyptian and Mayan temples discovered in the twenties. Maino. 22.1cm × 50.4cm × 17.7cm (8¾" × 12" × 7").



The 1957 cast plastic American Emerson Cathedral, was also known as the Tombstone. Maino. 25.4cm × 18.5cm × 12.9cm (10" × 7⅝" × 5⅞").

flashy loudspeaker grille as if to confirm the completeness of its aeronautical and automobile iconography. Had such features not been so obviously appropriated from those industries, these stylistic tricks might have been mistaken for a sort of ornamental functionalism, for the prominently displayed controls and imposing dials with moving pointers marked the sets out unmistakably as radio receivers. Yet the impression of movement and speed suggested by the styling was entirely inappropriate to the real purpose of the object, although it had much to do with its function as a symbol. For instance, one of the most dominant stylistic clichés of the period, that of streamlining sharp lines and angles with smooth curves and tapers to form bullet and teardrop shapes, was a device appropriated from aeronautical experiments. These established that such forms were faster because they offered less wind-resistance; but who save the most infuriated listener would want to use a radio as a projectile?

Quite apart from their symbolic significance, there was practical industrial common sense behind the adoption of these new curved and flowing forms. Firstly, they were appropriate to the use of plastics because, as in nature's example of the egg-shell, curved forms can be made stronger and thinner than straight or angular ones and with a useful economy of material. Secondly, moulding material flows more easily into curved moulds and the cast objects come out more easily. (Whoever saw a sharp-cornered jelly mould?)

Yet another reason for the adoption of extreme styles was the advance of consumerism, which demands continual increase in consumption – an ethic which ushered in The Throwaway Age. In the Thirties almost everyone had a radio. If saturation point was not to be reached, with consequent threat to the continued expansion of the radio industry, ways had to be found of encouraging the consumer to continue buying. One was to promote the idea of having a set for every room and another was to introduce a measure of planned obsolescence by following often extreme trends of style in the hope that new designs would rapidly go out of fashion. Coupled with these ploys was the

encouragement given to the throwaway philosophy by the cutting of prices to the public, which resulted from lower production costs of plastic radios compared with wooden ones, and higher-volume production provoked by aggressive sales promotion.

These new-style radios were hardly the sort of objects that could be expected to blend in with the furniture of the average living-room and to give forth news and soothing music. Instead, they seemed to scream out for attention as objects to be looked at as well as listened to. Indeed, they sometimes gave the impression that they were either miniaturized automobiles driving straight at you, or crazy juke-box automata bent on setting you dancing.

Such radios appeared in Britain only in small numbers, creating quite an impression with the modern-minded. But the flamboyant excesses of styling were received by ordinary people with the kind of sniggering derision often reserved for avant-garde art. Their appearance seemed to have only a delayed and limited effect on British radio designers who translated the style in a generally diluted form.

Whatever else these radios represented, they certainly had nothing to do with furniture. They were stylistically representative of the machine aesthetic. Perhaps the radio cabinet – now very much a fashion object – had, in the wake of burgeoning consumerism, finally lost its identity as a decorative and functional container. Perhaps it had actually become merely a package as eye-catching and persuasive as a soap-powder packet, intended to give a phoney image to a basically unremarkable product.



The 1947 Sonora Excellence 301, designed in the USA for the French market, looks like a big American car. Mains. 26.6cm x 45.7cm x 22.8cm (10½" x 18" x 9").

Many people consider that the beginning of the Second World War marked the real end of the development of the radio cabinet as a work of art, for the radio was forced to change its role dramatically. Since television broadcasting had closed down, radio was the essential and immediate medium, reporting good and bad news of the hostilities, being a mouthpiece for leaders and keeping up the morale of listeners. The old-fashioned radios which people kept going in this time of shortage were a reminder of cosier and more peaceful times. They would have seemed more appropriately serious compared to the flippant and escapist character of the more modern styles.

Despite the reappearance of pre-war progressive plastic designs for a while after the war and even some innovation, there was still a general demand for more traditional wooden cabinets. They were updated in a restrained sort of way, some being quite large and powerful and boasting several loudspeakers for better sound reproduction. Meanwhile the industry began concentrating on the huge new growth area of television, which would soon push the radio into the background as an object to be heard and not seen, and gloom merchants were predicting the imminent death of sound broadcasting.

The radio had also begun to be relegated simply to the role of a tuner unit to be added to a hi-fi sound system that would also reproduce gramophone records and, later, reel-to-reel and cassette tape recordings. In this role it needed no cabinet save a plain metal box with a row of knobs along the front panel.

However, one area of growth which had begun to develop just before the war was now about to blossom: the role of the radio as a go-anywhere portable. It could be used in the kitchen, bedroom, nursery or garden; at the picnic, the office, or even as a travelling companion. Developing technology had already enabled the works to be very much reduced in size, so that quite neat little radios with good performance began to appear. Some of them, in the guise of jewel-cases or handbags, took advantage of a new women's market which manufacturers perceived. Many other sets were got up in fancy livery ranging from plastic in almost pop art colours to real mink and

leopard-skin, to woo the new and increasingly affluent post-war, boom-time market represented by mobile young followers of fashion who wanted music on the move.

The great disadvantage of these new portables, however, was that since they used the old-fashioned thermionic valve, their battery consumption was heavy and they were consequently very expensive to run. But this problem was to be solved in a very short time by a sudden leap in technology, the most important since the invention of the valve fifty years before. The arrival of the tiny transistor marked the final demise of the radio as it had been known for so long. The pioneering transistor and the microchips which evolved from it, together with printed-circuit technology and miniaturization techniques, brought radio devices down to such a small size that the only cabinets they required were tiny plastic cases. Fitted into cabinets of the kind of size that had been common for valve radios, these units looked rather silly and caused people to remark, 'There's hardly any works!' The first really small transistor receivers, which were imported from the Far East into Britain, were somewhat gaudy trinkets often presented in plush-lined boxes that looked like jewel-cases. Eventually the radio unit even came down to the size of a credit-card that could fit easily into the pocket of a filofax, neatly demonstrating the marvel of modern technology and the social status of the purchaser at the same time.

Increasing automation in industry, the home and almost every other sphere of life, the arrival of the computer and the accelerating Space Race, all helped to promote among a large part of the population a tremendous new enthusiasm for science and technology which was rapidly exploited by industries seeking to market new electronic products. To be trendy, it would soon be necessary to be, or at least to appear to be, technologically literate. When even quite young children began to demonstrate their ability to operate, and apparently to understand, sophisticated devices like computers, their parents were impelled to keep up with them. They dutifully spent their money on games machines, having been persuaded to believe they were advancing the



The latest in postmodern loudspeakers: Morten V. Warren's Emphasis in fibreglass, cast iron and brass, produced by Be3W Loudspeakers in Britain, harks back to the horn designs of the early Twenties and appears to use similar acoustic principles to produce good bass. 140cm (55") high.

education of their offspring.

In the case of the radio, now often incorporated in hi-fi systems of apparently enormous complexity, the illusion was given that an impressive technical knowledge was necessary for the proper adjustment of a bewildering array of control-knobs and the monitoring of gaudy arrays of flashing lights and meters. In practice, however, the apparatus became more and more simple to operate. Most users put the controls on a standard setting at time of purchase and left them there. When the novelty of watching the quite unnecessary blinking lights and dials wore off, they were totally ignored. In fact, to assert technological one-upmanship, simply to purchase such impressive equipment – and display it to visitors – was often thought a sufficient indicator of sophistication. What was being sold was a fantasy toy rather than just a radio, to create the illusion that the man who could master all that technology would be just as masterful on the flight deck of the Concorde. Paradoxically, this return of the technological look brought the appearance of radio back full circle, for this was how it had looked when it began at the turn of the century. The difference

was that the original appearance arose from functional necessity, while its later manifestation was a stylistic affectation.

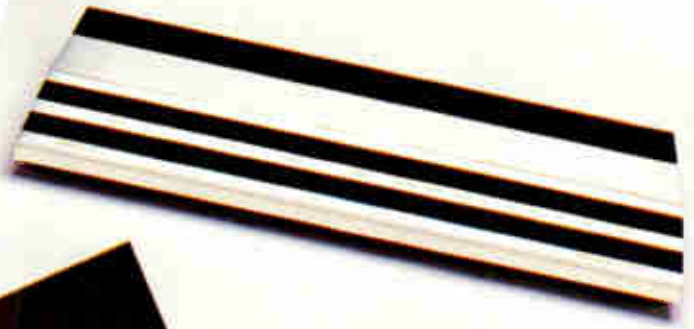
As a reaction to the heightened commercialization of radio, smaller manufacturers began to produce more sophisticated objects which became representative of what was regarded as good taste and education. This enabled the elitist consumer to demonstrate his cultural capital by



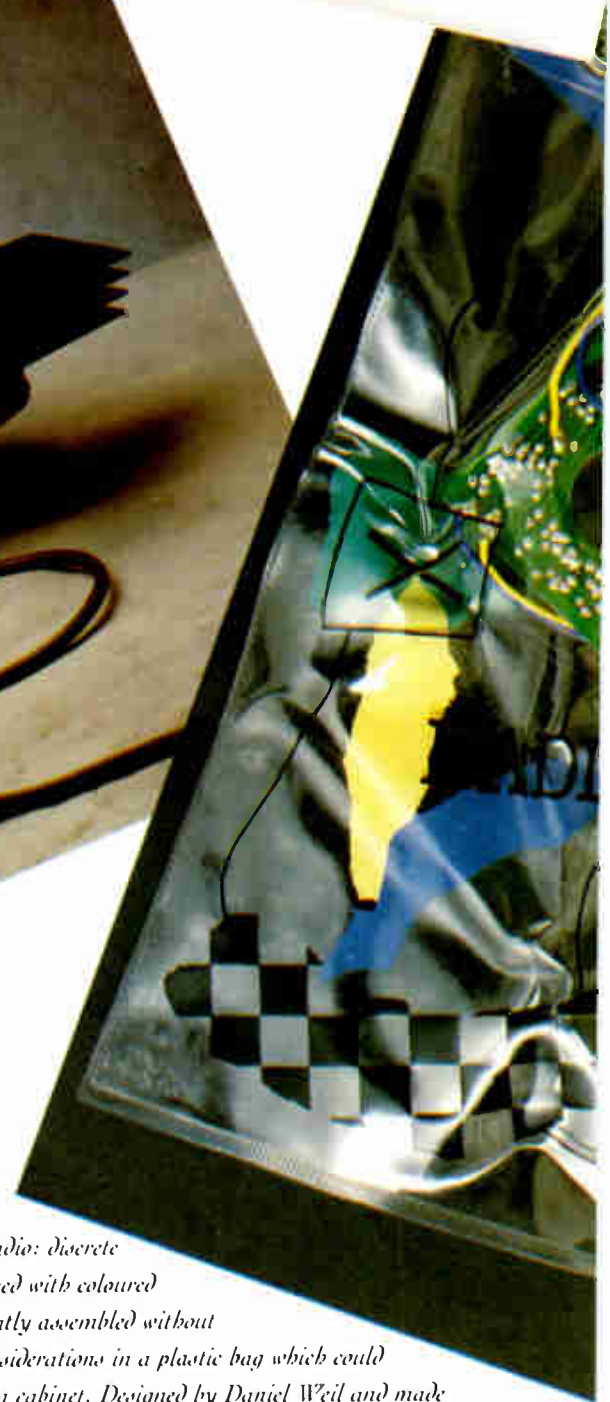
Modern miniaturization: a Sony radio the size of a credit-card. Nippon Te3T have recently developed a radio claimed to be the smallest in the world, measuring 1.5cm x .95cm x .15cm ($\frac{3}{8}$ " x $\frac{3}{8}$ " x $\frac{1}{16}$ ").

Nothing that looks at all technological is visible in this elegant and simple tuner-amplifier design by the Danish company Bang and Olufsen.

the kind of goods he purchased. There could be no radio that got further away from mainstream gimmickry than the minimalist version which concealed or disguised all its technological features and presented itself simply as an elegant and beautiful sculptural form in wood, metal and plastics. This kind of innovation and other stylistic eccentricities, or absurdities of manufacturers who were carving out their own exclusive section of the market, were really exercises in the new philosophy of consumerism,



These Space-Age style hi-fi power amplifiers in aluminium and copper by Pirate Design Associates, manufactured by Be³W Loudspeakers UK, make a stylistic virtue of technological necessity: the finned structures are needed for cooling. 54.9cm x 24.6cm (15 3/4" x 9 7/8").



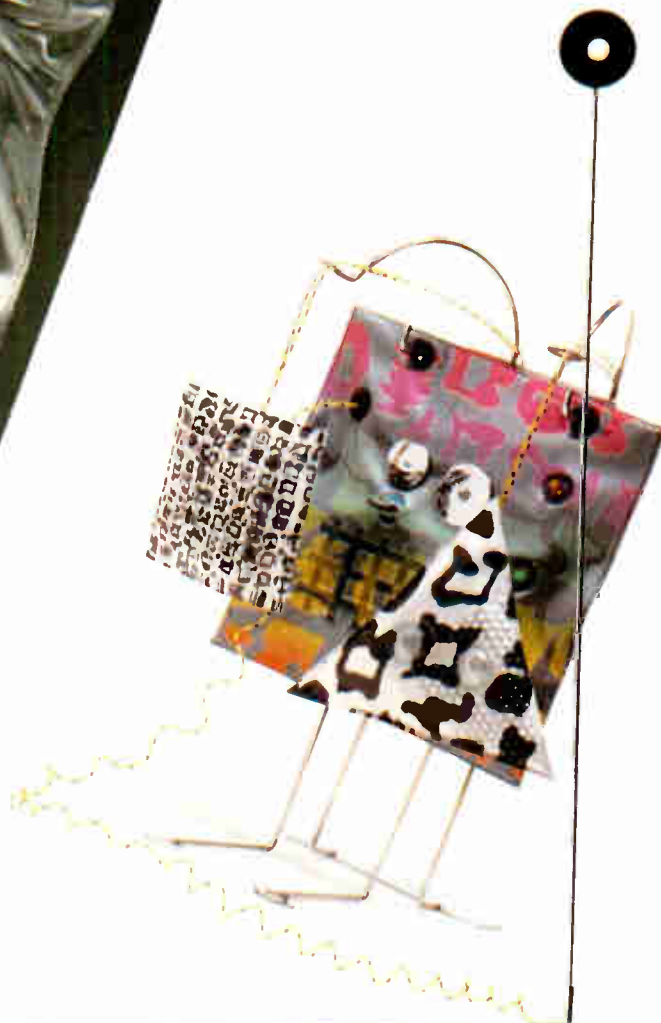
A whimsical 'deconstructed' radio: diode components, linked with coloured wire and apparently assembled without technological considerations in a plastic bag which could hardly be called a cabinet. Designed by Daniel Weil and made by Parenthesis UK in 1981.

applied to perceptions of social distinction.

Another, and more recent, challenge to the traditional concept of the radio has arisen out of the currently fashionable preoccupation with the aesthetic philosophy of post-modernism. This seeks to break the mould of established artistic paradigms and to produce in its place a construction which encourages the viewer to re-examine his notions of how things should be made. The deconstruction of the radio into an

informal assembly of components mirrors the construction of the original wireless, but using the latest mass-produced technology. Another device is to challenge the purposeful function of the radio by situating it within the most flimsy and perishable casing, or by the ironic juxtaposition of the traditional form with ultra-modern contents.

There are signs that the current severe, black, scientific-styling of the radio is giving way to softer, more curvilinear and colourful forms, although still retaining a Space Age feel. The jargon-mongers of the promotions industry, who gave us 'high-tech', are now suggesting a friendlier, more human image with their new talk of tactile, ergonomic and biomorphic shapes. The environment-friendly, solar-powered, interactive radio is already here: it obeys its master's voice, remembers what you tell it, talks back, tunes in for you, soothes you to sleep and wakes you in the morning. Made from biodegradable plastic that is no longer cheap-and-nasty, the radio is accepted by everyone everywhere, although for many of us



A postmodern radio: electronic components in coloured plastic, silk and cotton envelopes hung on a metal stand, with a wand aerial on a trailing wire. Designed by Daniel Weil, UK, 1982.

it can never recapture the beauty of its Golden Age. The present age of uncertainty (and re-examination of the effects of modernity and the Machine Age and of the benefits and discontents which it has brought) has engendered a growing popular demand for things nostalgic. People want reminders of earlier days which have been romanticized by the myth-makers as 'the good old days' when life was real and natural and when household objects were solid, honest, well-made, long-lasting and beautiful. This nostalgia, perhaps prompted by a desire to escape into fantasy in bad times, is demonstrated by the enormous contemporary demand for antique objects – which now includes old radios that have become increasingly collectable. Until recently dismissed by many, even museum authorities, as too modern to merit preservation, the radio

has become an important object of study for historians interested in both its technological and social aspects. Such artefacts tell us more than their face value. Indeed, now that their commercial worth as well as their intrinsic value has been realized, old radios are appearing at increasingly high prices in auction rooms and antique shops and they are becoming as rare as other antiques. This commercialization has inevitably led even to the establishment of a trade in replicas and reproductions, the most ludicrous of which are old-style wooden cabinets into which are fitted the latest solid-state electronics, providing the post-modern listener with a package of old and new which might be said to commemorate the demise of the real radio and, at the same time, ironically celebrate our love-hate relationship with modern technology.

Described as the world's biggest radio, this replica of a pre-war receiver was set up in the Place de la Concorde in Paris in 1990 to commemorate the fiftieth anniversary of General de Gaulle's famous call to his countrymen to resist the Nazi occupation of Paris. Its loudspeaker broadcast an historic recording of his appeal, made on 18th June 1940 from a London transmitter.

