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Television

Guide



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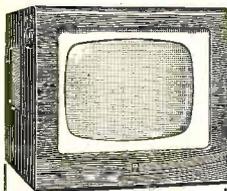


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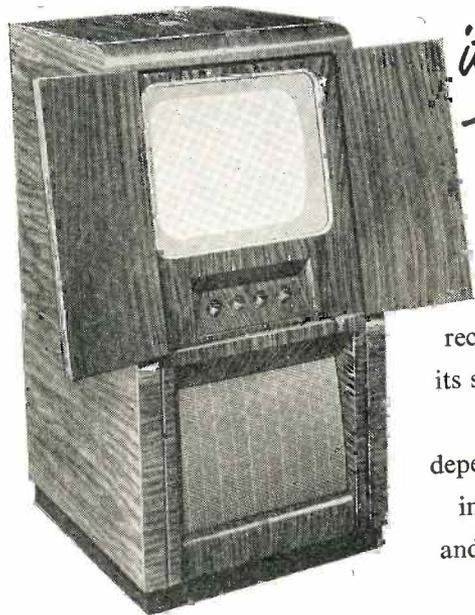
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**Daily Mail
TELEVISION
GUIDE**

For owners and intending owners of television sets this 128-page Guide offers information on all sorts of queries connected with Installation, Tuning and Operation. Additionally, it provides a complete Television Atlas, exclusive "Tele-snaps" indicating how reception can be improved, and an alphabet setting out in summarised form solutions to many of the problems television presents

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 Guide, 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 articles each week, while Peter Black gives his pungent day-to-day comment upon the previous night's television programmes. In addition, the newspaper has published in the past a series of Television Handbooks which have been widely sought by the public.

Now, however, with the completion of the five transmitters which comprise the major part of the B.B.C. Network and the advent of certain temporary auxiliary stations, it is believed that an even more extensive survey of television problems may be welcomed.

Hence we have pleasure in presenting an entirely new publication, the *Daily Mail Television Guide*, which endeavours to deal with television possibilities and matters of general and technical interest in a comprehensive and straightforward manner.



Viewers saw the Queen, majestic and radiant, returning to Buckingham Palace in the State Coach after her Crowning on June 2nd, 1953

THE EXPANDING TELEVISION NETWORK

NOW that television is available in most parts of Great Britain—and it is interesting to observe in passing that in no other country in the world is a television service yet available to such a large percentage of the population—it is worthwhile studying how the B.B.C. has planned this nation-wide network of television transmitting stations.

In this way will be seen the reasons for the variation in reception conditions from place to place and the necessity for different kinds of installations in various locations for really satisfactory reception. But before this can be done something must be known about the way television waves travel.

SHADOWS AND FRINGES

For technical reasons, the waves used for television have to be very short, and the wavelengths used by the B.B.C. are between about five and eight metres. Waves such as these do not bend downwards over the tops of hills in their path like longer waves do, so that each hill throws a kind of shadow, and in these "shadow areas" conditions are not favourable to good reception. To make the shadow areas as small as possible, the transmitting aerials have to be very high, and therefore the television transmitting stations have been built on the highest ground available near the centre of the regions to be served. For the same reason the transmitting aerials are mounted on very high masts.

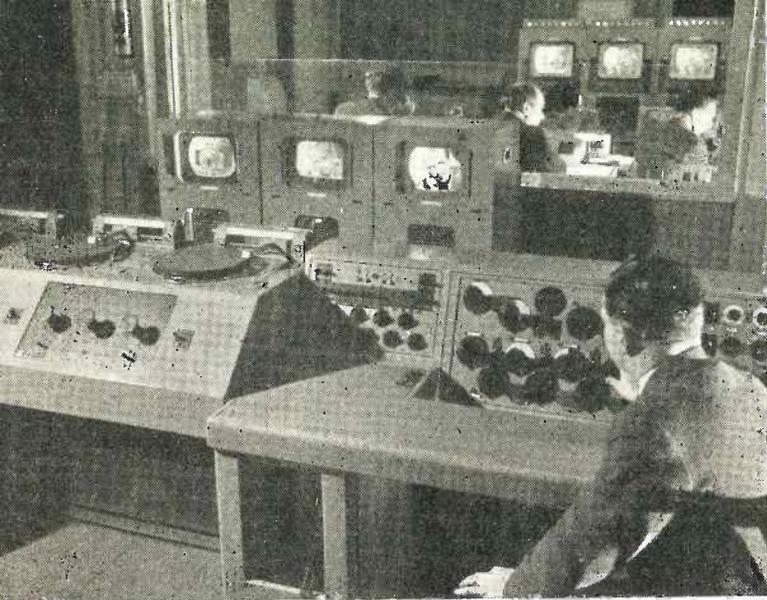
If there is no obstruction between the transmitting aerial and your receiving aerial, you can be reasonably certain of good steady reception, and this is possible up to considerable distances from the transmitting stations, because of the great height of their aerials. Beyond these ranges, the standard of reception depends on many factors, as explained later in these pages, and, in general, reception will be subject to a certain amount of fading. These districts are sometimes called the "fringe areas".



"Shadows and Fringes"

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The Control Room of Studio "G" at Lime Grove Studio Centre, Shepherds Bush, London.

THE FIVE MAIN STATIONS

We can now understand why the B.B.C. has built its main stations each on high ground near the centres of the main concentrations of population in the country. The Government allowed the B.B.C. only five pairs of wavelengths for the television service (each television station has to have two wavelengths, one for the pictures and the other for the sound) so the first step was obviously to provide a main station in each of the five most populated regions.

Alexandra Palace

The first of these regions was London and the Home Counties. The station at Alexandra Palace was the world's first high-definition television station, and it began its regular daily programme service in November, 1936. It is situated on high ground in North London, but unfortunately the ground is only about 300 feet above sea-level. There are no hills much higher than this to be found close enough to London, and this, coupled with the fact that an aerial more than 300 feet above the ground was not permitted because of the danger to aircraft approaching or leaving the London airports, has had the result that the area served by the Alexandra Palace station is less than those of the other main stations. Nevertheless, the number of people living in the Alexandra Palace service area is very nearly

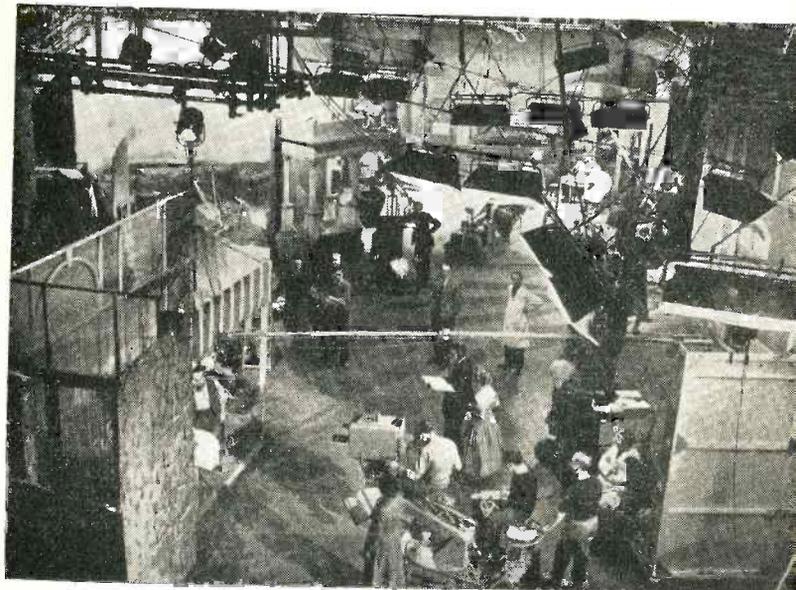
twelve millions. The power of the vision transmitter is 17 kilowatts, a remarkable figure at the time when this transmitter was built and still considerably larger than almost all television transmitters being built in other countries.

Sutton Coldfield

The second region to be served was the Midlands. The station at Sutton Coldfield, a few miles north of Birmingham, was opened in December, 1949. In this case it was possible to find a site on much higher ground, the aerial being 1,300 feet above sea-level, and so the effective range extends over a very wide area of country.

The order in which the stations were built was governed by the provision of suitable means for conveying the programmes to them. This is not an easy problem in television, as special cables or radio links are required if excessive distortion is not to occur. It is the responsibility of the Post Office to provide the permanent connections between the television stations, but when preparations were being made to develop the television service, just after the war, it was not known whether special cables or radio links would serve this purpose best. Both were therefore provided between London and Birmingham, so that the advantages and disadvantages of the two systems could be determined under actual working conditions

A general view of Studio "G" during production rehearsal.



