

Daily Mail

TELEVISION

HANDBOOK

REVISED EDITION

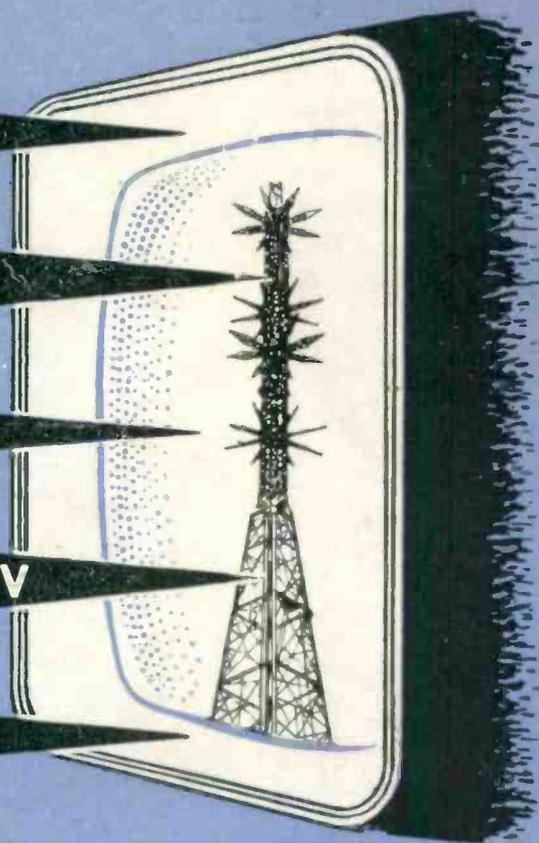
RECEPTION & TUNING

TV PERSONALITIES

HOW TELEVISION WORKS

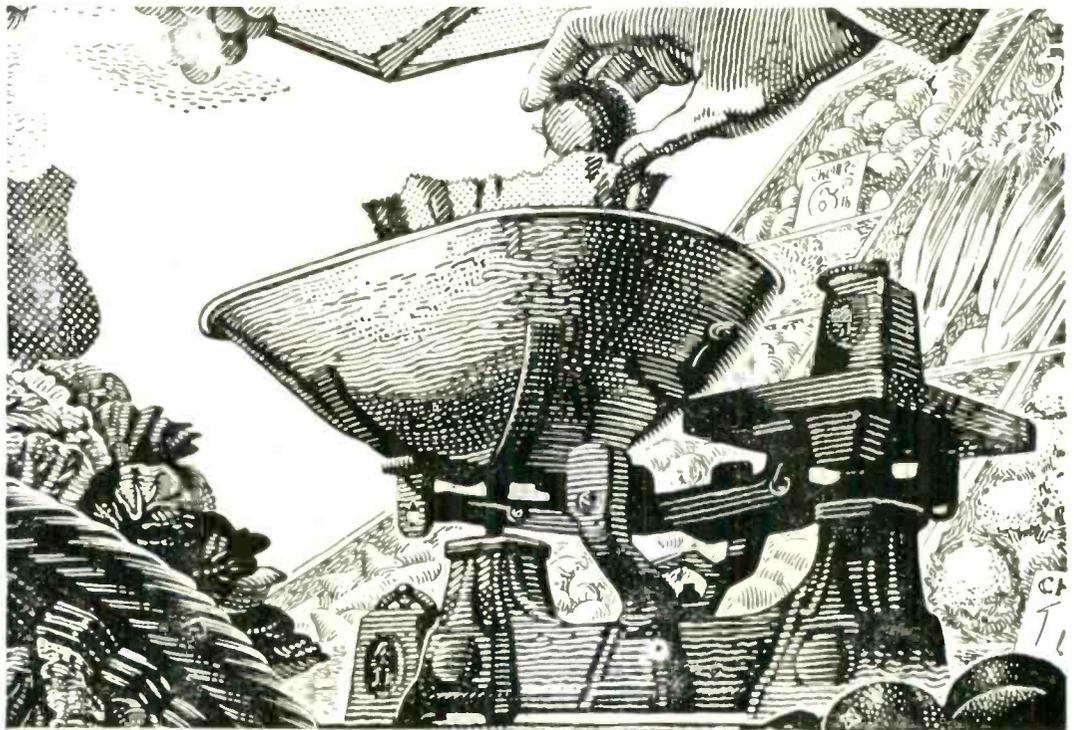
20 QUESTIONS ON TV

FULLY ILLUSTRATED



• AREA MAPS OF
ALEXANDRA PALACE • SUTTON COLDFIELD • HOLME MOSS

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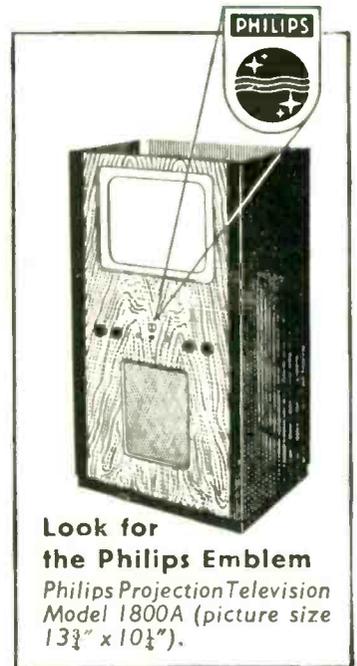


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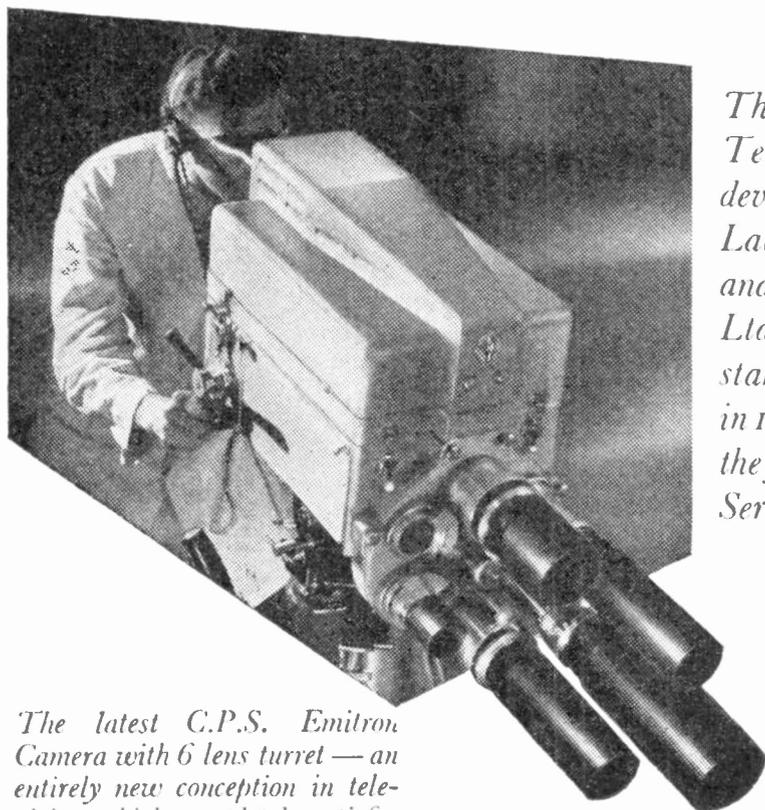
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Daily Mail

TELEVISION HANDBOOK

Useful information for the owner and intending owner of a television set is contained in this 96 page Handbook, which includes valuable hints on Installation and Tuning, Questions and Answers on Television, and Reception and Range Maps of the Home Counties, Midland and Northern Area Transmitting Stations.

Edited by

FRANK COVEN

Should you not find the answer to your television query in these pages write to the Editor of the Daily Mail Television Handbook, Northcliffe House, London, E.C.4

A **Daily Mail** PUBLICATION

ABOUT THIS BOOK

THE “*Daily Mail*”—sponsor of the National Television Awards—ever to the fore in reporting every phase of television development, offers a service to viewers of which it is justly proud. Collie Knox, the outstanding television and radio critic of the day, writes his famous weekly articles in the newspaper, and in addition, regular comment appears daily upon the previous night’s television programmes.

It is believed, however, that a more specialised type of assistance and comment on matters of general and technical interest may be welcomed by many people. It is to this end that we have published the *Daily Mail Television Handbook*, and it is hoped that viewers—and intending viewers—will find some value in what attempts to be a comprehensive survey of television problems and possibilities.

Grateful acknowledgements for their co-operation and help are made to Mr. Cecil McGivern and the staff at Alexandra Palace, in particular the Publicity Officer, Mr. Ernest Thomson—to the B.B.C. Engineering Information Department, the B.B.C. Display Section for photographs, and to Mr. G. W. Godfrey

F.C.



Their Majesties the King and Queen at the opening of the South Bank Festival of Britain Exhibition on May 4th, 1951. Television serves to bring the Royal Family more intimately than ever into the homes of the people.

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THE GROWING TELEVISION NETWORK

TRANSMITTING STATIONS

SINCE the publication of the first "Daily Mail Television Handbook" in September, 1949, the Television Service in Great Britain has expanded considerably. It is true to say that this expansion has not been fast enough to please everybody for a variety of reasons—in which the government policy of limiting Capital Expenditure and also the difficulties of finding suitable sites for stations largely figure—but nevertheless great strides forward have been made and even greater advances are envisaged.

Television Headquarters still remain at Alexandra Palace, in North London, where, in November, 1936, the B.B.C. inaugurated the world's first high definition service. The B.B.C. and the Post Office, however, are at present engaged upon the lengthy and costly task of transforming the service from what was originally a perquisite of London and the Home Counties, into a truly national coverage. The first important step in this expansion scheme came in December, 1949, when Sutton Coldfield, the Midland Television Station, was opened. The second is the opening of the Northern Television Station at Holme Moss, near Huddersfield, bringing television to the densely populated industrial North.

Quite apart from the enormous expenditure involved, the task of expansion is a difficult one technically because nothing like this has been or is being attempted elsewhere, so that every new problem has to be studied and solved from first principles. However, the initial stage of this development is due to be completed by 1954, by which time television should be available to more than four-fifths of the population of the United Kingdom.

In August of 1951 licence holders within the London and Midland station areas totalled approximately one million, but this is, of course, a comparatively small proportion of the



GEORGE BARNES

Appointed in October, 1950, to the Directorship of B.B.C. Television, a new post with a seat on the Corporation's Board of Management. First joined the B.B.C. in September, 1935, as Assistant in Talks Department, after several years as Assistant Secretary of the Cambridge University Press. Educated at the Royal Naval Colleges of Osborne and Dartmouth, and at King's College, Cambridge. For a time was Assistant Master at Dartmouth.

In 1941, Mr. Barnes became B.B.C. Talks Director, later Assistant Controller. With the start of the B.B.C.'s Third Programme in 1946, he became its first Head, and eighteen months later was appointed Director of the Spoken Word.

His hobby is sailing.



CECIL MCGIVERN

Controller of Television Programmes. Born in Newcastle of Irish parents, and from a very early age turned to stage acting and producing. For several years, however, he combined schoolmastering with these activities. He joined the B.B.C. in Manchester as a drama producer in 1934. Transferred to London in 1941 as feature writer and producer of such programmes as "Battle of Britain," "The Harbour Called Mulberry," "Their Finest Hour." Screen writer with Independent Producers Ltd. from July, 1945, until June, 1947. In charge of Television Programmes from that date, and achieved his present post on 20th October 1950.

eventual number that may be expected. Since, however, it is estimated that during a popular programme on an average three viewers will be looking in at any one set, it can be said that regular viewers in the country now number about three million, and during some outstanding broadcasts such as the Cup Final, this total will be considerably larger. This is not surprising when it is realised that together Alexandra Palace and Sutton Coldfield serve areas with a population of some 18,000,000 people, a figure which, incidentally, increases to about 30,000,000 with the functioning of Holme Moss.

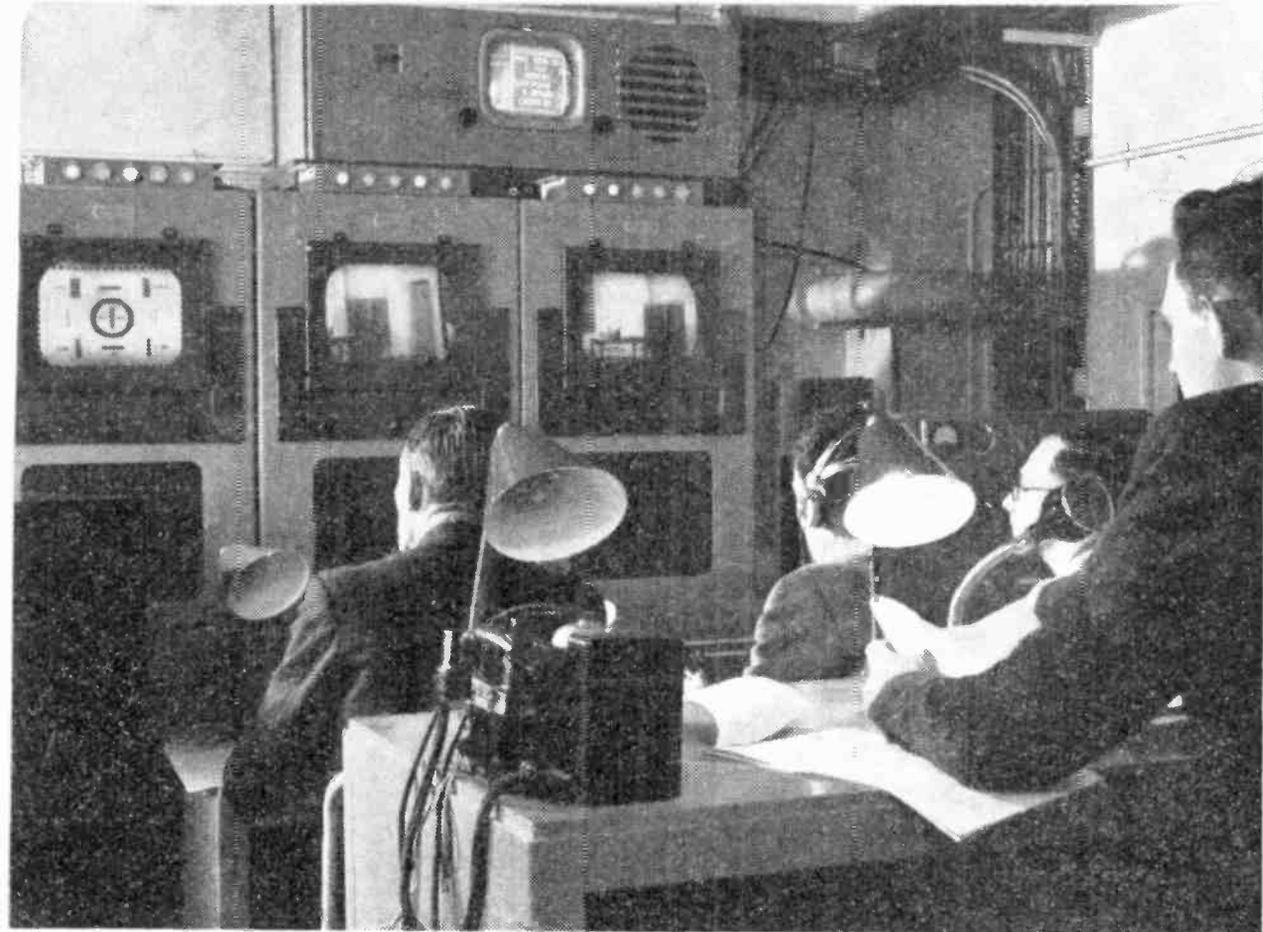
As explained in the chapter, "Hints on Installation and Tuning," the effective range of a television station depends upon the height of its aerial even more than upon its power, and it is noteworthy that whereas the Alexandra Palace vision transmitter has a peak power of 17 kilowatts and radiates from an aerial 600 feet above sea level, Sutton Coldfield has a peak power of 40 kilowatts, and the aerial is 1,300 feet above sea level. This has made Sutton Coldfield easily the most powerful television station in the world, but even these figures will be exceeded by further stations already planned by the B.B.C. For instance, Holme Moss also has a 40-kilowatt vision transmitter, but as its 750 ft. aerial mast is sited on the mountainous backbone of the North of England, at a height of 1,700 ft. above sea level, its aerial height is no less than 2,450 ft. and its effective range will extend from the Irish Sea to the North Sea.

KIRK O'SHOTTS

Construction work is going on also at the main Scottish Television station at Kirk o'Shotts and at the Wenvoe station which will serve South Wales and much of the West of England. 50-kilowatt vision transmitters are being built for these sites, but since in these districts there is no suitable very high ground, their effective ranges will be less than that of Holme Moss.

In addition to these Regional stations, the B.B.C. is going to build five smaller ones, near Aberdeen, Belfast, Newcastle-upon-Tyne, Plymouth and Southampton, to serve concentrations of population that will not be able to get good reception from any of the main transmitters. Unfortunately, however, the dates of their construction remain indefinite because of the increased defence programme.

For some time to come at least, all these stations will transmit the same programmes, which normally will originate in London, reaching the transmitting stations either by means of radio links



The Control Room in Studio "D" at the new Lime Grove Studio Centre, Shepherds Bush, London.

or coaxial cables provided by the Post Office. Increasingly frequent outside broadcasts will be seen which will have their inception regionally, and these programmes will generally be shown throughout the entire network. This policy has been agreed upon for economy reasons as well as considerations of the availability of talent, wavelength allocation, etc. Naturally, attention will be given by the programme planners to local needs in respect of programmes, timing, etc., and in due course, the whole of this conception will doubtless be reconsidered.

TELEVISION STUDIOS

When the television service opened in 1936, for technical reasons, the studios as well as the transmitters, were installed at Alexandra Palace. Two studios measuring 70 ft. by 30 ft. were provided, but even before the war, inadequate studio accommodation was beginning to restrict programme expansion.

When, in June, 1946, the service was resumed after the wartime suspension, efforts were made to find additional studios. Success was not achieved until January, 1950, when the former Gainsborough Film Studios at Lime Grove, West London, became available. This building includes five large studios—the biggest being 120 ft. by 84 ft., by itself considerably more than

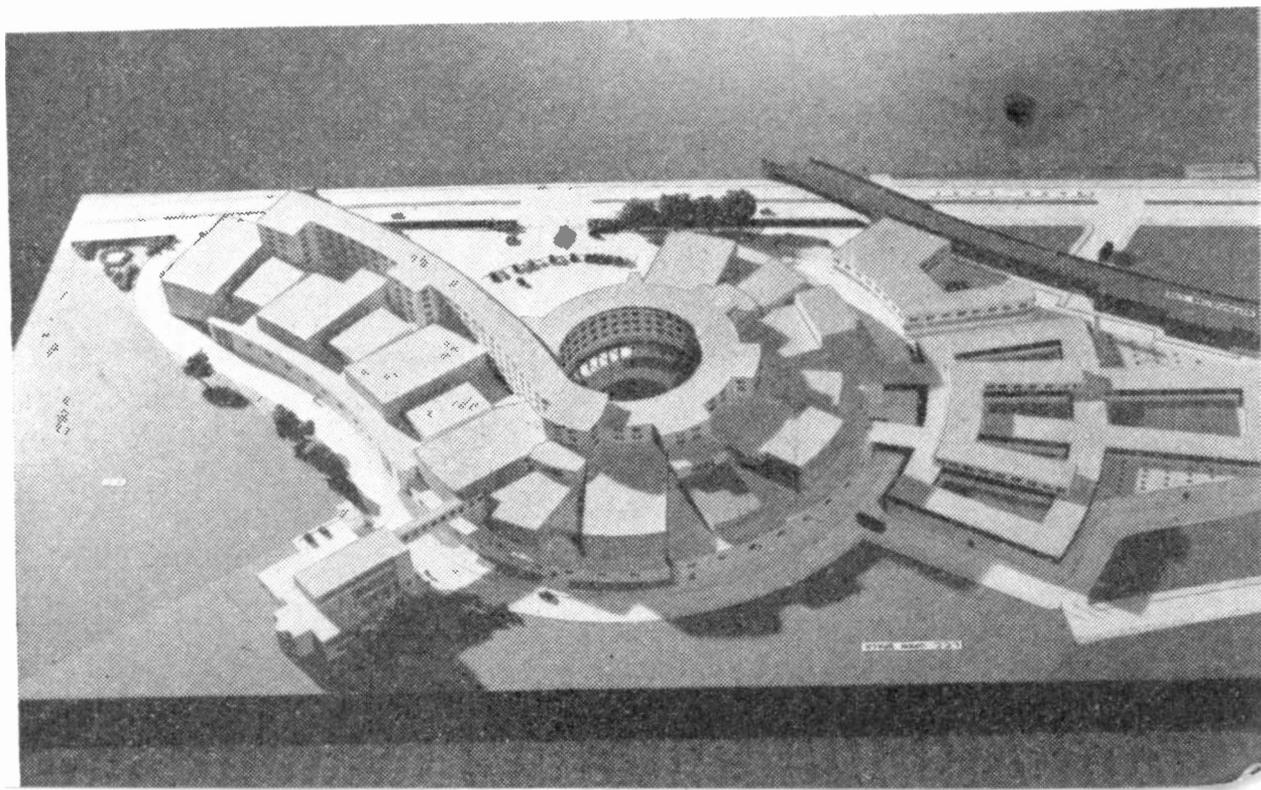
twice the area of both the Alexandra Palace studios put together—and their adaptation to the requirements of television production is being pushed ahead as rapidly as possible. Already two of these studios have been taken into use, and as well as permitting studio productions on a larger scale, they make possible increased rehearsal facilities, which have already resulted in a noticeable improvement in the slickness of the programmes.

But in addition to the Lime Grove Studios, the B.B.C. has made a start on the development of a site of 13 acres at White City, also in West London, where a very large and ultra-modern Television Centre is to be built. This is planned to include every worth-while feature and facility that has come out of the B.B.C.'s unique experience of a television service that saw its inauguration in 1932, as well as of studies that the B.B.C. has made of services, either existing or planned, in other countries.

TRANSMISSION STANDARDS

The British Television Standards were fixed in 1937 as representing the best compromise between picture quality and receiver cost. They are based upon a picture composed of 405 horizontal lines and equivalent definition along the lines. Experts report that technical developments since these standards were fixed have not rendered them obsolete and that so-called improved standards of definition adopted or proposed elsewhere

The future White City Project. A photograph of a model of the B.B.C.'s 13 acre 'White City' London site. The circular ring and the buildings to the left of the ring will eventually be devoted to television.



do not, in practice, result in clearer pictures in viewers' homes, although they may be made to produce better results under laboratory conditions.