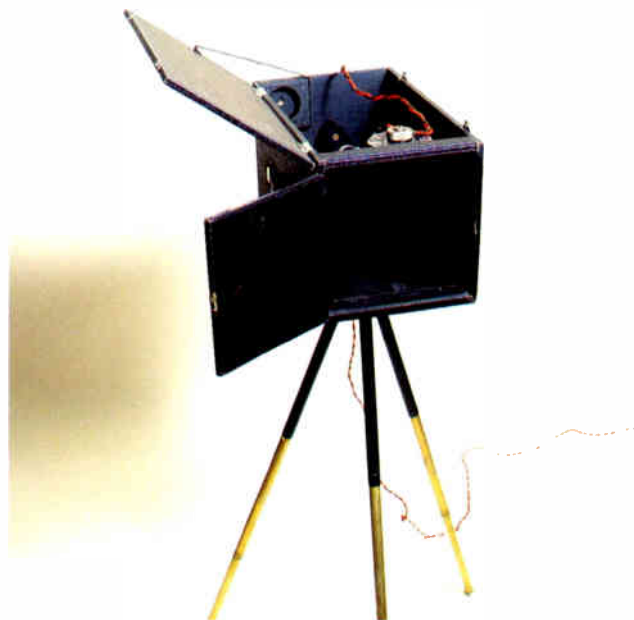


RADIO ART

*M*EASUREMENTS IN THIS SECTION ARE GIVEN IN THE ORDER: HEIGHT, WIDTH AND DEPTH. REFERENCES TO THE NUMBER OF VALVES IN EARLY SETS DO NOT INCLUDE 'RECTIFIER' VALVES – A PRACTICE WHICH WAS OFTEN ADOPTED. AS IN THE MAIN TEXT, THE RECEIVERS DEALT WITH ARE MAINLY BRITISH, ALTHOUGH THERE ARE MANY EXAMPLES OF RECEIVERS FROM OTHER COUNTRIES WHERE DEVELOPMENTS RAN ON BROADLY SIMILAR LINES. COLLECTORS ARE WARNED THAT EARLY EQUIPMENT DOES NOT CONFORM TO MODERN SAFETY STANDARDS AND VOLTAGES.



*Moving-iron loudspeaker in plywood case with transparent membrane to radiate sound. Probably German. c. 1926.
22.8cm × 17.7cm × 12.7cm (9" × 7" × 5").*



Looking like a large camera, this Graham Amplion loudspeaker in black imitation leather on a folding tripod was intended for picnics. British. 1923. Box 20.3cm × 33cm × 17.7cm (8" × 13" × 7").



*Loudspeaker made from china: the Bristol True-Tone with drive unit made by Brandes. British. 1925.
27.9cm (11") high × 17.7cm (7") deep.*



The Magnora miniature loudspeaker (left) in celluloid plastic, with earphone-type drive unit, claimed to be the smallest in the world in 1924. British. 8.8cm (3½") high and 6.3cm (2½") diameter. Pictured here with a contemporary advertising plaque in glass and a china ornament frame-aerial.

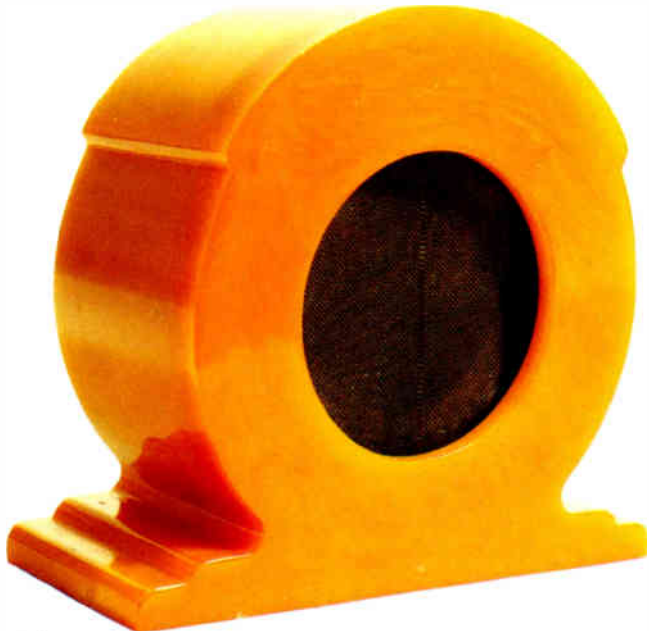


(Above) *Moving-iron loudspeaker by Sterling on turned wooden stand with painted cone. British. 1926. 35.5cm (14") diameter × 50.8cm (20") high.*

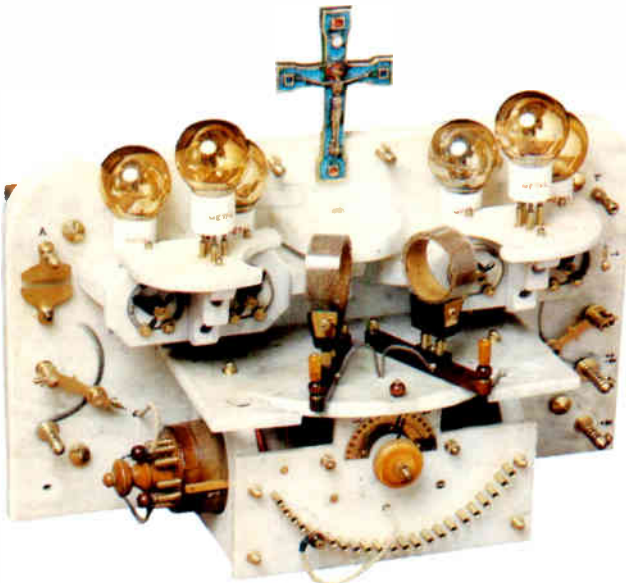


(Above right) *Ceramic horn loudspeaker by Seibt. German. c. 1922. 50.8cm (20") high.*

(Left) *TMC loudspeaker, all metal, the horn formed in copper by electro-deposition. British. 1922. 45.7cm (18") high.*

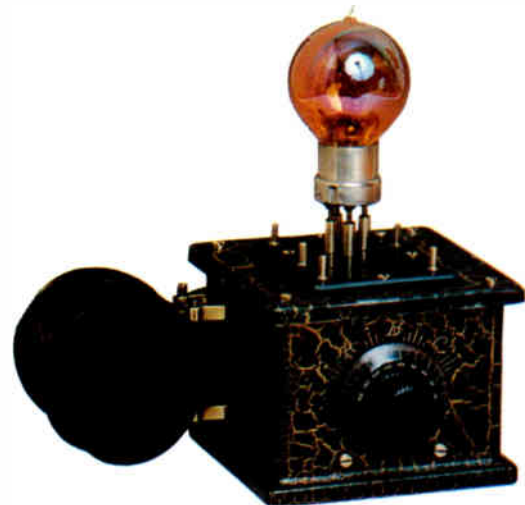


(Above) *Art deco style speaker in translucent yellow plastic. c. 1950. Manufacturer unknown. Approx. 17.7cm × 17.7cm × 10.1cm (7" × 7" × 4").*



(Above) *Six-valve Autel receiver built for a priest, on white marble slabs, complete with brass fittings and crucifix. French. c. 1922. Approx. 30.4cm × 50.8cm × 15.2cm (12" × 20" × 6").*

One-valve receiver in black-crackle finish case with nickel-plated fittings. French. c. 1923. 15.2cm × 17.7cm × 17.7cm (6" × 7" × 7").





ArtAndia loudspeaker in the form of a parrot. Decorated china with ormolu base, made by Doulton potteries and concealing an Amplion drive-unit reflecting sound into an inverted cone and from beneath the base. British. 1927. 56.8cm (14½") high.



Angel cone loudspeaker, concealed behind a decorated disc which backs an art nouveau bronze figure. Thought to be Spanish. c. 1927. 50.8cm x 55.5cm x 20.2cm (20" x 14" x 8").

Another china loudspeaker in the form of a parrot, with larger sound-reflector. British. 1927. 58.1cm (15") high.

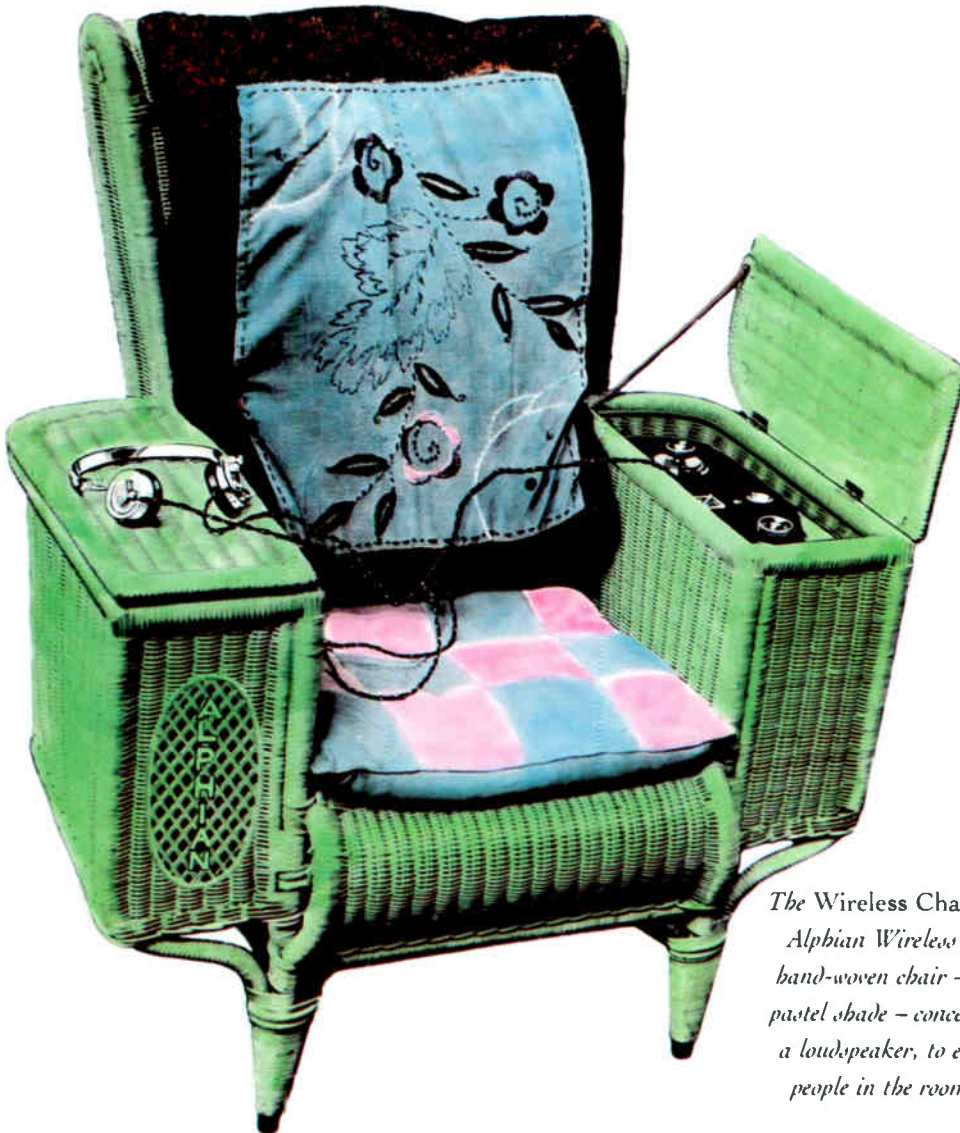




Silver rose bowl sold by the British Electric Company concealing a moving-iron speaker in the base. British. 1926. 17.7cm (7") high with a 25.4cm (10") diameter bakelite base.

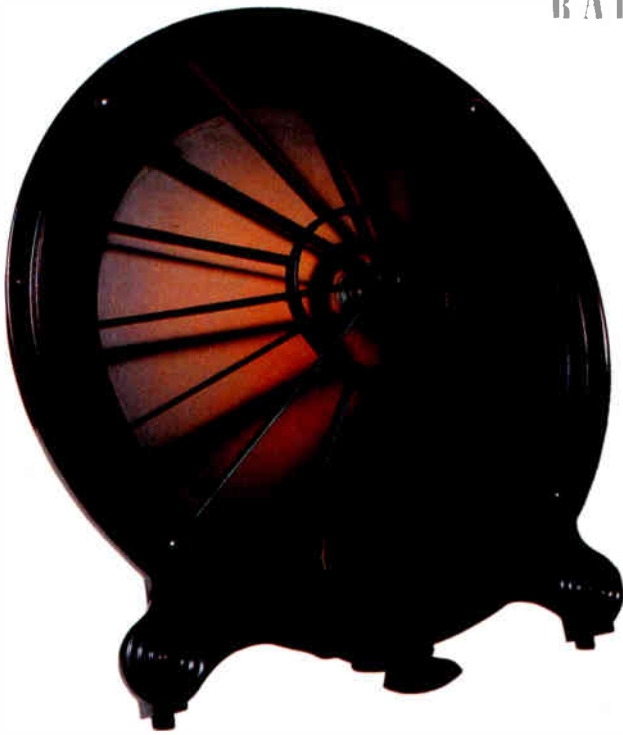


Brown's Q horn loudspeaker in aluminium with silver-plated bird ornament, turned wood base and flare in mahogany. British. 1924. 60.9cm (24") high with 35.5cm (14") flare.



The Wireless Chair designed by Horace Adey of the short-lived Albion Wireless Company of London. The armrests on the hand-woven chair – coloured in the then fashionable eau-de-nil pastel shade – conceal a valve radio. It has earphones instead of a loudspeaker, to ensure that the listener did not disturb other people in the room. Exhibited at the Olympia wireless show in 1926.

RADIO ART



*Paper cone moving-iron loudspeaker cast in bakelite by De la Rue for the Mullard company. British. 1928.
45.7cm (18") diameter.*



Gaumont Elgédynes six-valve grand luxe battery receiver in a walnut stand fitted with a rotatable frame aerial. In the lid is a moving-iron loudspeaker with a pleated-paper cone. French. 1928. 119.3cm × 50.8cm × 50.8cm (47" × 20" × 20").



Ducretet F seven-valve receiver, usually supplied with a frame aerial and horn loudspeaker. Walnut cabinet with ebonite (imitation ebony) front panel and nickel-plated fittings. French. c. 1925.

*ArtAndia Persian King loudspeaker in china by Doulton potteries, concealing a small Amplion drive unit. British. 1927.
25.4cm (10") diameter × 30.4cm (12") high.*





(Left) *ArtAndia* Chinese Scribe loudspeaker in painted papier mâché with turned wood ebonized base concealing a small Amplion horn drive unit. British. 1927. 33cm (13") high.

Horn loudspeaker disguised as a plant-pot stand: the Tameside. Solid oak with concealed Sterling drive unit and pyramidal undershelf sound-reflector. British. 1925.
101.6cm x 12.7cm x 12.7cm (40" x 5" x 5").

RCA Radiola Model 60 superbet in wooden cabinet with matching bronze metal loudspeaker. American. 1928.



RADIO ART



*Miniature Wyncrystal receiver. Ebonite, brass and nickel, with cat's whisker-and-crystal and slide tuning. British. c. 1922.
10.7cm × 7.6cm × 7.6cm (4 1/4" × 3" × 3").*



Atwater-Kent Breadboard, the Meccano set of American radio, consisting of separate units which can be assembled in various combinations on a simple wooden board to construct a variety of different receivers. American. 1924.

*The Felix crystal set, representing a popular character from early animated cartoon movies, was tuned by moving the leg. Ebonized plywood with brass fittings; coils in a box at the back. British. c. 1923. 27.3cm × 24.1cm × 10.7cm
(10 3/4" × 9 1/2" × 4 1/4").*



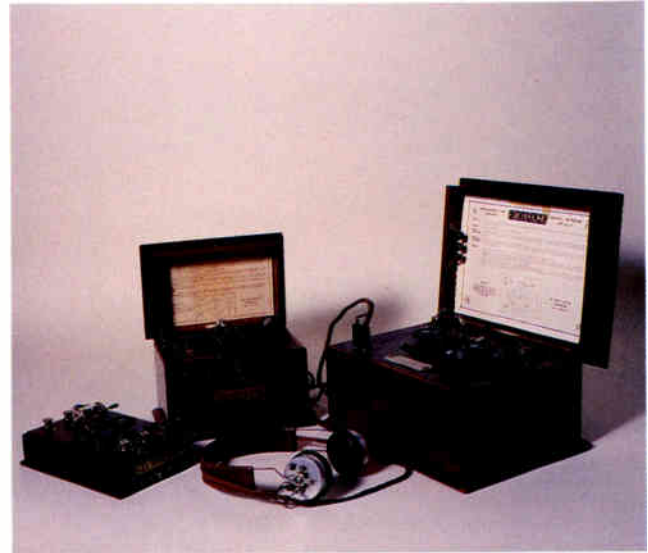
*Fellophone Super Two battery receiver in mahogany case with ebonite front and brass fittings. Shown with a TMC loudspeaker. British. 1923. 30.4cm × 30.4cm × 22.8cm
(12" × 12" × 9").*



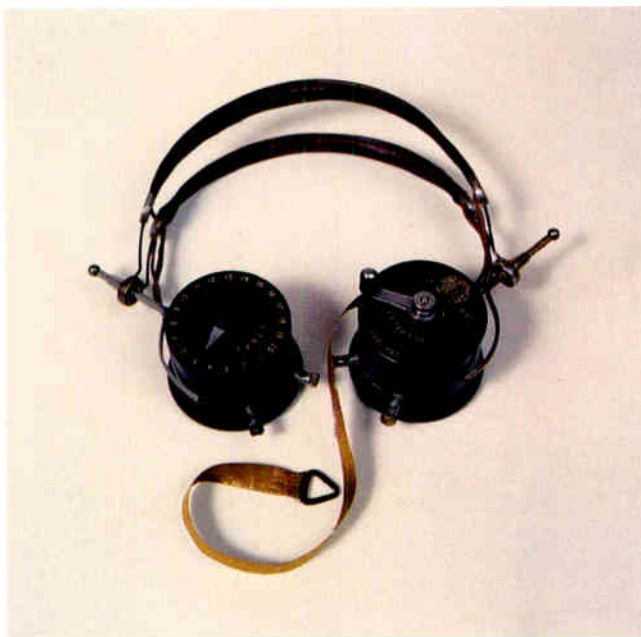
RADIO ART



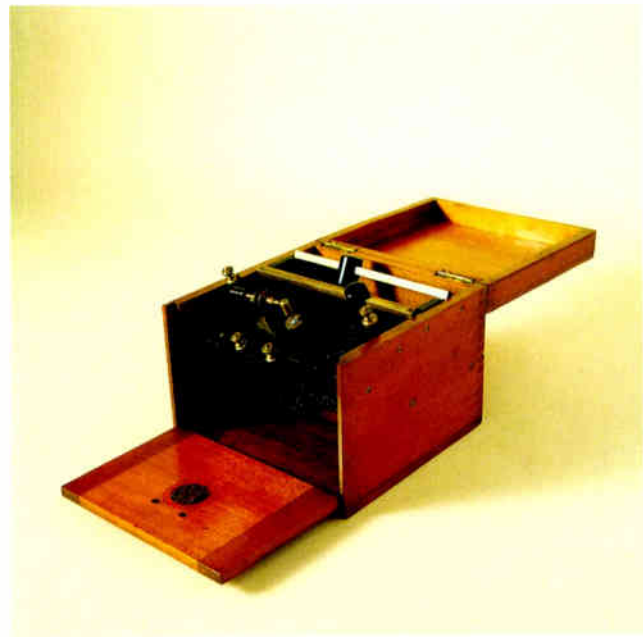
Crystal set sold by Gamages department store, London. Wood/ebonite base, nickel fittings, slide tuning. This simple earphone set needed a long aerial. British. 1923. 15.8cm × 12cm × 14.6cm (6¼" × 4¾" × 5¾").