It seems, however, that the best for any particular purpose depends largely on the circumstances, and subsequent extensions of the network have in some cases been made by cables and in others by radio link.

Holme Moss

Next after Sutton Coldfield came Holme Moss, opened in October, 1951, serving the most densely populated part of the North of England. The site of Holme Moss, some 1,700 feet above sea-level in the Pennine mountains, gives this station the highest aerial (2,450 feet above sea-level) of any of the B.B.C. television stations. The vision transmitter, rated at no less than 40 kilowatts, is thus able to serve a very big area of country, and a population that is even slightly more numerous than that served by Alexandra Palace.

Kirk o'Shotts

After that, television came to Scotland when, in March, 1952, midway between Edinburgh and Glasgow, the station at Kirk o'Shotts was opened. The vision transmitter at this station is rated at 50 kilowatts—no more powerful television transmitter exists anywhere in the world—but the area it serves is not so extensive as that served by Holme Moss because no really high ground is available in this part of Scotland. Nevertheless, a good service is assured for all the densely populated Central Plain.

A scene from the serialisation of "The Pickwick Papers"



Leslie Mitchell discusses oyster opening with two experts—Capt. Cunningham and Mr. Grainger.

Wenvoe

In August, 1952, the last of the main stations was opened at Wenvoe, near Cardiff. This station has exactly similar equipment to that at Kirk o'Shotts, and it provides good television reception in South Wales and much of the West of England.

AUXILIARY STATIONS

The B.B.C.'s plan is to serve the areas beyond those served by these five main stations, by building a number of stations of medium-power, each having a more localised coverage and sharing, of course, the same five pairs of wavelengths used by the main stations. Already, in time for the Coronation, temporary stations had been erected at Pontop Pike to serve Tyneside, Glencairn to serve Belfast and its immediate environs, and Truleigh Hill to cover the Sussex coast. The first two of these will become permanent by about the end of 1954, by which time, according to the Government statement on July 2nd, 1953, additional stations will be set up at Aberdeen, the Isle of Wight and Plymouth, with low-power stations in the Channel Islands and the Isle of man. The Isle of Wight station will make

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Truleigh Hill redundant, and, with this programme of development, B.B.C. Television will be available to some 90% of the population.

Subsequently, further low-power installations are planned for East Anglia, Inverness, Londonderry, Dover, Towyn and Carlisle. When these have been built, Television will be available to 97% of the people of Great Britain. This will easily be the widest coverage given in the world, as is already, indeed, the present one which reaches 80% of the population.

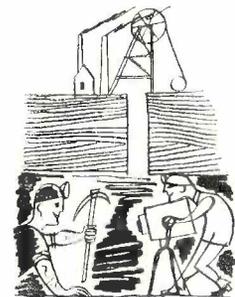
STUDIOS

So far we have discussed the transmitting stations and the means whereby the programmes reach them. Where do these programmes originate? The B.B.C.'s only permanent television studios are in London, the main television centre being at Lime Grove. The original television studios were at Alexandra Palace but, although by no means small, the Alexandra Palace studios had, even before the war, begun to cramp the producers' style. Lime Grove, formerly used for film production and taken over by the B.B.C. in January, 1950, contains five large studios which the B.B.C. has since been gradually converting to the much more strenuous requirements of television, and it thus constitutes a Television Centre quite without parallel elsewhere.

Even Lime Grove, however, is looked upon only as a temporary measure, and the B.B.C. has planned a much more ambitious site at the nearby White City, but this scheme will not be completed until the Government agrees to the very considerable expenditure of material and labour necessary to achieve it. When it is finished it will offer facilities that will be quite unequalled.

OUTSIDE-BROADCASTS

But studios are not the only sources of television programmes. Many, and some of the most popular, come from theatres, sports grounds and all the various places where anything of interest happens, and all these "outside-broadcasts"—of entertainment, sport or public ceremony—require the attendance of teams of specialists and much technical equipment. These Outside-Broadcast Units vary in size according to the complexity of the event to be televised, and may use anything from a single camera to four or five, but for the biggest events several Units work in conjunction, and no fewer than 21 television cameras were used for the Coronation. This,



Outside-Broadcasts "Indoors"



OUTSIDE-BROADCASTS. H.M. the Queen takes the salute as the Household Cavalry trot past at the Trooping the Colour.

incidentally, contrasts with the two used to televise the Coronation Procession of King George VI, the world's first high-definition television outside-broadcast. In addition to the Units based at the main Television Outside-Broadcast Base at Wembley, there are Units operating in all the Regions to ensure that local happenings are adequately reflected in the television programmes. Of course, the Units do not operate only in the open air—they can equally well broadcast "indoor" programmes and one of them has even televised from a coal-mine.



"The Future"

THE FUTURE

Now can we say anything about how the service is likely to develop in the future? There are all sorts of possibilities, and the advice of the Television Advisory Committee, which was set up by the Government to study the problems and make recommendations on future developments, will be of great importance. One factor in meeting the demands for alternative programmes, which have been so strongly pressed of late, will be for

the B.B.C. itself to offer a second programme—but this can hardly be expected until all the auxiliary stations for the main network have been completed. A second service requires the building of a second chain of transmitters operating on frequencies which would necessitate adaptors for sets in current use, as well as new studios and trained staff to operate them. Over and above all this, it will be necessary to mount a complete second series of programmes—all in all a formidable task.

TRANSMISSION STANDARDS

The transmission standards adopted by the B.B.C. are based upon a television picture composed of 405 horizontal slices called "lines" and a fineness of detail corresponding to a picture signal of three megacycles per second. As long ago as 1937 these standards were adopted after a very careful study of the problem, but the most recent re-examination of the situation seems to confirm that it still represents the best compromise between good pictures on the one hand and the cost of the equipment on the other. It is not technically correct to try to compare different systems by the number of scanning lines, as this is only one of the factors affecting picture quality, but there seems

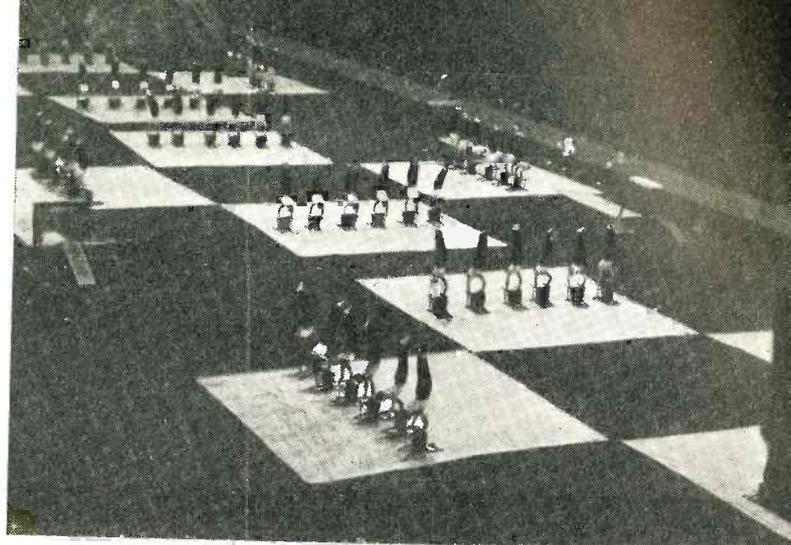
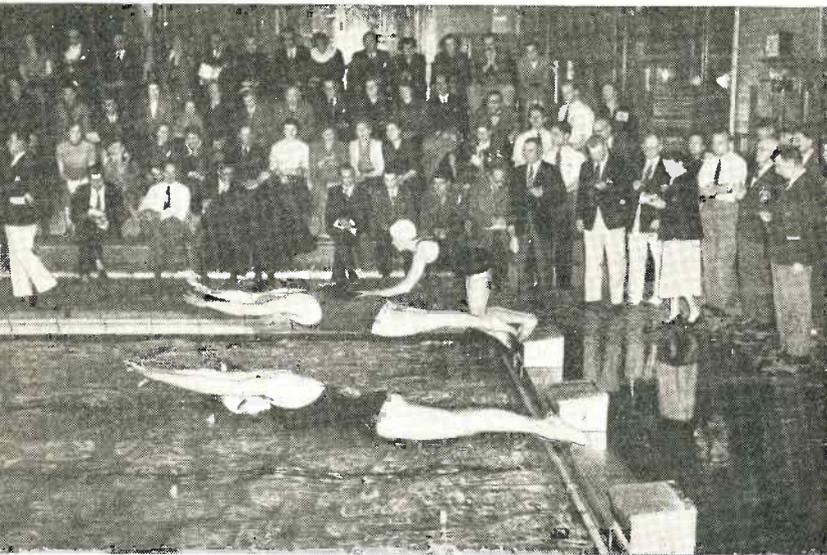
OUTSIDE-BROADCASTS. The 1953 Australian Test Cricketers were introduced to viewers before the commencement of their tour. They were at net practice at the Middlesex County Cricket School.



nothing to be gained by changing from 405 lines to any of the figures adopted by other European countries. To make any worthwhile improvement in the picture a change to something over 1,000 lines would have to be made, but this would involve so many complications—including the obsolescence of existing receivers—that it is quite out of the question for many years yet. At any rate it is clear that there can be no justification for putting off the purchase of a television receiver on the ground that "something new is just around the corner".