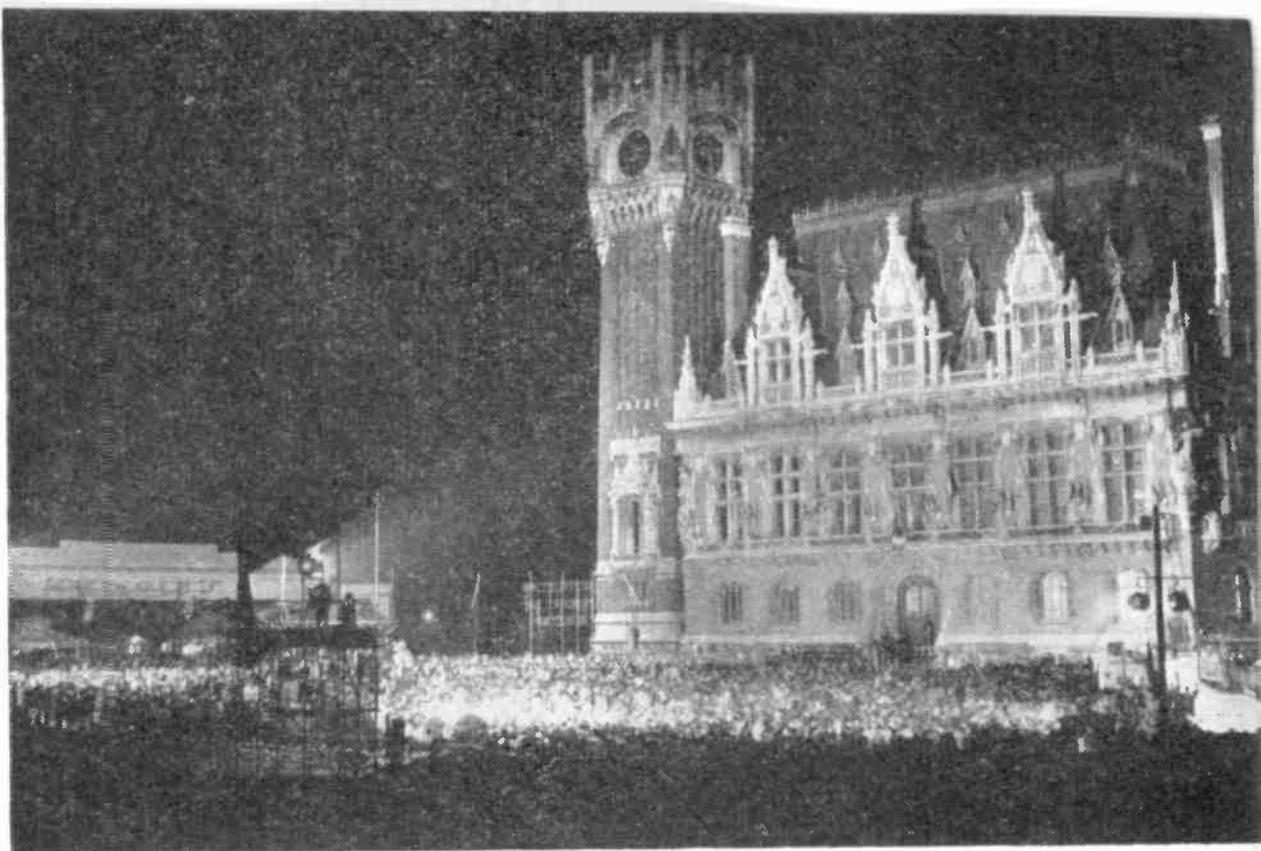
Accordingly, it has been officially announced that these transmission standards are to continue in force, and will be used by the network of stations described above. The practical effect of this for the viewer or the potential viewer who is contemplating the purchase of a set, is that he need not worry whether his receiver will be rendered prematurely obsolete by the sudden adoption of different transmission standards.

Needless to say, technical research and development in this country are very much alive, and one of the results of this is that improvements are constantly being made in the quality of the pictures transmitted. Experts agree that the limit to the picture-quality that can be transmitted by the present standards has not yet been reached, but the improvements that have already been made and those that will certainly be made in due course, benefit equally the users of the oldest television sets, as well as those who purchase a receiver today.

Nevertheless, the time will ultimately come when some change will be desirable—it might be to colour television, for instance—and the official announcements add that if any new system were adopted and this was unsuitable for reception on the present-

One of the television cameras covering a Test Match between England and New Zealand at the Oval.





The first cross-Channel television. The scene at the Hotel de Ville, Calais, during the programme on August 27th, 1950.

day sets, then transmissions would be made for a reasonable period by both the present system and the new system together, to avoid unduly early obsolescence of receivers in the hands of the public.

It is quite clear, then, that no-one need put off buying a television receiver on the ground that it might quickly be out-of-date.

PROGRAMMES AND THEIR TIMING

Television programmes are transmitted at present every day of the week, including Sundays, with both afternoon and evening sessions. In the ordinary way, the weekday afternoon programmes last for about two hours and the evening programmes from about 8 o'clock to about 10 o'clock, although earlier starts occur quite often.

Although they do not, strictly speaking, count as a programme, films specially made by the B.B.C. are transmitted on weekday mornings from 10 o'clock to 12 o'clock. These are for the benefit of television manufacturers and dealers, and they include periods when a complicated pattern appears on the screen. This pattern is designed to help the quality of reception to be judged and is of considerable value to service-men engaged on installing or adjusting television sets. It also helps purchasers to compare the performance of different products.

As more studio accommodation becomes available some

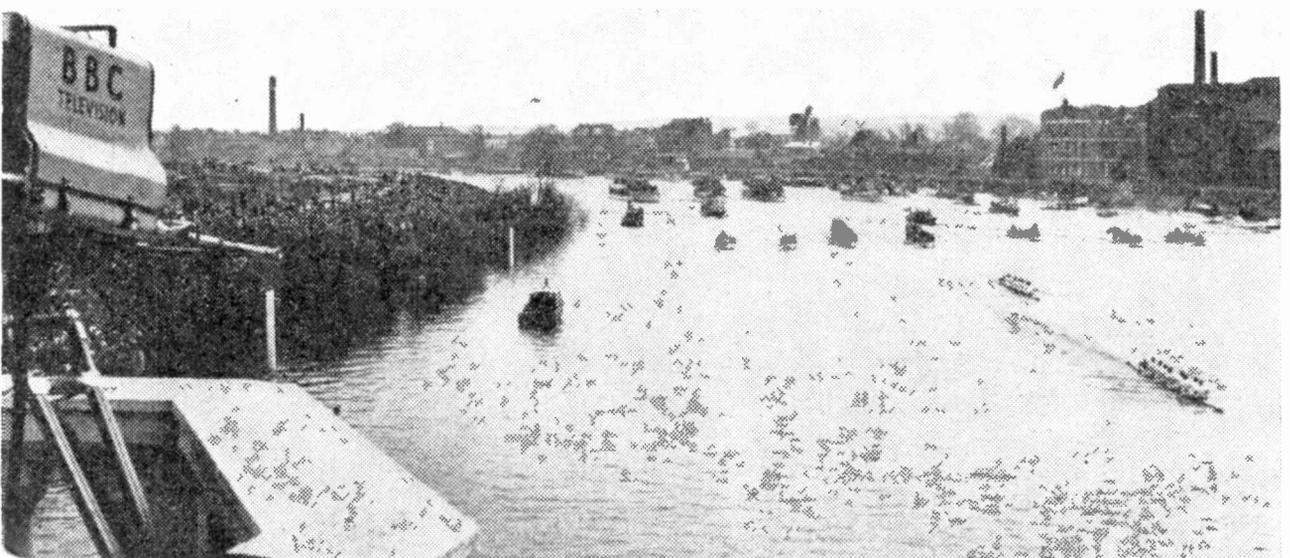
increase in programme hours will probably be made ; the B.B.C.'s attitude, however, is that since television is in no sense a " background " entertainment, but requires the constant concentration and interest of the viewer, no attempt should be made to watch every programme available, and selectivity in the choice of programmes should be exercised. It is partly for this reason, as well as those of expenditure, that a good many " repeats " of plays and major productions take place.

The entertainment offered from the studios themselves covers a very wide range of interests. Plays, which average two or three a week, are perhaps the most popular, but the transmissions include magazine programmes, documentaries, illustrated talks, dance and variety shows, cooking and handcraft demonstrations, fashion parades, ballet and sporting interviews.

One of the most popular items is the Television Newsreel. Three editions of this appear weekly at present, and they are produced by the B.B.C.'s own Film Unit, whose cameramen travel throughout this country and Europe and, indeed, all over the world. The Film Unit has developed a style of its own which has proved very successful.

Some of the highlights of television are undoubtedly the outside broadcasts, where the television cameras are taken out to public ceremonies, the theatre and sporting events. During the last few years greatly improved apparatus has become available for this purpose, and more events are now being covered, with clear

Televising the Boat Race. Shore-based and launch cameras bring a big thrill to viewers.



NORMAN COLLINS

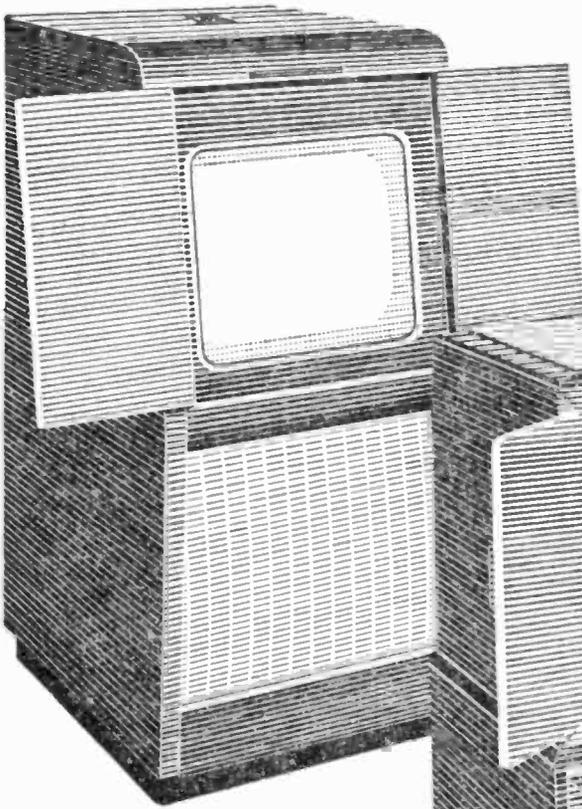
Former Controller of the B.B.C. Television Service, and well-known author of many books, including "London Belongs to Me." First joined the B.B.C. in January, 1941, as Assistant in Overseas Talks Dept. In charge of Light Programme January, 1946, and Television Service, December, 1947. On the Light Programme started many famous programmes including "Woman's Hour," "Housewife's Choice," "Science Survey," "Theatre Programme" and "Picture Parade," and was responsible for introducing "Radio Newsreel" to the Home Air. He resigned his post as Controller of B.B.C. Television on 13th October, 1950, and since then has completed another novel, "The Archbishop's Children."



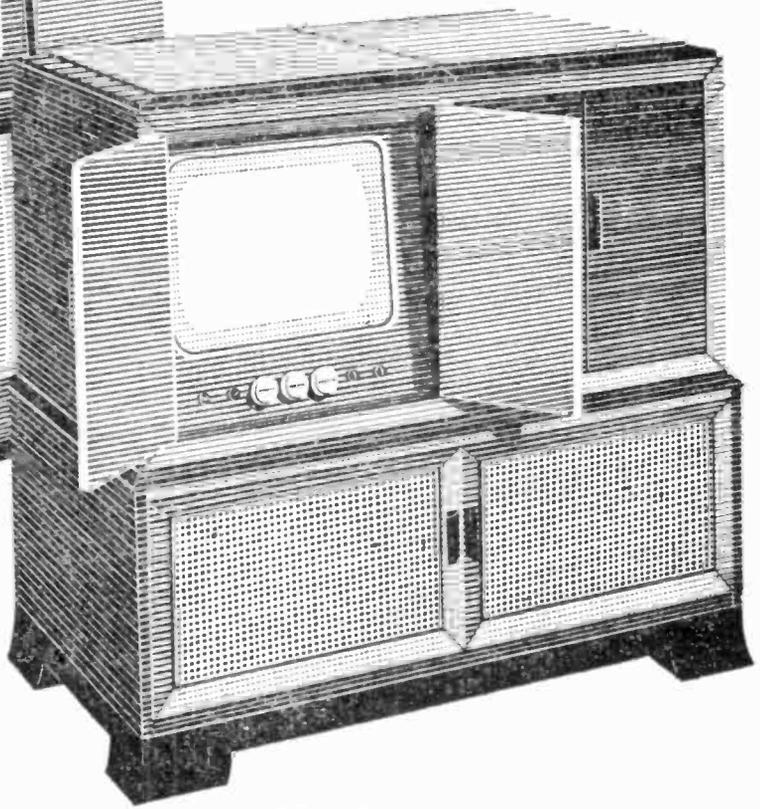
pictures even when the light is very poor indeed. Until very recently the cameras could be taken only to within about 20 miles of Alexandra Palace, owing to the technical difficulties in getting the pictures back there for transmission without distortion. The introduction of portable "microwave" equipment for relaying the pictures has greatly widened the outside broadcast horizon, and programmes have been taken from as far afield as Southend, Nottingham and even Calais. An outside broadcast which draws a large audience every year is the Oxford and Cambridge Boat Race where, in addition to strategically-placed cameras on the banks, a television camera is installed in a launch which follows the crews, so that television viewers see the race from start to finish. Indeed, it is claimed with some justification that viewers see more than the spectator who is actually present at a televised ceremony or sports event.

Nevertheless, many of these programmes occur when most viewers cannot be at home, and B.B.C. engineers have invented a method of recording television programmes, so that the highlights of the commentaries can be transmitted again during the evening programme. These are called "telefilms" and must

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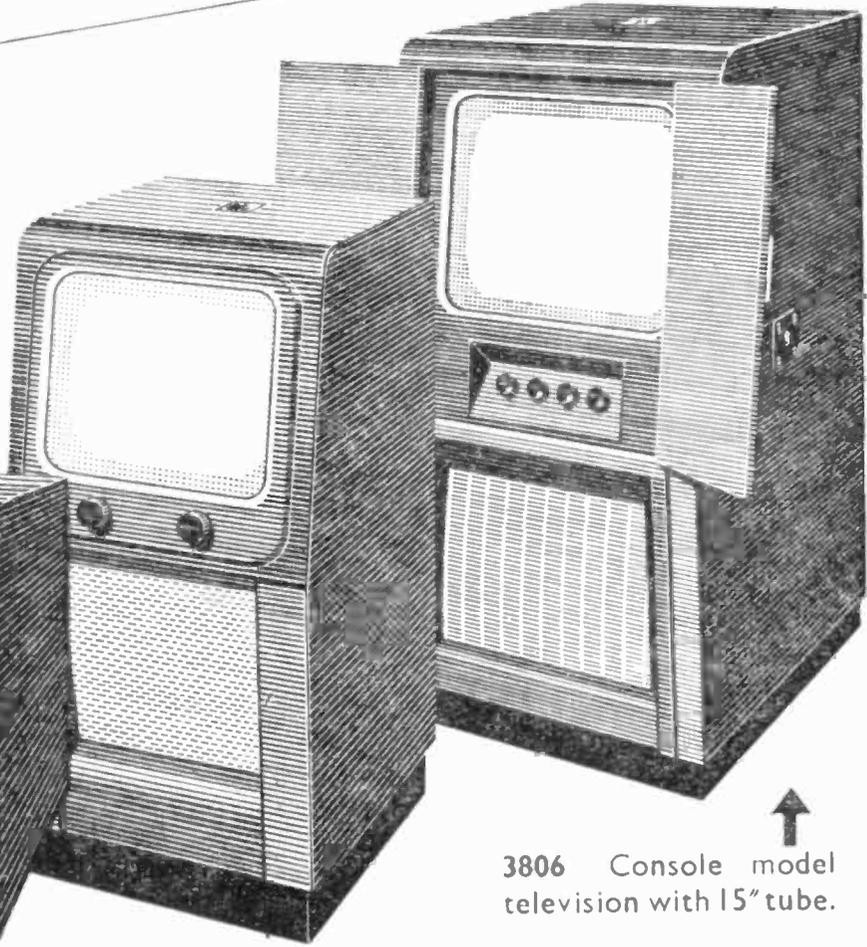
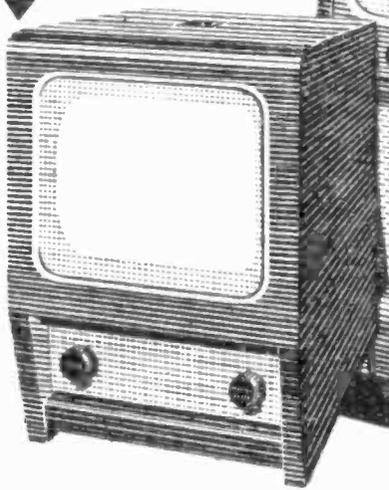
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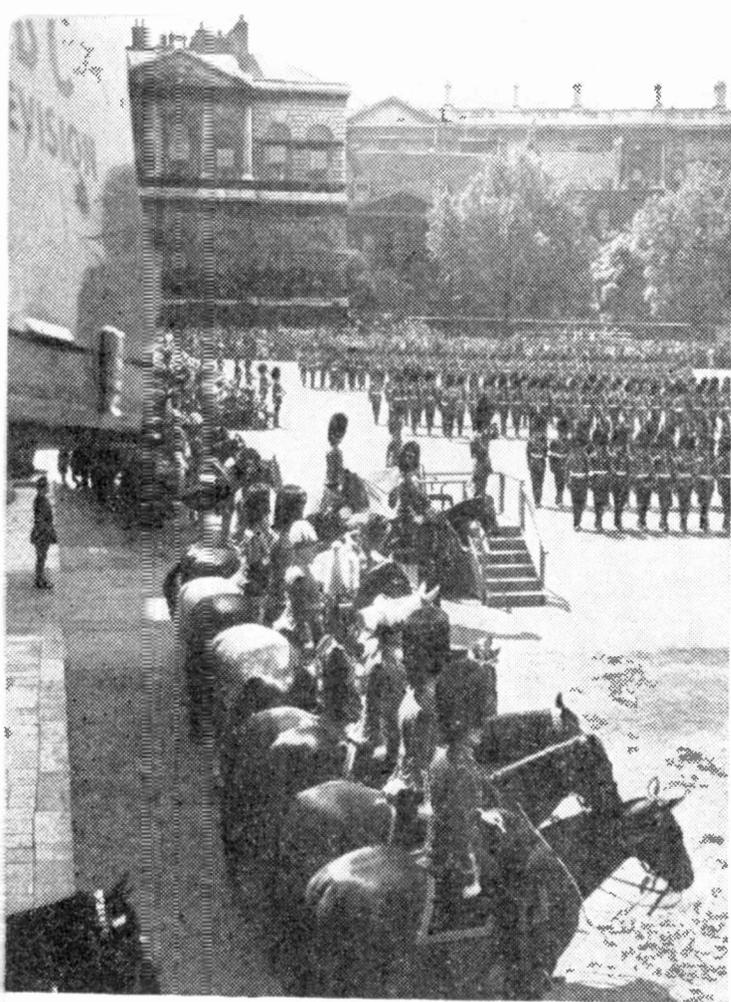


3806 Console model television with 15" tube.

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The Trooping the Colour Ceremony. His Majesty The King takes the salute as the Guards march past in slow time

not be confused with the special B.B.C. newsreels that are televised.

There is virtually no sport that is not televised, and in recent months the programmes have included Racing at Ascot, Tennis at Wimbledon, Cricket at Lord's, The Oval and Trent Bridge, Association Football at Wembley, including the Cup Final, Rugby Football at Twickenham, to name just a few.

The Outside Broadcasting Department has also covered hundreds of public events including such national occasions as the Coronation Procession of Their Majesties King George VI and Queen Elizabeth, which was the world's first television outside broadcast, the Victory Parade in 1946, the Wedding Procession of Their Royal Highnesses The Duke and Duchess of Edinburgh, the annual Lord Mayor's Show in London, and in another category the centenary celebrations in Calais of the first cross-Channel telegraph cable, which programme itself made history as the first international television relay.

Nor are the children forgotten; indeed the first Lime Grove Studio adapted for television was that devoted mainly to children's programmes. An hour early every evening, including Sundays, is devoted entirely to young people. All ages are catered for, and the children already have their own Newsreel.

RECEPTION

This Handbook endeavours to indicate to intending television viewers, particularly those in the districts served by the Northern Station at Holme Moss, what they may expect to receive for the financial outlay involved in purchasing a set and a Post Office licence. The television licence fee amounts to £2, which also covers sound reception. Viewers who already possess a radio set should not wait until the £1 sound licence expires, but should buy a television licence and then claim immediately from the Post Office a rebate on the unexpired portion of the sound licence.

Maps of the South-East of England and the Midlands have been included in this Handbook to show the strength of the Alexandra Palace and Sutton Coldfield transmissions in various districts, and also a third map of the North of England showing the estimated service area of Holme Moss.

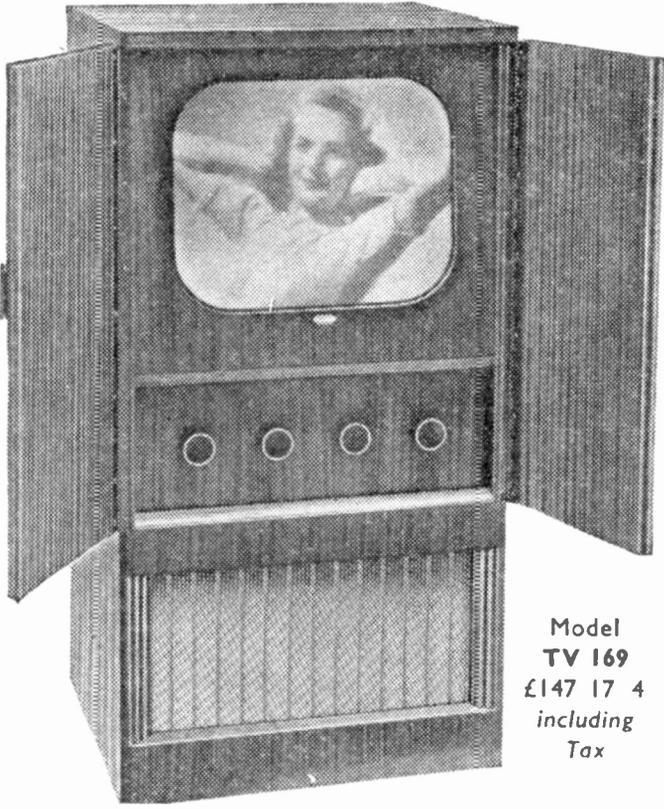
One vital point must be borne in mind, however. A television set cannot be casually bought and installed as ordinary sound receivers often are, although there are on the market portable television sets that do not need separate aerials when they are used in favourable locations not too far from one of the transmitting stations. In general, it is hardly an exaggeration to say that the aerial is one of the most important parts of a receiving installation, and the reader is referred to the chapter "Hints on Installation and Tuning," particularly that part of it which deals with the different kinds of aerials required in varying circumstances. For instance, the familiar H-aerial is by no means the only type, and in many locations this kind is unnecessary or even unsuitable.