Gecophone crystal sets by the General Electric Company. (Left) The Junior of 1925, 7.6cm × 15.2cm × 20.3cm (3" × 6" × 8"); (centre) The No. 1 of 1922, 15.2cm × 22.8cm × 15.2cm (6" × 9" × 6"); (right) The No. 2 of 1922. 17.7cm × 33cm × 24.1cm (7" × 13" × 9½"). Mahogany, ebonite, nickel fittings. British.



Crystal set in a pair of headphones, one containing a switch-tuned coil and the other a detector and a 5.48m (18-foot) ribbon aerial which can be wound in by a crank handle. British, but manufacturer not known.



Butler crystal set: solid mahogany and ebonite with brass fittings. When closed, its identity is totally concealed. British. 1922. 15.2cm (6") cube.



Marconiphone valve/crystal battery receiver RB10, tuned by sliding knobs at the sides and with plug-in coils to cover various wavebands. Really an amplified crystal-set but only capable of driving earphones. Imitation leather covered plywood box, ebonite panel and nickelled fittings. British. 1925.
15.5cm × 29.2cm × 15.8cm (5/4" × 11/2" × 6/4").



Marconiphone Crystal A, also marketed as Millets, with interchangeable detectors, sliding-knob tuning and plug-in coils to cover various wavebands. Imitation leather box, ebonite panel, nickel fittings. British. 1922. 15.5cm × 29.2cm × 15.8cm (5/4" × 11/2" × 6/4").



Marconiphone V1 battery receiver with plug-in coils to change the waveband. It would only operate earphones but a matching amplifier was available enabling a horn loudspeaker to be used. Red mahogany and ebonite. British. 1924.
19cm × 22.8cm × 17.7cm (7/2" × 9" × 7").

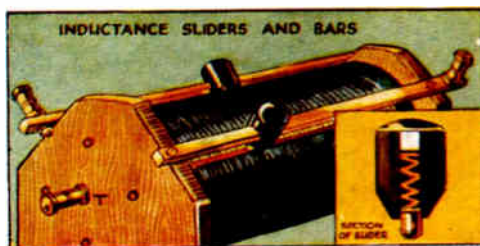
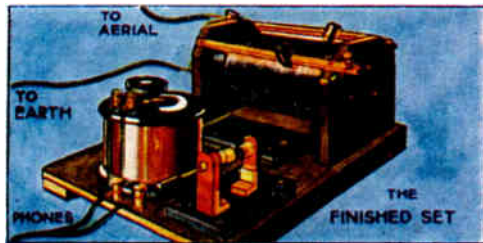
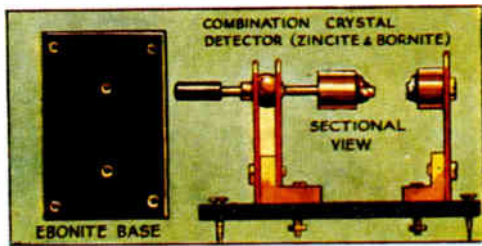
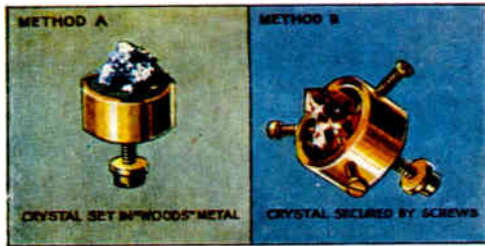
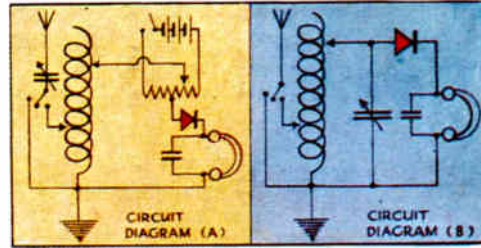
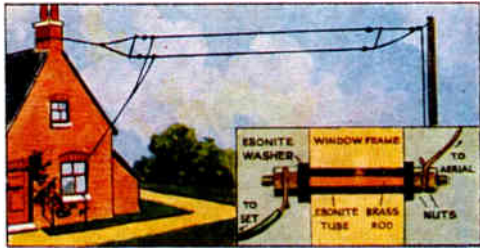
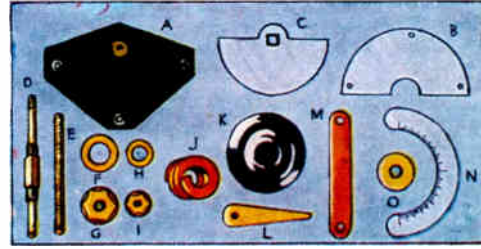
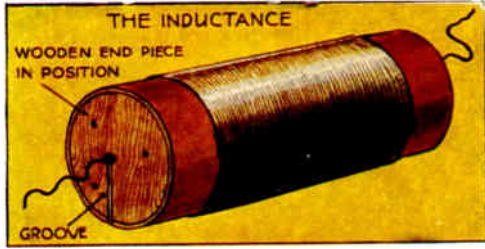


One of the first commercial valve receivers to appear on the British market was the Marconiphone V2 of 1922. The one pictured (right) is a slightly later model. It had plug-in coils for different wavebands and is shown here with matching amplifier for use with a loudspeaker (here a Sterling). Battery operated. Solid walnut cabinets. 26.6cm x 55cm x 20.3cm (10½" x 15" x 8").

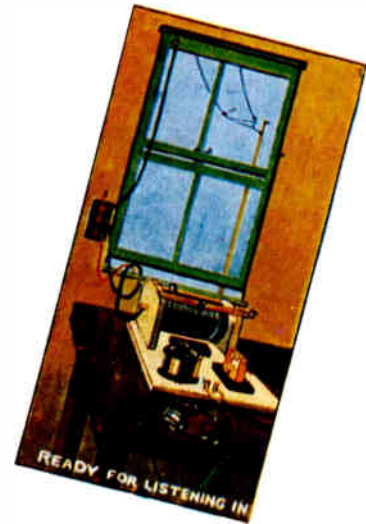


Although a three-valver, the Marconiphone V3 was intended for earphone use, needing an additional amplifier to operate a loudspeaker effectively. Some components are common to other Marconi sets, showing that even in the early days standardization was being introduced in the larger factories. Battery operated. British. c. 1923. Solid mahogany with antiqued fittings. 44.4cm x 59.5cm x 29.2cm (17½" x 15½" x 11½").

RADIO ART



Wireless was expensive in the Twenties, a simple commercial crystal set costing a week's wages for the average man, so he made his own, including most of the components. Pictured here is one made to a design on a 1923 series of cigarette cards called 'How to make your own wireless set'.

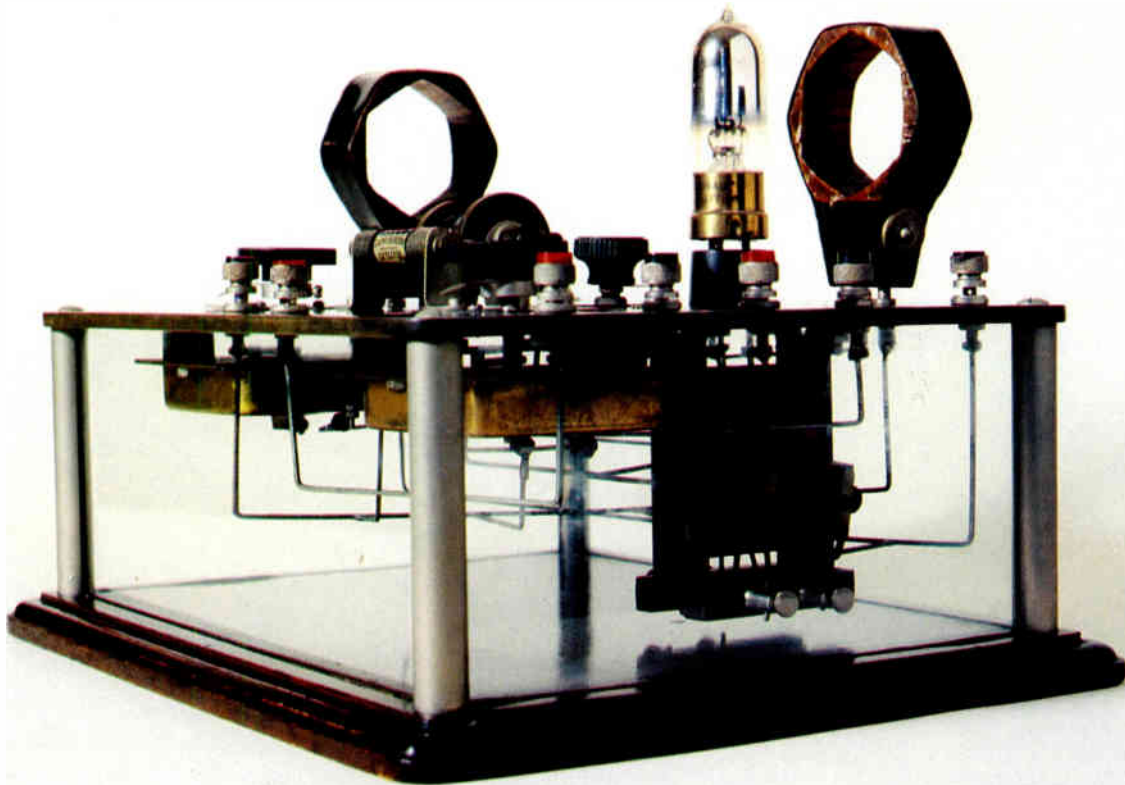


RADIO ART

The De Luxe Astrophone crystal set moulded in black ebonite and mounted in a jewel case-style leathercloth box lined with purple plush and watered silk, which also contained the earphones. British. 1923. 83.8cm × 25.4cm × 25.4cm (33" × 10" × 10").



Unusual valve/crystal set with ebonite top and plate-glass sides enabling the works to be seen. Thought to have been constructed from a kit. British. 1923. 15.2cm × 33cm × 27.9cm (6" × 13" × 11").

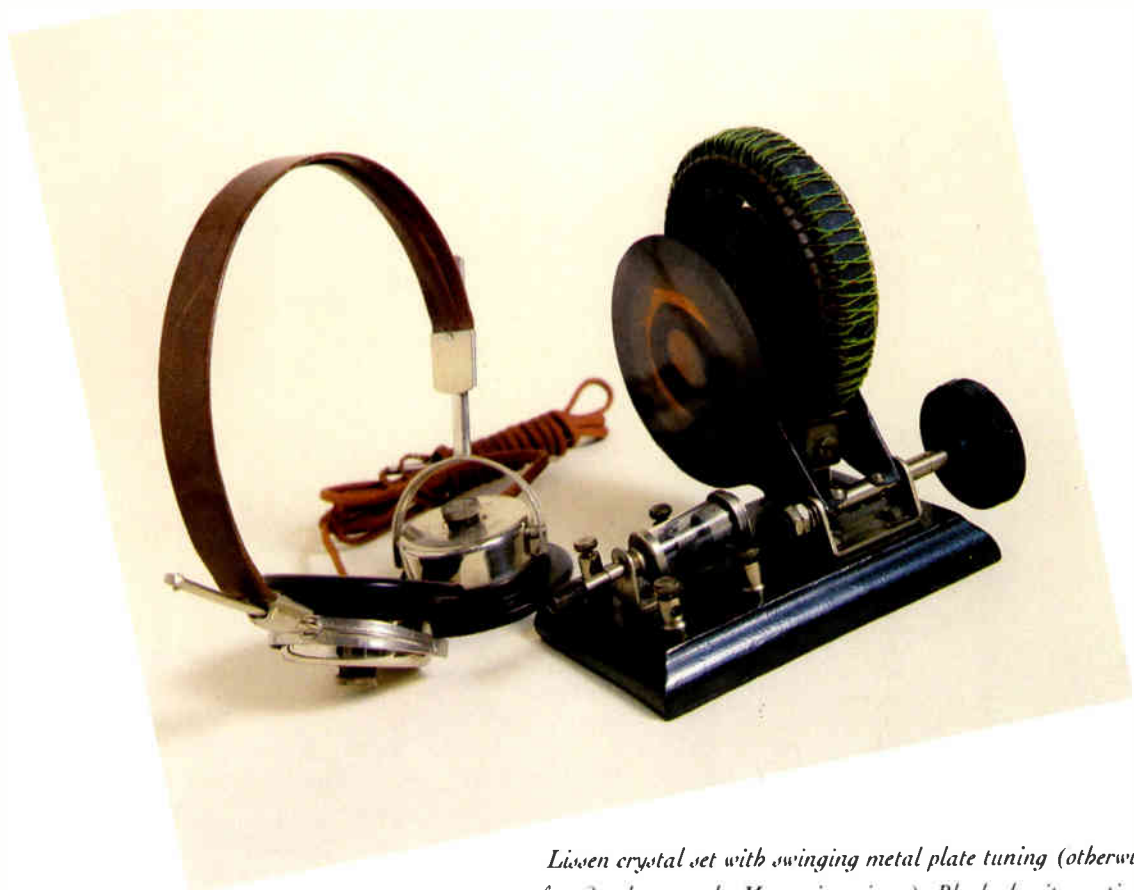




Uncle Tom Grafton china crystal set with coil wound on the top hat and tuned with a sliding contact, the crystal in the form of a diamond shirt stud and cat's whisker protruding from the bow tie. Eventually the mould for them was sold to another pottery which produced china copies in vulgar colours without wireless parts as fairground prizes. British. 1924. 22.8cm (9") high.



Goldtone crystal set with spiral-shaft tuning device and cat's whisker on top. Red bakelite. British. 1924. 15.2cm x 10.16cm (6" x 4") diameter.



Liowsen crystal set with swinging metal plate tuning (otherwise found only on early Marconi receivers). Black ebonite, antiqued copper. British. 1924. 12.7cm x 11.4cm x 7.6cm (5" x 4 1/2" x 3").



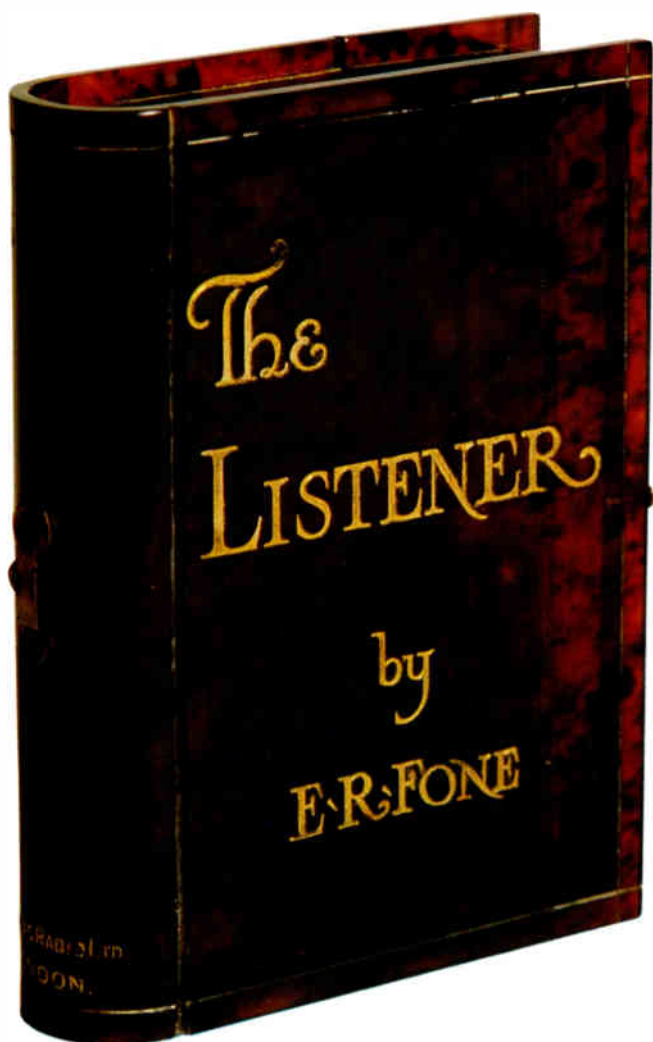
Large Gecophone battery set outfit, all in solid mahogany, comprising Smoker's Cabinet HF-Det set, matching amplifier, earphone box, distributor board and ebonite horn loudspeaker. British. 1922. 45.1cm × 50.4cm × 22.8cm (17" × 12" × 9").