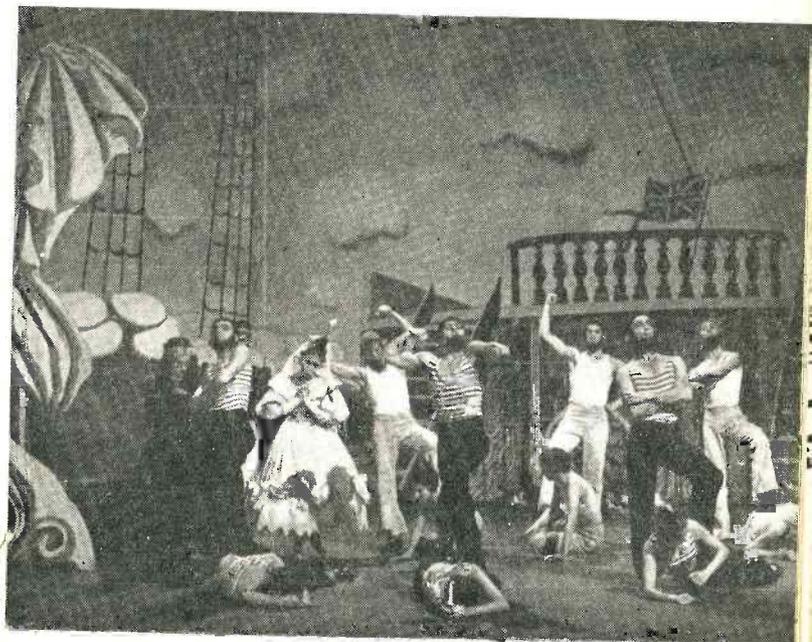
There is, however, one development about which we can be certain: the B.B.C.'s lease of Alexandra Palace is due to expire in June, 1956, and a site has been sought for a new station to replace it; this will be at Crystal Palace in South London, and will have the very powerful transmitters and efficient aerials that characterise the B.B.C.'s post-war television stations. In this way it will be possible to reduce to a minimum the number of viewers living very close to the present transmitting station at Alexandra Palace who will be worse off than before, whereas a very large number of people—especially those living in the South—will be able to get very much better results. In general, of course, London and Home Counties viewers will have to change the direction of their aerials when the new station opens.

OUTSIDE-BROADCASTS. An International Swimming Gala from the High Road Baths, Ilford, Essex, organised by the *London Evening News*.



OUTSIDE-BROADCASTS. The B.B.C. television cameras visit the Royal Tournament at Earl's Court, London.

TELEVISION BALLET. "Pineapple Poll" is performed in the studios by the Sadler's Wells Theatre Ballet.



PROGRAMMES

In August, 1953, it was estimated that licence holders in Great Britain totalled around two-and-a-half million. Since it is thought 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 Great Britain now number approximately seven-and-a-half million, and during some outstanding broadcasts—the Coronation being a supreme example—this total is very much larger.

What does the B.B.C. offer this vast audience? At present, television programmes are transmitted every day of the week, including Sundays, with both afternoon and evening sessions. The Sunday afternoon session starts with the Children's Programme at 5 o'clock, but it is possible that, in the fairly near future, an earlier commencement will be made on that day, when films will probably be shown. During weekdays the afternoon programmes last for about two hours, and the evening programmes start at either 7.30 or 8 o'clock and continue until 10.30 or later.

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

Sir Thomas Beecham conducts the Royal Philharmonic Orchestra in the first programme of the outstanding series, "The Conductor Speaks".



Gracie Fields is televised from Alexandra Palace.

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 further increase in programme hours will be made—up to some two hours every day; 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 discrimination in the choice of programmes should be exercised. It is partly for this reason, as well as those of expenditure,



"Discrimination"



A scene from a television comedy, "The Boxer and the Ballerina".

that a good many "repeats" of plays and major productions take place.

The entertainment offered from the studios themselves is designed to satisfy the tastes of the widest possible range of viewers. The transmissions include panel shows, serials, dance and variety items, cooking demonstrations, magazine programmes, documentaries, illustrated talks, fashion parades, films, ballet, and personality interviews. Plays, which average three or four a week, are among the most popular programmes of all. It is also intended, in the fairly near future, to develop a special news service in vision.

The Television Newsreel is one of the outstanding offerings. Five new editions of this appear weekly at present, on Monday to Friday evenings inclusive, 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. For viewers who may have missed one of the editions, or who may wish to see a particular item a second time, Saturday evening provides a complete composite edition of the week's five newsreels; sometimes the previous day's (or even two days') reels are televised during the afternoon programmes.

The Outside Broadcasting cameras are taken to theatres, circuses, ice shows and sporting occasions, including such great national events as the Cup Final, the Oxford and Cambridge Boat Race and the Test Matches. Relays have been made from as far afield as Bristol, Cardiff,

Edinburgh, Glasgow, Manchester, Birmingham, Blackpool, Leeds, Nottingham and Calais—the latter making history as the first transmission of a programme televised in another country.

A great step forward in 1952 was the establishment of a television link between Paris and London, which enabled British viewers to see events in the French capital during the week culminating in the July 14th National Celebrations. The reverse procedure—so far the outstanding achievement connected with outside broadcasting—has been the transmission of the Coronation Ceremony and Procession, not only to Paris, but to other stations in France, Holland and Western Germany.

It is claimed, with some justification, that viewers see more of outside-broadcast events than the spectator who is actually "on the spot", but many of these programmes occur when most viewers cannot be at home, and the 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 "telerecordings", and must not be confused with the special B.B.C. Newsreels and other films that are televised.

Nor are the children forgotten; indeed, the first Lime Grove studio adapted for television was that devoted mainly to children's programmes. The early part of every evening, including Sundays, sometimes for as much as an hour, is given over entirely to young people. All ages are catered for, with puppet programmes such as "Andy Pandy" and "The Flowerpot Men" for the three- to five-year-olds, and a range of entertainment of all kinds for children from five to fifteen, including competitions, serials, plays, magazine programmes, films,

CHILDREN'S TELEVISION. Bill and Ben the Flowerpot Men—identical puppets who are extremely popular with the very young.



music, how-to-do-things demonstrations, and such outstanding favourites as "Muffin the Mule". They also have their own highly successful newsreel which is shown, on an average, twice a week.

Particular attention is being paid at the present time to the possibility of providing special teen-age programmes.

LICENSING AND INSTALLATION

Upon purchasing a set the viewer must obtain a television licence, which amounts to £2 and 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. Incidentally, it is a possibility that at some time in the future, the combined licence fee may rise to £3.

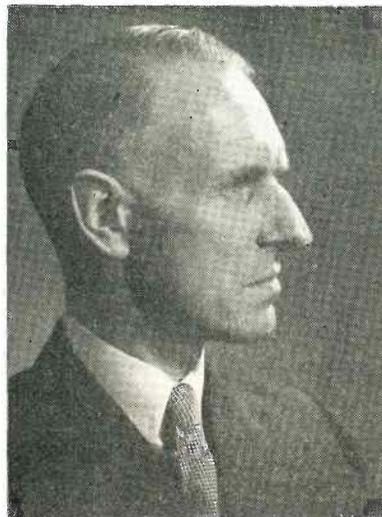
One vital point must be borne in mind. A television set cannot be casually bought and installed as ordinary sound receivers often are. In general, it is hardly an exaggeration to say that the aerial is one of the most important parts of a receiving installation, and the reader is referred to the chapter "Installation, Tuning and Operation" in this Guide, particularly that part of it which deals with the different kinds of aerials required in varying circumstances. He is also advised to purchase his receiver from an experienced local television agent who, as well as being handy for carrying out the normal maintenance which is necessary from time to time, will be well informed about reception conditions in the locality and will know which aerial arrangements give the best results.