"SHADOW ZONES"

Because of the peculiar behaviour of the very short waves that are necessarily used for television, it is not possible to define the service area of a television station simply in terms of distance from the station. These waves do not bend over the crests of hills in their path as readily as longer waves do, and consequently there are "shadow-zones" on the remote sides of hills. It is therefore quite possible for reception to be poor in some place unfavourably located on low ground, whatever precautions are taken, while reception is good at places twice as far from the station, but situated on high ground.

The maps for Alexandra Palace and Sutton Coldfield each have one thick and one dotted curve. These thick curves enclose the areas where reception should not be obstructed by intervening

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high ground, and within these curves results should be reliable, provided that other local circumstances, for instance, freedom from interference, are reasonably satisfactory. Beyond these thick curves reception will get progressively weaker and more subject to fluctuation under the influence of the weather until, at about the dotted curves, reception will be too weak to be worthwhile. *It is emphasised that these curves represent average conditions, and actual results at any particular place may be considerably better or worse according to local conditions.* Similar curves cannot be given yet for Holme Moss, but the tests that were made before the site was selected, suggest that to the east and west, coast-to-coast reception will be achieved, but the high ground will probably restrict reception to the north and south to little more than 20 miles.

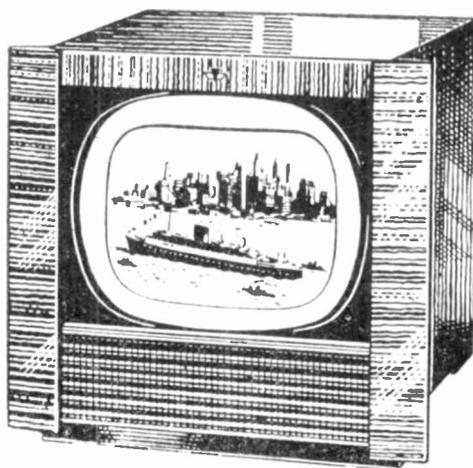
In conclusion, viewers are recommended to purchase their receivers from experienced local television agents who, as well as being handy for carrying out the normal maintenance which is necessary from time to time to keep any complicated appliance in tip-top condition, will be well-informed about reception conditions in the locality and will know which aerial arrangements give the best results.

A general view of Studio "D" at the Lime Grove Studio Centre, Shepherds Bush, London.



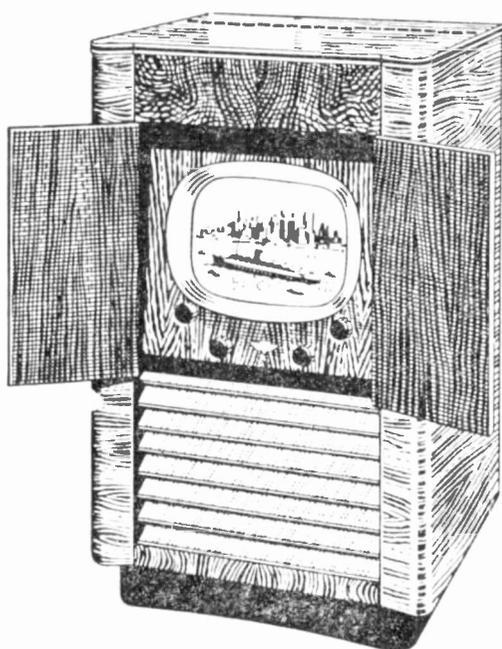


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It is very difficult to explain to the layman the principle upon which television operates. It is hoped that the following article, which has this object in view, will succeed in describing in straightforward terms

HOW TELEVISION WORKS

How We See and Hear

In order to understand how television works we must first of all realise how seeing differs from hearing. It is not strictly true to say that the eye sees and the ear hears, because what they actually do is to collect information which they pass on to the brain, and the brain interprets this information as the familiar sensations. The best way of expressing the idea is to say that the brain sees through the eyes and hears through the ears, but although seeing and hearing are alike in this respect, they are otherwise very different.

Sounds

Sounds are the results of waves in the air. Anything that is making a sound of any sort is causing air-waves and the sound will be heard if the waves reach someone's ear and in this way can give rise to sensations in his brain. Pistol-shots, musical notes and voices sound different because the air-waves they make are of different shapes. An essential point, however, is that if a variety of sounds are going on at the same moment, the air-waves they make combine together to make a wave of a more complicated shape which conveys to the brain the sensation of all the sounds at once.

Vision

Seeing, however, is a much more complicated process. Any scene is composed of areas of highlight and shadow, and in order to appreciate the scene we must know how these highlights and shadows are placed. Any process similar to that of hearing, which combines all the information, would not work, because the highlights and the shadows would cancel each other out and the result would be some medium grey all over.

The eye has a lens which throws a tiny image of the scene on to

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a screen, called the retina, inside the eye. The surface of the retina consists of a very large number of minute spots each connected by a separate nerve to the brain. These spots are sensitive to light and those where there is a highlight in the image cause a stronger impression in the brain than those where there is a shadow. As the brain is able to appreciate what point of the image each impression represents, it is able to build up the scene at which the eye is looking.

The Microphone

A microphone is like an ear. It is similarly affected by the sound waves in the air, but instead of giving rise to a sensation in the brain it generates an electric wave which is at each instant an exact replica of the air-wave. When there is only a simple musical note being sounded, a simple electric wave is produced, but if a complex mixture of sounds reaches the microphone, the electric wave it produces has a correspondingly complicated shape. All the information is contained in the one wave, however, and it can be sent over a single telephone circuit.

The Television Camera

A television camera is similar to the eye in that a lens throws an image of the scene on to a screen which corresponds to the retina. This screen is called the mosaic and it consists of a mica sheet covered with a very large number of separate, tiny grains of a special substance that has the property of acquiring an electric charge when exposed to light. When the image is thrown on to the mosaic, what we may call an electrical image of the scene is formed, with stronger electric charges where there are highlights and weaker electric charges where there are shadows. Now this electrical image could be transmitted to a distance if we had a separate telephone line from each grain on the mosaic and indeed something rather like this was tried in early television experiments. To get clear pictures with plenty of detail, however, it is necessary to use far too many grains for this to be practicable.

Scanning

This practical difficulty is overcome by the process known as scanning. No attempt is made to transmit the whole of the picture all the time, but it is dealt with piece by piece, sending the information about the electrical charge—that is, the brightness—of each piece, one after another, over a single circuit. At the receiving end a complete picture is built up piece by piece

from this information, each piece being in its correct relative position.

The scanning process is probably most easily understood by considering the problem of having to describe to someone by telephone exactly what is on each page of a book, so that he can make an exact copy. We should read the first line of the first page to him and then tell him to start the second line. Then we should read the words along the second line and tell him to start the third line. In due course we should reach the end of the last line and have to tell him to start a new page.

The television scanning process is remarkably similar.

The picture is considered in very thin horizontal slices, which are actually called lines, and a signal is sent which indicates the varying degree of electric charge (that is to say, of brightness) or whether each tiny element of the line is white, black or some intermediate grey, as the scan travels along the line from left to right. The signal corresponding to the brightness of the picture elements is called the picture signal.

The Synchronising Signals

When the scan reaches the right-hand end of a line, a special signal is transmitted, which causes the receivers to go back to the left-hand edge to begin the next line. Similarly, when the end of the lowest line is reached, another different signal is transmitted to cause the receivers to go back to the beginning of the top line to begin the next picture.

Now it will be realised that in this way still pictures and not moving pictures are built up on the receiver screens. Therefore the scanning process has to be carried out extremely quickly, so that the still pictures follow one another at such a rapid rate that the eye, or rather the brain, is deceived, and gets the impression of continuous movement. In the British television system it takes slightly less than one ten-thousandth part of a second to scan a line, and the complete pictures follow one another at the rate of 25 per second.

The Cathode-ray Tubes

In order to transmit the information concerning the electric charge on each individual grain of the mosaic, it is necessary to discharge each grain successively and so produce an electric current of proportionate strength, which is subsequently amplified as the picture signal. If the grains were larger and it were not necessary to scan so rapidly, we might be able to use some sort of

metal contact that touched each grain in turn along the lines. The method actually adopted was first put forward by the British scientist, A. A. Campbell Swinton, as long ago as 1908. The mosaic is sealed up inside an evacuated glass bulb which also contains a device called an electron-gun. This electron-gun sprays a steady stream of electrons on the mosaic and the stream is deflected so that it travels along each line in order. A stream of electrons constitutes an electric current and the strength of this current is varied by the size of the electric charges on the individual grains of the mosaic. The varying electric current constitutes the picture signal.

At the receiving end another electron-gun in an evacuated tube is used—this is the now-familiar cathode-ray tube. The flat end of the tube opposite the gun is coated with a fluorescent material that glows when electrons strike it, and the stream of electrons is deflected under the control of the synchronising signals so that it follows exactly in sympathy with the scanning in the television camera, starting each new line and each new picture at exactly the right instant.

The strength of the electron stream is varied in accordance with the received picture signal and the fluorescent screen is thus caused to glow brightest when there are highlights in the original scene, remain dark where the scene is black and reproduce the intermediate greys proportionately.

The Radio Transmission

In this description we have assumed that the picture and synchronising signals are sent from the camera to the receiver over telephone lines. In television broadcasting they are conveyed in this manner to a radio transmitter, where an aerial radiates waves pulsating in sympathy with the picture and synchronising signals. These waves are picked up by the receiving aerial, led to the receiver and there they control the movement and brightness of the spot on the screen, exactly as explained above.

These processes welded together thus produce the seeming miracle of modern entertainment allied to science, called Television.

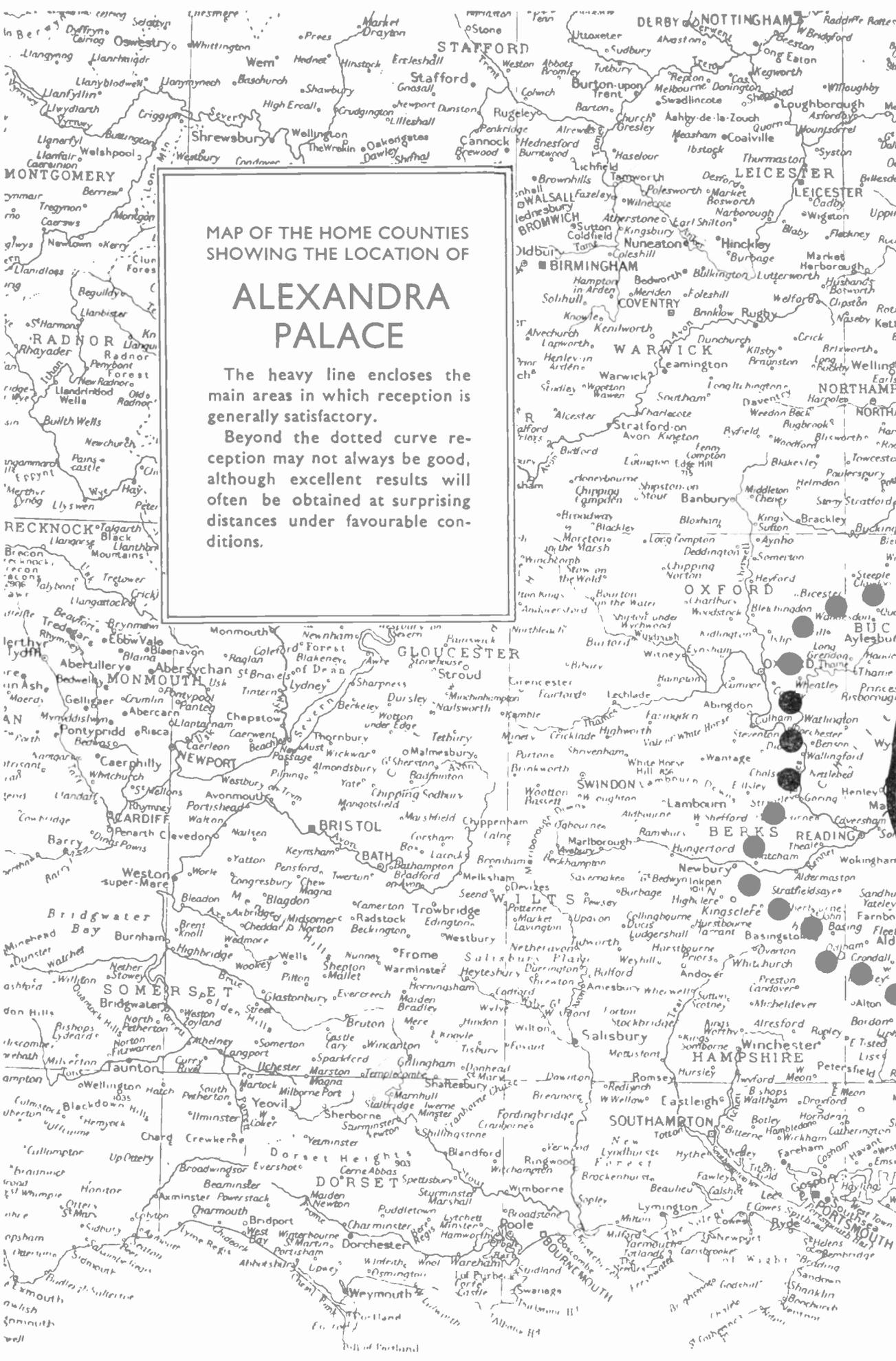


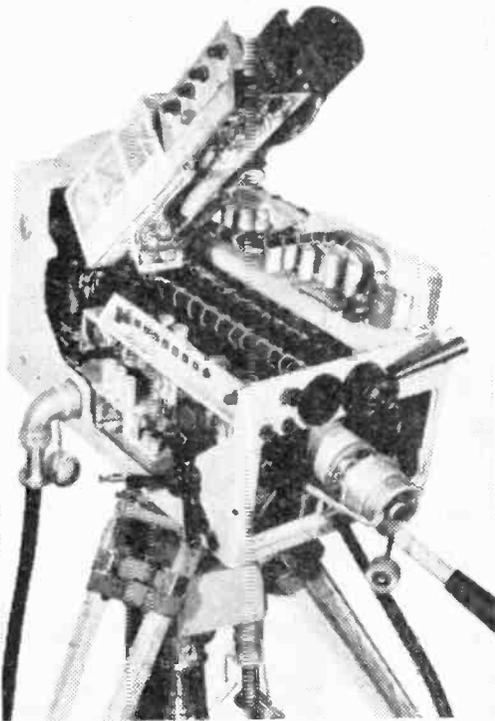
MAP OF THE HOME COUNTIES
SHOWING THE LOCATION OF

ALEXANDRA PALACE

The heavy line encloses the main areas in which reception is generally satisfactory.

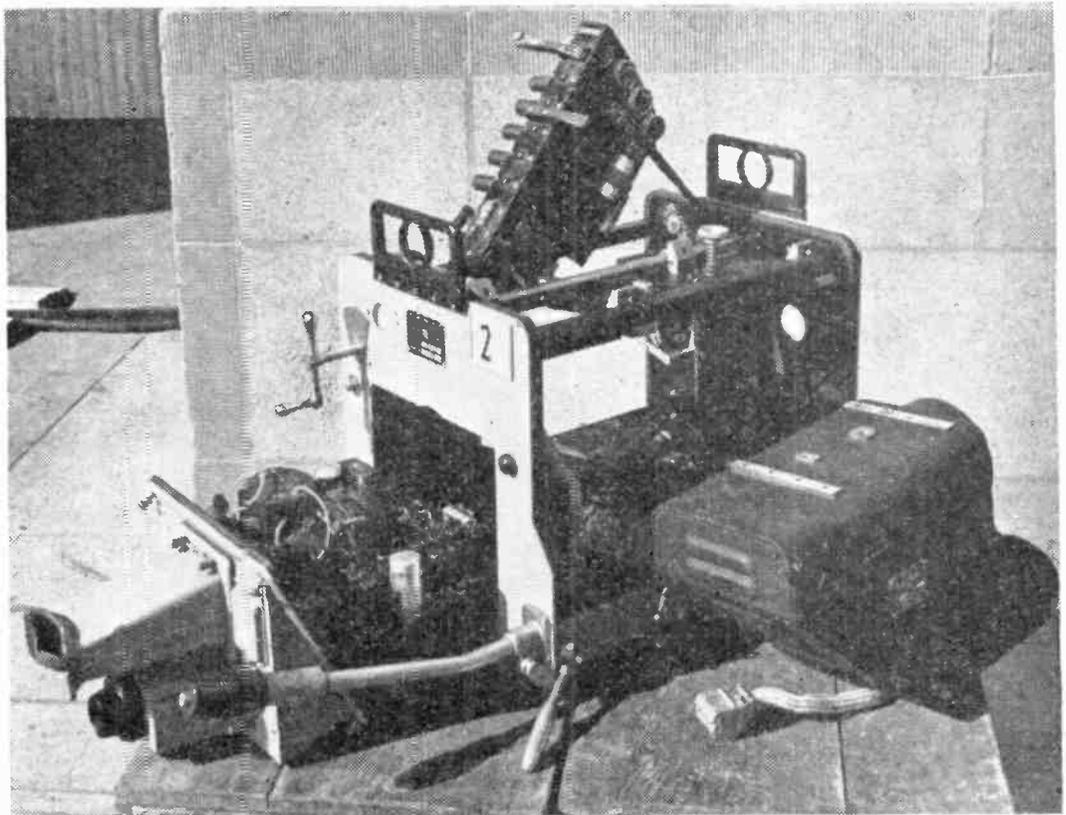
Beyond the dotted curve reception may not always be good, although excellent results will often be obtained at surprising distances under favourable conditions.





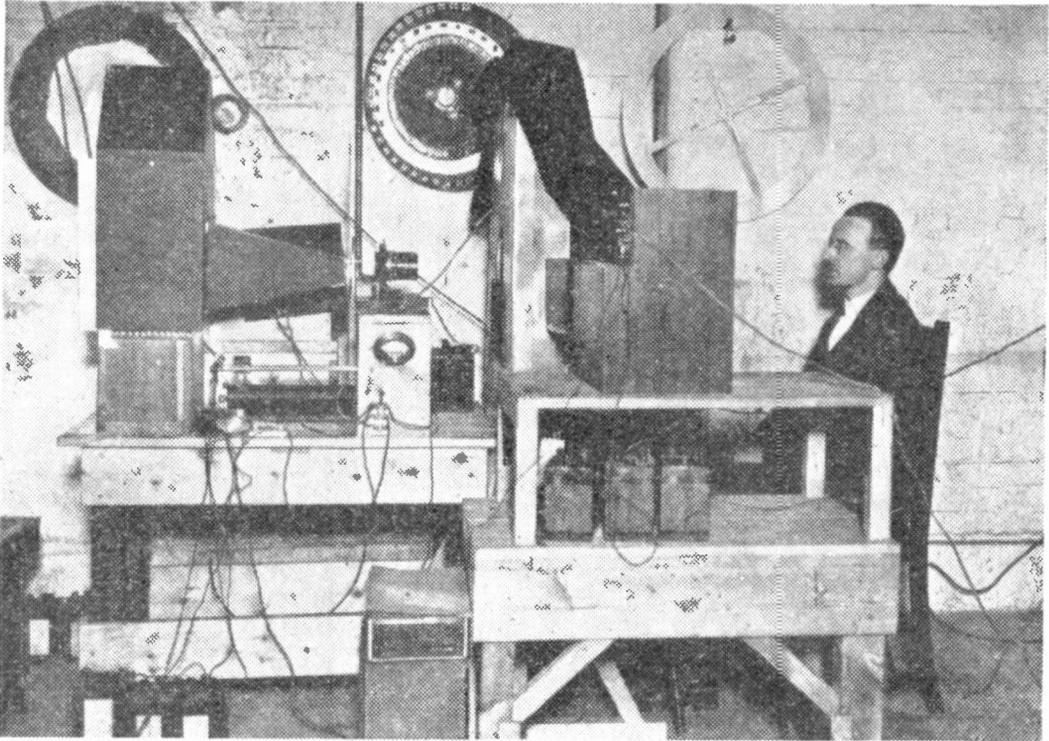
TWO OF THE B.B.C.'s. LATEST TELEVISION CAMERAS

The "C.P.S.-Emitron," used for Studio work, showing its component parts. The elevated part is the view-finder, and beyond it is the main amplifier; in the foreground is the scanning unit. This camera has also been used on Outside Broadcasts with great success.



The "Photicon," used for Studio and Outside Broadcasts, showing its component parts. On the right is the case containing the pick-up tube and head amplifier. In front of the main frame is the electronic view-finder chassis. Above the main frame is the scanning amplifier for the pick-up tube.

EARLY DAYS OF TELEVISION



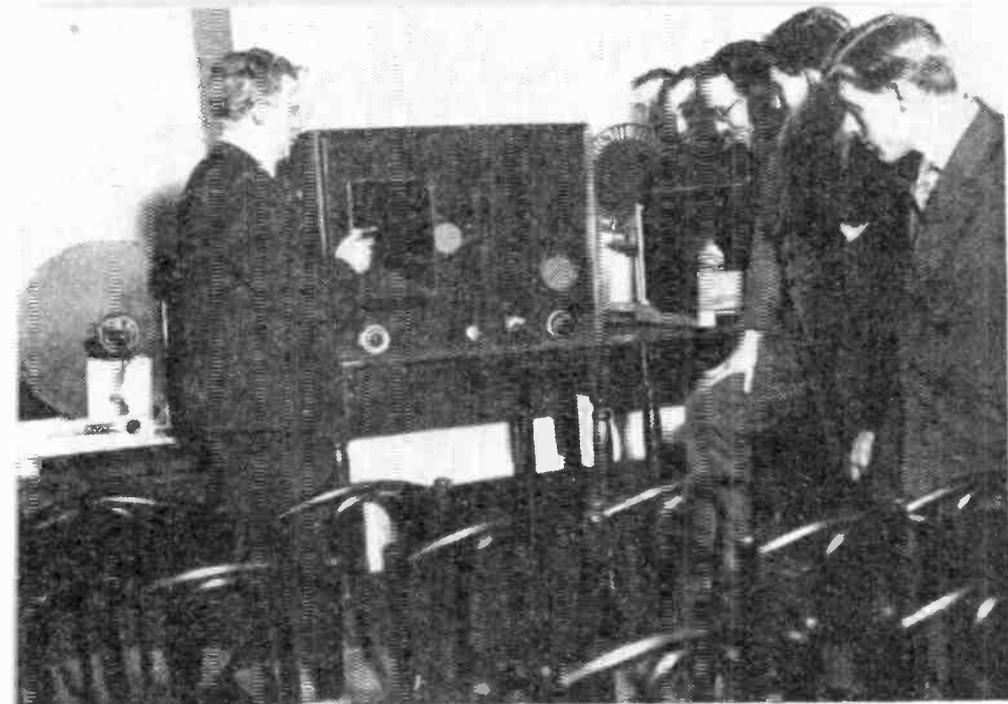
An early 30-line Baird transmitter



FAR-SIGHTED British scientist, A. A. Campbell-Swinton, suggested the use of cathode-ray tubes, both for transmitting and receiving vision, as early as 1908. His ideas, which were far in advance of his time, were not to be realised for many years, until, in fact, the principles of mechanical television—an entirely different system—were already being utilised.