Fellows one-valve battery receiver suitable for earphone only use unless teamed with matching amplifier. Imitation leather case, ebonite panel and nickel fittings. British. 1925. 59.5cm × 15.9cm × 22.8cm (15½" × 5½" × 9").

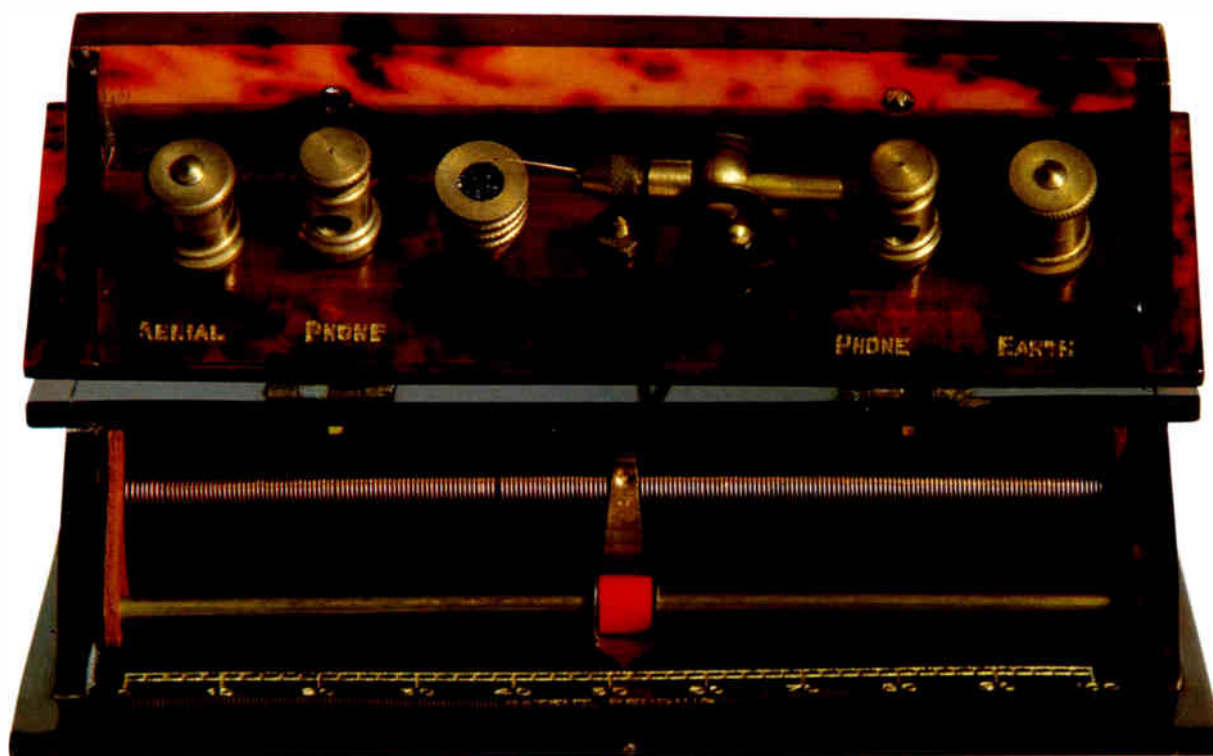


Pelmerset two-valve battery receiver (left), horn loudspeaker and amplifier, all made by the Fellows company. Mahogany finish, ebonite panels, brass fittings. British. 1925. Cabinets 50.4cm × 50.4cm × 22.8cm (12" × 12" × 9").



The Listener crystal set, made to look like a small book, had a case which was heat-formed from imitation tortoiseshell celluloid plastic. It needed earphones and a good outdoor aerial and could be fitted with extra coils for different wavebands. British. 1925.
 12.7cm × 8.8cm × 2.54cm (5" × 5/2" × 1").

End view of the set, made by Kenmac of London, with back-flap open to show that it contained only two components: a coil with sliding tuner and an open cat's whisker-and-crystal detector.





A 1922 postcard crystal set which appeared with a variety of picture fronts. Made by both German and English firms, it is 0.5cm (1/8") thick and contains a slider-tuned coil sandwiched between cards. It works with a good aerial, but nowadays brings in several stations on top of each other.



Western Electric crystal set, also sold as the Met-Vick Cosmos which operated only earphones unless a Weconomy amplifier was slotted into the compartment normally provided for earphones, when it would work a born loudspeaker. Mahogany. British. 1922/3. 17.7cm x 21.5cm x 19cm (7" x 8 1/2" x 7 1/2").



The world's first radiogram: an acoustic windup HMV gramophone with a crystal set built into the front. When wireless reception was desired the playing stylus which actuated the Lumière pleated Speaker was placed on a magnetic transducer connected to the crystal set. Oak. British. 1924. 58cm x 45.7cm x 45.7cm (15" x 18" x 18").



Rexophone crystal set with unusual top panel in the plastic Xylonite which imitated onyx. Two separate crystal-and-cat's whisker detectors were set before listening in, so that if one failed, the other could be selected. Solid mahogany, nickel and gold fittings. British. 1923. 15.2cm x 22.8cm x 12.7cm (6" x 9" x 5").



Met-Vick Cosmos three-valve battery set with plug-in waverange coils and matching oak-horned loudspeaker. Moulded in black ebonite, the set had a cover to keep dust out when not in use. British. 1925. 22.8cm (9") high × 24.1cm (9½") diameter.



Gecophone kit two-valve battery set, using plug-in coils to extend waveband. Ebonite top panel, nickel fittings, solid mahogany cabinet. British. 1924. 15.9cm × 55cm × 24.1cm (5½" × 15" × 9½"). Shown with Wallbro all-mahogany loudspeaker.

RADIO SET



Polar Twin two-valve battery receiver with plug-in coils for changing wavelengths. Cabinet assembled from black crystalline-finish stamped panels clipped to a diecast skeleton. Shown here with a moulded ebonite loudspeaker. British. 1925. 15.2cm × 12.7cm × 12.7cm (6" × 5" × 5").



Radiax battery two-valver kit set for home assembly. Ebonite top panel, brass fittings, solid oak case, 11.4cm × 51.7cm × 25.4cm (4½" × 12½" × 10"). British. 1924. Shown with a Primax loudspeaker with pleated paper radiator.



Brownie crystal set placed on top of its matching two-valve amplifier which made it capable of operating a loudspeaker instead of earphones. The moulded ebonite (vulcanized rubber) cases were mass-produced cheaply. 1925/6. 20.52cm × 29.5cm × 21.59cm (8" × 12" × 8½") (less coil).



French crystal set, c. 1925, with sliding-plate tuning and glass-enclosed crystal and cat's whisker. The diecast metal model of the Eiffel Tower mounted on the bakelite base is just an ornament to enhance its attractiveness as a souvenir from Paris. 11.4cm × 10.1cm × 7.6cm (4½" × 4" × 5").



The 1926 Loewe OE333 battery receiver was designed in Germany but later made in England too. It was revolutionary because its single valve comprised a detector and amplifier, plus other components all in a single glass bulb – really the first ‘integrated circuit’ module. It needed only four other components to make up a complete wireless set: a switch, two coils and a tuning condenser. It was cheap as an initial purchase, but when the valve burnt out – or just one of the filaments – it was costly to replace. The manufacturers arranged a filament repair service but the valve eventually became extinct. The original set had a plywood case but a later model – with reaction circuit – used a bakelite one. 20.5cm × 15.9cm × 18.4cm (8" × 5½" × 7¼").

Shown with a German loudspeaker.





Pye two-valve Model 222 in solid oak case with black crystalline metal front. Coils plugged into the back increased waveband coverage. British. 1926. 17.7cm × 27.9cm × 17.7cm (7" × 11" × 7"). Shown with a wood-borned Amplion Junior Dragon loudspeaker, 58.1cm (15") high.



1929 two-valve battery receiver, marketed in Britain as the Burton and in Germany as the Blaupunkt VIII, which required an external loudspeaker. Architectural-style bakelite cabinet: 16.5cm × 25.4cm × 12.7cm (6½" × 10" × 5").



1926 British Edison-Bell Bijou two-valve battery receiver using plug-in coils to change waveband. Solid oak, ebonite panel and celluloid window in the lid, of similar design to one of the company's cabinets for a coin-slot phonograph. 27.9cm × 50.4cm × 25.4cm (11" × 12" × 10").



British Europhone two-valve battery receiver in the form of a mantel clock: black crystalline finish, pressed metal case with wood base, and imitation ivory dial. 1928. A separate loudspeaker had to be connected to enable it to work. 27.9cm × 25.4cm × 11.4cm (11" × 10" × 4½").



The British 1952 Zeetavox mains receiver in bent mahogany-veneered plywood with applied solid wood mouldings and a Gothic arch with art nouveau overtones. 48.2cm × 40.6cm × 25.4cm (19" × 16" × 10").

British Amplion three-valve mains receiver in an art deco style cabinet made up from oak and rosewood veneered plywood and large sawn-out sections of solid mahogany. British. 1952. 49.5cm × 45.1cm × 8.8cm (19½" × 17" × 3½").





MRG receiver made by Mains Radiograms in a cabinet made from solid mahogany and veneered plywood with sycamore banding. British. c. 1952. 55.8cm × 38.1cm × 30.4cm (22" × 15" × 12").

Four-valve battery receiver, the Nightingale, thought to have been built from plans published in Hobbies fretwork magazine. Solid walnut and plywood, inlaid with contrasting marquetry. British. c. 1928. 60.9cm × 35.5cm × 60.9cm (24" × 14" × 24").





Ultra Tiger three-valve mains receiver with walnut-stained case built up from plywood and solid wood; bronze dial. British. 1951. 45.1cm × 40.6cm × 21.5cm (17" × 16" × 8½").



Philips Radioplayer Type 2634 four-valve mains receiver in bakelite cabinet with bronze finish loudspeaker grille. British. 1951. 48.2cm × 39.5cm × 21.5cm (19" × 15½" × 8½").



K.B. two-valve battery receiver. Bakelite case in two halves folds to form a 19cm (7½") cube. Free gift with 500 coupons from Best Dark Virginia cigarettes; you had to smoke 5000 to collect enough coupons. British. 1950.

RADIO ART



1950 Ekco British All Electric 315 two-valve mains receiver 20.5cm × 45.1cm × 22.8cm (8" × 17" × 9"), with matching moving-coil loudspeaker 41.9cm × 56.8cm × 20.5cm (16½" × 14½" × 8"), made of bakelite, but imitating the traditional wood cabinet style, rather than exploiting the design possibilities of plastic material.



Murphy B4 four-valve portable battery receiver in a mahogany cabinet with a geometric loudspeaker-fret design. British. 1952. 45.1cm × 58.1cm × 22.8cm (17" × 15" × 9").



1951 Adey British one-valve Cigar-Box portable, 20.5cm × 11.4cm × 6.5cm (8" × 4½" × 2½"), joined with wire and plug to a police helmet with built-in loudspeaker. It was the first experiment in keeping the policeman on his beat in touch.



American Emerson Three Little Pigs four-valve mains receiver in green-painted bent plywood cabinet 22.8cm × 17.7cm × 12.7cm (9" × 7" × 5") with 'plastic wood' carving on the loudspeaker opening. 1951.

Philips Superinductance 634A five-valve mains receiver in bent walnut plywood case with bakelite decoration. Technologically a dinosaur, it used a TRF circuit at a time when the much better Superhetrodyne was being universally adopted. British. 1955. 48.2cm × 40.6cm × 26.6cm (19" × 16" × 10½").





1951 British Murphy A3, three-valve mains receiver in solid walnut: 46.9cm × 40.6cm × 25.4cm (18½" × 16" × 10"). Perhaps the first 'designer set', it was the work of R.D. Russell, who was brought in from outside the industry. Initially resisted by the public, who preferred a traditional furniture-style look, it eventually had a profound effect on general cabinet design.

Ekco RS3 five-valve mains receiver designed by J.K. White in a mixture of styles. The moulded bakelite cabinet shows art deco influences but mimics real wood. The decorative grille is in antiqued copper with silhouetted nature pattern evocative of the earlier art nouveau period. British. 1951.

45.7cm × 44.4cm × 25.4cm (18" × 17½" × 10").



A very large French mains radio, c. 1950 designed in the form of a prie-dieu, perhaps intended for a religious establishment. Beautifully crafted in choice carved woods, it bears the maker's plate: Récepteur Le Lion, type B, série 56 no. 5. J. Serrière. 162.5cm × 58.4cm × 45.1cm (64" × 25" × 17").



The 1958 Italian Savigliano type 93 mains five-valve receiver in wooden cabinet with contrasting veneers, that was considered very modern in its day.



Hyperbo 5 mains radio-gramophone in ebonized wood and chromium-plated steel tubing, clearly influenced by the Bauhaus school. Made in 1954 by Bang and Olufsen, Sweden.





1951 British Adey four-valve battery portable radio with internal frame aerial and patent plug-in key. This performed various functions including prevention of unauthorized use. Walnut plywood. 25.4cm × 25.4cm × 17.7cm (10" × 10" × 7").



The 1950 British Philips three-valve mains type 2531 in its plain bakelite cabinet was unusual among its ornate wooden contemporaries. It needed an external loudspeaker. 17.7cm × 55.5cm × 20.5cm (7" × 14" × 8").



British Pye Q four-valve portable battery receiver with internal frame aerial. The solid walnut and plywood case bears the 'rising sun' motif, first used in 1927. 44.4cm × 40.6cm × 24.1cm (17½" × 16" × 9½").

The 1955 four-valve Philips Superinductance 834A mains receiver. Technologically it was already something of a dinosaur when it appeared because of its use of the old 'TRF' circuit which was beginning to be replaced by the better 'Superbet'.

Nevertheless the cabinet was innovative, formed partly from flexible bakelite laminate on a steel skeleton.

45.7cm × 59.5cm × 21.5cm (18" × 15½" × 8½").



The 1953 British Lotus double-pentode universal mains receiver.

The walnut-plywood case is decorated with an incised and dyed geometrical pattern which was then gaining limited popularity as a modern design. 51.7cm × 27.9cm × 20.5cm (12½" × 11" × 8").



The 1952 Philips Superinductance four-valve model 830A mains receiver, similar to the one above but with a different cabinet.



The Eico model AC7A four-valve mains receiver in Serge Chermayeff's 1955 cabinet. In black bakelite and chromium with a light-beam tuning indicator, it was obviously influenced by the semi-anthropomorphic robot designs of the day, and is a celebration of the Machine Age and the fast-developing technology of electronic communication. At a time when the general public still seemed to prefer decorative wooden cabinets which fitted in with their furniture, it was startlingly innovative, but outwld by a cheaper toned-down brown bakelite version that imitated real wood. 45.7cm x 58.1cm x 25.4cm (18" x 15" x 10").



Made in America and imported to Britain, the 1951 Peter Pan midget three-valve mains receiver was typical of novelty radios of the period. Bent-plywood case with fretted front, incised and coloured.



With its classical columns and intricate fretwork, this 1954 six-valve American Atwater-Kent mains radio in veneered and solid wood looks like an ancestor of the jukebox. 44.4cm x 54.2cm x 21.5cm (17 1/2" x 15 1/2" x 8 1/2").



Wells Coates's innovative 1952 design for British Ekco's AD65 mains radio cabinet (produced in 1954) broke new ground at a time when most radios were still in wooden cases. The AD65 took full advantage of the possibilities of plastic moulding – such a design would have been thoroughly impractical in wood – and was much ahead of its time. The public were not ready to accept it wholeheartedly and instead of the stark black-and-chrome version, seemed to prefer the standard one in brown imitation burr-walnut. Samples were also made in other colours but have not survived. The rarest is the imitation green onyx one below, of which this is the only known example. 58.1cm (15") diameter × 20.5cm (8").



This 1934 Philco mains radio with its two-tone finish and antiqued bronze dial-surround is known to American collectors as a 'Gothic' or 'Cathedral' design, and was popular on both sides of the Atlantic. Solid wood with bent plywood top.



PADIO A

The 1933 British Philips 636A mains radio of 1933 was technically similar to other Superinductance models from the same company, but was something of a hybrid in cabinet design. It is constructed from walnut-veneered bent plywood but with a cast bakelite decorative front panel. 59.6cm × 41.9cm × 27.9cm (23½" × 16½" × 11").



1933 American midget mains radio by Grunow in contrasting veneers with chromium fret on the speaker opening. 17.7cm × 27.9cm × 12.7cm (7" × 11" × 5").



This British 1934 Universal Mains Three GEC two-valve radio has an art deco-influenced cabinet design. 33cm × 33cm × 15.2cm (13" × 13" × 6").

RADIO AT



Seeking new markets, radio manufacturers in the early Thirties began to popularize the notion of 'a radio in every room', producing cabinets which would be acceptable in kitchens and bedrooms as well as sitting-rooms. The children's market was exploited with radios like this midget 1935 American-made mains Mickey Mouse, which came in various colours.
17.7cm x 17.7cm x 11.4cm (7" x 7" x 4½").



RADIO ART



Designer R.D. Russell's innovative cabinet for the 1954 British Murphy A24 was initially resisted by the public as being rather too modern, but later had a marked effect on design trends. It was in the British crafts workshop tradition, appealing to an élite market and was labour-intensive to produce. Mains. Plywood veneered with bird's-eye-maple and walnut.

As well as resembling a robot, this 1954 British Ekco AC157 four-valve All-Electric radio used a lightning-flash symbol to emphasize its status as an electronic device. It was produced in black bakelite but customers preferred this imitation burr walnut version that made it seem more homely. 40.6cm × 34.2cm × 22.8cm (16" × 13½" × 9").



(Right) An angled speaker breaks the boxiness of this British 1954 Atlas four-valve mains receiver which has a cabinet of walnut-veneered plywood with an ebonized and chromium trim. 26.6cm × 57.1cm × 29.2cm (10½" × 22½" × 11½").