Looking at Fish. Another of George Cansdale's popular programmes—this time he introduces to viewers turtles from the London Zoo.



DAYS OF THE PIONEERS

BY CECIL MADDEN



The Author

An important executive in B.B.C. Television, Cecil Madden is himself one of its great entertainment pioneers. His influence on programmes from 1936 to the present day has been marked and continuous.

TELEVISION must always be pushing into the future and mightily aware of the present. But this is a quick look back. To 1936 when I found myself, with stage and radio experience, the first television producer at Alexandra Palace. I called that first high definition programme "Here's Looking at You!"—it is now part of television history.

Well, we knew we had everything to learn, and we learned fast by having only a few days to prepare for Radiolympia 1936. That was in August. The official opening came later in November, but by then I had been able to create the "Picture Page" magazine which was to last for ages, a record which has only been beaten by my own radio programme, "Variety Bandbox", which lasted ten years.

In those days we had to contend with producing in two studios ("A" and "B") using, in alternate weeks, two different systems—Baird and Marconi-EMI—and the Baird system was complicated by both intermediate film and mechanical scanning! But we started with



Mickey Mouse . . . with ballet

certain programme advantages, a commercial newsreel in every transmission and unlimited Mickey Mouse cartoons.

Famous "firsts" were the plays "Marigold" (on the Baird system) with Sophie Stewart and John Bailey; "The Tiger" (on the Marconi-EMI system) with Joan Miller and William Devlin as Clemenceau.

At once we experimented with ballet; first the Mercury, then the Vic-Wells in "Job" with Robert Helpmann, and "Façade" with Margot Fonteyn and Frederick Ashton. The first opera was British, Coates' "Mr. Pickwick", with Dennis Noble and William Parsons. In 1936 we started Children's Programmes

with Joan Luxton's Children's Theatre Company.

At the time we opened it was the hey-day of the dance band. Henry Hall was then conducting the B.B.C. Dance Orchestra. Henry came along at once. He was followed by Jack Jackson's Band, Jack Payne and Jack Hylton too.

There are only a few of us, the pioneers, left. We were a happy team, technical and programme staffs co-operating as one family. Around that time, as Programme Organiser, I was working day and night planning the service, trying to make the money fit our soaring ideas, editing "Picture Page" (two editions a week), producing some variety too. An *Evening News* article at the time described "an atmosphere where every day sees panic, despair and chaos transformed somehow or other into achievement." This could only have been possible by the encouragement and some kind of pioneering spirit that also imbued our 20,000 viewers. They were critical all right—naturally we welcomed that—but they were on our side.

I tried to find a formula for pure television—something no other medium could do—and evolved "Cabaret Cartoons". With the help of Harry Rutherford, a popular Royal Academy exhibitor, to draw cartoons (I have always had a weakness for cartoonists, especially Thurber) of the stars while they performed, both working simultaneously, we closed each act with the finished drawing—no curtains, no trappings of the theatre. Chaz Chase took part in the first one, eating his hat and devouring his dickey.

Who were the television stars? The three announcers, Elizabeth Cowell and Jasmine Bligh—both pretty as paint—and stalwart Leslie Mitchell, who overworked to such an extent that he once arrived so



Eric Wild and his Tea-Timers were televised on the Baird System in December, 1936.

tired he opened the afternoon transmission by closing the station down! Once he forgot to brake his car as he stepped out of it. Looking out of my office window, five floors up in the Tower, I was horrified to see his empty car start moving, dive off the parapet, charge down the hill past the golf course, and crash into the edge of the racecourse! We once sent him up a fire escape in his best suit, only to have his trousers ripped by a projecting ladder at the very top and in full view of a vast crowd. Jasmine Bligh once tried to stop a valuable Australian bush rat from jumping off a table by grabbing its tail. After a stiff tussle the tail came away in her hands!

Television had its pin-ups then: Trudi Binar, "Miss Czechoslovakia"; Lisa Minghetti, the red-haired violinist; Evelyn Dall, blonde American singer, and the Giant Panda—direct from Tibet—who actually came to the studio in a taxi!

In 1937 we said good-bye to the Baird system. The early producers were Dallas Bower, who started with revues, and in one I recall lovely Valerie Hobson standing on a dummy yacht singing a song about sailing down the river to music by no less than Dr. William Walton! Bower produced "Julius Caesar" in modern dress (it was at the time of the Nazis) with Sebastian Shaw as Brutus; and "Tristan and Isolde" with the singers and orchestra banished in one studio, the

action mimed by Oriel Ross and Basil Bartlett. Stephen Thomas produced operettas, Eric Crozier ran "comic strip" programmes of American humour. D. H. Munro made a memorable programme of the Bliss-Kaufman ballet "Checkmate" and reproduced the musical comedy "On Your Toes" with its creators Zorina, Jack Whiting and Gina Malo. George More O'Ferrall produced Hassan; in this Greer Garson played, for her, the unusual role of Yasmin, the prostitute of Baghdad. Harry Pringle started his "Cabaret Cruises".

A note on music. From the word "go" we had our own orchestra. It was conducted by the late Hyam Greenbaum and a certain white-faced young man played second fiddle—Eric Robinson. The orchestra also split into groups such as the Tea-Timers in which he played Guitar. Moiseiwitsch was a regular visitor and Piatigorsky came to play a concerto with the television orchestra.

We soon had a staff of 450 (it is nearer 1,600 now) and by then certain personalities had emerged as potential award winners. Marcel Boulestin, the French cook; John Piper, the artist; and Mr. Middleton, the gardener. Among our distinguished visitors were Amy Johnson,

Joan Miller at the switchboard from which she introduced "Picture Page".



Margot Fonteyn dancing in "Façade" in December, 1936.

Jean Batten, Axel Munthe, Elizabeth Schumann, Leslie Howard and Rouben Mamoulian, years before he had produced "Oklahoma"!

Television's first original pantomime, "Dick Whittington", turned up at Christmas 1937, starring Queenie Leonard and Cyril Fletcher (as Emperor of Morocco). It was authored by no less than Arthur Askey.

Some of the great drama stars were coaxed to Ally Pally. Laurence Olivier and the Old Vic Company in "Macbeth", Balliol Holloway and Celia Johnson in "Othello", Dame Sybil Thorndike in the American play "Sun Up", Lilli Palmer in "One Night, One Day", about a man and his conscience, Ralph Richardson in Priestley's "Bees on the Boat Deck", Ivor Novello and his company from Drury Lane. Ruth Draper, Cornelia Otis Skinner, Molly Picon appeared. Even the great French diseuse, Yvette Guilbert, crossed the Channel for a special visit.

There was peace, war seemed impossible, London abounded with visitors, every restaurant ran an elaborate cabaret. So we too had plenty of variety: Gracie Fields, Tommy Handley in "The Disorderly Room", Sophie Tucker, Koringa the female fakir, Lou Holtz, Hildegard, Joe E. Brown, and amongst others—under the wholly deceptive billing of "Nick Long Junior and Partner" in a Dorchester show—

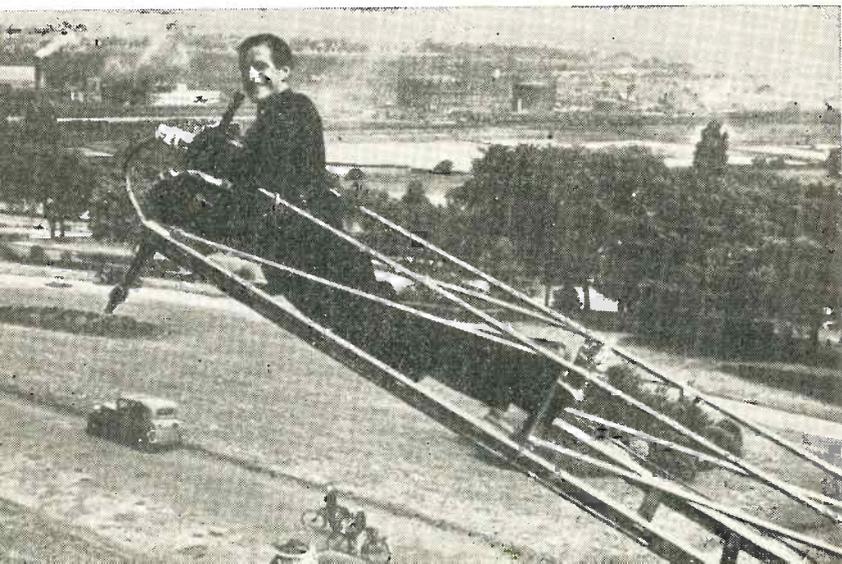
came the fabulous Danny Kaye. I remember presenting this programme myself. He did his famous "Orchicharnia" number. Looking over my records years later, I was startled to find that my diligent secretary had logged him as "Russian Comedian". There was so much American talent in town and such lovely transatlantic showgirls that I was able to run a series honestly called "Hundred Per Cent. Broadway". The accent of Alexandra Palace in those days was on glamour.