In this latter respect, one of the most important dates in the history of British, and indeed, World, television, was January 27th, 1926. On this day the first public demonstration of television was given by John Logie Baird, with his mechanical system, to some 40 members of the Royal Institution.

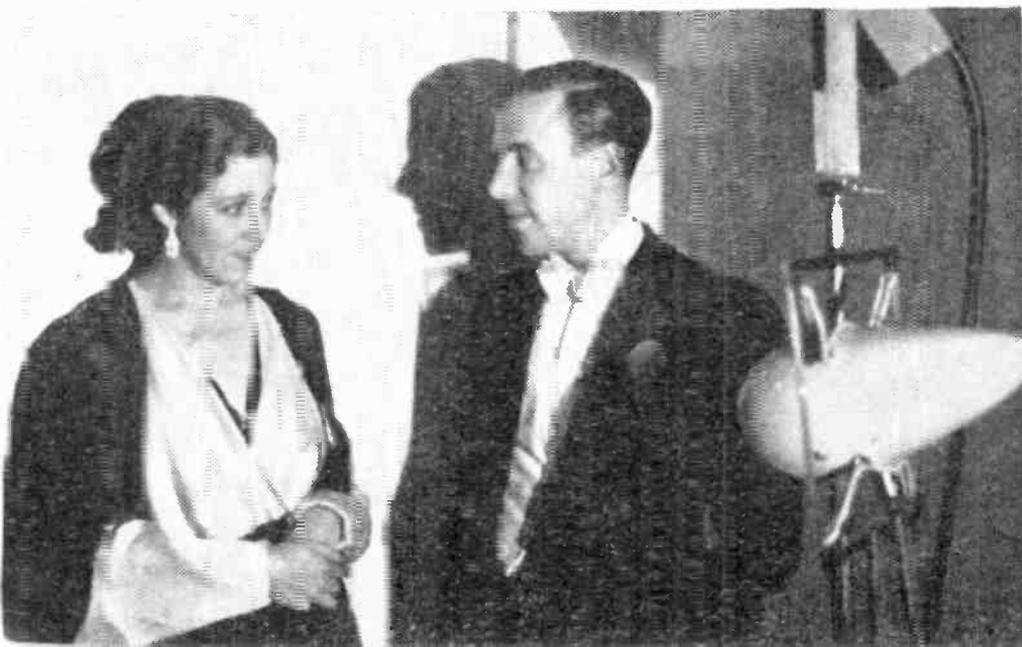
In 1928 the first home receivers were designed and built, and transmitting equipment was also, for the first time, standardised,



John Logie Baird demonstrates 30-line television in 1928.



The late Mr. Alfred Clark, then Chairman of E.M.I., speaking at the opening programme of the world's original high definition Television service from Alexandra Palace, on 2nd November, 1936.



Amy Johnson and Jim Mollison being televised in the Portland Place Studio, which was used prior to Alexandra Palace, on 9th September, 1932.

by the work of Commander W. W. Jacomb of the Baird Television Development Company, and on February 9th of that year, Baird succeeded in transmitting a picture across the Atlantic, the *New York Times* reporting, "Baird was the first to achieve television at all over any distance, now . . . the first to . . . flash it across the ocean . . . for American eyes."

Later in the year, on July 3rd, he demonstrated a colour picture of a kind, and was also experimenting with stereoscopic television, although without any very great success.

Although the B.B.C. was not to open its regular high definition service until 1936, in 1929, the Corporation had started experimenting with a 30-line mechanical system, and the co-operation of Baird with the B.B.C. subsequently continued for several years.

Arrangements were completed in 1932 for the B.B.C. to take over television transmissions completely from the Baird Company, and on August 22nd of that year, the first official B.B.C. broadcast of television in this country took place, Baird himself appearing in the opening programme.

However, the limitations of the mechanical system were early realised by E.M.I., Cossor and others, and about 1930, a team of E.M.I. scientists was mobilised by the late Alfred Clark, and set to work entirely upon the electronic system, under the direction of I. Schoenberg, Head of E.M.I. Research.

These scientists had the task of realising Campbell-Swinton's prophecies, and the ever-increasing success of television today stands as a tribute to their work which went on ceaselessly in the laboratory at Hayes. By 1936, the progress of the electronic system had so advanced that the Government decided that the B.B.C. should try it out, side by side with that of the Baird mechanical system already in use, developed by now to 240 lines.

At the end of a test period, during which, each installation transmitted the B.B.C. programmes during alternate weeks, it was decided that the higher definition of the 405 line Marconi/E.M.I. method was more suitable for the future development of television, and it was retained as the basic B.B.C. system—the Baird method being dispensed with in 1937. Nevertheless, the name of John Logie Baird will be remembered as long as television continues to expand, and he, Marconi/E.M.I. and other outstanding British technical pioneers, will share the honour of its development.

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HINTS ON INSTALLATION AND TUNING

PART I: AERIALS

The Receiver

Installing the television receiver itself involves little more than putting it in a convenient place in the room and connecting its mains cord to a suitable electric-supply socket. The best place for the set is one where the light from the windows cannot fall directly on the screen and, if possible, one which can readily be seen while the family sits round the fireside.

The Aerial Cable

The receiver has to be connected to the aerial by a special cable. There are two kinds in common use, one is called a "balanced pair" and the other is called a "co-axial" cable. The instruction book provided with the set, or the dealer who supplied it, will know which kind will be the most suitable. The cable can be installed in any convenient manner, and although it should not be any longer than essential, it is not necessary to keep it away from the walls, etc., as is normally done with ordinary radio aerial lead-in wires.

The Aerial

The choice of the correct type of aerial and the best position for it often makes all the difference between excellent and mediocre pictures.

The basic television aerial is called a "dipole," and it consists of a metal rod, tube or wire, divided at the centre point, the down-lead cable being connected across the gap at the centre. The length of the dipole has to be a little less than half the wavelength of the transmission it is desired to receive. The table below gives recommended dipole lengths for the three stations whose wavelengths have been fixed:—



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There are console and table models to suit all tastes and pockets. Easy terms are available. *Ask your local dealer for details.*

MARCONIPHONE



G. Marconi — the greatest name in radio

Recommended overall lengths for Receiving Dipoles

Alexandra Palace	10' 5"
Sutton Coldfield	8' 0"
Holme Moss	9' 4"

The dipole also has to be parallel to the transmitting aerial, and as all the above stations have vertical aerials, the receiving dipoles also have to be mounted vertically.

Viewers living within a few miles of one of the transmitting stations will only need the simple dipole, unless local interference is unusually severe. Quite close to a station the aerial need not be outside, and there are on the market several kinds of dipoles for installing indoors. In the usual way, however, the best arrangement is an outdoor dipole and this should be mounted on the side of the house nearest the transmitting station, or better still, on a chimney stack. Near the station it is possible for a good

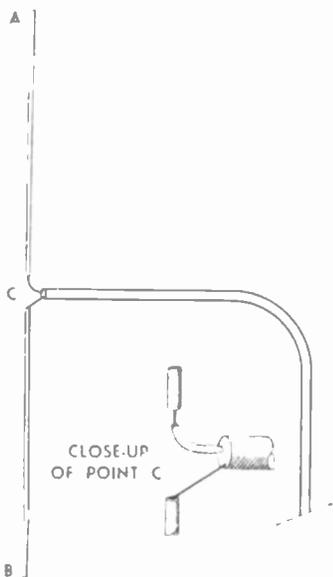


FIG. 1

A Simple Dipole Aerial with Co-axial Aerial Cable.

The length A—B must be as in Table I. The inner wire of the cable is connected to one half of the dipole and the outer sheathing is connected to the other. Run the cable horizontally until it is at least half the overall dipole length away from the centre point C.

aerial to pick up more energy than the set needs, even when it is adjusted to its least sensitive condition. This can do absolutely no harm to the set, and the difficulty is easily overcome by connecting a cheap and simple device called an "attenuator" between the down-lead cable and the set. Any radio serviceman can make a suitable attenuator for a shilling or two, and a good aerial with an attenuator gives clearer pictures than would be given by a less efficient aerial.

At longer distances from the transmitting station, or in

FIG. II

A Simple Dipole Aerial with Balanced-pair Aerial Cable.

The length A—B must be as in Table I. One of the inner wires of the cable is to be connected to one half of the dipole and the other inner wire to the other half of the dipole. The outer sheathing, if metallic, may be connected to earth.

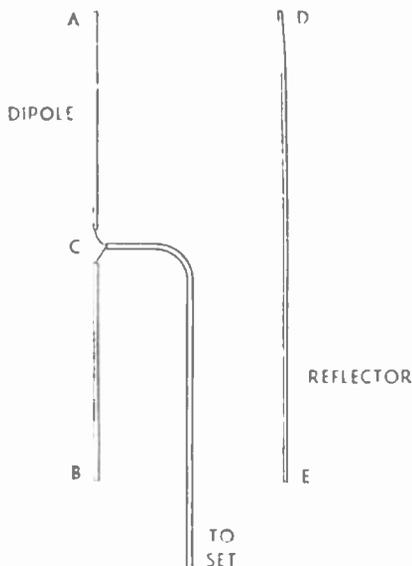
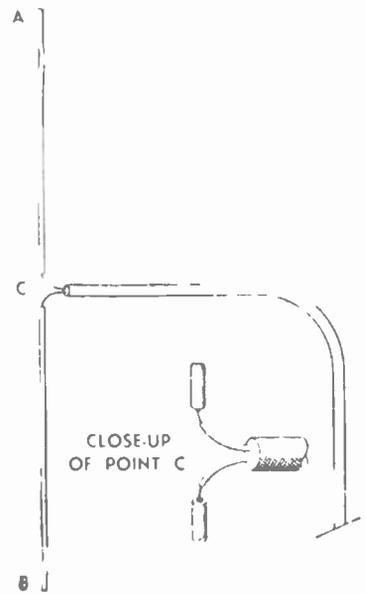


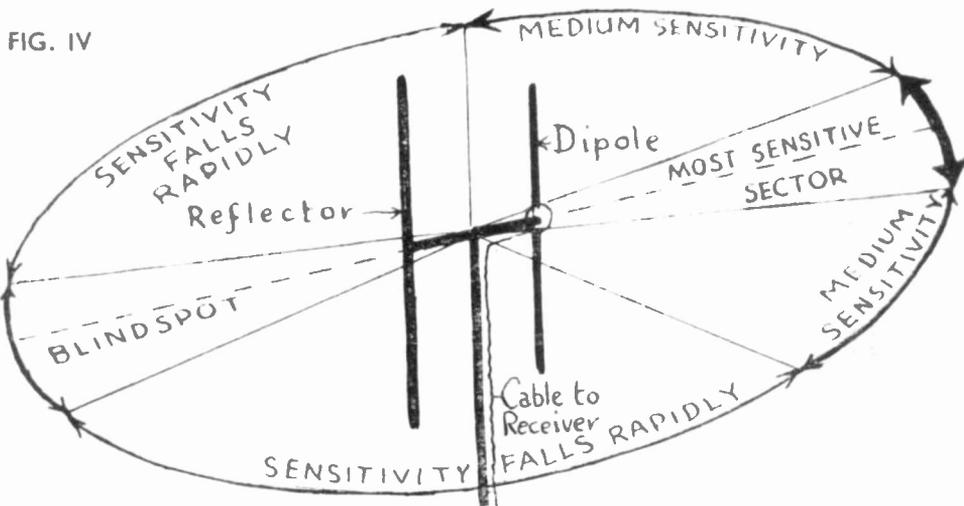
FIG. III

The Essentials of the H-Aerial.

The lengths A—B of the dipole and D—E of the reflector are each as given in Table I. The spacing between them should be between $\frac{1}{4}$ and $\frac{1}{2}$ of the recommended dipole length in the Table.

The dipole is connected to the cable in either of the usual methods, but the reflector does not need to be connected electrically to anything.

locations where reception is affected by some particular source of interference, a more complicated aerial may be used. The commonest is called a "dipole with reflector," the now-familiar H-aerial. It consists of a dipole, exactly as described above, and another rod, tube or wire, of about the same length, supported a little distance away from the dipole. FIG. iv shows how the sensitivity of such an arrangement is not the same in all directions, and this property is made use of by turning it so that the blind-spot in the backward direction points at the interference to be avoided. Naturally, this feature cannot be utilised if the



Sensitivity diagram of a typical H-shaped aerial.

transmitting station and the source of interference are in more or less the same direction, but it is particularly useful where the pictures are spoilt by what is called a "ghost" or "echo." This takes the form of a second image to the right-hand side of all the objects in the scene, and it may be either black or white. Occasionally, multiple images are seen.

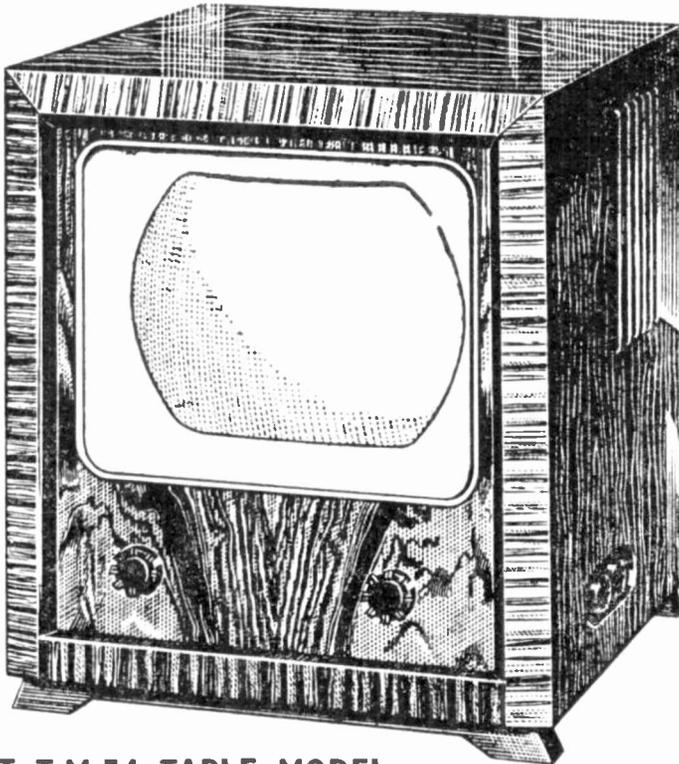
These ghosts or echoes are due to some of the energy from the transmitting station reaching the receiving aerial after being reflected from some large metal object such as a gas-works or a metal-framed block of flats, in which case it arrives a split-second later than the energy that came direct. In such cases the H-aerial is set up with its blind-spot pointing at the gas-works, block of flats or whatever causes the reflection.

Except, as mentioned above, when it is very close to the transmitting station, the most important thing to bear in mind when choosing a location for the aerial is that it should be as high as possible. At longer ranges this is even more vital, and just a few feet of additional height can make all the difference between poor and good results. In the zones where fading is to be expected, a high aerial will not eliminate the fading, but it will make it less severe and less frequent. Furthermore, the stronger signal collected by a high aerial will render interference correspondingly less noticeable.

At still longer ranges, near the margins of the service areas, or in shadow zones on the remote side of hills, etc., it may be helpful to use one of the more elaborate aerials that have been developed for this purpose. These are often called "arrays" and consist of

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pression. Two front con-
trols only. 8" speaker for
high fidelity sound.
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various arrangements of vertical rods in addition to the dipole itself. At such ranges height is extremely important, and it is sometimes found difficult to support these elaborate arrays, which are necessarily rather heavy and have considerable wind resistance, sufficiently high above the ground, so that an H-aerial which can be mounted higher without difficulty, may give results at least as good. Some arrays are very sensitive, but no aerial can do anything about a signal that fades almost to nothing, and one must not expect them to produce good pictures at extreme ranges. Nevertheless, they can, and often do, make an entirely unsatisfactory picture tolerable on occasions.

Home-made Aerials

Many correspondents have complained of the high prices quoted by dealers for installing aerials. Actually, of course, the price of television aerials, especially the newer lightweight models, bought over the counter, is quite moderate. The cost is made up by transportation, labour charges, insurance against damaging your house while working on the roof and last, but not least, some provision for the possibility of having to come again to reset the aerial after a day or two. This is because it cannot often be known in advance whether there will be any ghosts or echoes, or local interference, and if they occur the aerial may have to be turned or even moved across to the other side of the roof, to get rid of them. For the same reason, dealers naturally find it better to quote for a dipole and reflector rather than a simple dipole, just in case the "blind-spot" feature turns out to be required in the particular installation.

However, any reasonably competent handy-man can easily install an aerial for himself, provided he is prepared to find the best place for it by hit-and-miss methods unless he has a technical friend who can give him a lead. It is also very easy to make the aerial itself, but, except very close to the station, he will have to buy the special cable.

How to Construct a Loft Aerial

Viewers living within a few miles of a transmitting station who wish to try their hands at making their own aerials should try, first of all, a loft dipole. The cost is negligible and, should it prove inadequate, very little is wasted.

Screw an insulated hook upwards into the wooden beam under

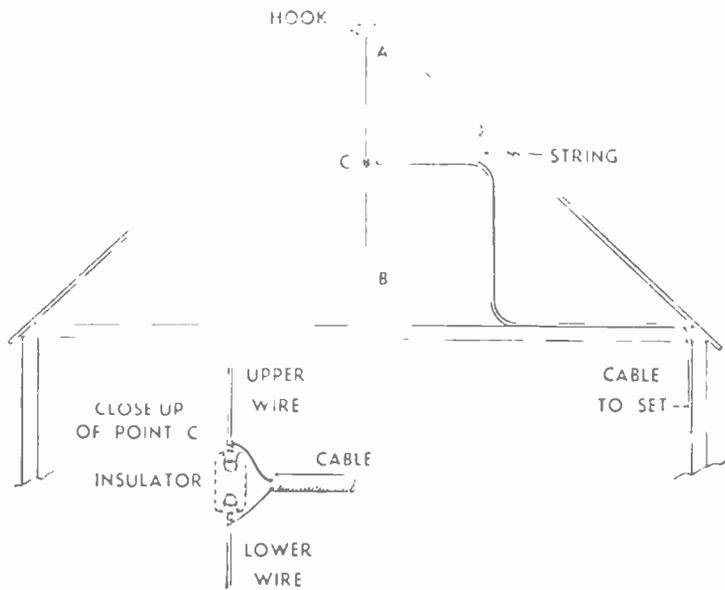


FIG. V

A Simple Wire Dipole Aerial in the Loft.

The length A—B is to be as in Table I

the ridge of the roof, in a place where there is as little obstruction as possible by chimneys or higher parts of the building in the direction of the transmitting station. Hang from this a length of insulated wire with a small "egg" insulator on the end, so that the distance from the hook to the insulator is half the length of the dipole shown in the table. Take another length of insulated wire, of the same length as the first, and fix it to the lower side of the insulator and let it hang down. If the loft is not high enough for it to hang clear of the floor, lay the extra length along the floor in the direction of the transmitting station. This completes the aerial.

Now lay the special cable by the most direct route from the receiver to the egg insulator, but be careful that it approaches the insulator horizontally. It can usually be kept in place by one or two strings hung from nails in the roof woodwork, and a thin stick can be tied to the cable to hold it straight. If possible, it should approach the insulator from the direction opposite to the station, and the horizontal length should be at least half the dipole length.

It now remains only to connect the cable to the aerial. If a balanced-pair cable is used with your particular set, separate the two wires and connect one to the upper dipole wire, and the other to the lower dipole wire. If a co-axial cable is used it will be found that it consists of a central wire surrounded by a screen usually made of copper braid. It is necessary only to work the screen back a short distance to expose the central wire, and then to join

the inner wire to one dipole wire and the screen to the other dipole wire. If the distance between the dipole and the receiver is only a few yards, ordinary 15 amp. twin flex can be used as a balanced-pair cable, but for longer distances it is better to use the correct type of cable.

Earth Connections

A dipole aerial combines the functions of both the aerial and the earth of an ordinary receiver, so no separate earth connection is required with a television set for reception purposes, but a television set is a mains-supplied electrical appliance and, as such, a connection to the earth socket of the electric mains is required as a safety measure. The instruction booklet supplied with the set will explain how this should be connected.

How to Erect an Outdoor Dipole Aerial

If it is found that a dipole in the roof space is not good enough—for instance because the pictures have insufficient contrast or there are ghosts or echoes—exactly the same arrangement as described above could be used, hanging from a wooden bracket attached to the eaves or elsewhere on the side of the house nearest the transmitting station. A better method is to erect a wooden pole on the roof; a good method is to fix it to a chimney

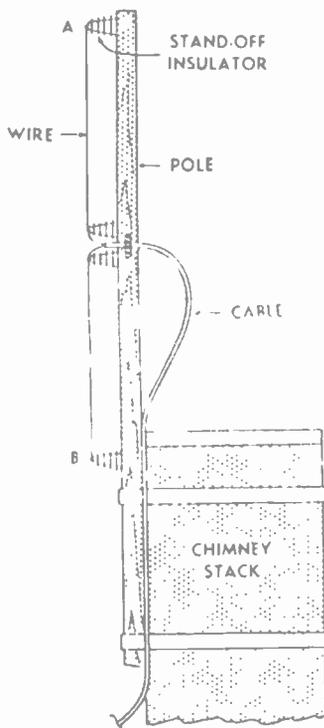


FIG. VI

A "Home-made" Dipole Aerial

The distance A—B is as given in Table I.

stack. This pole should carry four small "stand-off" insulators—these can be bought at any radio shop—one sticking out sideways at the top and another below it so that the distance between them is the recommended dipole length given in the table. The other two insulators go close together midway between the first two. Now fix two lengths of wire, one between the top insulator and the upper of the middle pair, and the second between the bottom insulator and the other middle one. The cable is joined to the two dipole wires at the centre exactly as before, but as it is not usually practicable to carry it away horizontally, a loop of cable should curve away from the pole and be tied to it lower down. Take care that it is firmly supported at the centre so that it does not break away in the wind, and wrap the joints with insulating tape so that water does not get into the cable.