(Below) British Ekco's 1954 mains AC85 five-valve radio in a black bakelite-and-chromium cabinet. It was also produced in pearl ivory, green onyx and in a standard brown imitation walnut. The wooden stand was an extra. 51.7cm × 55.5cm × 24.1cm (12½" × 21" × 9½").





The black imitation-leather covering and chrome trim give this 1955 British Marconiphone 235 mains three-valve radio a scientific look. An alternative walnut-cased version was also offered. 25.4cm × 40.6cm × 22.8cm (10" × 16" × 9").



As though to challenge the new possibilities offered by plastics for producing curvilinear forms, a few manufacturers attempted to exploit designs in bent plywood. This is the 1954 four-valve mains RI Ritz Airflo model. 49.5cm × 45.1cm × 25.4cm (19½" × 17" × 10").

Unless closely examined, this 1954 American Colonial New World globe in old ivory plastic is not easily identifiable as a radio. Five-valve, mains, with a speaker in the base. It was also produced in black or maroon with gold markings. 40.6cm (16") high, 21.5cm (8½") diameter.





The British 1955 four-valve mains AD76 radio was a variation on the famous AD65 round Ekeo radio and came in brown or green bakelite or the slightly more expensive black-and-chrome version illustrated. 40.6cm (16") diameter × 20.5cm (8") deep.



The art deco style 1955 Bruan bakelite Defiant two-valve mains radio, made for the Co-operative Wholesale Society, was thus named because it defied the radio industry's price-fixing system by offering a dividend to customers. 51.7cm × 55cm × 20.5cm (12½" × 15" × 8").



1955 British five-valve mains Ekeo AC86 radio which came in both brown and black bakelite. 50.4cm × 55.8cm × 21.5cm (12" × 22" × 8½").



This large and heavy 1955 Ekeo six-valve mains radio ACT 96 had handles moulded into the sides and was described as 'transportable' rather than 'portable'. 45.7cm × 56.8cm × 24.1cm (18" × 14½" × 9½").



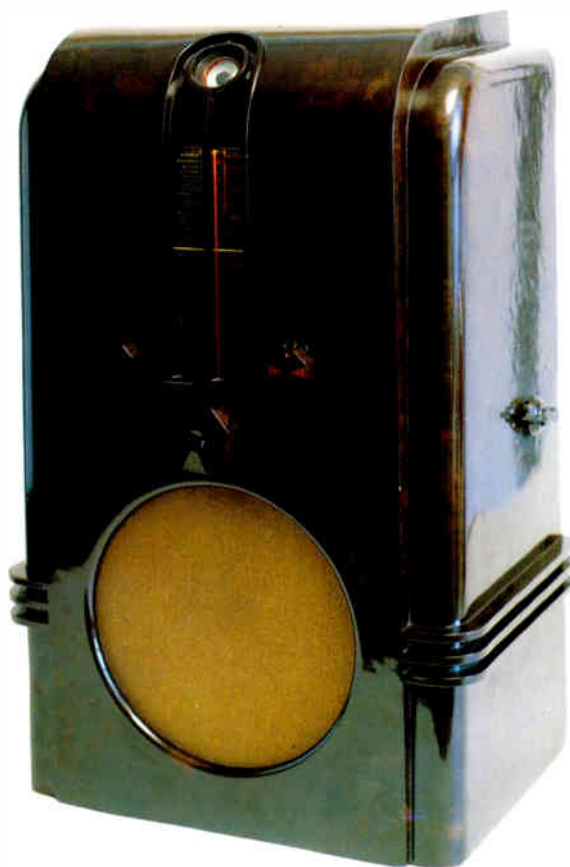
The 1955 Ekco AD36 black-and-chrome mains three-valve radio – a variation in the circular model range. 56.8cm (14½") diameter.



To fight price competition in 1956, Philips produced this V5A receiver without a conventional metal chassis. The 'works' were assembled in the form of a loom of wire and components which were then coiled-up into the one-piece bakelite cabinet. Four-valve. British. 54.2cm × 45.1cm × 26.5cm (15½" × 17" × 8").

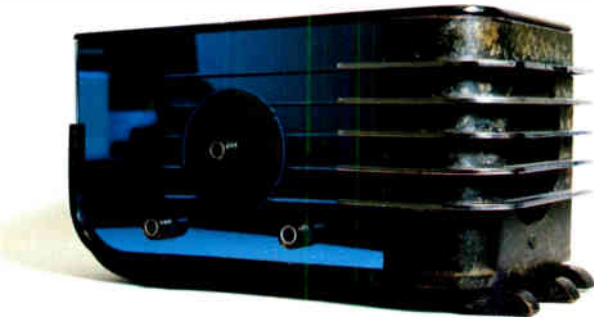


(Above and right) The Ekco AC97 of 1956 had a Futurist look about it and in its black-and-white bakelite version reminded many people of a robot because they saw the three knobs as eyes and a nose, and the loudspeaker disc as an open, speaking mouth. The robot illusion was reinforced by the tuning dial with its cold green 'magic eye' tuning aid. Five-valve. British. 55.5cm × 55cm × 21.5cm (21" × 15" × 8½").

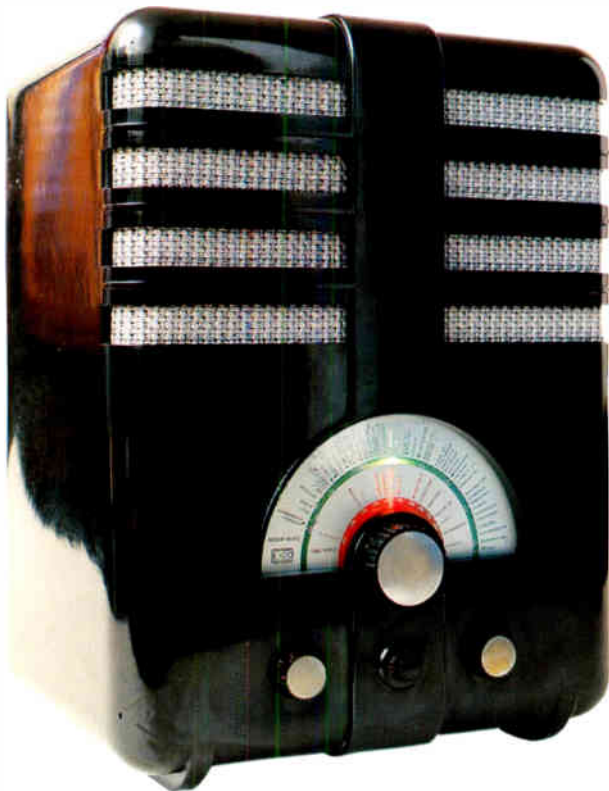


RADIO A

(Right) Highly reminiscent of the Porsche-designed Volkswagen car of around the same date, the 1956 British Philco People's Set was designed to be mass-produced and sold cheaply. A standardized design covered several models, using simple one-piece bakelite cabinets. British. 40.6cm × 55cm × 25.4cm (16" × 15" × 10").



The deco-style 1936 American-made Spartan 517 had a cabinet of steam-formed wood covered with mottled black leather, featuring a coloured mirror-glass front and curved chromium bars concealing a loudspeaker at one end. Designed by Walter Teague. 22.8cm × 40.6cm × 21.5cm (9" × 16" × 8½").

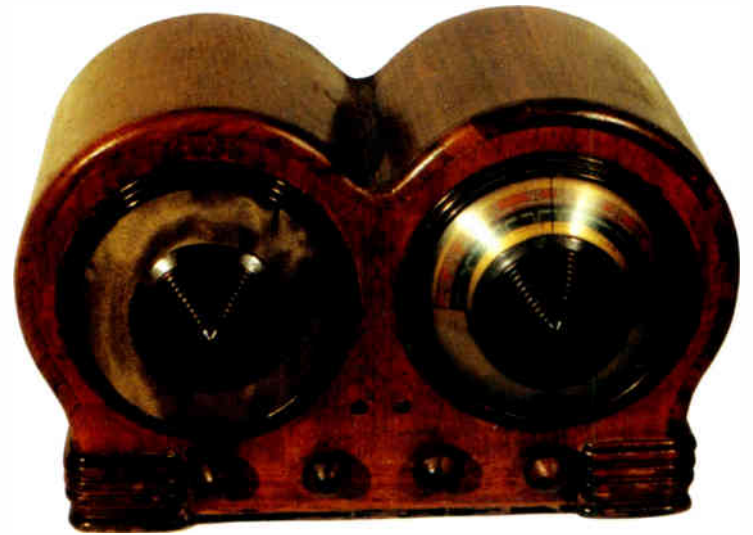


This American Emerson midget (c. 1957) in a cabinet made from walnut inlaid with birch is presented in the shape of a classical stringed-instrument. 15.2cm × 26.6cm × 15.9cm (6" × 10½" × 5½").

The 1957 Ekco AD38, produced in both brown and black-and-chrome bakelite cabinets, had a large tuning-dial marked with worldwide stations, emphasizing its role as a global communicator. 45.1cm × 55cm × 22.8cm (17" × 15" × 9").



The plain, functional German DAF bakelite-cased radio tuner and amplifier with its Nazi swastika insignia was produced just before the Second World War. Intended for use in factories to provide music and propaganda broadcasts, including compulsory listening to Hitler's speeches, it had no internal loudspeaker but was connected to a public-address system.



This grotesque mains radio in bent plywood with large conical loudspeakers and dial features is known to collectors as the Mae West – for obvious reasons. Made by Emerson, USA in 1958.



The American Philmore Little Wonder crystal set, manufactured between 1938 and 1945, might just as well have been made in the first few years of the Twenties. However, it distanced itself from the old 'instrument-look' by the use of mottled green plastic instead of black ebonite. 7.6cm x 8.2cm (5" x 3 1/4") base, 5.8cm (1 1/2") high.



A deco Canadian Westrex midget mains radio, actually made in ordinary brown bakelite but marketed in several sprayed paint colours. c. 1940. 27.9cm x 17.7cm x 15.2cm (11" x 7" x 6").

RADIO ART



Three versions of the American Addison midget main radio of 1940 ring the changes on a standard design by the use of interchangeable coloured sections. Versions ranged from ordinary brown bakelite to a large number of colour combinations in bright, translucent hand-cast and polished Catalin plastics. 15.2cm x 29.2cm x 12.7cm (6" x 11½" x 5").

(Below) The 1955 main three-valve Radio Balilla 'People's Set' was produced in Italy during the Fascist period to provide a cheap receiver for propaganda purposes. On government orders, it was produced to a standard, simple design by a number of different companies. Bent plywood with chromium fretwork.



(Above) A 1954 version of the Italian 'People's Set' in a veneered cabinet with chromium fretwork which features a sheaf of corn emblem as well as the Fascist symbol. Known as the Radiorurale, it was intended for farmers.





This American Emerson 400 midget main Aristocrat radio was produced in a variety of colour-combinations by the use of interchangeable sections, hand-cast in brilliant semi-transparent Catalin plastics. c. 1940. 20.5cm × 26.6cm × 12.7cm (8" × 10½" × 5").



An imitation wood carving in a plastic material called 'repwood' was used for this American Emerson Snow White and the Seven Dwarfs main radio, intended to exploit the children's market. 17.7cm × 27.9cm × 15.2cm (7½" × 11" × 6").

Manufacturers often produced a number of different cabinets to house a standard design of 'works' as in the case of this c. 1959 American midget main RCA Mexican radio. Other versions had impressed patterns. 12.7cm × 21.5cm × 12.7cm (5" × 8½" × 5").

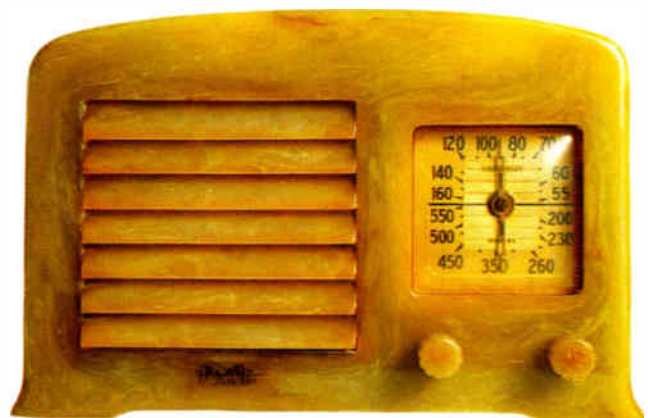




A variation on a standard cheap wood cabinet (also used in the Mexican radio on the previous page) was this RCA World's Fair souvenir model of 1959. It had a front panel of painted, simulated wood-carving.



American Motorola midget radio of 1959 with hand-cast cabinet in polished translucent Catalin plastic, produced in several colours. 15.2cm x 24.1cm x 11.4cm (6" x 9 1/2" x 4 1/2").



An American Fada midget radio of 1958 with a cabinet hand-cast in yellow translucent Catalin, finished by hand to a high gloss. It came in several marbled colours. 15.2cm x 22.8cm x 12.7cm (6" x 9" x 5").



(Left) This 1958 British Tempovox radio is disguised as a long-case clock, 152.4cm (60") high, and built from oak and mahogany veneered plywood with ebonized detail in stepped art deco style. The electric clock takes up only a tiny space in the top section, in which is housed a four-valve radio and internal aerial.



(Above) This 1957 American Emerson Cathedral mains radio is made from imitation-onyx plastic in the style known to collectors as 'classical tombstone', typical of the shape of many cabinets from the early Thirties. It came in several colours and because it was hand cast, a variety of unique veining patterns could be produced by the expert craftsmen who made them. 25.4cm x 19cm x 12.7cm (10" x 7 1/2" x 5").

(Below) American Airline midget mains radio of about 1958 with a bakelite cabinet in the lowered style then popular. 12.7cm x 17.7cm x 10.1cm (5" x 7" x 4").



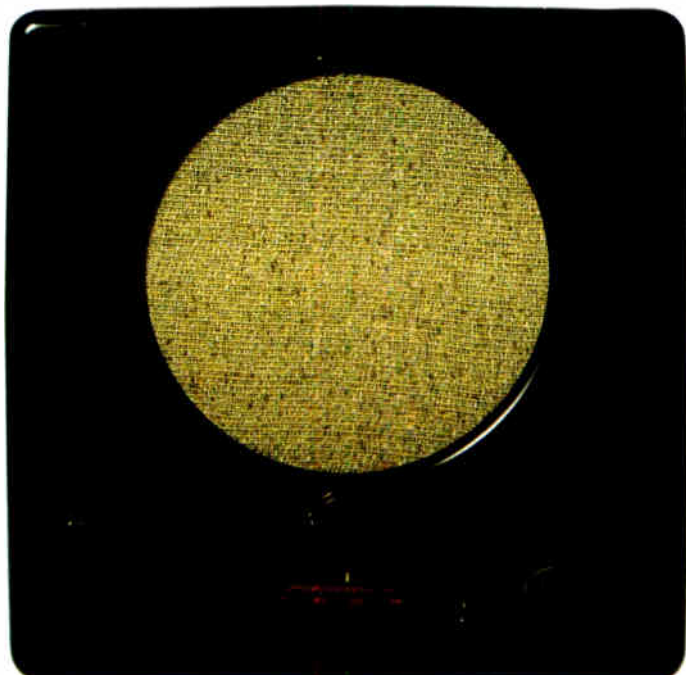


(Left) Looking rather like a bakelite telephone, this Phonola five-valve mains Italian radio of 1959 was designed by the architects A. Castiglioni and P. Caccia Dominioni.



Disguised as a table-lamp, the 1958 Italian Lumaradio LA mains radio in its semi-circular walnut case had a frilly shade on top. It sometimes came with a clock too.

(Below) The Deutscher Kleinempfänger ('The German People's Set'), was mass-produced cheaply from 1955 onwards by a consortium of German radio manufacturers on the order of Hitler's propagandists. Battery and mains versions. 22.8cm x 22.8cm x 12.7cm (9" x 9" x 5").



(Above) German VE 301 of 1955 – a larger and more expensive radio produced under similar conditions to that of the radio illustrated bottom right. 55cm x 26.6cm x 17.7cm (15" x 10½" x 7").



The 1958 British Pye Baby Q four-valve mains portable was produced in a blue leathercloth-covered plywood case with bakelite top-panel and the company's famous 'rising sun' logo behind the loudspeaker grille. 25.4cm × 50.4cm × 17.7cm (10" × 12" × 7").

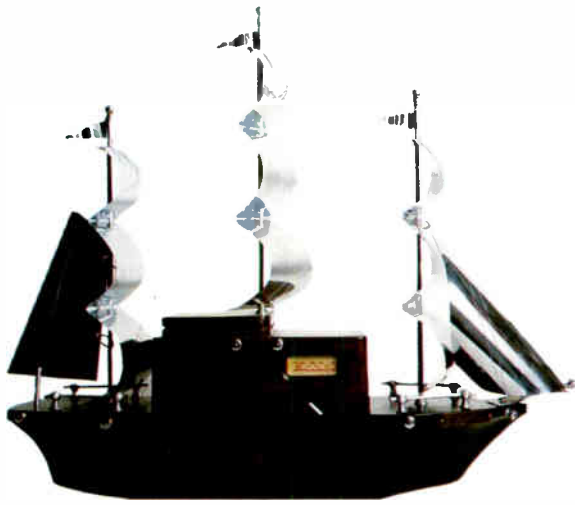


The cabinet for the c. 1957 American Zenith six-valve radio, in solid wood and veneered bent plywood, is classical in style but features art deco detailing and an aircraft-type dial that seems incongruous. 48.2cm × 54.2cm × 24.1cm (19" × 15½" × 9½").



Looking like a block of carved green onyx, the small American 1946 Bendix mains model 115 (above) came in several other colours including mottled brown and beige (right). 17.7cm × 27.9cm × 15.2cm (7" × 11" × 6").