The outside units came into their own with the procession at the Coronation of King George VI. Viewers saw Mr. Chamberlain step from his plane and broadcast the terms of his pact with Hitler. The Wimbledon Championships produced the astonishing result that Alice Marble not only won the tennis but agreed to come and sing in the studios in "Starlight", a triumph of personal contact. Other highlights were the professional boxing fight, Boon v. Danahar, and the first television of the Derby. Even as early as 1937 our mobile units were visiting the film studios at Denham, Pinewood and Elstree, to see at work such famous current stars as Vivien Leigh, Merle Oberon, Raymond Massey and Maurice Chevalier.

Two weekly serials were popular; "Ann and Harold", starred Ann Todd, while the "Percy Ponsonby" series brought up Charles Heslop and a company, really an offshoot of "1066 and All That" since it was written by Reginald Arkell.

Probably our most daring experiment was to invite the Tel Aviv

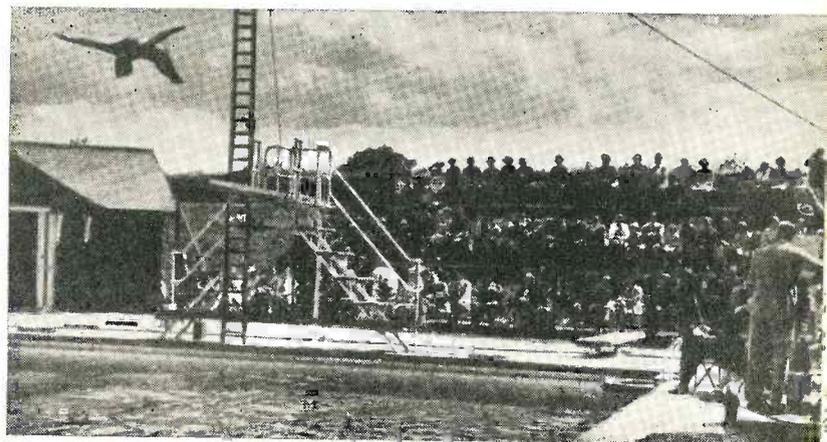
Leslie Mitchell on a water tower in a fire-fighting programme in June, 1937.



Right. "How He Lied To Her Husband", author, producer and cast—Greer Garson, Derek Williams, George Bernard Shaw, G. More O'Ferrall and D. A. Clark-Smith.



Below. An early outside-broadcast from Hurlingham in June, 1938.



Habimah Theatre to the heights of Muswell Hill, not only once but twice, and playing—if you please—in ancient Hebrew. We also enjoyed the celebrated Chauve Souris.

I count it a great achievement to have persuaded Bernard Shaw to pay us a visit. We had televised his "Geneva". We were televising "How He Lied To Her Husband". He went so far as to admit, with a wink, that it was a very bad play, and we all had a jolly tea party at which he revealed himself as a considerable comic actor, popping in and out of a property door with immense gusto.

We had Royal Visits to the studios from the Duke of Gloucester, King Boris of Bulgaria and Haile Selassie of Ethiopia. The O.B. Units welcomed the King and Queen home at Buckingham Palace from their tour of Canada.



Cleaners and Crocodiles

One contract called on us to house a menagerie for a week-end. In the night a 16-foot crocodile broke loose, causing some havoc in the hall when the cleaners arrived. I remember once a performing sea-lion arrived rather early in the afternoon for an evening show. His trainer wanted to get him into water. In a loose moment I said "Put him in the dressing-room with a bath" and flung open the door. And the room at the time was empty. In the general flurry of band calls and rehearsals no-one remembered to warn the occupant, a star actor who was at the time working in the other studio in the matinee of the play "The Royal Family of Broadway". When he was seated, taking off his make-up, he was—to say the least of it—a trifle startled to see in his mirror what appeared to be an old gentleman with whiskers taking a bath and leering at him!

I am proud to be a pioneer of the greatest medium for the projection of personality, thought and interest that man has devised. The pre-war years were exhausting times which only ended for us in September, 1939, when Hitler's war clouds darkened every British screen until 1946.

In three formative years, television viewers saw 402 different plays (15 being entirely new writing for television), 35 dance bands including the original Lecuona Cuban Boys, 150 cabaret shows and revues, 262 editions of "Picture Page", 98 star musicians, 25 cartoonists, 80 ballet programmes, 50 operetta shows, 42 personalities, 57 "Starlight" stars, 56 public events, 165 documentaries and Talks items, 17 puppets and 10 relays direct from West End theatres.

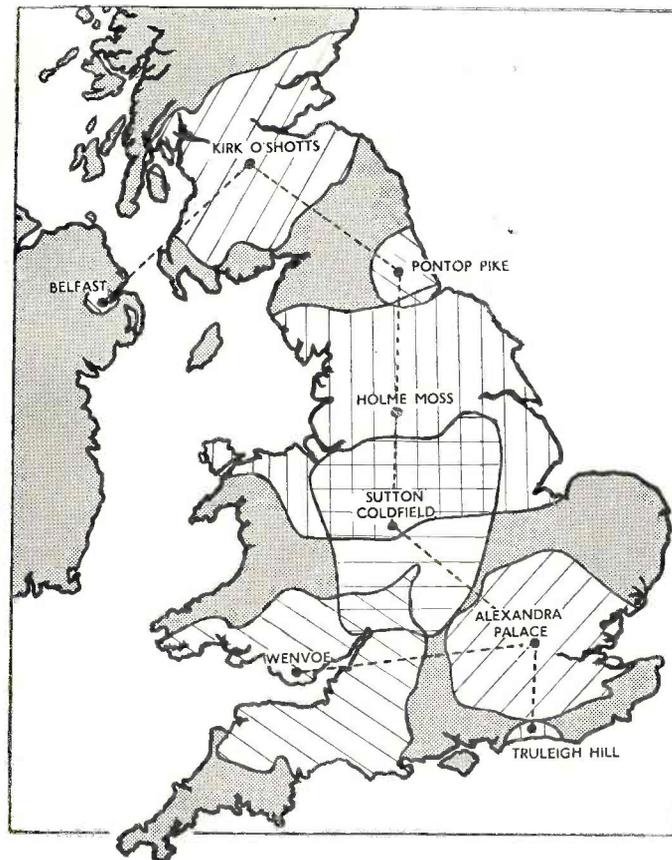
I shall never forget a gallant little silk worm who stuck it out erect till the end of her interview, and then her head fell off! Yes, those were the days!



Gallant little silk-worm.

Daily Mail TELEVISION ATLAS

The series of maps in the following ten pages is designed to show the locations and approximate reception areas of the main Television Stations in the B.B.C. Network