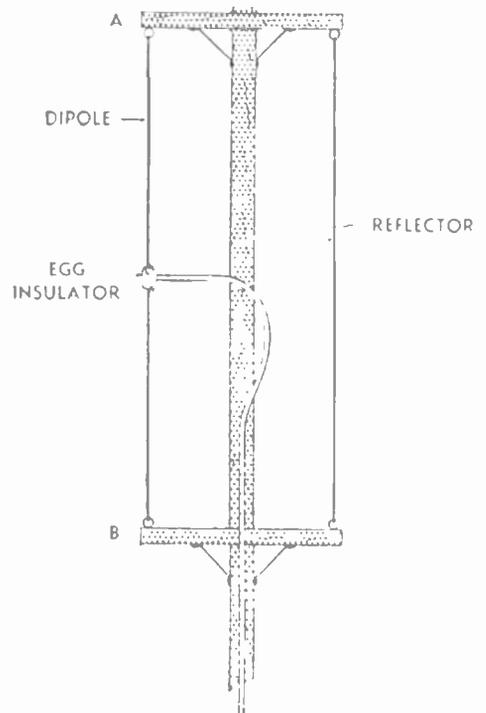
Building an H-Aerial

For locations where the directional properties of the H-aerial can be utilised, such an aerial can fairly easily be contrived by erecting a pole with two crossbars, one at the top and the other far enough below the first for a dipole, as described above, to be slung between the extremities of the two crossbars. The length of

FIG. VII

A "Home-made" H-Aerial

The length A—B is as Table I. The connections at the centre of the dipole are exactly as shown in Fig. 5, but they must be made weather-proof.



the crossbars should be about one-third of the dipole length given in the table. The reflector consists merely of a wire of the dipole length, or a few inches longer, suspended between the other extremities of the crossbars. It does not have to be connected electrically to the dipole or the cable, and no special care need be taken to insulate it. Its function is to screen the dipole from interference arriving from one direction.

INTERFERENCE

It is probably true to say that interference is the factor that accounts for more cases of unsatisfactory television reception than any other cause. Some forms of interference can be dealt with at the source, and when the Postmaster General shortly puts into effect the regulations to control radio interference which the Wireless Telegraphy Act, 1949, empowered him to make, it will be an offence to use any electrical appliance or machine that causes excessive interference.

In the meantime, the Post Office engineers will help viewers to identify the cause of interference and will show the users of the offending apparatus how to minimise the risk of interference. A form of application for this free advisory service can be obtained from any main Post Office, or by writing to the local Telephone Manager.

Although much can be done to obviate interference from many kinds of electrical apparatus, there are unfortunately some kinds that present special problems, and viewers who live close to these may themselves have to adopt special precautions to reduce it to a tolerable level.

The effect of any type of interference is naturally more severe for viewers who live rather far from the transmitting station, as the wanted signal is weaker, so that the receiver has to be adjusted to a more sensitive condition which makes it correspondingly more susceptible to interference of every kind.

Viewers who live beyond the real limit of reliable reception—and a surprising number of television sets appear to be in use in these conditions—are occasionally affected by quite another kind of interference. This comes from distant stations using the same wavelengths, but normally out of range. Due to special atmospheric conditions, the very short waves are sometimes enabled to travel very much longer distances than normal, so that mutual interference results. On account of the shortage of suitable

wavelengths, it is not possible to avoid this sharing of wavelengths on a geographical basis ; a well-known case of this interference affects the Alexandra Palace and Paris stations.

Even less frequently—actually for about two hours in the afternoons of two winter months for two or three years in each eleven-year sunspot cycle—waves about 7 metres long can travel some 2,000 miles, and when this happens, viewers in the fringe area of Alexandra Palace may get interference from United States broadcasting and police transmissions. At the same time, of course, Alexandra Palace interferes with these American services. The last time this happened, the American station that caused most of the interference agreed to close down during the B.B.C. afternoon television programmes.



Before the Post Office engineers can investigate a complaint of interference, the viewer must make sure that his aerial is properly installed, because a wrongly-located aerial can easily account for excessive interference. In general, the higher the aerial the less risk there is, but when interference from motor vehicles is the chief trouble it is often possible to overcome it by locating the aerial so that some part of the house acts as a screen between the aerial and the cars. (*See FIG. viii*).



HINTS ON INSTALLATION AND TUNING

PART II: TUNING

The Controls

Strictly speaking, the viewer does not have to tune his television set, for as there is only a single programme being broadcast and no immediate prospect of any alternative as far as can at present be foreseen, each set is tuned by the maker or by the dealer to the transmitter that gives the best service in the particular district. The control knobs provided are for adjusting the shape, size and position of the picture, to correct its tonal values and to control the volume of the sound.

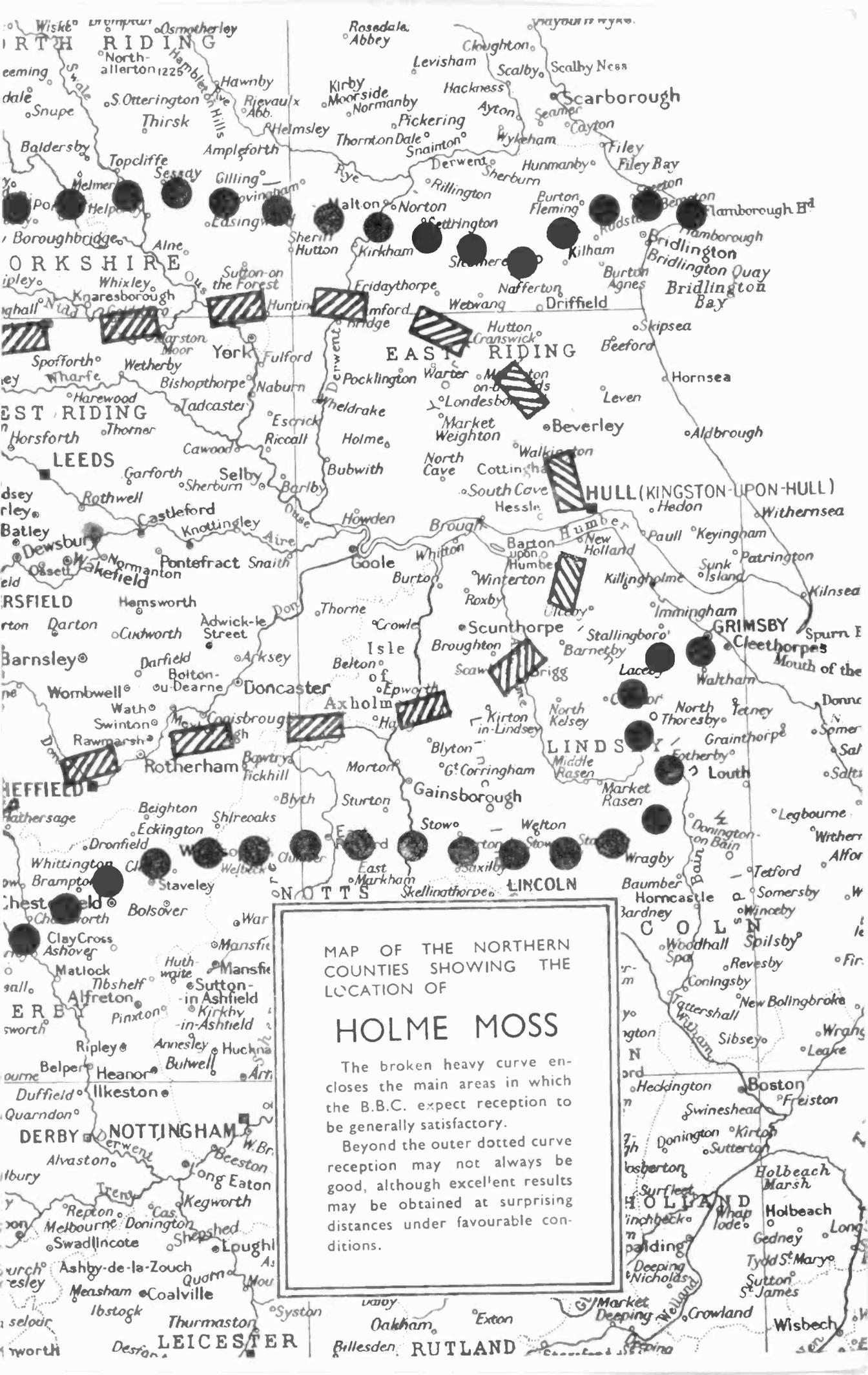
This may sound a pretty formidable list of knobs, but in practice some of them are set once and for all, some need attention only very rarely indeed, while others have to be used more often. For this reason most makers have located most of the knobs inside or at the back of the set. These are adjusted by the service-man who installs the set and the owner can, as a rule, forget them. Some makers have left only a single vision control readily available to the user, and while this arrangement is perfectly satisfactory in a favourable location, it is less convenient if the local electricity voltage fluctuates or if the television signal is subject to fading in that locality.

Adjusting the Brightness and Contrast

Most television sets, however, have two knobs marked "Brightness" and "Contrast," and as soon as possible the new owner should learn the simple routine for using these, as if these two are adjusted incorrectly, unsatisfactory reproduction is almost certain to result.

First of all, however, one important rule for viewers must be stressed: Do not make any adjustment unless you are quite sure that it is necessary and always give the set time to warm up beforehand. *Any adjustment you make while the set is warming up will probably be wrong.* Furthermore, it takes considerable practice to adjust a set correctly while a programme is in progress, so do it while the Tuning Signal is being transmitted. This lasts for about five minutes before each programme.

It must be assumed here that the picture size, shape and position have already been adjusted by the dealer, and that they are at least nearly correct after the set has been working for a few

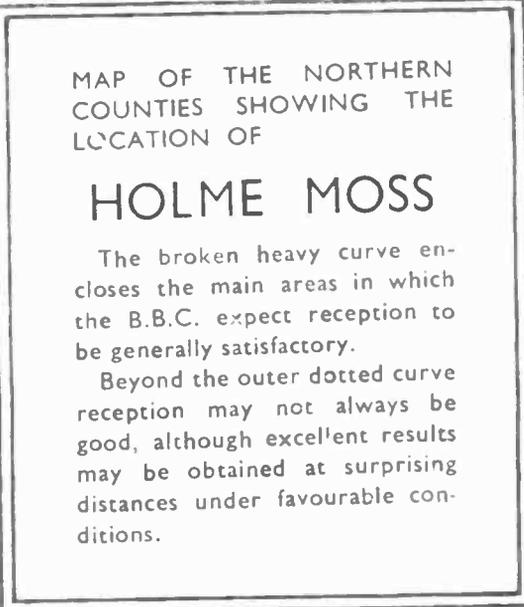


MAP OF THE NORTHERN COUNTIES SHOWING THE LOCATION OF

HOLME MOSS

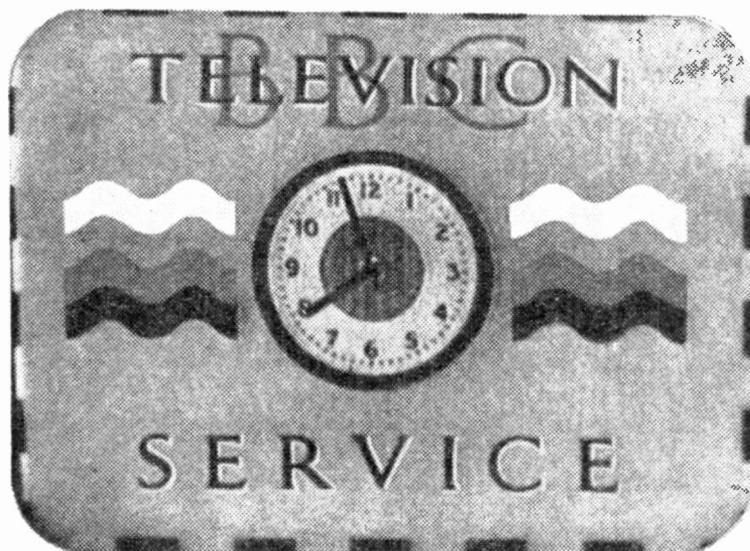
The broken heavy curve encloses the main areas in which the B.B.C. expect reception to be generally satisfactory.

Beyond the outer dotted curve reception may not always be good, although excellent results may be obtained at surprising distances under favourable conditions.



minutes. Then, the *first time* you adjust the set, or on any occasion afterwards *when the knobs have been disturbed*, follow this routine :—

- (i) Switch the receiver on about 15 minutes before the programme is due to begin, and turn down both the brightness and contrast controls as far as they will go.
- (ii) After about ten minutes the set should be warm enough internally for setting the controls. The screen should appear blank and dark. Slowly turn up the brightness control until the faintest possible glow appears on the screen, and then turn it very slightly down again until this glow just fades out.
- (iii) Now turn up the contrast control, again quite slowly (always move any of the controls on a television set slowly, because the full effect of the adjustment sometimes takes a second or two to appear) until the highlights of the Tuning Signal glow full white. The Telesnap below shows the present form of the Tuning Signal, and it will be seen that the white parts are the uppermost patterns on either side of the circle. The two patterns immediately below these are light grey, and you will have turned the contrast up too far if these, too, are nearly white. This last is a very common maladjustment, and it causes the picture to lack detail—the features of actors' faces are lost, for instance, as shown in Telesnap No. 3.



- (iv) Next, go back to the brightness control and see whether it needs to be turned up—very little should be needed to secure good contrast between the two lowest patterns on each side of the circle. Maladjustment here will cause either a lack of detail in the shadows, the picture generally being too dark, as in Telesnap No. 2, or if the brightness is turned up too high, a light grey fog all over the picture, as shown in Telesnap No. 1.
- (v) As the brightness and contrast controls react on one another to a certain extent, go back to the contrast control and make any slight final adjustment needed to get the right contrast between the light grey and white.

The Focus Control

If the set has a focus control, set this so that the horizontal lines that form the picture stand out as crisply as possible. The pattern in the centre of the clock should then appear as a series of upright black and white stripes. If these stripes are not clear, the set cannot reproduce the full detail of the pictures, and this may be due either to some maladjustment inside the set or to unfavourable local conditions.

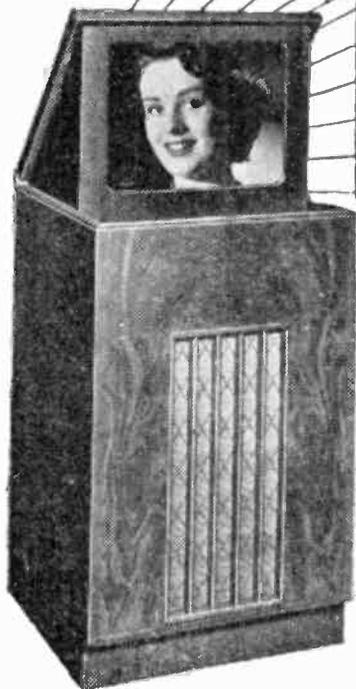
Wrongly Adjusted Brightness and Contrast

The point to be stressed is that the brightness and contrast are not independent, and if the brightness is incorrectly adjusted, it is possible to find some setting of the contrast control that will tend to compensate for this error, and a reasonably good picture will be obtained, *but only so long as the total amount of highlight in the scene remains unchanged*. If, then, your picture goes too dim or too pale on its own, for instance, when the scene changes, the probability is that your brightness control is wrongly adjusted.

Refrain from Meddling

We said earlier that it is important to avoid unnecessary adjustments. In particular, if the quality of reproduction was satisfactory when the set was switched off at the end of a programme period, and if the knobs have not been disturbed in the meantime, then it is reasonable to assume that the adjustments will be not very far from correct when the set is switched on again and has warmed up. At the worst, only slight adjustment should be needed, to compensate for changes in the electricity voltage.

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as life*



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Ⓢ

For this reason it is unnecessary in the ordinary way to switch the set on so long in advance of the programme as was suggested when explaining the routine for initial adjustment, and after a little experience you will know how long it takes your particular set to warm up. Therefore, when you switch on (assuming the adjustment was correct when you last switched off) do not worry if the picture is not right, and above all do not try to correct it. Wait a few minutes and it will probably correct itself.

Fading

It must be added here, however, that the above only applies fully to viewers who live in the true service areas of the transmitting stations. Beyond these, as explained previously, the signal will be subject to considerable fluctuations of strength under the influence of the weather, and these may necessitate resetting the receiver.

The Other Controls

So far we have confined our remarks to the brightness, contrast and focus controls. It may happen, however, for one reason or another that the shape of the picture is obviously distorted, or it may not fit the frame. If this is the case, it is best to consult the instruction booklet provided with the set, which will explain where these controls are to be found on your model, and how they are to be used. Remember that if your set was made before the beginning of 1950, the picture, when correctly proportioned, may not exactly fit the frame. The shape of the picture was altered a little then, and a narrow black margin is seen above and below the picture on sets with the original frame.

The Shift Controls

As their name implies, these controls are used for shifting the picture bodily. Use them only during the transmission of the Tuning Signal and contrive to get the clockface exactly in the centre of the screen.

The Height and Width Controls

Their use is self-evident. Having centred the picture, adjust the width so that the sides of the picture just fit within the sides of the frame, then adjust the height control so that the clock as reproduced is truly circular.

FAULT DIAGNOSIS TO



Effect of setting brightness control too high

These telesnaps have been taken exclusively for this book, by Mr. John Cura. They show the effects on your television screen of maladjustment of the control settings and of outside interference, *i.e.*, motor vehicle ignition, transmitting stations in the vicinity and electro-medical apparatus.



Effect of setting brightness control too low



Effect of setting contrast control too high



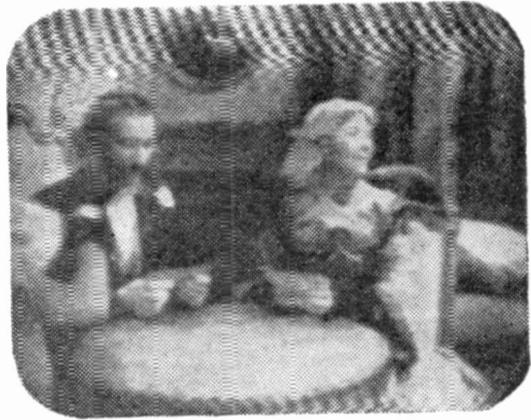
Effect of setting contrast control too low



Effect of interference from another transmitting station

IMPROVE YOUR RECEPTION

Should outside interference be severe and beyond the control of set owners, Post Office engineers will advise on how to minimise the effect. A form for free advisory service can be obtained from your main Post Office or by writing to the Local Telephone Manager. (See page 45).



Effect of local interference—electro-medical apparatus



Effect of interference—motor vehicle ignition



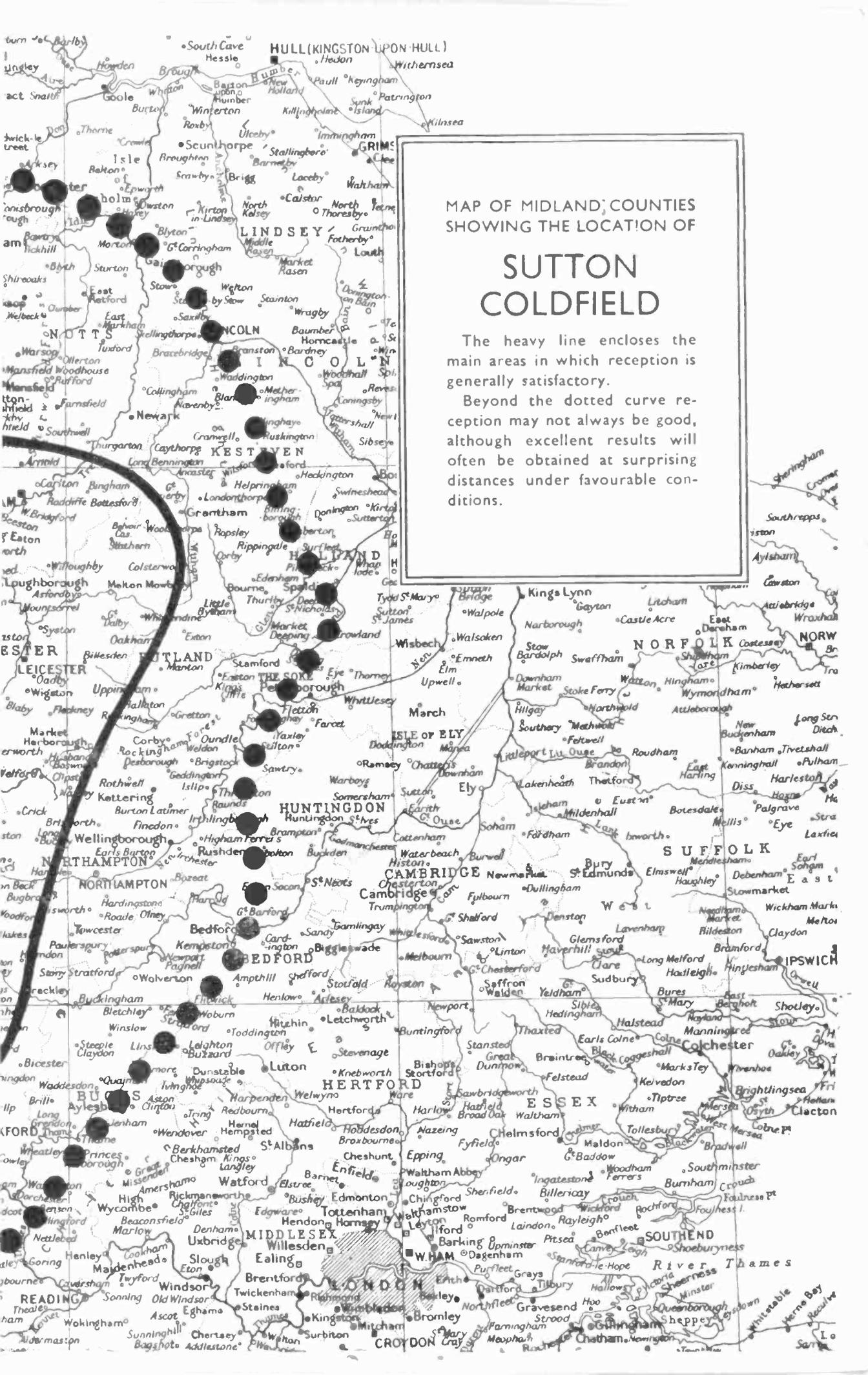
Frame (or vertical) Hold requiring adjustment



Line (or horizontal) Hold requiring adjustment



THE PERFECT TELEVISION PICTURE



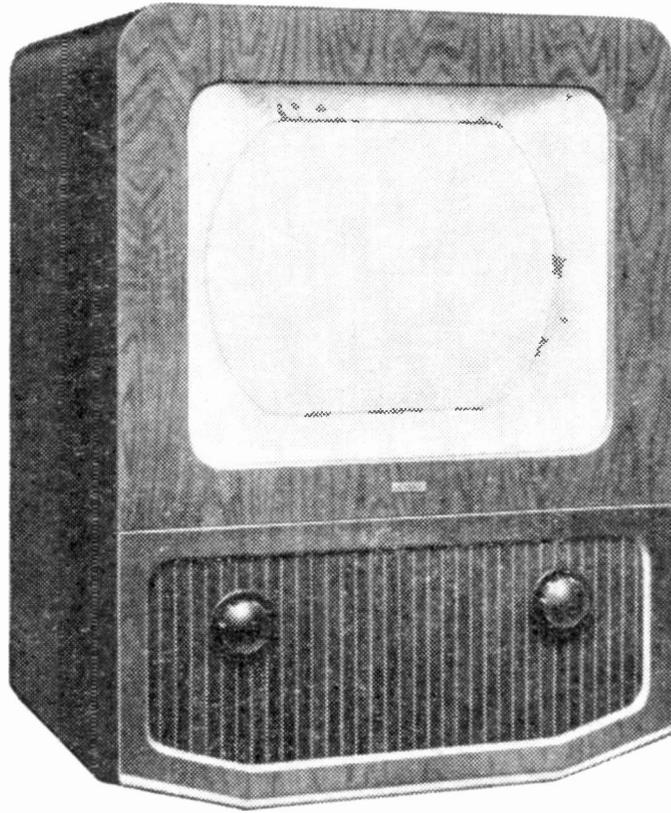
MAP OF MIDLAND COUNTIES
SHOWING THE LOCATION OF

SUTTON COLDFIELD

The heavy line encloses the main areas in which reception is generally satisfactory.