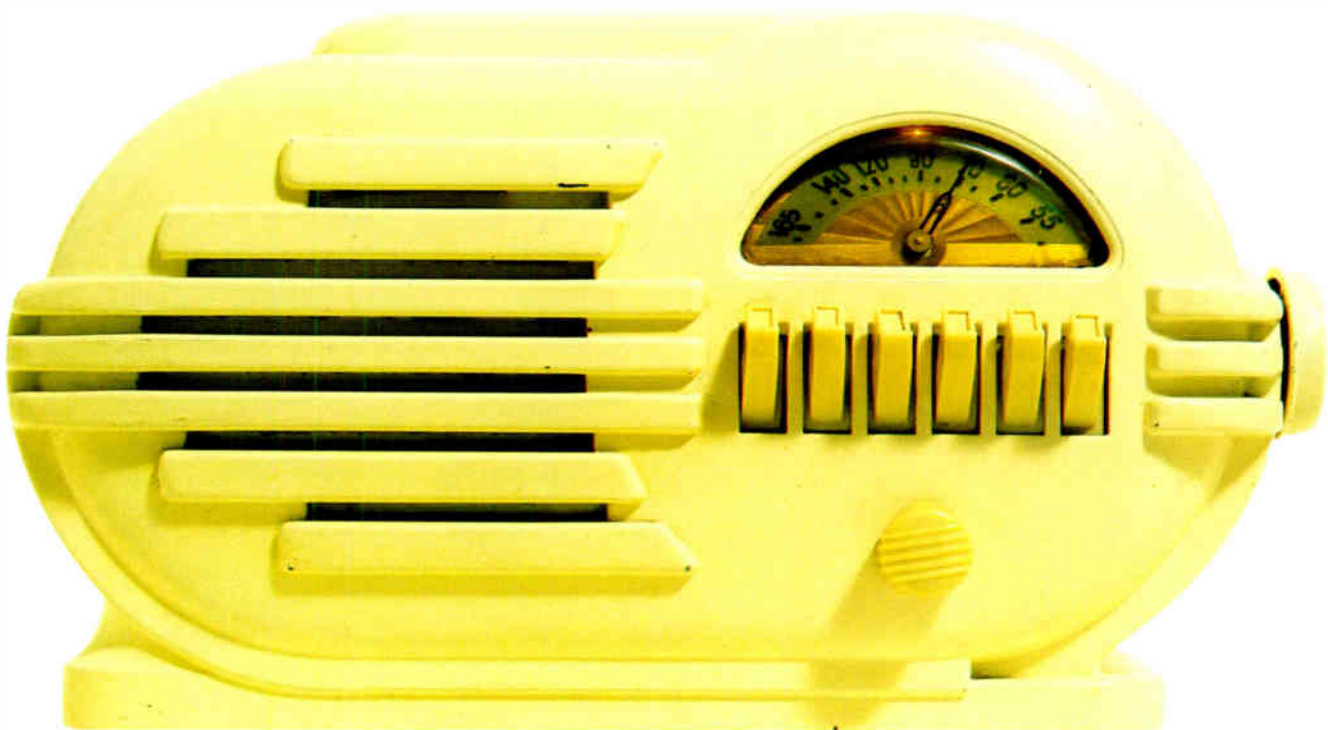


The kitsch American Majestic Melody Cruiser mains radio masquerades as a sailing ship. It has a mahogany hull and chromium-plated sails. 58.1cm × 60.9cm × 12.7cm (15" × 24" × 5").



The American Cyarts mains radio cabinet of c. 1946 has the translucent luminescence of earlier plastics but actually was heat-formed from acrylic sheeting rather than cast in a mould. 17.7cm × 55.5cm × 15.2cm (7" × 14" × 6").

The cabinet for the American Belmont mains model 6DIII of 1946 in streamline style was cast from ordinary brown or cream bakelite but some were paint-sprayed to increase variety for the customer. 17.7cm × 50.4cm × 16.5cm (7" × 12" × 6½").





The necessarily functional construction of the British 1945 mains/battery Miniature Communications Receiver MCRI, and its special place in history, make it a classic. Major John Brown of the Royal Signals designed it in a month at the secret HQ of the Special Operations Executive. Members of the Resistance in occupied countries needed it to receive BBC broadcasts – and most importantly, for the call-to-action on D-Day. Hundreds of them, hidden in biscuit-tins, were parachuted from RAF bombers to Europe and later the Far East, and were instrumental in saving many allied lives. 6.9cm × 19.9cm × 8.2cm (2³/₈" × 7⁷/₈" × 5¹/₄").



Almost ball-shaped, the Australian 1946 Kreiser mains radio cabinet was cast in sections of various coloured plastics which were then bolted together. 21.5cm × 24.1cm × 19cm (8¹/₂" × 9¹/₂" × 7¹/₂").



In 1945, almost a decade after startling the public with their innovative circular AD65 receiver, the British Ekco company repeated the idea with their A22 three-valve mains radio. The dial was made even larger so that it completely encircled the loudspeaker aperture. It was produced in plain brown bakelite or black-and-chrome. 35cm (13") diameter × 19cm (7¹/₂").



(Above) Craftsmen swirled colours into liquid Catalin plastic to produce the beautiful translucent tortoiseshell cabinet for this American GEC 1941 mains radio. 15.2cm × 24.1cm × 15.2cm (6" × 9½" × 6").



(Above) These small valve radios were typical of portables, often both battery and mains powered, of around the 1950s. Both are British and made by Murphy. The 144 of 1949 (left) is of cream-sprayed brown bakelite and the A100 of 1946 is of a later plastic.

Even after the Second World War, radio manufacturers continued to introduce art deco cabinet designs, like this architectural-style bakelite British Murphy four-valve mains radio. First introduced in 1940, it was shelved when the industry turned over to war production but reintroduced with an updated chassis in 1945. 34.2cm × 31.7cm × 17.7cm (13½" × 12½" × 7").

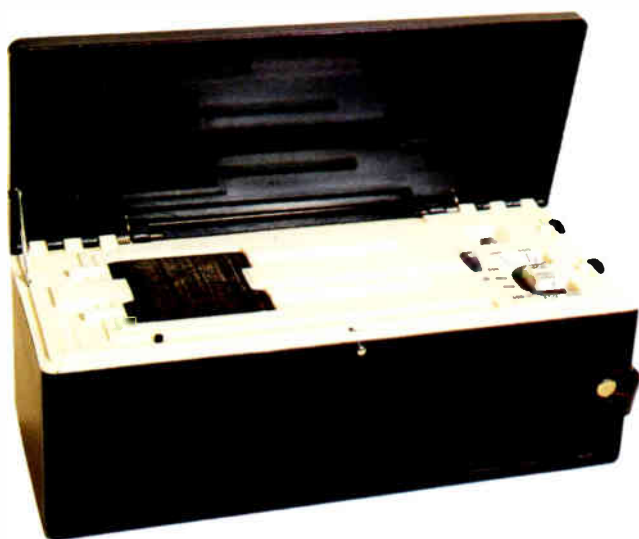




A variation on the British Ekco circular cabinet theme was this three-valve mains Ekco AD75 in brown bakelite. War stopped its production but it came out again in 1940. 56.8cm (14½") diameter × 15.2cm (6").



It must have required considerable ingenuity to house a valve radio inside this miniature model Grand Piano, in imitation wood with gilt fittings produced by the Television and Radio Corp. of America in 1940. 15.2cm × 25.4cm × 27.9cm (6" × 10" × 11").



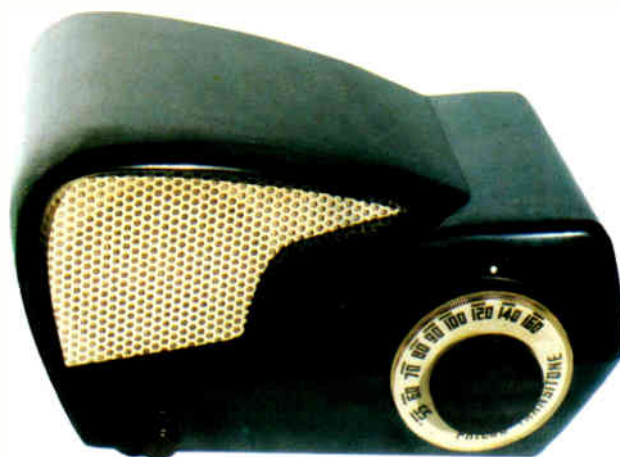
The British art deco black-and-white battery valve Vidor Personal Portable of 1946 looked like a box of chocolates and measured 11.45cm × 20.5cm × 11.4cm (4½" × 8" × 4½").



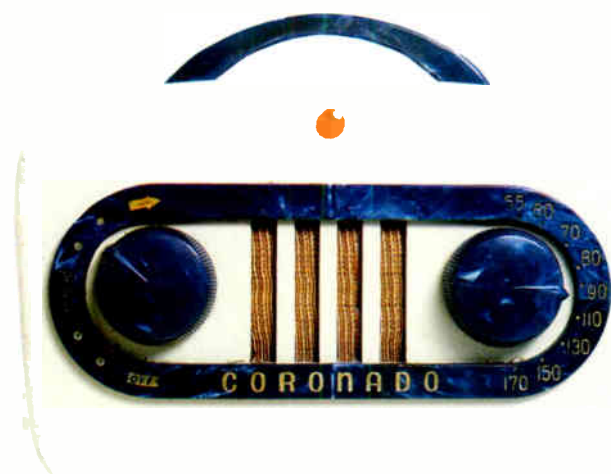
Typical of the personal portables introduced as a result of the development of low-consumption miniature valves, was this 1947 American battery radio called the Burgoyne Playboy, measuring only 6.3cm × 17.7cm × 11.4cm (2½" × 7" × 4½"). Presented in attractive plastic cases, such radios were aimed at an increasingly affluent youth market which was becoming increasingly mobile and demanded music on the move.



The British Hermes Radio Tourist battery valve portable of 1947 was made of sprayed metal in the shape of a book, 21.5cm x 15.2cm x 7.6cm (8½" x 6" x 3"), and supplied with a canvas satchel.



With its double wing shapes, the streamlined five-valve 1949 American Philco Transitone mains radio appears to be taking off in two directions at once. Black and white plastic.



The plastic cabinet of the 1947 American main Coronado radio had the outline resembling the early television screen that was fast gaining prominence in the living-room over the radio. 15.2cm x 22.8cm x 15.2cm (6" x 9" x 6").

(Right) The outline of this 1946 American Fada Streamliner mains radio gave it the nickname 'the bullet'. This one is in burgundy Catalin with toffee-coloured trim and gumdrop knobs, but many other combinations were made. 15.2cm x 26.6cm x 12.7cm (6" x 10½" x 5").



(Above) The Sentinel of 1947 was another American TV-shaped mains radio, this time incorporating the deco-style venetian-blind feature. To fit the works with the tuning controls and dial at the top into the butterscotch coloured Catalin box, they had to be hung upside-down. 17.7cm x 27.9cm x 16.5cm (7" x 11" x 6½").





One of Britain's first all-new postwar cabinet designs, the Bush DAC 90 radio. Cheap but well made, it became a best-seller and continued successfully for many years. The later model A (above) was available in cream or brown bakelite and had a gold metal grille. There were other variations and battery as well as mains versions. c. 1950. 50.4cm x 22.8cm x 17.7cm (12" x 9" x 7").



The original Bush DAC 90 radio was shown at the Britain Can Make It exhibition at Olympia, London, the post-war exhibition to show that Britain's industry was back in production. The 'sculptural' knobs were so smooth that it was difficult to turn them.

This 1946 British RAP radio had a plain wooden box with a large dial, coupled with a curiously outdated Odeon-style loudspeaker, a chrome-plated chassis and a glass back so the customer could see the works. 55cm x 45.7cm x 22.8cm (15" x 18" x 9").





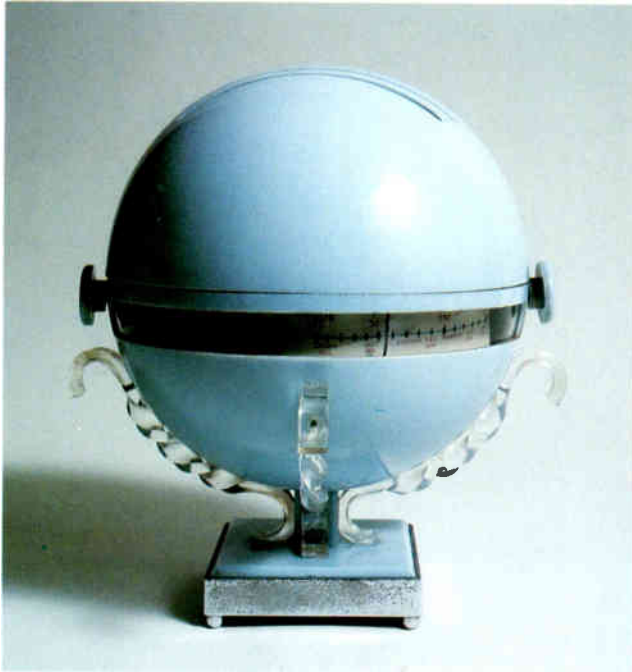
Recognizing a growing demand for 'high fidelity' sound, one British company, Murphy, switched its attention from producing cabinets for their visual attractiveness to designing them on acoustic principles. Their four-valve mains A104 radio took advantage of the fact that fixing the loudspeaker behind a large wooden baffle improves the sound, as well as producing a stylistic innovation. Veneered in mahogany with old gold plastic trim, it measures 45.7cm x 60.9cm x 15.9cm (18" x 24" x 5 1/2").



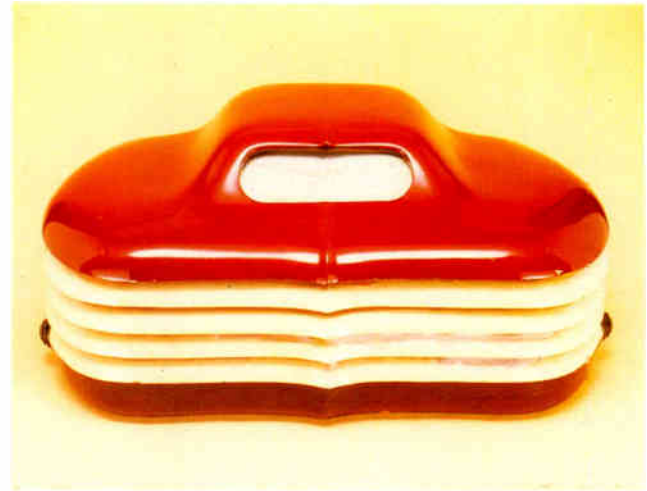
The first British 'personal portable', the Romac 106 four-valve radio of 1946, with its matt black finish, chrome trim and shoulder-strap, made the notion of carrying around a radio as acceptable as the camera it mimicked. The small size was the result of new miniature valves and batteries but such pioneering sets were to have a brief history – they were soon killed off by the arrival of the transistor radio, which was cheaper to buy and to run. 13.9cm x 24.1cm x 5cm (5 1/2" x 9 1/2" x 2").

A malformed egg-shape on which is imposed the front view of an outrageous Fifties automobile, this bakelite cabinet for the Sonorette five-valve radio was designed in America for the French market. Available in red, blue, green or brown, it was described as 'petite and charmante', measured 12.7cm x 21.5cm x 15.2cm (5" x 8 1/2" x 6") and worked from the mains or by plugging it into a car cigarette-lighter socket.





A piece of kitsch in the form of the popular conception of a space ship: the 1947 British Champion Venus four-valve mains radio was made from heat-formed acrylic sheet.



(Above) 1947 two-tone bakelite Spanish Iberia mains model 4153. 50.4cm x 60.9cm x 50.4cm (12" x 24" x 12").

(Below) The bakelite and gold metal case of the 1948 American Westinghouse Little Jewel battery portable valve radio is reminiscent of an early refrigerator in miniature. 22.8cm x 15.2cm x 12.7cm (9" x 6" x 5").



Another ovoid sculpture, perhaps influenced by Henry Moore, the 1948 British four-valve battery portable General Electric Company BC4941 in bottle-green bakelite. 55cm x 55cm x 15.2cm (15" x 15" x 6").



RADIO AR



The handbag-style 1948 British Marconiphone P20B battery four-valve 'personal portable' in cream plastic and imitation snakeskin was designed to appeal to women. 7.6cm × 17.7cm × 12.7cm (3" × 7" × 5").

(Below) The British Pye M78F acrylic-cased four-valve miniature battery portable of 1948 was ill-fated. After the war the manufacturers reintroduced their famous 'rising sun' logo on a new set, overlooking the fact that it resembled almost exactly the old Japanese flag which was the symbol of Britain's former enemy. The radio was withdrawn as being in bad taste and is now rare because almost the entire production was put on a bonfire at the works one night. The emblem of the rising sun thus ended in a fiery sunset and was never again used on a radio. 17.7cm × 15.2cm × 7.6cm (7" × 6" × 3").



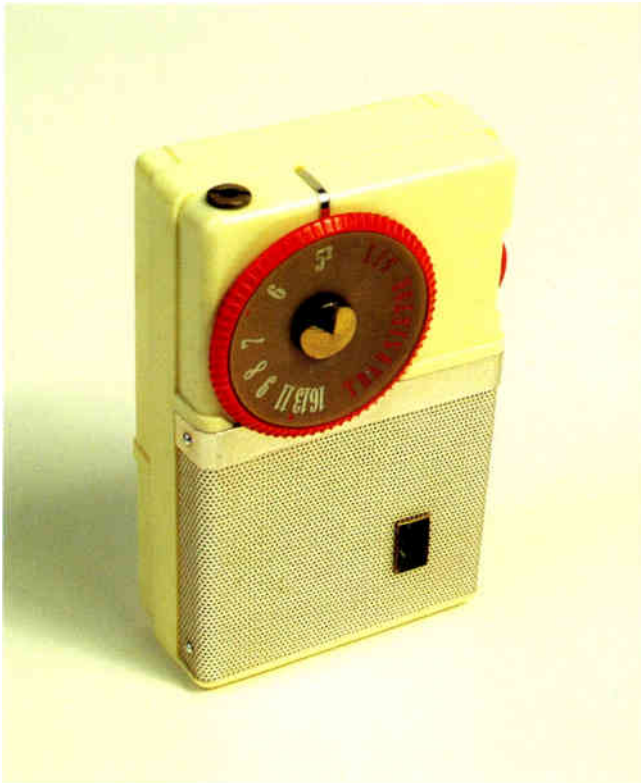
(Above) The Space Age did not officially begin until the launch of the Russian Sputnik in 1957, but the imagery of spaceships had begun to influence designers long before that. The British 1947 Emor Globe four-valve mains radio pictured here is a 50.4cm (12") diameter gold metal sphere on a 152.4cm (60") stand. It has no control knobs but is tuned by rotating the sphere.