MAP OF THE BRITISH ISLES SHOWING THE LOCATION OF THE B.B.C. TELEVISION STATIONS

AT PRESENT IN SERVICE

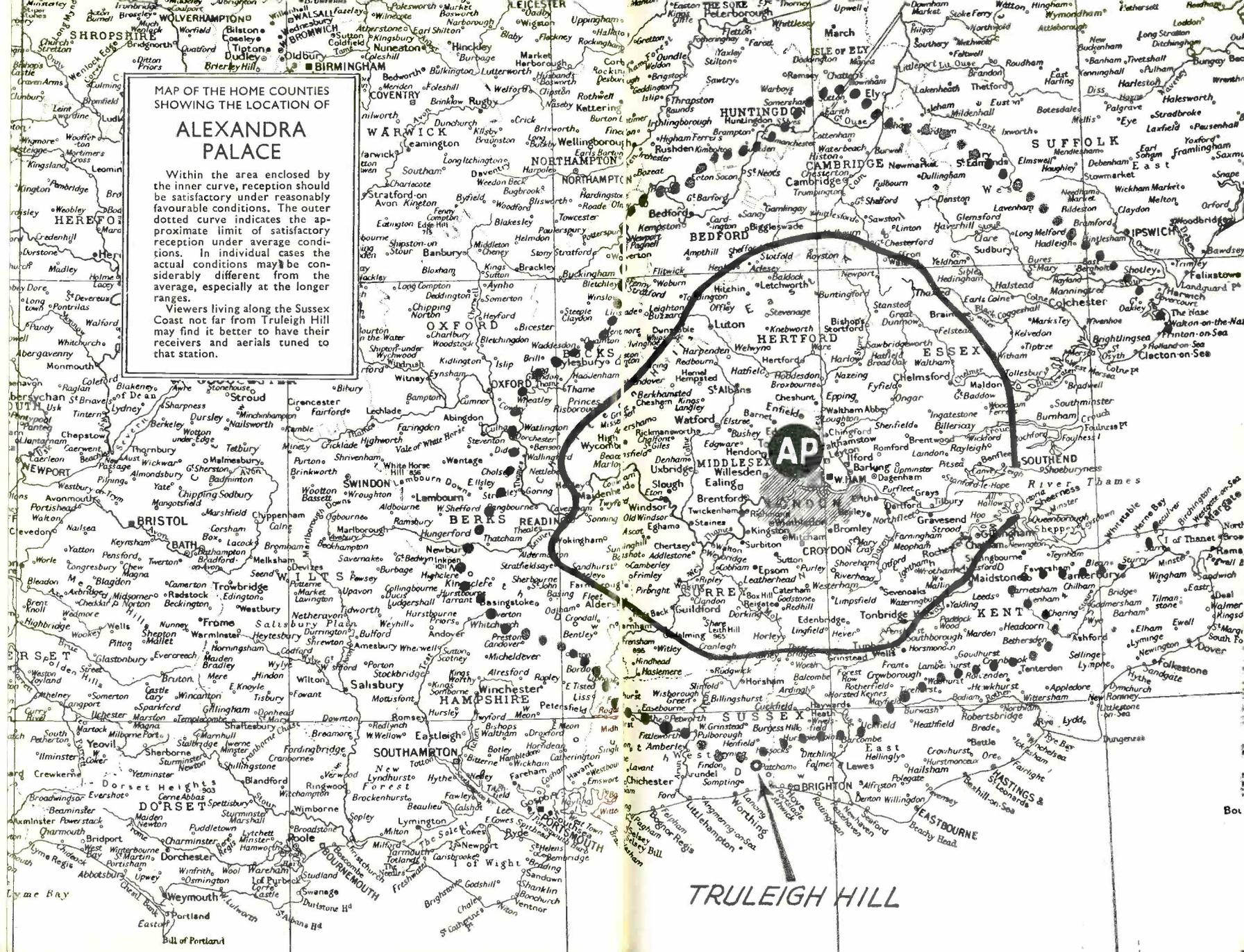
The dotted lines show the permanent cable or radio connections between the stations. The curves encircling the stations indicate the approximate limit of satisfactory reception. More detailed curves for the main stations will be found on the following pages.

MAP OF THE HOME COUNTIES SHOWING THE LOCATION OF

ALEXANDRA PALACE

Within the area enclosed by the inner curve, reception should be satisfactory under reasonably favourable conditions. The outer dotted curve indicates the approximate limit of satisfactory reception under average conditions. In individual cases the actual conditions may be considerably different from the average, especially at the longer ranges.

Viewers living along the Sussex Coast not far from Truleigh Hill may find it better to have their receivers and aerials tuned to that station.