Beyond the dotted curve reception may not always be good, although excellent results will often be obtained at surprising distances under favourable conditions.

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12" Table Model 921

This magnificent 5-channel television receiver with a 17-valve, high-gain superheterodyne circuit, and incorporating efficient interference suppression, gives brilliant pictures of exceptional definition on the largest possible direct-viewing screen of a 12" tube. It is easily adjusted for use on all B.B.C. channels. Two simple manual controls. Handsome figured walnut cabinet of pleasing design. Ask your Cossor Stockist for a free demonstration and see for yourself it's the best you'll see.

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ON AND OFF

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THE SCREEN

MARY ADAMS

In charge of all Television talks and features. M.Sc., Newnham College, Cambridge. Joined Talks Staff of B.B.C. in 1930. 1936-39 Producer in Television Service. 1940-41 Director, Home Intelligence, Ministry of Information. 1941 B.B.C. Empire programme Producer (Features) and Senior Producer, Television, 1946. Author of "Talks on Heredity" and papers on biological subjects. Wife of Vyvyan Adams. One daughter, Sally.



MICHAEL BARRY

Assistant Head of Television Drama. He has had wide experience in the theatre, including acting and producing in repertory. Joined B.B.C. Television as producer, in January, 1938, producing twelve full-length plays before the war, of which his major production was the "Marvellous History of St. Bernard." From 1939-45 served with the Royal Marines, re-joining Television, in March, 1946. Since then has produced many successful plays, including "Behold the Man," "Deep Waters," his own play "Promise of Tomorrow," and also the much-discussed "Shout Aloud Salvation," with Charles Perrot as co-author. Was

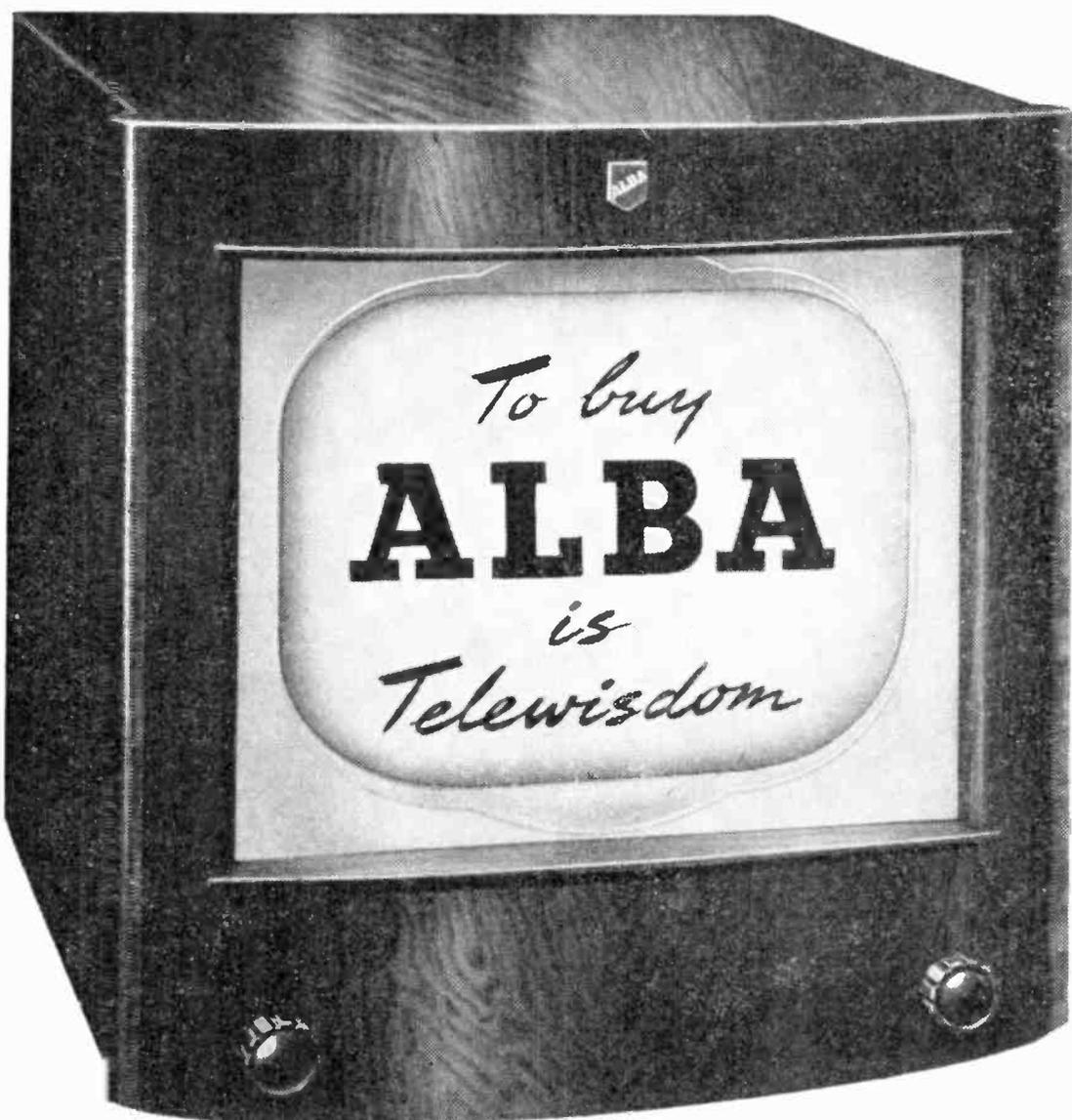
appointed to his present post in May, 1951.



PETER BAX

Head of Television Design. Educated at Reading and Derby Technical College, where he studied electrical engineering. Joined the Territorial Army in 1913, and in the 1914-18 war, served first with the Royal Engineers and subsequently in the Navy. Continued with electrical engineering and graduated to stage lighting in 1919. With Basil Dean in 1923 and Assistant Stage Manager at Drury Lane, 1924-30. In 1936, joined the B.B.C. and went to Television as Art Director. In Charge of "Programme Parade" from its beginning, in 1940, until 1944. Produced the "Brains Trust" in 1944, and in 1946, was appointed Design Manager of the Television Service, becoming Head of Television Design, 1947. Has a Canadian wife and three daughters.





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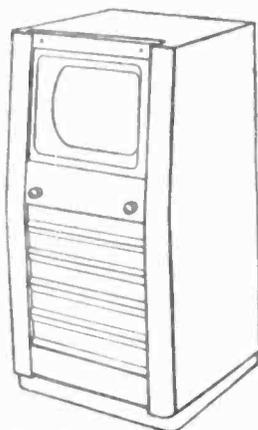
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DOUGLAS CROSBIE BIRKINSHAW

Superintendent Engineer, Television. Educated at Oundle and Cambridge. Joined the Research Department of the B.B.C. in May, 1932. Concerned with the development of Television from 1932 to 1935. In 1936 appointed Engineer in Charge of London Television Station at Alexandra Palace and, on the outbreak of war and the suspension of the Television Service, became Engineer in Charge of B.B.C. Short-Wave Station, Daventry, carrying overseas programmes. On 1st December, 1945, was appointed to his present post in Television. Married, with a daughter and a son.

ALAN CHIVERS

Outside Broadcasts producer. In 1935, was Assistant Stage Manager in repertory and film studios. During this period flew in his spare time. From 1936 to 1938 took up civil aviation, also joining the Auxiliary Air Force. From 1939-45 was in the Royal Air Force itself, first of all in Fighter Command for 2½ years, followed by 18 months as a test pilot, and 12 months as a flying instructor, returning to operational duties until the end of the war. Joined the B.B.C. in 1946 as a Recorded Programme Assistant, becoming a Television Outside Broadcasts producer in May, 1948. Married with one son aged six.



PETER DIMMOCK



Assistant Head of Outside Broadcasts (Television). Born, London, 6th December, 1920, and educated at Dulwich College. A member of the Territorial Army, he was transferred to the R.A.F. in April, 1941, for pilot duties, subsequently becoming a Flight Lieutenant Flying Instructor in 1943 and in 1944, a Staff Officer in the Directorate of Flying Training at the Air Ministry. After demobilisation, joined the staff of the Press Association, becoming a special Course Correspondent on horse racing. In 1946, joined the B.B.C. Television Service as an Outside Broadcasts Producer and Commentator. Has since produced more than 135 Outside Broadcasts and commented on even more. In 1947, became Deputy Outside Broadcasts Manager for Television and in July, 1949, was appointed to his present post.

PHILIP DORTE

Head of Television Films. 1926-30 radio engineer with General Electric Company, Schenectady and Trans-Canada Broadcasting Company, Toronto. 1930-37, Associated Radio Pictures and Gaumont-British Picture Corporation. 1937, joined B.B.C. as Television Outside Broadcasts Manager. 1939, called up as Signals Officer in R.A.F.V.R., reached rank of Group-Captain, three times mentioned in despatches and awarded the O.B.E. 1946, returned to B.B.C. as Television Outside Broadcasts and Film Supervisor, subsequently achieving his present post. Married with three daughters.

**VAL GIELGUD**

Head of B.B.C. Drama, with special responsibility for Television Drama, 1950. Born 28th April, 1900. Educated Rugby School and Trinity College, Oxford. Joined the B.B.C. as Assistant to the Editor of the *Radio Times* in 1928. Appointed Productions Director in 1929. Director of Features and Drama, 1935. Is the author of a dozen or so novels, two volumes of autobiography, "Years of the Locust" and "One Year of Grace," and two text books on the writing of Radio Plays. Has also written several plays for the theatre, among the more recent are

"Away From It All," "Party Manners" and "The Iron Curtain."

JOAN GILBERT

Born in Cambridge. Joined the B.B.C. in January, 1933, and shared with Brian Michie the job of interviewing people on "In Town Tonight." When Television started became interviewer and script-writer for "Picture Page" and later was the Assistant Editor to Cecil Madden on this programme. During the war, did a great deal of work in B.B.C. sound broadcasting, being responsible for such programmes as "Calling Gibraltar," "American Eagle Club," etc. On 6th May, 1946, returned to "Picture Page" as Editorial Assistant, subsequently becoming Editor of this very popular programme. In November, 1950, while continuing her association with "Picture Page," ceased to be Editor, and expanded her activities to include interviewing and acting as hostess for other outstanding programmes.





MCDONALD HOBLEY

Announcer at Alexandra Palace. Apart from normal duties, is the regular interviewer in the fortnightly magazine programme "Kaleidoscope," and is an expert at putting people at their ease in front of the television cameras, though he confesses he is still nervous himself. Six-and-a-half years in the army, four of them in the Far East. Before the war was an actor and toured the country in various plays under the name of Val Blanchard. He is 31 and married with one daughter.

J. A. C. KNOTT

Head of Television Administration. Born at Birmingham, the 16th December, 1913, and educated privately at Dudley, Worcs., and various technical colleges. After doing Wireless Engineering with the Marconi Wireless Telegraph Co., joined the B.B.C. as an engineer in the Midland Region on the 26th April, 1937. On the 6th April, 1939, joined the Television Service, but was called to the Colours on the outbreak of war, serving in France, Malaya, Burma, China and India, becoming a Colonel in June, 1945, and being awarded the O.B.E. On demobilisation in December, 1945, returned to the B.B.C. as Temporary Executive Assistant to the Director of Television. Was subsequently Administrative Officer, and achieved his present post on 20th October, 1950.



FREDA LINGSTROM

Head of Children's Television Programmes. Joined the B.B.C. in Home News Talks Department, 1942, transferring to Schools Broadcasting in 1943, where her influence has been considerable. The current series of schools broadcasts, "Looking at Things," owed its beginnings to her inspiration. As well as being an artist of distinction, has written several scripts and four novels, and created the well-known Television puppet, "Andy Pandy." Appointed to her present post at Whitsun, 1951.





SEYMOUR JOLY DE LOTBINIERE

Head of Outside Broadcasts (Sound and Television). Born 1905, educated Eton and Trinity College, Cambridge. Called to the Bar where he practiced in Chancery at Lincoln's Inn. In 1932 joined the B.B.C. Talks Department and did many Outside Broadcast commentaries, becoming Head of Outside Broadcasts in 1935. He was made Regional Director in Bristol in 1940 and subsequently became Director of Empire Programmes in 1941. In 1943, became the first Head of the B.B.C. War Reporting Unit and went to Canada as B.B.C. Canadian Representative in that year. Returned to London on the 9th July, 1945, when he was appointed Director

of Outside Broadcasting and took Television, as well as Sound, under his wing, in June, 1949. Married with one son.

CECIL MADDEN

Assistant to the Controller of T.V. programmes. Produced the very first Television Programme at Alexandra Palace in 1936 ("Here's Looking At You!") and created "Picture Page." Appointed Television Programme Organiser, 1936. Pioneered production of four major B.B.C. services:— Empire Service (1934), Television Service (1936), Programmes to Forces Overseas (1940), A.E.F. Programmes (1944). Created and personally produced "Variety Bandbox"—then back to post-war television in 1946. First Head of Television Children's Hour, during which he brought children's programmes to great popularity. Playwright, author of 10 West End plays, books, films, discoverer of many stars. Appointed to present post, 6th July, 1951.



STEPHEN McCORMACK

Documentary producer. Trained for stage production with Prince Littler. Enlisted in the Irish Guards in 1940. Two years with British Forces Radio, broadcasting from All-India Radio, New Delhi, after being commissioned from Indian Military Academy, in 1942. Organised the broadcasting of messages from the Far East Troops to their homes. Joined the B.B.C. in 1946 as Studio Manager, becoming Television Producer in 1947. Past productions include, "Going Places," "Picture Page," "Kaleidoscope," "Under the Counter" and "Cinderella," with Jack Hulbert, and "First Time Ever." Currently producing "London



Town" and documentary fashion programmes. Married to actress, Nancy Lind. Has a son and daughter.

MARY MALCOLM

Television announcer. Born in London, in 1918, but, as a child, spent her holidays in Argyllshire, home of the Malcolm family, and her schooldays in London and the Home Counties. In 1937, she married the actor and dramatic author, Sir Basil Bartlett. In 1942, she joined the B.B.C. Home Service as an announcer and transferred to the Overseas Service a year later. In 1948, she joined Television. Lives in West Sussex, and has three daughters, Julia Jane (13), Lucy (10), and Annabel (6). Is one of the "voices" in Children's Newsreel and edits and presents the "Your Wardrobe" programme. Also does a number of outside broadcast commentaries.

MICHAEL MILLS

Drama producer. Entered the B.B.C. in 1938 as Junior Programme Assistant (Effects Boy). On outbreak of war, joined the Royal Navy. Joined B.B.C. Television in January, 1947, as Light Entertainment producer. Has covered every sort of entertainment from Drama to Ballet, Cabaret, Revue, Experimental Programmes and Parlour Games, etc. Some of his outstanding productions include "Family Affairs," the Lido Show from Paris, the "Regency Room" series, "Consider Your Verdict," etc. Recently responsible, with Freddie Carpenter, who produced the musical numbers, for "The Passing Show," a series of surveys of light entertainment in this country, from 1900 to the present day.

**LESLIE MITCHELL**

His broadcasting connections date back to 1929. Joined the B.B.C. as an announcer in 1934, and in August, 1936, was appointed Television announcer, resigning in February, 1938, to join the British Movietone Newsreel Company. He continued to do a great deal of B.B.C. work and started a series of successful interviews in the programme "Close-up." Appointed Director of Publicity for Korda—British Lion Pictures—as from January 1st, 1947, but subsequently resigned and returned to British Movietone. Has renewed his interest in Television, however, and is again one of the most popular commentators and interviewers at Alexandra Palace.



INVICTA

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FRED O'DONOVAN

Drama producer. Prior to the war was leading man and producer at Abbey Theatre, Dublin, and subsequently toured the British Isles, America and Canada with the Irish Players and his own company. Became Director for the Film Company of Ireland, and afterwards continued to act in Oxford and London, as well as touring the Continent and South and East Africa. Joined B.B.C. Television and then, during the war, produced for sound radio. Rejoined Television when it started again. Invented and specialises in his "one-camera" technique.

**SYLVIA PETERS**

Permanent Television Announcer, sharing duties with Mary Malcolm. Applied for this job in March, 1947. Did a series of tests for B.B.C., and joined the staff at Alexandra Palace in June, 1947.

Appeared as Fairy Queen in Television Panto at Christmas, 1949. Made a short film during the Summer of 1950, called "Shooting Stars." This was done in spare time from the B.B.C.

On August 28th, 1950, married Kenneth Milne-Buckley, Studio Manager and Producer at Alexandra Palace. Now has a flat in Surrey, furnished mostly with antique furniture. Plays golf, watches cricket, and drives a small and ancient car.

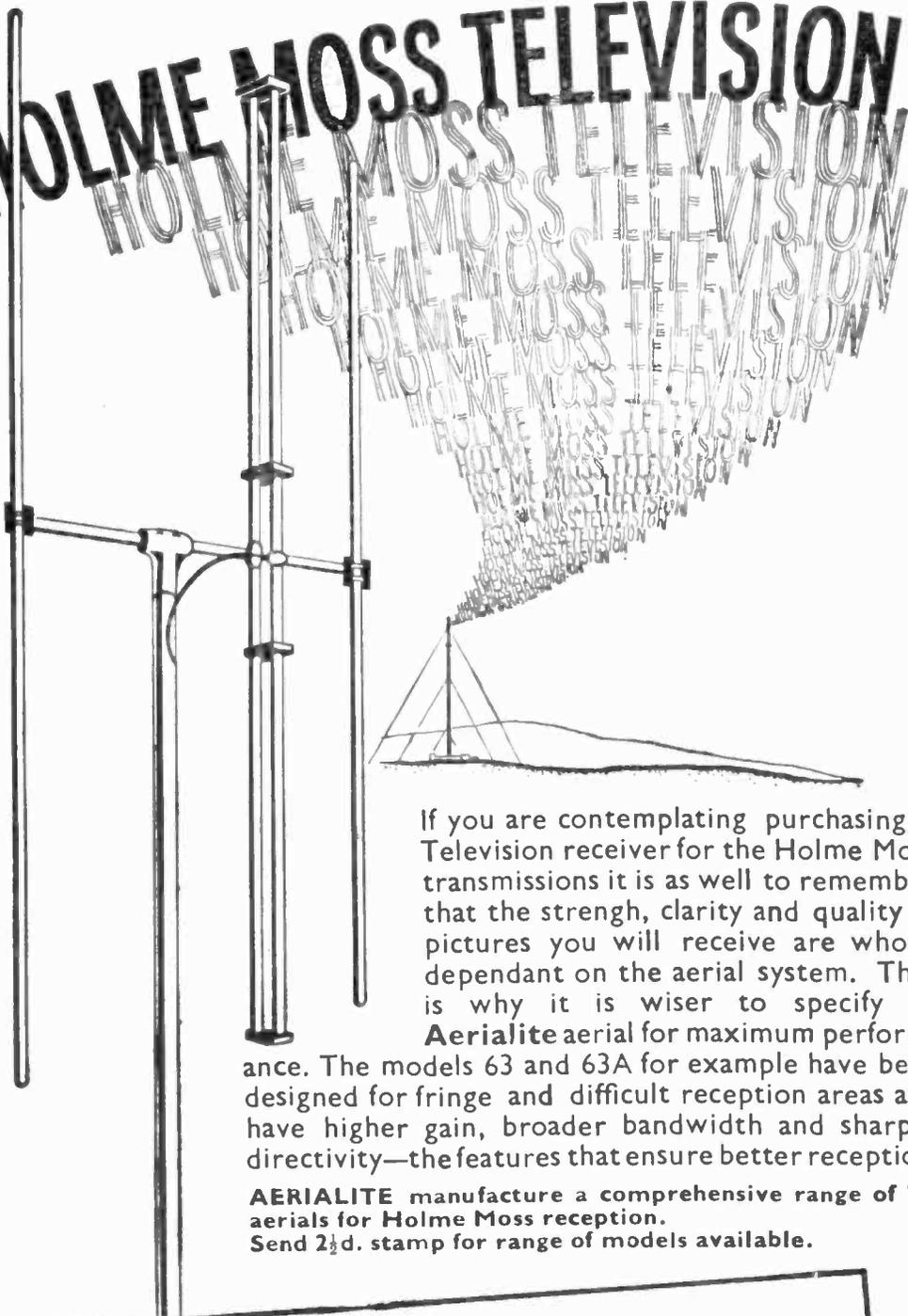
Interests also include opera, ballet and the theatre—and criticising Television on own Television set.

**MARTIN JOHN LANGLEY PULLING**

Senior Superintendent Engineer, Television. Born, May 30th, 1906. Educated Marlborough College and King's College, Cambridge. Honours Degree in Mechanical Sciences, Cambridge, 1928. Research work in radio laboratories, Cambridge, followed by a year's course with International Telephone and Telegraph Laboratories Incorporated. Murphy Radio Ltd. for two years. Joined B.B.C. in 1934 in Engineering Information Department. Became Personal Assistant to Assistant Chief Engineer in 1937. In charge of Recording Department from 1941 to 1949. Appointed to his present post in November, 1949.



HOLME MOSS TELEVISION



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AERIALITE

Television Aerials

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CHRISTIAN SIMPSON

Music and Ballet producer. Joined the B.B.C. Television Service at its opening, in November, 1936. Commenced on sound duties, in 1937, changed to camera work, graduating from Assistant to No. 1 cameraman. In 1940, joined Royal Air Force in Radar Section. 1946, returned to Alexandra Palace as lighting technician. 1948, transferred to Productions Department as Studio Manager. 1949, confirmed as "Producer of Music and Ballet." Aims to develop pure music and movement for the television screen. Productions include "Dance of Salome," "Eve of St. Agnes," "Story of the Waltz," etc. Adaptations include, "Coppelia," "Giselle" and "Les Sylphides."

**RONALD WALDMAN**

Acting Head of Television Light Entertainment. Born London, 1914. Educated L.C.C. Elementary School and Owen's School Islington. Gained Senior History Scholarship to Pembroke College, Oxford. At University became member of O.U.D.S. Joined Brighton Rep. at £2 10s. per week, eventually became leading man and Producer of Company. Joined B.B.C. Variety Department, February, 1938. Co-producer of "Monday Night at Seven," with Harry S. Pepper, 1939. Served in R.A.F.V.R. during the war. In 1944, detailed to work on Allied Expeditionary Forces Programme. Produced programmes with Bing Crosby, Marlene Dietrich, Dinah Shore, etc. Rejoined B.B.C., October, 1945. Became Senior Producer in 1946 and Assistant Head of Variety Productions in 1948. Joined Television Service as Senior Producer, Light Entertainment, January 1st, 1950. Achieved present post, November, 1950.