RADIO ART



A high-tech look for domestic radios was introduced by the American Zenith company at an early date when they produced a series of Trans-Oceanic receivers, designed to give good worldwide reception rather than catering for just local reception. The model illustrated dates from 1946 and is in black leathercloth.

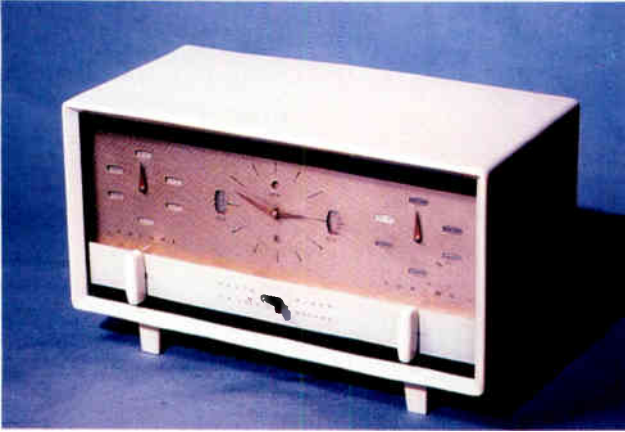


This plastic-cased 1948 British Ekco P63 four-valve battery portable is a late Wells Coates design which is so plain that it looks more like a small briefcase than a conventional radio. 22.8cm x 20.5cm x 6.5cm (9" x 8" x 2 1/2").

(Above) This Sony TR63 'shirt pocket' receiver, 11.4cm x 6.9cm x 3.1cm (4 1/2" x 2 3/4" x 1 1/4"), was claimed in 1957 to be 'the world's smallest radio'. The American Regency TR1, only fractionally larger, had made a similar claim two years earlier, a year before Japan's first transistor radio. The tiny device called the transistor had been invented in the US Bell Laboratories in 1947. It replaced the bulky, power-hungry valve, making miniature technology possible.



RADIO ART

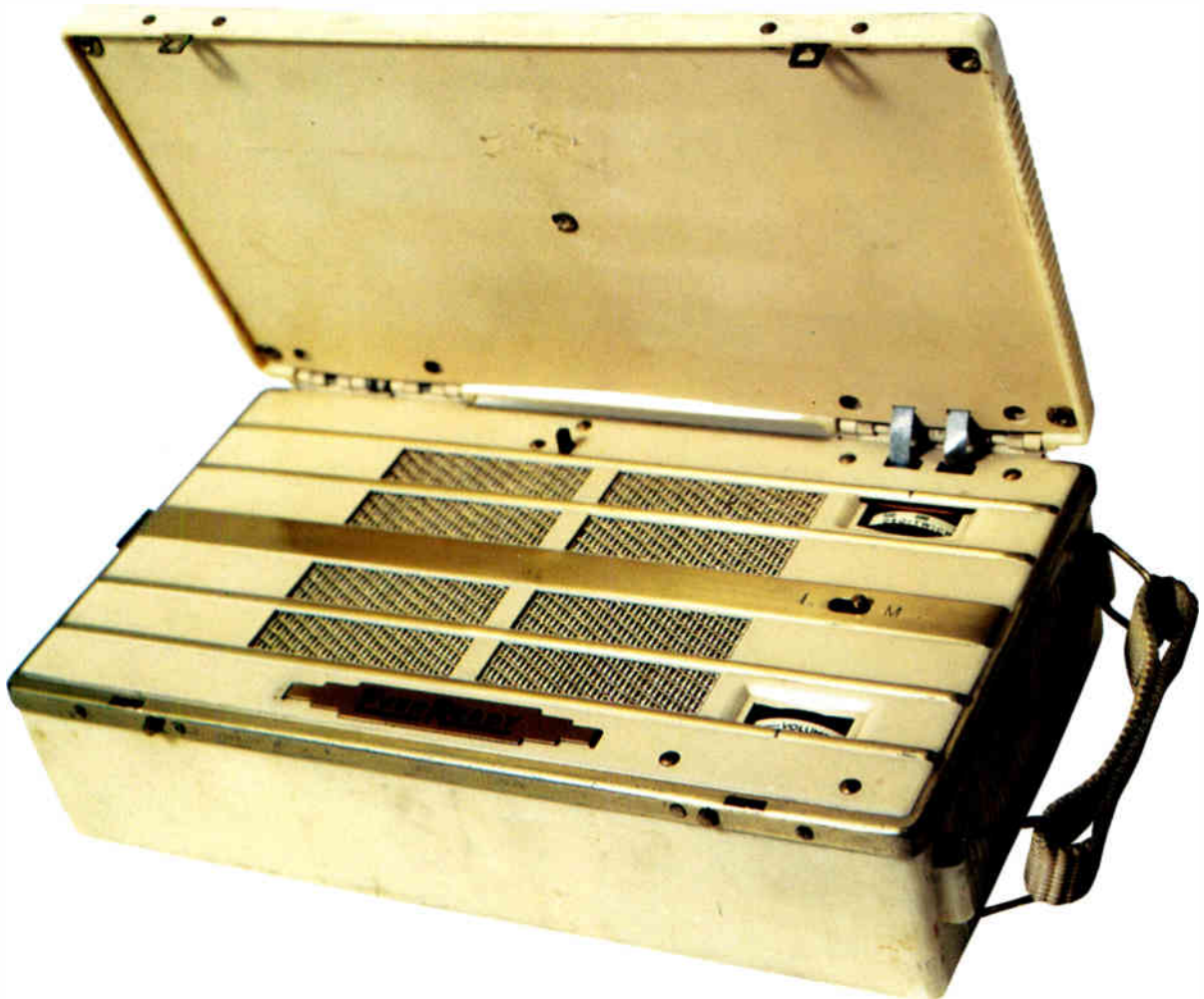


1947 British Ekco Radiotime model A33 mains valve radio in 'contemporary-style' ivory plastic cabinet. It could be set to switch on pre-selected stations.



American Emerson 'handbag style' four-valve battery portable c. 1947. Approx. 6.5cm x 22.8cm x 12.7cm (2½" x 9" x 5").

(Below) *This 1947 cream plastic cosmetic variation on a Marconiphone personal portable valve radio was marketed by the British Ever Ready battery firm. 6.5cm x 22.8cm x 12.7cm (2½" x 9" x 5").*

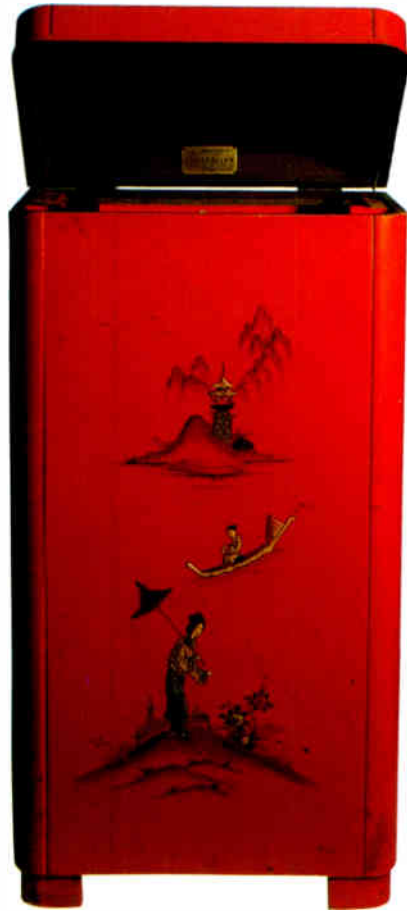




Two plastic-cased mains battery radios from the Fifties. The five-valve model on the left is by Madrid Radio and measures 12.7cm x 17.7cm x 8.8cm (5" x 7" x 3½"). The tiny one is the Gnomo by Era of Milan and was probably one of the smallest mains radios ever made, at 8.2cm x 10.9cm x 6.9cm (3¼" x 4¾" x 2¾").



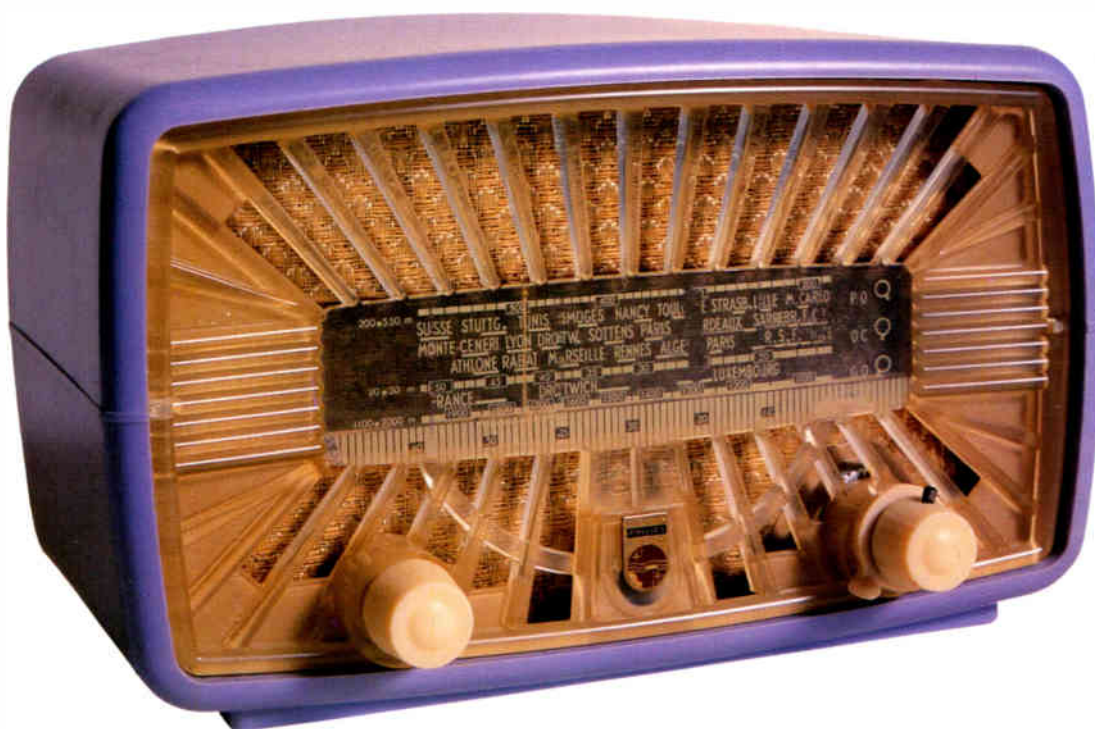
1947 British Marconiophone P17B four-valve battery personal portable in black plastic and chromium. 6.5cm x 22.8cm x 12.7cm (2½" x 9" x 5").



The 1947 British Cassor 490K five-valve mains floor-standing console revived the pre-war taste for Chinese lacquer finishes. The cabinets were made and hand-painted by the London piano-makers Challen. 78.7cm × 40.6cm × 50.4cm (31" × 16" × 12").

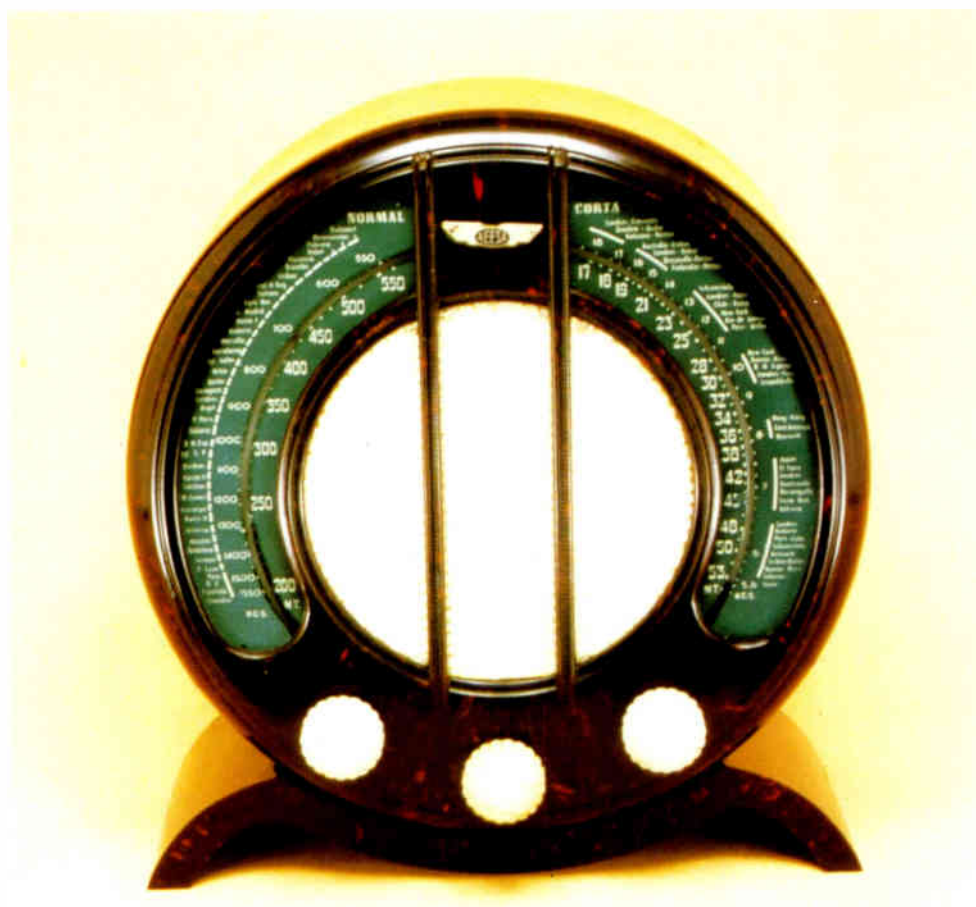
This Kreidler curvilinear bakelite mains valve radio with the tuning dial on top instead of at the front is Australian and dates from the Fifties. 20.5cm × 20.5cm × 50.4cm (8" × 8" × 12").





*This Fifties four-valve French Philips BF101 mains valve radio in plastic has a transparent acrylic fret which lights up.
15.9cm × 22.8cm × 11.4cm
(5½" × 9" × 4½").*

*(Below) This Czechoslovakian Tesla Talisman 308U four-valve mains perhaps owes something to Dan Dare's spaceship from the comic-strip.
30.4cm × 19cm × 15.2cm
(12" × 7½" × 6").*

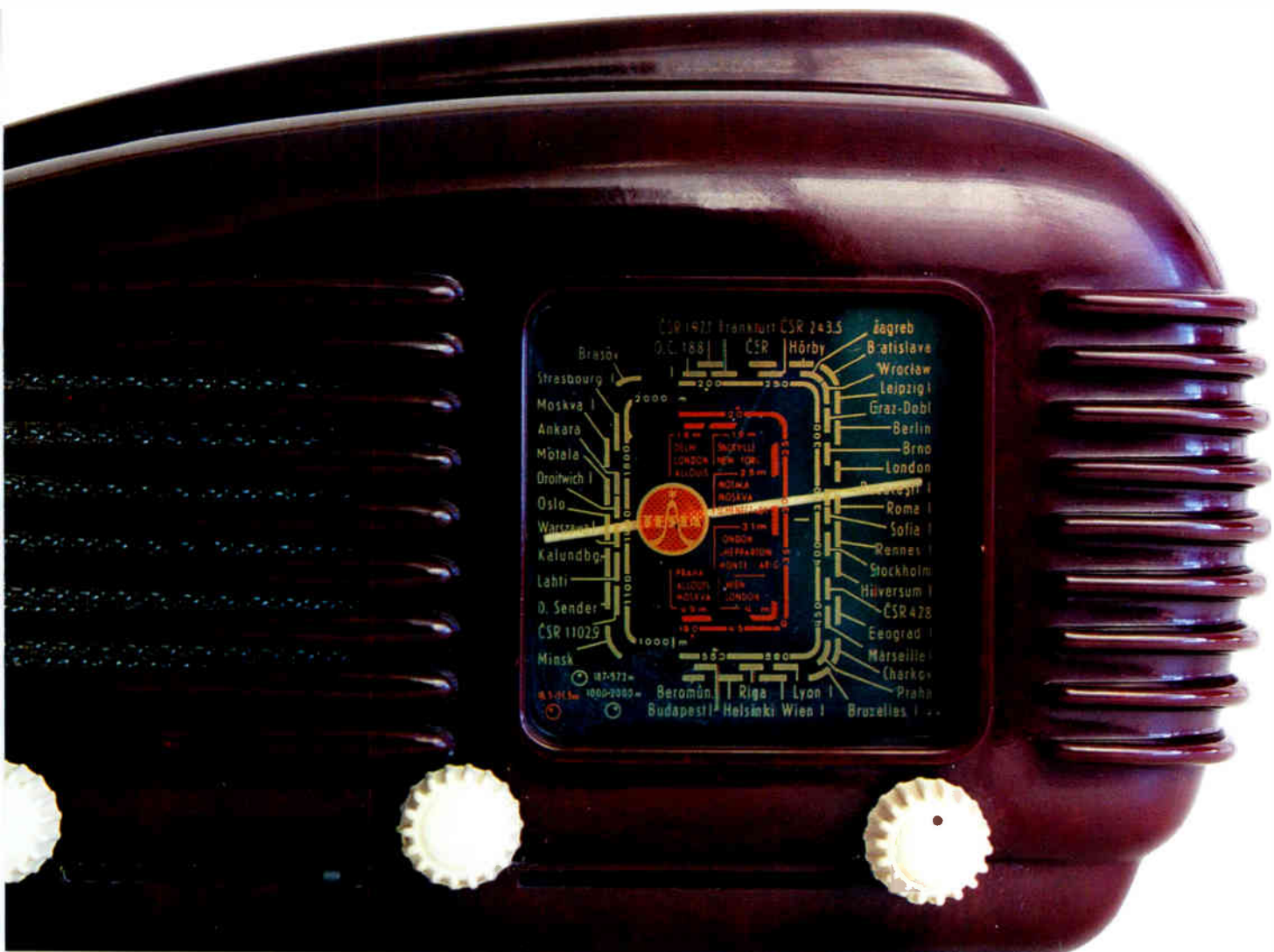


The Spanish Aeova Estrella Polar of 1955 resembles the Wells Coates circular radio designs for Ekco from 1954. Mottled brown bakelite. 29.2cm (11½") diameter × 16.5cm (6½").