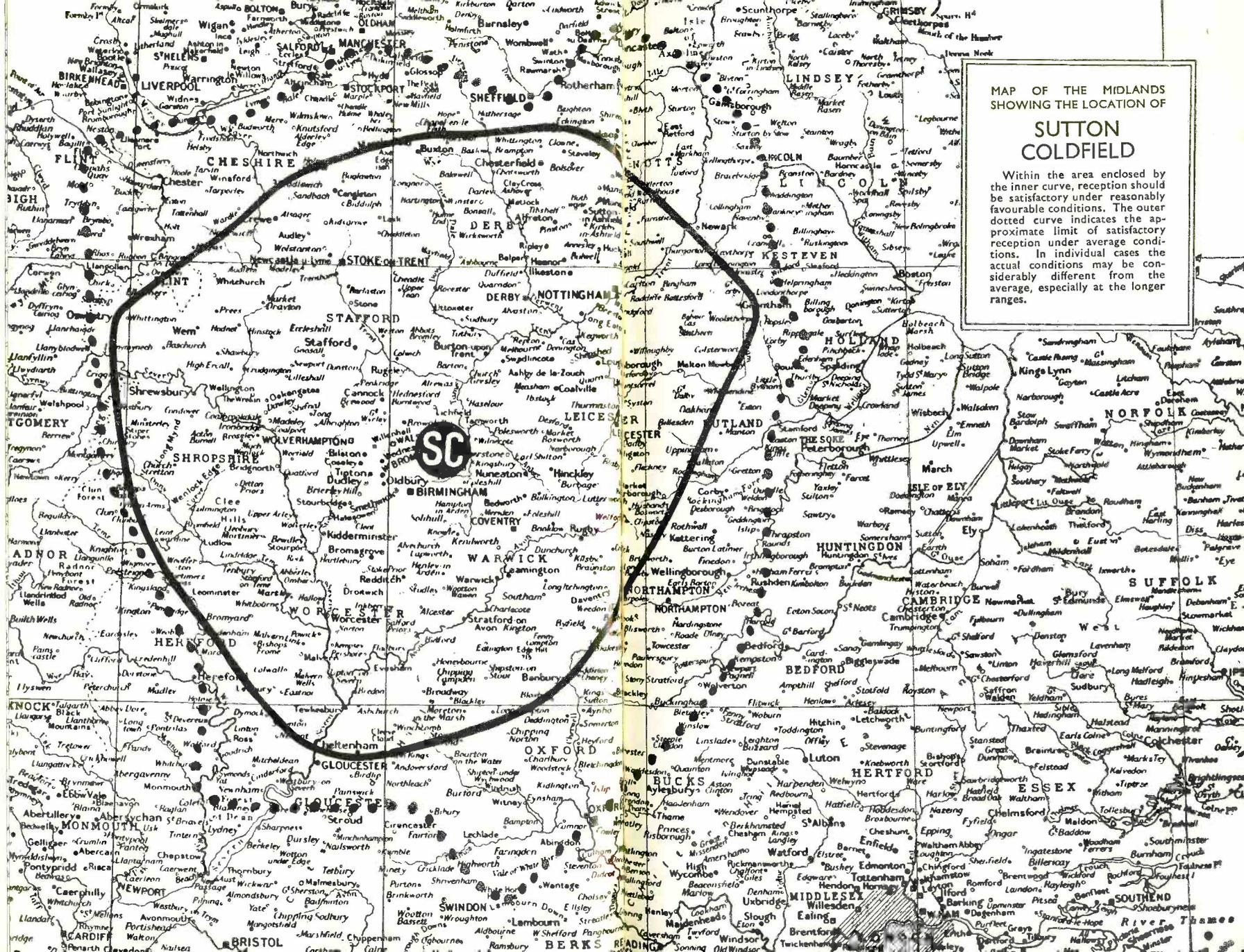


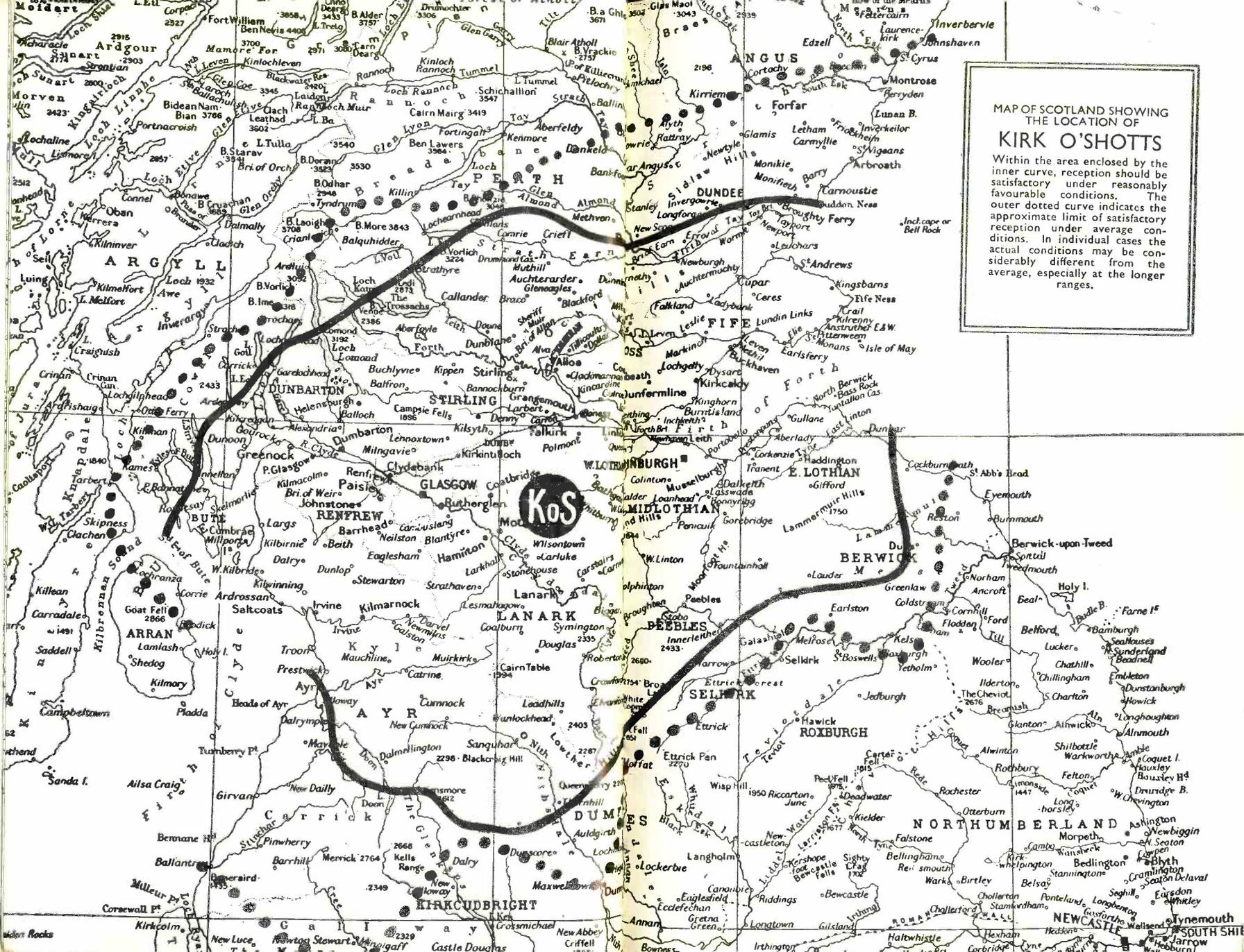
TRULEIGH HILL

MAP OF THE MIDLANDS
SHOWING THE LOCATION OF

SUTTON COLDFIELD

Within the area enclosed by the inner curve, reception should be satisfactory under reasonably favourable conditions. The outer dotted curve indicates the approximate limit of satisfactory reception under average conditions. In individual cases the actual conditions may be considerably different from the average, especially at the longer ranges.





MAP OF SCOTLAND SHOWING THE LOCATION OF

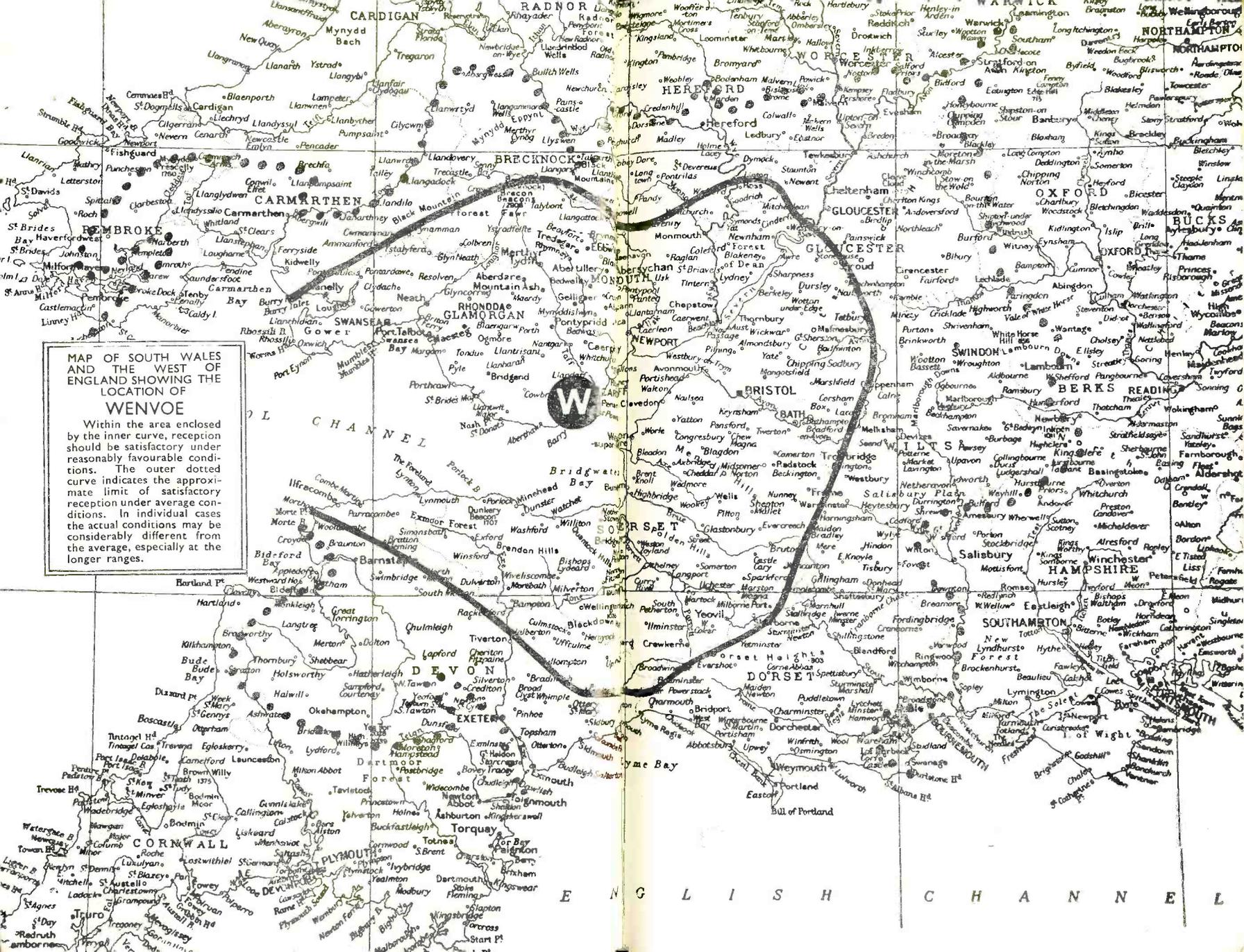
KIRK O'SHOTT'S

Within the area enclosed by the inner curve, reception should be satisfactory under reasonably favourable conditions. The outer dotted curve indicates the approximate limit of satisfactory reception under average conditions. In individual cases the actual conditions may be considerably different from the average, especially at the longer ranges.

MAP OF SOUTH WALES AND THE WEST OF ENGLAND SHOWING THE LOCATION OF

WENVOE

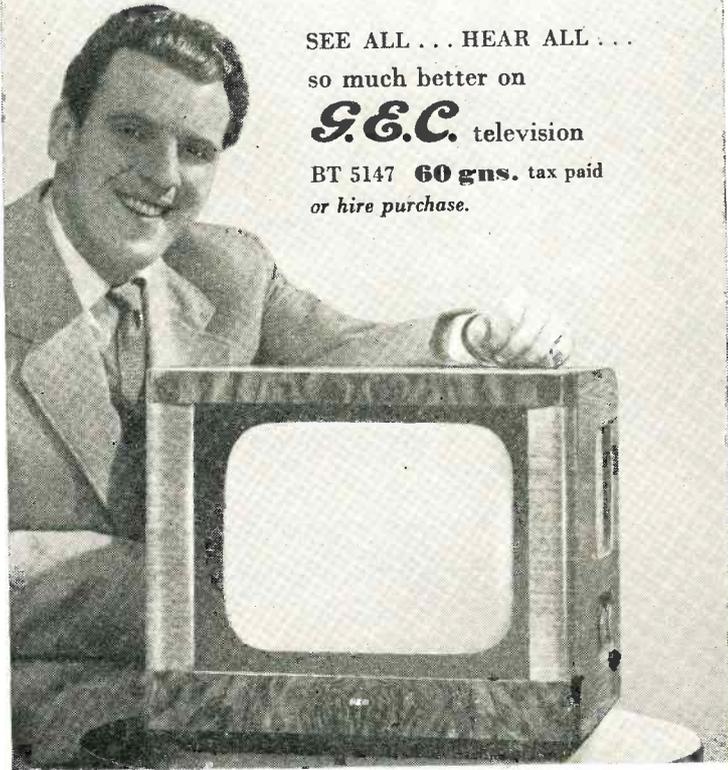
Within the area enclosed by the inner curve, reception should be satisfactory under reasonably favourable conditions. The outer dotted curve indicates the approximate limit of satisfactory reception under average conditions. In individual cases the actual conditions may be considerably different from the average, especially at the longer ranges.