**MICHAEL WESTMORE**

Children's Programmes producer. Served six years in the army in England, Middle East and Italy. Returned to Cambridge, 1946, obtained Honours degrees in History and Law and was a leading member of The Footlights and other dramatic clubs. Student member of Inner Temple, but abandoned the Law for the Stage. Appeared in revue, pantomime and music-hall as character singer and "straight man." Appointed producer in the newly-enlarged department of Children's Programmes, in April, 1950. Currently produced "Whirligig" and Sports programmes. Married with a stepson of seven.

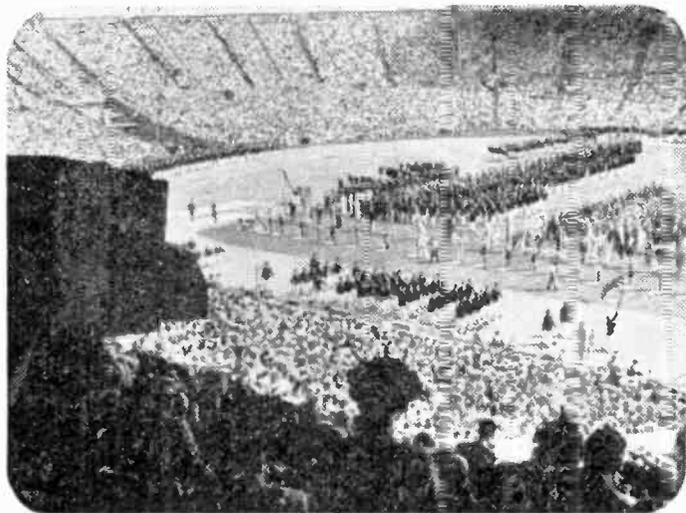


HISTORIC OUTSIDE BROADCASTS

Pictures that will revive memories of some outstanding events covered by the B.B.C. Outside Broadcasts Unit.



The Oxford boat sinks in the blustery waters of the Thames in the 1951 Oxford and Cambridge Boat Race. An exclusive *Sunday Dispatch* photograph, shot by John Cura directly from the television screen.



The march past of the British competitors during the opening ceremony of the XIVth Modern Olympiad, at the Empire Stadium, Wembley, in 1948.

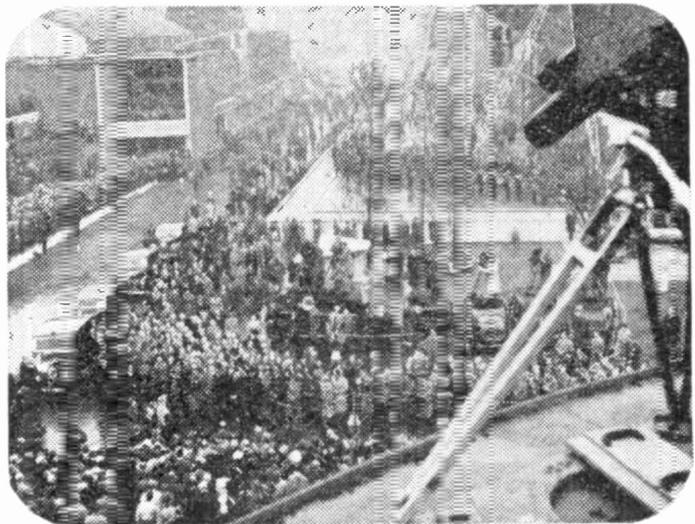
During the General Election, in 1950, on the night of 23-24 February, the cameras joined the crowds in Trafalgar Square, to show viewers the results as they were flashed on the *Daily Mail* screen.



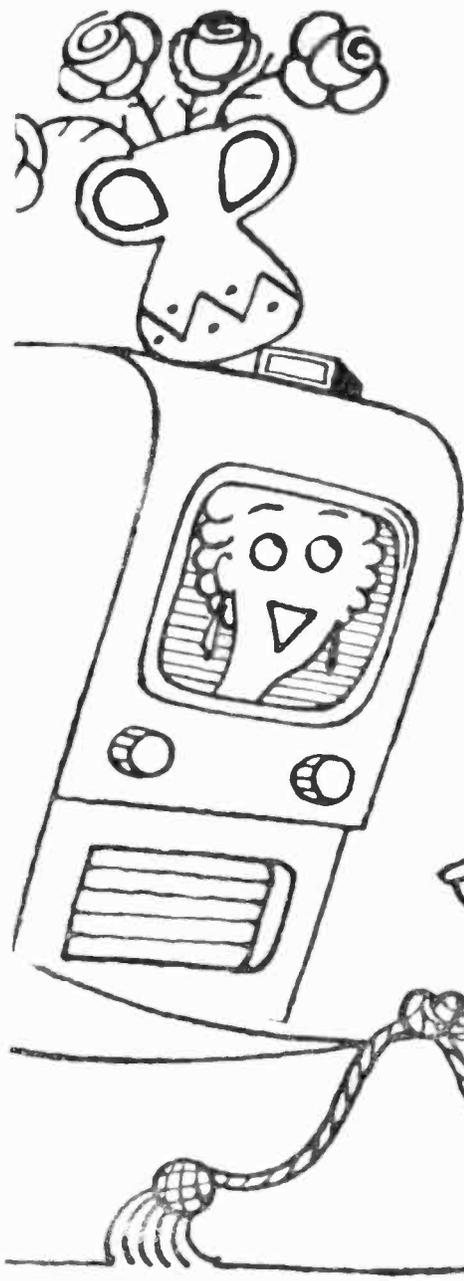
Her Majesty Queen Mary, arrives at St. Paul's for the Festival of Britain Service of Dedication and Opening Ceremony, on May 3rd, 1951.



The cameras watch the tour of the Royal party at the opening of the South Bank Festival of Britain Exhibition, on May 4th, 1951.



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Friend Snooks has just bought his first T.V. set. He knew exactly the model he wanted . . . and refused to be put off with anything else. He was shrewd about other things, too! He found that Currys would take over ALL his cares and worries about after-sales service and aerial up-keep. And as for easy terms, he enjoys the best and fairest in the country today. Yes, he is certainly viewing the easy way . . .

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TWENTY QUESTIONS AND ANSWERS ON TELEVISION

Q. 1 Is a television set simple to operate ?

A. Modern television receivers are hardly more complicated to adjust than sound receivers. Nevertheless, it is important to learn the proper use of each control. Hints on Installation and Tuning (Part II) in this Book goes into this subject very fully, and it will be wise to read that chapter in conjunction with the instruction booklet provided by the maker of your set. After a few trials you should have no difficulty in adjusting the picture correctly.

Q. 2 Why do some television sets cost more than others ?

A. This is quite natural and applies equally to most manufactured products. . In motor-cars, radio sets, cameras, furniture, etc., there are simpler and smaller models that can be bought at quite modest prices and also the larger and more elaborate kinds that cost more. In the case of television sets the same is true, and prices range from just over £30 to £150 or more. It doesn't follow that you get better pictures on the more expensive sets, but you will usually get bigger pictures, better quality sound, a more imposing piece of furniture and internal technical refinements.

Q. 3 What should I look for when choosing a television set ?

A. Unfortunately it is not at all easy for an inexperienced viewer to assess the performance of television receivers, as one may be seen while an excellently-lit studio play is in progress and the next while a football match is being televised on a dull, misty afternoon. If at all possible, then, it is best to try to see the sets you are interested in at the same time, preferably working side by side. The most convenient course is to consult a reputable television



A skating pantomime from the Empress Hall, London. The coach waits to take Cinderella to the Ball.

dealer in your neighbourhood—even the best receivers need skilled attention from time to time if their original performance is to be maintained, and so it is wise to deal with the man on the spot—for he should be able to demonstrate to you a range of makes and models that are known to give good results in your particular district.

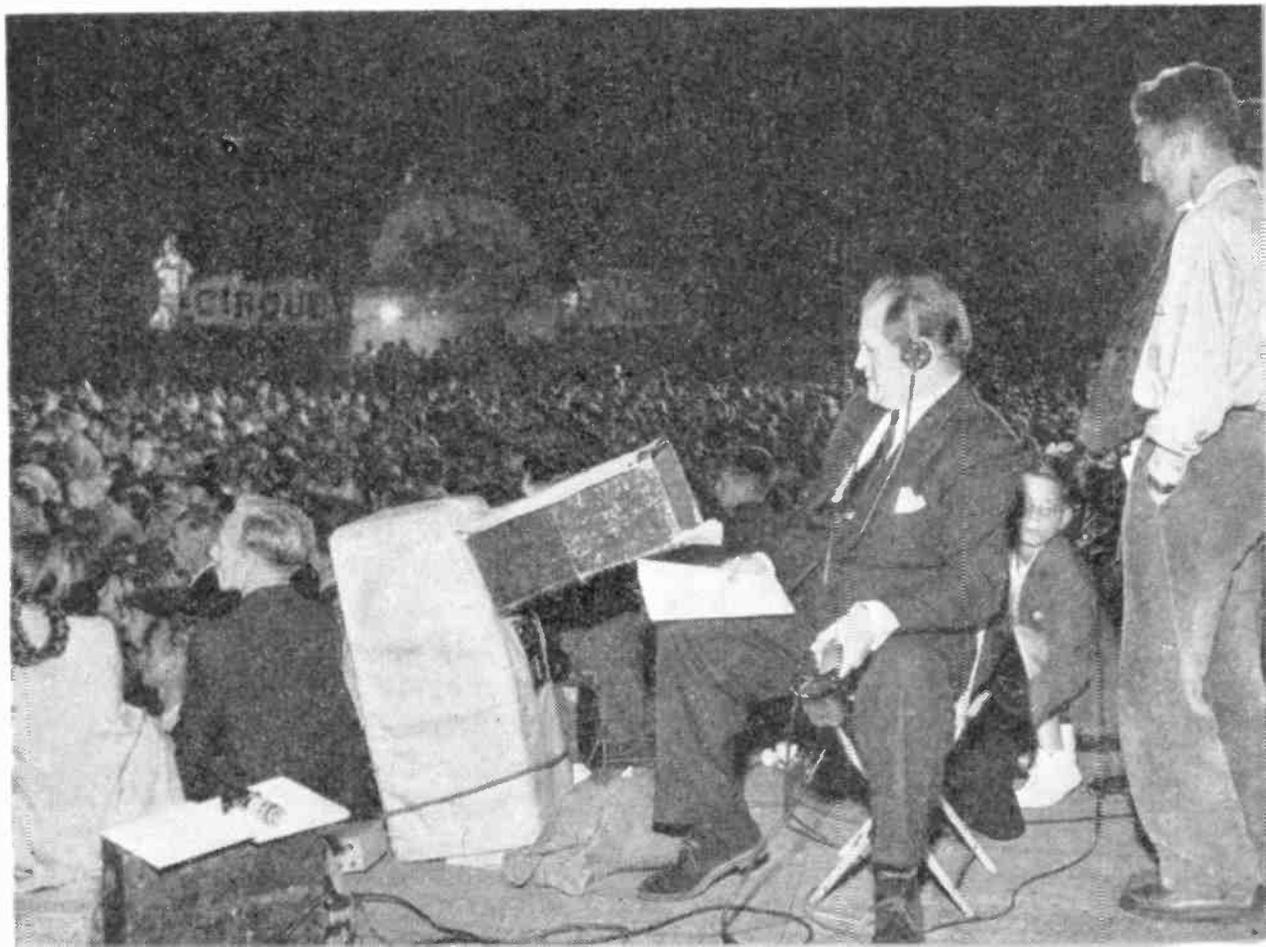
The first thing to look for is good general picture-quality—the detail should be good, both in highlights and shadows; the outlines should be crisp and clear. On close examination the picture will be seen to be made up (as explained in “How Television Works” in this Book) of a large number of horizontal lines, and these should be quite separate and clear, both in the centre of the screen and also round the edges. Of course, from ordinary viewing distances you cannot see the lines separately.

Then, make sure that the shapes of actors or objects do not seem to change as they approach the edge of the picture. This effect, sometimes called the “gold-fish bowl” effect, is commonly supposed to be due to the slightly rounded end of the cathode-ray tube on which the picture is seen, but it is actually due to an electrical shortcoming. Pay particular attention to the right-hand edges of objects in the picture; they should be clean, without any tendency to smear. There may be evidence

of "ghosts" or echoes in the form of multiple verticals, but this will almost certainly be due to the aerial installation itself and will affect all the receivers working from that aerial.

Unfortunately, busy shopping streets are by no means favourable to good television demonstrations, and when you have narrowed down your choice, it is a good idea to ask for a demonstration in your home, if at all possible. Here, too, the pictures may not be as good as it is possible to get, because the dealer can hardly be expected to go to the expense of erecting a proper aerial unless he is fairly certain that you are a genuine buyer. As the aerial is so very important on television, the temporary one he provides for the demonstration may not do full justice to the set, and this must be allowed for. See that the upright straight lines in the picture really are straight—some sets reproduce them as curves or slightly zig-zag—and see that there is no tendency for the picture to shake or change momentarily in brightness. The edges of objects should not show a black or white border, but this effect

Richard Dimpleby, dual Daily Mail National Radio Award winner in 1950, seen commentating during the first cross-Channel television programme from Calais.



may be due to a transmission fault, especially if the programme is an outside broadcast.

It is most desirable that the picture should show a good range of contrast between the black and the white objects. The appraisal of contrast range is rather difficult to describe in words and it is made more complicated by the fact that the amount of light in the room affects the apparent range, although this is less important if there is a filter in front of the screen—as in the so-called “black-screen” sets. The B.B.C. transmits each weekday morning from 10 to 12 o'clock a special film, for the benefit of television makers and service-men, and this includes several periods when a special test pattern is shown for about a quarter of an hour. If you can see this pattern reproduced on the set you have chosen, you can get a very good idea of its performance. Needless to say, the circle should be truly circular, and the white “over-check” should consist of equal squares all over the screen, with no tendency to be distorted into narrow rectangles at the sides of the picture, for instance. The contrast is indicated by the tones of the black, grey and white squares, and the goodness of the definition by the sets of black and white vertical stripes. A receiver need not reproduce the narrowest stripes distinctly, but it should certainly be able to reproduce the next narrowest as individual black and white stripes.

Finally, make sure that the sound reproduction is of the high quality that is possible on television wavelengths.

Q. 4 Should I buy a separate television set or one that is also an ordinary radio receiver?

A. This is really a matter of individual preference and domestic circumstances. For use in a very small flat, with a “household” of one or two, considerations of space may make the use of separate sound and television receivers inconvenient.

Where space is not a problem, there are several advantages in having separate sets. For instance, some members of the family may wish to see the television programme while others would prefer to listen to a sound programme, and this is not possible with a combined receiver. Most families already possess a sound receiver, and this, or an extra loudspeaker connected to it, can be



Bernard Shaw's "Man of Destiny." Hugh Burden as Napoleon and Valerie Hobson as the Strange Lady.

installed in another room. This feature is more important than many would-be viewers suppose, because viewing is a full-time occupation, and one cannot get on with domestic tasks such as washing-up while watching a television programme. If possible, then, it is usually better to have separate sets. All scientific instruments—and both radio and television receivers are really scientific instruments—require a certain amount of technical adjustment periodically, and if separate receivers are used you will not be deprived of reception of all kinds while this is being done.

We are also often asked whether a table receiver or a set standing on the floor (usually called a console receiver) is best. As far as television is concerned, there is nothing in it, but, all other things being equal, the sound is usually better with a bigger cabinet, and on this ground the console is to be preferred.

Q. 5 What size screen should I get?

A. This depends on the size of your room, the number of people who will normally be viewing and, of course, how much you are prepared to spend. Nearly all the receivers



For Young Children. "Sing a Song of Sixpence," the old nursery rhyme made into a play with music.

at present on the market are what are called "direct-viewing" sets, that is, the screen is actually the end of the cathode-ray tube itself. It is necessary to sit further away, therefore, from the bigger sizes in order not to see the lines of which the picture is composed, and so it is useless to buy the biggest size for a small room, where it is impossible to get far enough away to see the pictures properly. On the other hand, it is inconvenient for a large number of people to try to view a set of the smallest size, as many of them will be too far away to see any detail.

For the average size of room and family, a 12-inch diameter tube is usually about right, and this is mounted behind a frame, giving a picture of something like $10\frac{1}{2}$ inches by nearly 8 inches. The sizes of direct-viewing television sets are always quoted as the diameters of their cathode-ray tubes: 9-inches, 10-inches, 12-inches and 15-inches being the sizes most commonly used in receivers for the home.

We said earlier that you must not sit too near a television screen. The actual distance that gives the best results varies widely, depending to some extent on personal preference and to some extent on one's eyesight. One authority quotes an average figure of eight times the

height of the picture, which means that your eye should not be less than about five feet from a set with a 12-inch tube, to get the best effect. The corresponding distance for a 15-inch tube is seven feet six inches. For this reason it is evident that the choice of such a receiver is ruled out for a small flat, as these usually have living-rooms about 12 feet square. Allowing about three feet for the depth of the set and another three feet for an easy chair, it will be realised that even with the set touching one wall and the chair against the opposite wall, there is not enough space to view the screen to the best advantage.

In addition to the direct-viewing sets, there are on the market now a number of receivers using the projection principle. In these the picture is formed on a very small, but very bright, cathode-ray tube, and a system of lenses and mirrors throws an image of it on to a fairly large screen of a size which, in a direct-viewing set would need a tube of about 18-inches diameter or more. Because the light in the picture has to be spread over a bigger area, however, projection sets are generally not quite so bright as direct-viewing sets, but they do provide a big, flat screen. One claim made for these sets is that the small tube is much cheaper to replace than the big ones used for direct-viewing.

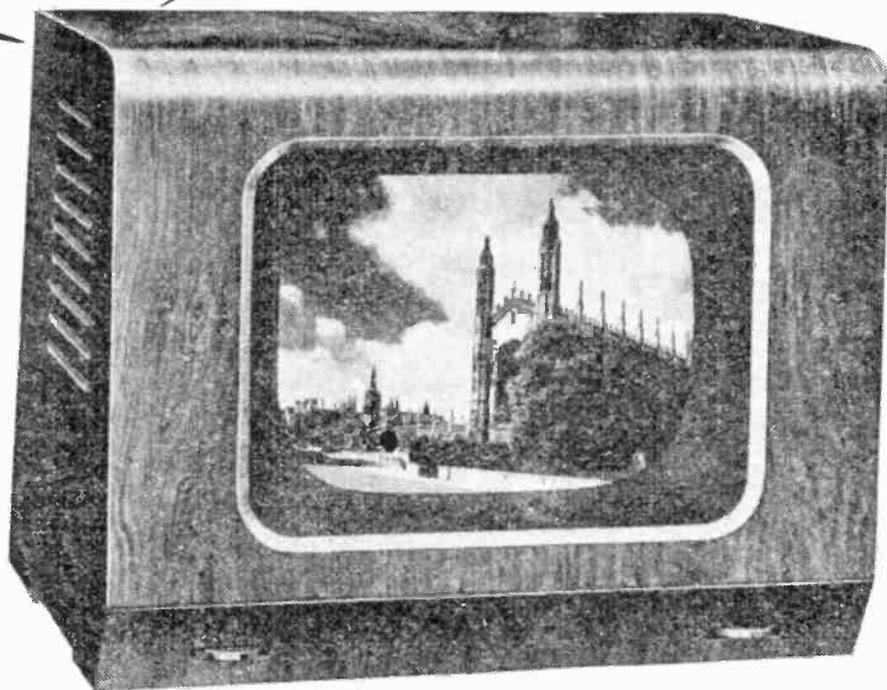
- Q. 6 **Wouldn't it be better to wait a year or two in case the system of transmission is changed?**
- A. No. The Postmaster General has announced that no other system at present known is likely to give better

Television ballet. A "Pas de Deux" by Nina Vyroubova and Youly Algaroff in Michel Fokine's "Les Sylphides," to music by Chopin.



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pictures in viewers' homes than that now used by the B.B.C., and the present system is to be used for all the ten stations that will constitute the British television network.

It has also been authoritatively stated that when, in the future, some improved system may reach a state of development that would justify its adoption on a public-service basis, then, if the existing receivers could not work with the new system, both would be operated together for a reasonable time so that receivers in the hands of viewers would not go out-of-date prematurely. The B.B.C. is introducing improvements all the time, which result in better pictures but do not require any change in the receivers. All you will do by waiting is to miss a great deal of very entertaining television.

Q. 7 What are the " lines " we hear so much about ?

A. As explained in " How Television Works," the television picture is " drawn " on the screen by a travelling spot of light, which crosses the screen horizontally many times, drawing each line just below the previous one. In the British system, 405 such lines go to one complete picture. As soon as one picture is finished, the next is begun, and successive pictures follow one another at the rate of 25 to the second so quickly that the eye is deceived and the brain interprets the effect as continuous movement. The idea that systems based on larger numbers of lines give better pictures is not entirely true. Such systems can certainly be made to give better pictures in laboratory demonstrations, but we must take into account the effect on the picture of conveying the signals from studios and outside-broadcast points to the transmitting stations, of broadcasting them and also, of course, the effect of a receiver that has been in use for several months. In these circumstances, systems using large numbers of lines suffer so much distortion that the net result is usually a less satisfactory picture. 405 was chosen for British television by the scientific advisers of the Post Office and the B.B.C. as the highest number of lines that will not be distorted in this manner.

At any rate, it is commonly conceded that the standard of the pictures seen on British viewers' screens is not surpassed anywhere in the world.



Television opera. Kenneth Neate plays Lieut. Pinkerton and Lian-Shin-Yang plays the name part in Puccini's "Madame Butterfly."