*British McMichael four-valve
mains radio c. 1950 in a
sprayed bakelite cabinet.*





This early British battery valve personal portable, made by Pam, was a crude forerunner of the Walkman, having a pair of lightweight earphones instead of a loudspeaker. The thick-walled bakelite case, approximately 15.2cm × 20.3cm × 20.3cm (6" × 8" × 8") has the quality of a wartime instrument case perhaps obtained as government surplus after the War. It is thought to date from the 1940s.



This American Coca-Cola novelty mains valve radio in red plastic, the RCA 5A410, is an exact replica in miniature of a shop cooler-dispenser. c. 1949. 22.8cm × 30.4cm × 20.3cm (9" × 12" × 8").



The aluminium case for this 1949 valve battery radio (left) was actually a 22.8cm (9") paint-sprayed saucepan without a handle. Known as The Saucepan Special, it was made by the British Ever Ready battery company, and was designed to be exported to Central Africa to help the expansion of broadcasting there. It had to be cheap and resistant to humid conditions and insects.





Several manufacturers produced mains valve clock-radios in the mid-Fifties, intended for bedrooms. They looked like the conventional cabinets of the period but stations were switched-in so that tuning-dials could be omitted and replaced by clock dials. The plastic-cased British Philips of 1954, which had the increasingly popular television-screen shape, is illustrated. 20.5cm x 51.7cm x 15.2cm (8" x 12½" x 6").



The automobile influence is evident in this plastic and chrome Spanish Artes AR-3 mains valve set of 1955. 51.7cm x 55.8cm x 26.6cm (12½" x 22" x 10½").



The 1957 British Jewel four-valve handbag radio had a fibre case covered in furnishing fabric with a tasselled handle. It bears a medallion depicting a girl with an illuminated 'jewel' in her hair. For the fashionable young lady on the move, it worked from the car cigarette lighter socket as well as from internal batteries. 22.8cm × 20.5cm × 12.7cm (9" × 8" × 5").



The 1955 four-valve mains/battery British Ultra Coronation Twin, in imitation lizard-skin, commemorated the accession of Queen Elizabeth II and was doubtless used by people on the processional route to listen to the broadcast commentary. 22.8cm × 50.4cm × 17.7cm (9" × 12" × 7").

RADIO ART



Covered in the contemporary polka-dot material popular in Britain in the Fifties, this Roberts battery portable was promoted as a fashion accessory. 16.5cm × 24.1cm × 10.1cm (6½" × 9½" × 4").



A cross between deco and automobile styling, this plastic Emerson mains valve radio of c. 1950 also makes a feature of its slide-rule style dial, borrowed from a dashboard speedometer of the day. 15.2cm × 22.8cm × 12.7cm (6" × 9" × 5").



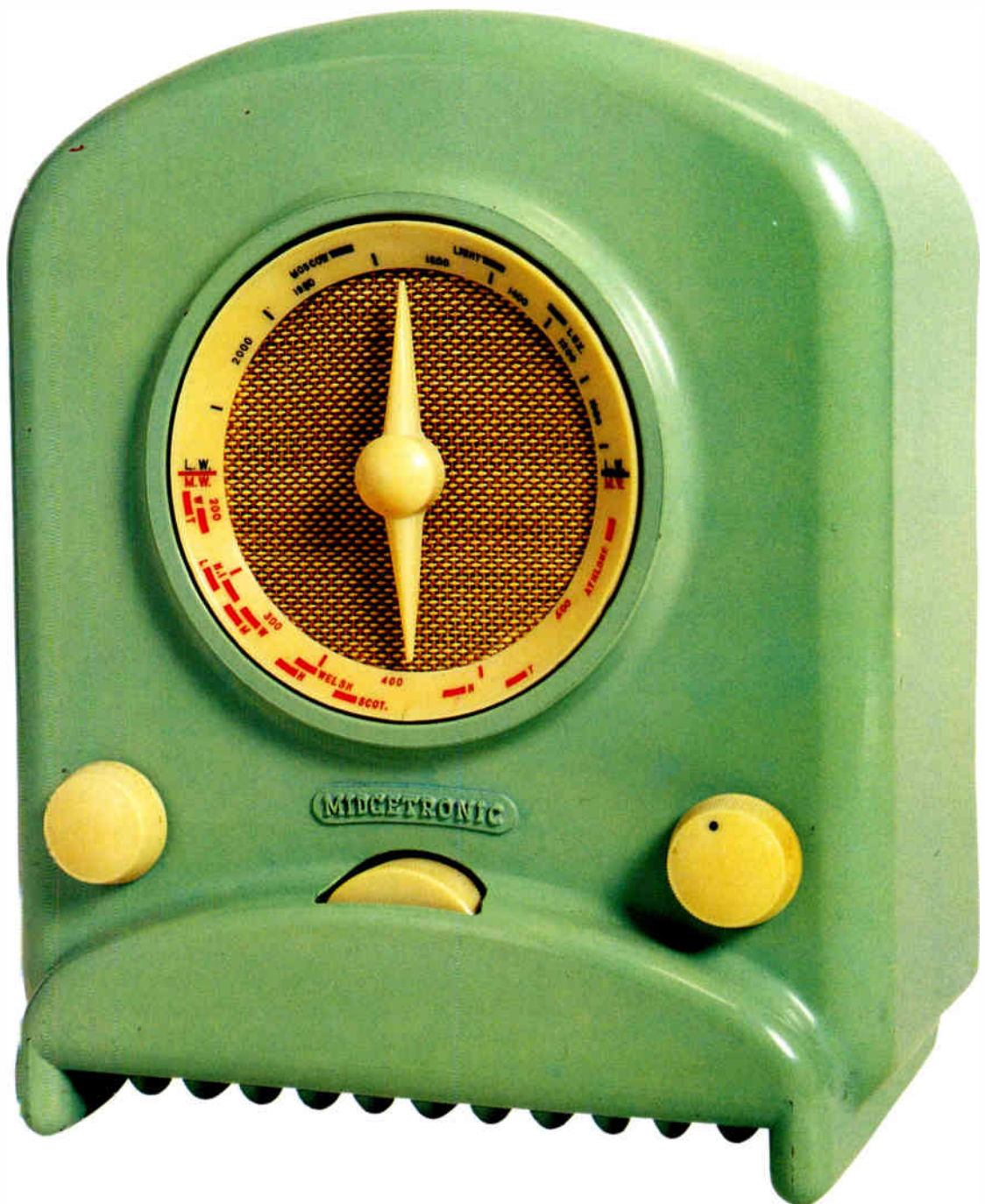
The American Dahlberg mains valve radio of 1955 was designed to clip on to motel bed headboards. The hump on the top is a lockable coin-box to allow the purchase of listening time. Suspended from a hook at the side is a 'pillow speaker' on a cord. Note that the dial is upside-down to allow the listener to tune in without lifting his head from the pillow or turning round.

RADIO ART



The American Country Belle 1956 radio in the form of a vintage wall-telephone in wood, brass and plastic was tuned by turning the crank at the side.

The British Midgetronic three-valve mains radio of 1950 had a painted bakelite cabinet originally intended for an ingenious precursor of printed circuit technology which had been a commercial failure. 22.8cm × 17.7cm × 10.1cm (9" × 7" × 4").





Royal warrant holders, Roberts Radio, now Britain's only remaining radio manufacturer, marketed small, beautifully made battery portables as fashion accessories in the Fifties such as this outrageous model in real mink. Others were covered in jewelled suede and leopard-skin and there was even a £2000 one in solid gold.



(Above) An American Emerson battery four-valve personal portable in cream plastic and gold metal case c. 1947. 6.5cm x 21.5cm x 11.4cm (2½" x 8½" x 4½").

The 1957 British Marconi P60B (also HMV 1410G) used a combination of two of the old-fashioned valves and two of the new transistors. 15.2cm x 19cm x 7.6cm (6" x 7½" x 3").



The cream Ivalek (left) and the red Bridisco (above), both British, were styled like full-sized valve radios but were actually modern crystal receivers. Measuring just 10.1cm x 7.6cm x 5cm (4" x 3" x 2"), they required external aerials because they were powered entirely by the incoming signal.



This British Vidor mains/battery four-valve portable of the Fifties in its cloth-covered wooden case 24.1cm × 33.5cm × 8.8cm (9½" × 14" × 3½") recycled the stepped design and louvres of the deco period.



The British Pye Black Box, c. 1953, promoted hi-fi for the ordinary home. The mono two-speaker record player in a Chinese lacquer wood box was considered by some to have a good tone; the radio was relegated to the plinth. 40.6cm × 33.5cm × 33.5cm (16" × 14" × 14").



Nicknamed the Toaster because of its shape and the fact that it generated enough heat to scorch the plastic case, the 1950 British

KB four-valve mains radio of 1950 nevertheless remained popular for many years. It was produced in bakelite in dull colours and was also presented in sprayed-on pastel colours.

Later models are seen in brighter modern plastics.

17.7cm × 25.4cm × 16.5cm (7" × 10" × 6½").



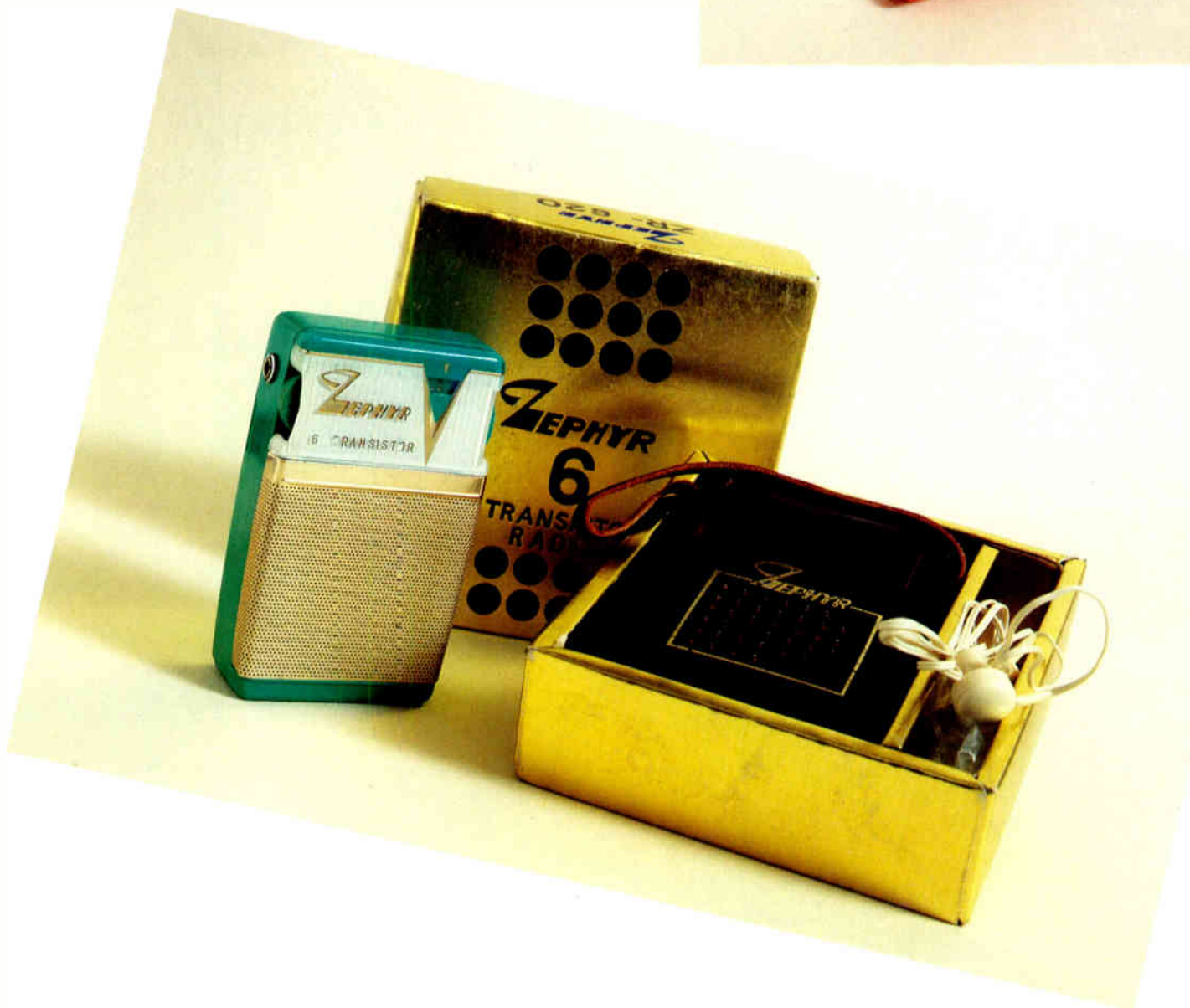
A prototype Wrist-Watch Radio with internal loudspeaker, self-scanning tuning and digital station indication: a Sony 'future product'. The technology for such small receivers already exists: a normal sized German wrist-watch is in production which regulates itself by automatically tuning-into accurate time signals transmitted from master clocks within a range of 1000 miles.



The early miniature transistor radios, which got smaller and smaller in size yet increased in quality of performance, were often presented in leather pouches, like precious metal cigarette cases or expensive miniature cameras. Illustrated is a midjet gold-plated plastic Aero transistor radio of the early Sixties.



A Sixties American Emerson six-transistor radio in a decorative plastic case with folding stand.



This small transistor radio from the Sixties was manufactured in the Far East. Its leather case and gaudy presentation box made it seem like an item of jewellery.



The Sixties minimalist-style Italian Brionvega split-cube battery stereo radio was designed by A. e³ P. Castiglioni. When closed, it is difficult to guess that it is a radio. Plastic, in several bright colours, with chromium detail. 12.7cm × 12.7cm × 21.5cm (5" × 5" × 8½").



A 1966 Italian stereo radiogram in three sections, mounted on a metal wheeled trolley. Designed by A. e³ P. Castiglioni.



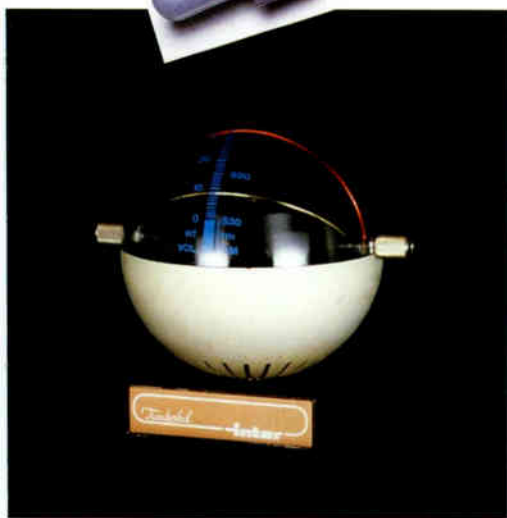
The Philips Roller, a stereo radio/cassette-player in a plastic case, from the late Eighties.



Marketed as 'Britain's smallest radio' in 1960; the Sinclair Micromatic was smaller than a matchbox, could be built from a DIY kit and was powered by a tiny hearing-aid battery, but would only work an earphone. 4.4cm × 5.1cm × 1.27cm (1¾" × 1¼" × ½").



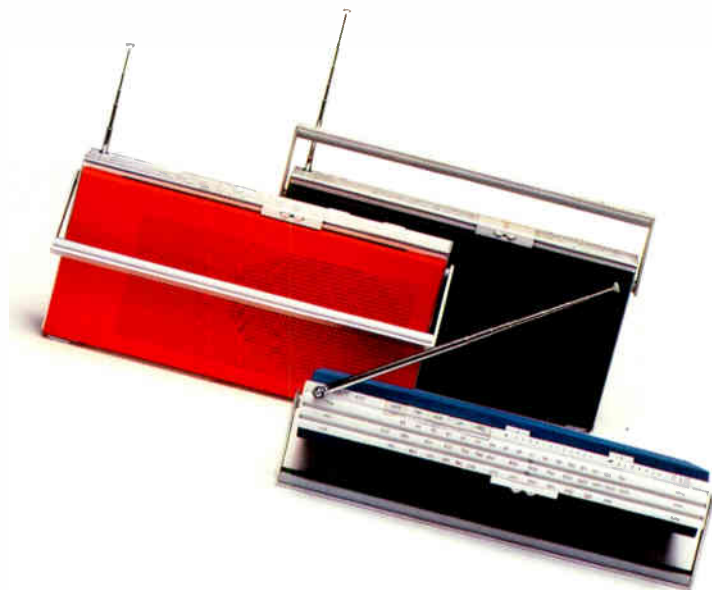
(Below) Two Philips Moving Sound personal entertainment devices for the youth market: stereo radio (left) and matching cassette. c. 1990.



(Left) Spanish Inter Tunderbal transistor radio: a plastic sphere intended to seem as if floating in space.



(Above) An early example of a promotional radio concealed in a convincing plastic replica of a Coca-Cola bottle. When transistor radio technology began to become cheap, hundreds of novelty receivers of this kind appeared.



These 1970 Bang and Olufsen Beolit radios from Denmark in plastic and aluminium with slide-rule controls combine minimalist style with a restrained high-tech look.

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