Q. 8 What about colour television ?

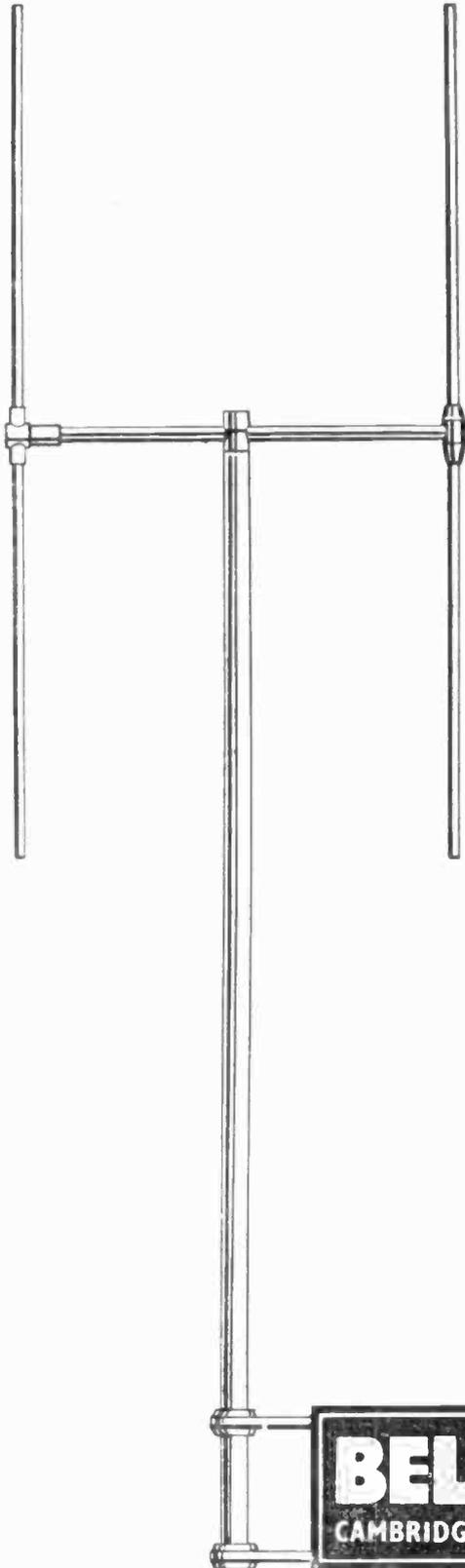
A. The answer to this question is very much the same as that to Question 6. The B.B.C. and the big television firms have been studying this problem for several years, and while most impressive demonstrations of colour television can be given in the laboratory, the economic problems involved suggest that it will be many years before it will be feasible to consider the introduction of any system of colour television on a real public-service scale in the United Kingdom.

Q. 9 Must you sit in complete darkness to see television ?

A. No, although it is most undesirable to allow any strong light actually to fall on the screen. Many people find that viewing is more satisfactory if there is a diffused light in the background ; especially if this light has an orange tint. This lamp must not, of course, be directly in sight of the viewers, nor must it be placed so that a reflection of it appears on the screen.

Some receivers on the market are fitted with what are called " black screens " or " dark screens," which permit

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... because no receiver will give of its best if fed from an inferior aerial.

Always consider the aerial to be complementary to the receiver, and not "just another item"; in this way you are taking the right step in the direction of good reception.

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CAMBRIDGE ARTERIAL RD., ENFIELD, MIDDX., ENGLAND

them to be used with more light in the room. Viewers with sets that do not have this fitting, and who find it difficult or inconvenient to get their rooms dark enough, can obtain suitable dark filters separately from any television dealer.

In any case, however, it is desirable to locate the television set in a position where the light from window, fireplace or lamp, does not fall on the screen, but also so that the viewers do not face any of these sources of light.

Q. 10 How many people can see the pictures at the same time ?

A. This is a difficult question to answer, because it depends to a very large extent on the type of furniture in the room, its arrangement, and the positions of the windows and the fire, if any. In an average arrangement, four or five people can view a 9-inch set very comfortably, and this number increases to about ten for a 15-inch set.

It is necessary, however, to distinguish between these figures which apply to what we may call the regular audience, and outstanding occasions of especially popular programmes when visitors may be confidently expected to drop in, and when a certain amount of improvisation in the way of seating accommodation (*e.g.* the floor and the table) can be tolerated. In these circumstances, the figures above may be doubled or even trebled.

Q. 11 Does a television set use much electricity ?

A. This depends on the size of the set and, of course, on the amount you use it. An average set should work for six or seven hours on one unit of electricity. If you wish to work this out for any particular set, find out from the catalogue or the dealer the *consumption*, which will be quoted in *watts*, then divide this number of watts into 1,000. The answer is the number of hours that set will work on one unit. Your last electricity account, or the local office of the Electricity Board, will tell you what a unit of electricity costs in your district—it is often round about one penny. This means that many television sets cost less than a farthing an hour for electricity.

Q. 12 Are there any television battery sets?

- A. No, you must have mains electricity for a television set. Either A.C. or D.C. is satisfactory, but if it is D.C. it must also be at least 220 volts.

Television sets are classed as A.C. or A.C./D.C. This means that if you have A.C. electricity mains, you may use *either* an A.C. set *or* an A.C./D.C. set, whereas if you have D.C. mains, you *must* use an A.C./D.C. set. Although, in the first case, you nominally have a choice, there are certain technical advantages in using a receiver exclusively designed for A.C. if you actually have A.C. mains. Incidentally, A.C. means *alternating current* and D.C. means *direct current*; A.C. is the standard in Britain, but there are still certain districts which have not yet been standardised.

For would-be viewers who are not on public supply mains, there are on the market special rotary and

**MR. TURNIP**

A new rival to "Muffin the Mule." Mr. Turnip, made and animated by Joy Laurey and spoken by Peter Hawkins, who first appeared in Michael Westmore's successful children's magazine programme "Whirligig." He, with Humphrey Lestocq, has rapidly become the favourite of many children.



One of the most famous television "stars," Muffin the Mule. Annette Mills is seen singing to Muffin while Ann Hogarth and Jan Bussell pull the strings.

vibratory converters which produce the kind of electricity needed for television sets from private accumulator supplies, or even from accumulators of the kind used in motor cars. When ordering such a converter, make sure that it has been designed for television, as special frequency stability is necessary, and verify that working the receiver from such a supply does not invalidate the makers' guarantee.

Q. 13 Is it true that the cathode-ray tube only lasts a few months ?

A. The cathode-ray tube, upon the flat end of which the pictures appear, is undoubtedly a very complex and fairly delicate piece of apparatus, but nowadays these tubes are also reliable. A cathode-ray tube, like most electronic devices, cannot be tested in the factory for reliability, the factory tests can only determine whether its performance is satisfactory. If a particular tube is properly made, all well and good, and it will probably go on working almost indefinitely, until in the end the picture gradually starts to get dimmer and dimmer, and at some point the owner decides that it would be worth while to replace the tube. On the other hand, if there was some im-

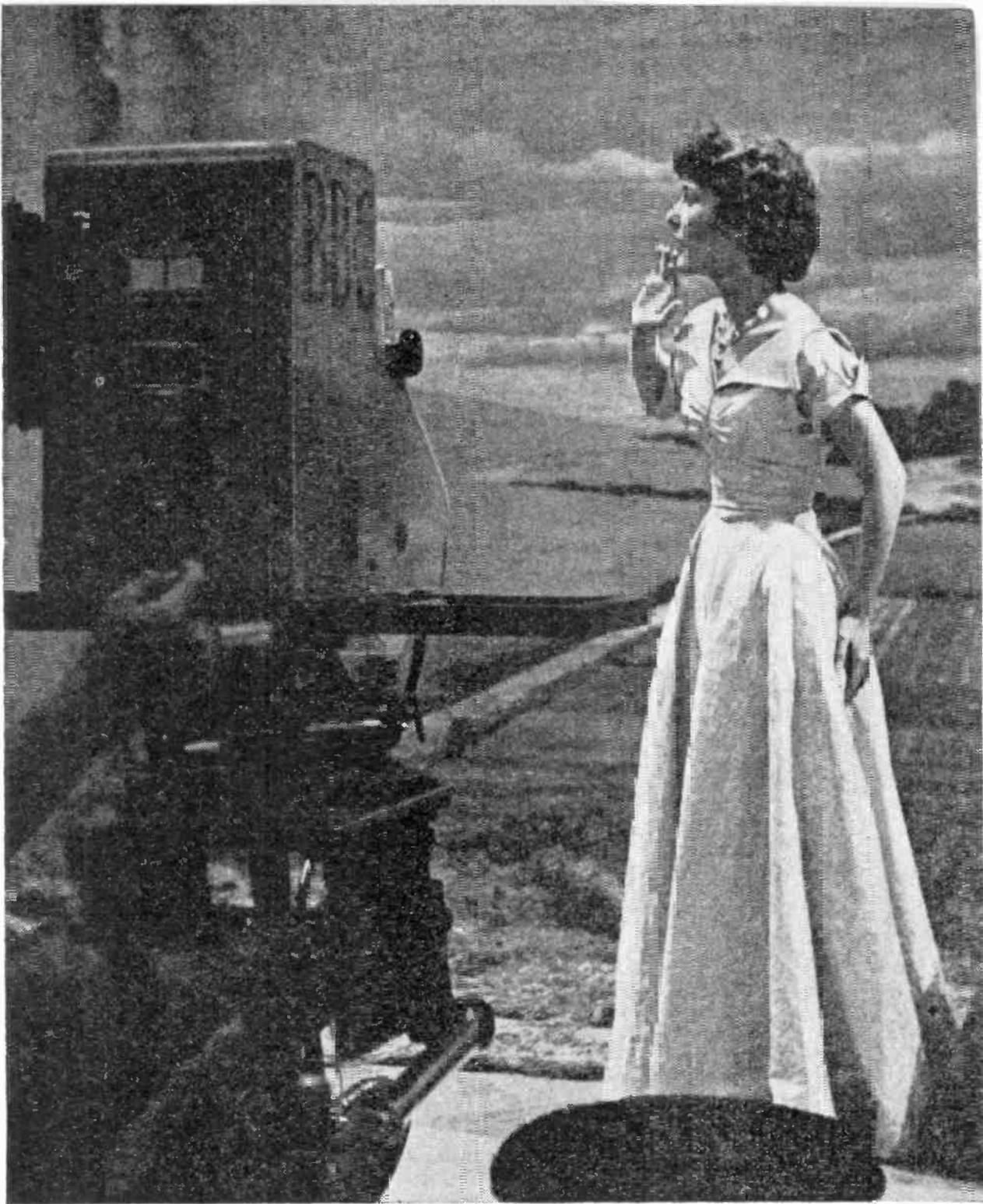


One of television's famous features, "Television Dancing Club," directed by Victor Sylvester.

perfection in the manufacture of the tube, it will almost certainly fail during its first few working hours. In this case, of course, it will be replaced under the guarantee.

Q. 14 Is a television aerial likely to be struck by lightning ?

A. A television aerial might run the risk of being struck by lightning if it were the highest object in the district. Even then, however, the risk is very slight, particularly if it is well installed, and in any case, insurance companies do not consider the installation of a television aerial adds to the risk of being struck and charge no additional premium on this account. If you have a high television aerial on top of your house, and you live on top of a hill, it is an added precaution to unplug the download cable from the set itself during specially thundery weather. Unlike ordinary aerials, a television aerial can be permanently connected to earth, and so the installation can itself give some protection to the house by acting in the same way as a "lightning conductor."



Petula Clark, Daily Mail National Television Award winner of 1950 appearing in "Sunday Serenade."

- Q. 15** Can a television set sold for receiving, say, the Midland Station, be used to receive the Northern Station or Alexandra Palace?
- A.** In general, no. Television receivers have what is called pre-set tuning, which means that a more or less complicated internal adjustment is required to alter the tuning from one station to another. Your dealer will supply you with a set that suits the station that gives the



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best results in your district. Should you later move into the service area of another station, the set will have to be modified. It is best to write to the maker of the set for the name of their local agent near your new address. Do not overlook that the aerial also has to be the correct size for the particular transmission.

Q. 16 Is it true that electrical interference is particularly troublesome on television ?

- A. All other things being equal, it is probably true to say that the answer is, "No," but the question is complicated by the fact that the eye is much less tolerant of interference (and distortion) than the ear, and that many people buy television receivers hoping to get good pictures, although they live well outside the recognised service areas. If you should experience electrical interference, and you think that your aerial is as efficient as you can make it, you should ask the help of the Post Office engineers, as explained in "Hints on Installation and Tuning, Part I (Interference)."

Q. 17 At what distance can television signals be regularly received from a high-power transmitter ?

- A. This is a question which is always being asked and one that can only be answered by an intimate knowledge of reception conditions in the area under consideration.

Owing to the contours of the country, we cannot just draw a circle around the transmitter and define good and bad reception areas in terms solely of concentric circles. It is much more complicated than this, and in some directions and in favourable areas, satisfactory and reliable reception can be established as far away as 70 miles or even further, whereas in other directions it is difficult to receive a satisfactory signal at even twenty miles distance. Until a new transmitter has been working long enough for its performance at all seasons and in all kinds of weather to have become known, we can only speculate on the basis of the general behaviour of very short radio waves. Nevertheless, and purely as a guide, if we draw a circle of 50 miles radius from the transmitting station, then, in a general sense, everybody resident within the area outlined by that boundary line can regard his house as being inside the reception area unless

there is high ground directly between him and the television station. As explained above, some months' experience is necessary before local dealers in fringe areas can be in a position to give knowledgeable information to their prospective customers as to the likelihood of consistently successful reception in the immediate vicinity. In answering this question, we have not concerned ourselves with freak or hit-and-miss reception. We only consider as satisfactory a standard of reception that can be relied upon, and although, in directions screened by hills, the range may be shorter, it is equally true that in other directions it will be considerably longer.

Q. 18 What does a television licence cost?

A. Before you install a television receiver, you have to obtain a Television Receiving Licence from the Post Office at a cost of £2, and this licence also covers the reception of sound broadcasting. If you already have an ordinary £1 sound licence, you can get a refund from the Post Office for every full month unexpired when you take out the television licence.

This low licence fee presents remarkably good value

One of the most popular television cabaret programmes, "Cafe Continental." Isobel Bigley, the American singer, entertains the guests.





Shakespeare's "Othello." Stephen Murray plays Iago, Joan Hopkins Desdemona, and Margareta Scott, Amelia.

for money when we consider that on an average there are approximately thirty programme hours a week, and this goes on every day throughout the year. Some weeks, of course, we have additional hours arising from outside broadcasts associated with international tennis, cricket, football, swimming, racing, pageantry, etc. Reduced to its cost per hour, we get the amazing figure of over 1,500 hours at a cost of £1, which is considerably less than a farthing per programme hour.

At the present moment, the cost of providing the service is out of proportion to the revenue from the television licences and is likely to remain so for some time. It is promised, however, that the lion's share of money spent on B.B.C. development will in future go to television, and therefore the fact that television will not be able for some time, so to speak, to pay its way by itself may not be a handicap, and increasingly better programmes in terms of star artistes, orchestras, etc., may be expected.

The Beveridge Committee report touches upon the possibility of an increased television licence fee, but it

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The advertisement features a large, stylized television set. On the left side of the TV, a dark banner contains the text 'HOLME MOSS will perfect the picture' in a mix of bold and script fonts. Below the TV, there is a block of text: 'The best of the new receivers . . . expert installation . . . skilled adaptation of existing sets . . . consult . . .'.

HOLME MOSS
will perfect the picture

The best of
the new receivers . . .
expert installation . . .
skilled adaptation of
existing sets . . . consult . . .

A rectangular box with a star in the top-left corner. The text inside reads: 'new sets' in a bold, italicized font, followed by a paragraph: 'For those who have waited for the new transmitter we have a large stock of the best Holme Moss receivers.' A star is also in the bottom-right corner.

★ **new sets**

For those who have waited for the new transmitter we have a large stock of the best Holme Moss receivers.

★

HAZEL GROVE
Stepping Hill 4404

CHEADLE
Gatley 4866

PRESTBURY
8584

MACCLESFIELD
4080

A logo for 'Samways television service'. The word 'Samways' is written in a large, bold, serif font inside a dark, rounded rectangular shape. To its right, the words 'television service' are written in a smaller, italicized, sans-serif font inside a dark, rectangular shape.

Samways television service

can be assumed that even should this happen, the amount demanded will not be excessive.

Q. 19 Is television entertainment comparable with that of the cinema ?

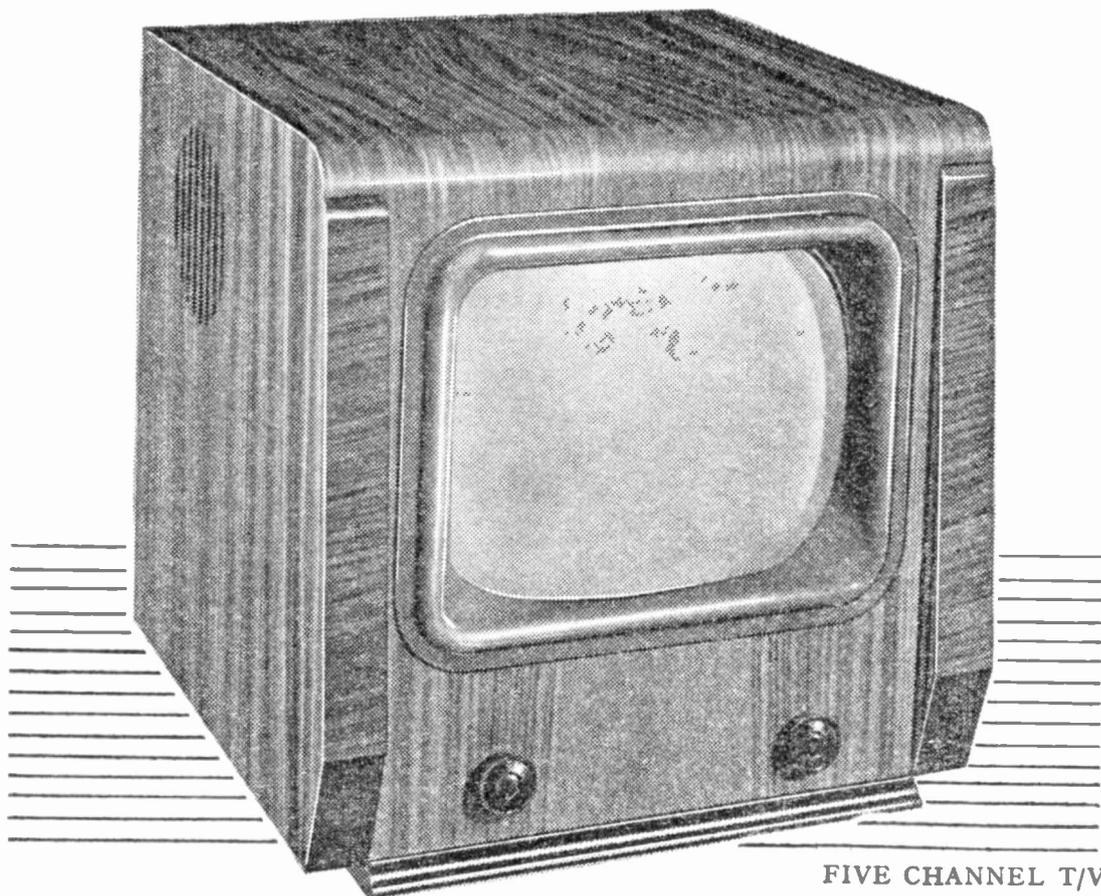
A. The two should never be compared. They are supplementary. Due to the complexity of television production it is almost impossible to get the polish which is the hallmark of the first-class motion picture, and in sitting at home watching television you never get the sense of "an outing" which you get when you go out to the cinema.

On the other hand, the fact that actors are acting at the very moment that you are looking at them—and may faint or fluff or forget their lines—gives television a sense of immediacy and excitement which is unknown in the cinema, where only the best of the many "takes" in a film are incorporated in the final version. Equally, only by television can you get the sense of excitement which prevails at a football game or race meeting, and of which you are aware only if you are present or listening to a sound broadcast; it is not felt in either a cinema or television film newsreel, because you already know the result.

Q. 20 In short, is television worth while ?

A. Emphatically, "Yes"! The fact that personalities of every description are brought visually into your own sitting-room or lounge at the very moment in which they are engaged in interesting and intriguing activities, alone introduces a completely new element into home entertainment. When, added to this, the whole scope of Television Drama, Magazine Programmes, Films, Cabaret Entertainment, Ballet and Outside Broadcasts generally is considered, even the most confirmed "diehard" must hesitate before denying its advantages in some respects over any other known form of human recreation, while it is quite unnecessary to stress its value to the aged and infirm, or those living in remote parts who cannot make the journeys involved in other forms of entertainment.

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SPECIFICATION—CABINET: 17" high, 17½" wide, 17½" deep, in 2 colour walnut veneer, highly finished. SCREEN: Special dark safety screen for realistic picture quality under all conditions, including daylight. Size, 10"×8", easy removal for cleaning. CONTROLS: Two front control knobs—picture quality and sound. Usual pre-set controls. INTERFERENCE: Automatic Suppressor. MAINS: AC or DC, 200-250 V. AERIAL: Co-Axial feeder impedance 75 ohms. TUBE: 12" Cathode Ray, latest type high potential fully ion trap. VALVES: 15 Mullard all glass, high efficiency. POWER CONSUMPTION: 120 watts. PRICE: £76-1-8 including P. Tax.

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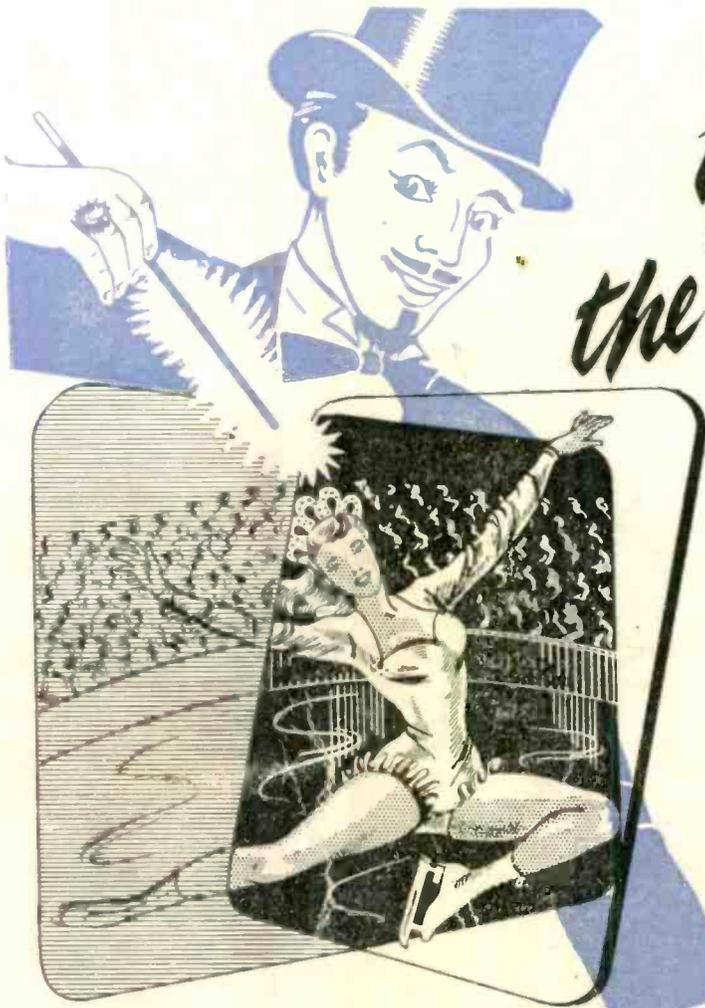
BONGO IS BEST

Do you realise that all you good people have recently become that most important thing in the commercial world : " A NEW MARKET " ? And every maker of Television Sets is hoping to sell you his brand. Which set *will* you choose ?

If you are wise you will go to a radio dealer you trust and ask his opinion. Because the plain truth is that he knows a lot more than you about television sets and whether they are really good and reliable.

Probably you know of such a dealer in your own district. If you don't we can give you a tip. *Murphy Dealers are people you can trust.*

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YOU

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