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AS I SEE IT

BY COLLIE KNOX

I HAVE an uneasy feeling I should by rights be penning a profound treatise on the "Influence of television on thought of today"—if there is such a thing—and giving a forecast of what this extraordinary invention will have achieved during the next fifty years. Then everyone would say how clever I was . . . and that would be highly gratifying. Frankly, I am not good at being profound about anything — except, perhaps, about the right way to make coffee. I refuse to take television too much to heart. Indeed, I have refused for years to take the B.B.C. itself



The Author

as seriously as perhaps, it would like. But to be profound is too often to be dull, and to hunt around for grave and earth-shaking signs and portents in a medium which is meant primarily to lift up the heart, and, now and then, to elevate the mind, is to be precious and boring.

FOR BETTER OR WORSE

Television has one factor in common with that engaging young comedian, Mr. Max Bygraves, in that, like him, it "has arrived and, to prove it, it's here." For better or worse, in sickness or in health, it is amongst us. Our relatives come and stay, but, with luck and good management, they do not take up permanent residence with us. Not so television. Soon no home within these sceptred isles will lack for its set. As inevitably as the beetle eats into the woodwork, as the moth penetrates into the clothes-cupboard, so this Marvel seeps, hourly, into the life of the nation. But, unlike the beetle and the moth, we do not want it to move out. We may not care for all the programmes, but the dancing, singing and talking figures on our cosy home-screen exercise—at the moment—a more rivetting fascination over the human mentality

than any snake does over a rabbit. It may be argued that we are mad keen about television in the same way as a child is obsessed by a new toy, soon to tire of it.

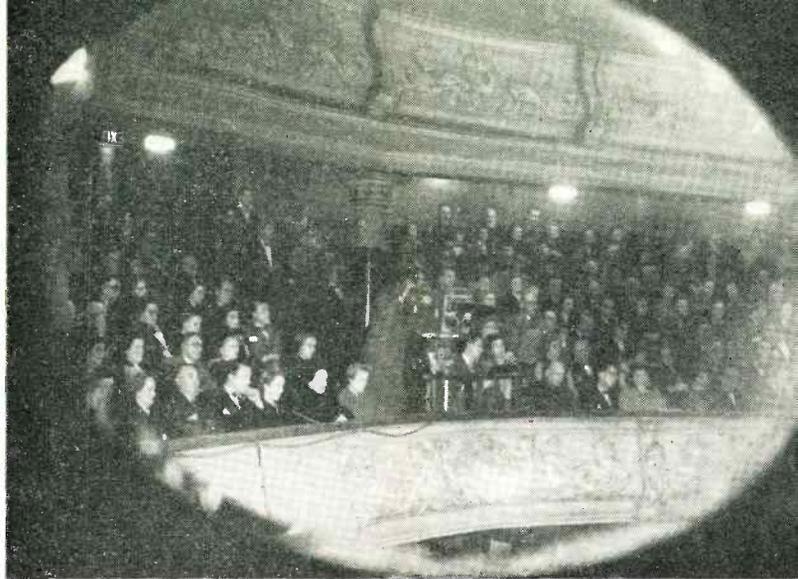
Will people, in a year or two, take its wonders for granted, and only look in when there is nothing else to do? I reject such arguments out of hand. To be able, while sitting in the Hebrides, to watch, in rewarding detail, a procession winding its glauourous way around the streets of London, or to have a thrilling final set on the Centre Court at Wimbledon brought bang into the uttermost home in the uttermost corner of the land, will not stale in excitement or entertainment. The radio has long brought great occasions within the reach of the mass ear. Television does, and will increasingly do, more . . . it brings them into the focus of the mass eye and ear combined. There is no national rejoicing that will not be shared by all at the moment of impact. For here, television must be for ever several jumps ahead of the cinema . . . which perforce has not the benison of immediacy.

A BIG BROTHER

With an effort, I cast what remains of my mind back to the days when radio first began to rear its shapely head. It was something new, and therefore, according to our ancient British custom, something of which to be afraid. The world of commercial entertainment and instruction rang with lamentations. If this, wailed the pundits, was not a thin edge of the wedge they had never seen one. The British Broadcasting Company, as it was then, strove against fearful odds to show that it was no rival to entertainment, to the theatre, the films or to book buying, but rather that it was planned to be an incentive, by stirring up interest and wider awareness in the things of the mind. It was there to build—not to destroy. It was a big brother; not a wicked uncle. After a long struggle the two worlds embraced one another, to the mutual benefit, enjoyment and profit of all.

History, as is its wont, repeated itself when television loomed on the horizon. Even those within the B.B.C. who had hoped to end their days, as they had begun, in the quietness of sound radio, viewed the newcomer askance. Here, without doubt, was The Thing of the future, a far from present help in time of trouble. Would sound and vision merge? Would television kill radio? What would happen to the not very beautiful actors and actresses who could play any part on the air because they were not seen, but who, with the advent of vision drama, would have to be reasonably right in appearance as well as in voice and characterisation? A nonagenarian actress can do very nicely on radio imitating the vocal mannerisms of a child of twelve. But, if she has to be seen, goodbye to all that.

The theatre, film and sporting interests fought against this new



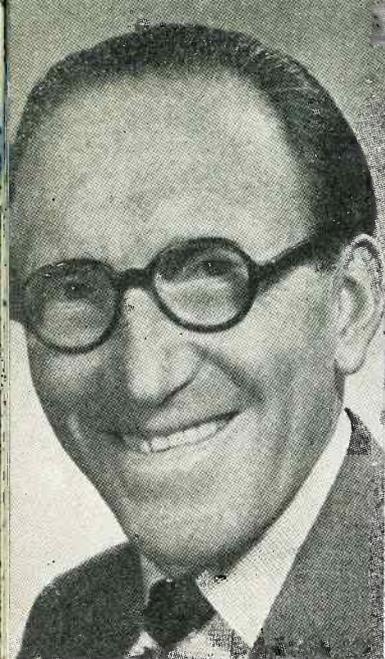
A view of the audience seen through a mirror on the stage of the Metropole Theatre, Glasgow, during the first Scottish transmission of "Music Hall".

medium. They were—and to an extent still are—fearful lest their one-time audiences should prefer to stay at home and watch entertainment brought to them, rather than go out—and pay to go in. For a while, I was as a lone voice crying in a wilderness, as I insisted that television would help fill the theatres. I claimed that extracts from stage productions on vision would whet the paying public's appetite. I was proved to be right for once. Now, theatre managements want as many vision relays as the B.B.C., Actors' Equity, and Fate will permit them. Television, as it develops, may hit the cinemas . . . but only, I hold, if the films are bad. Given good films, Mr. and Mrs. Smith and Family will always have "nights out" at the pictures, where everybody and everything are larger than life, and not smaller as on a home screen.

Many problems still have to be settled. Many a crisis is yet to come. Undoubtedly, in time, there will be 3-D. television, and glorious technicolor in excelsis. But sufficient unto the day is the television evil thereof, and Time, as we know, is a great healer.

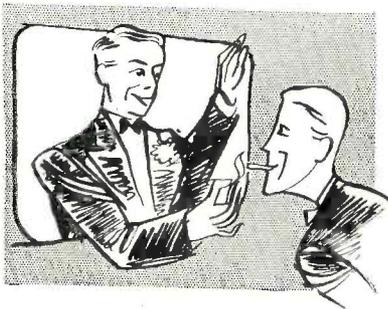
But the millions who "view" and are not concerned with anything except what they see, how they see it, how often, and with whom, can comfortably regard television as a boon and a blessing to mankind. Mankind has been rather short of late on boons and blessings. So we can do with one or two.

The familiar phrase, "It all depends how you look at it," is taking on a new meaning. They also serve who only sit and see.



ARTHUR ASKEY

TELEVISION IS INTIMATE



Certain personalities seem to have an especially happy knack of projecting themselves into your living-room or lounge—here are some of them.



JOAN GILBERT



PHILIP HARBEN



ERIC BARKER



GEORGE CANSDALE

JEANNE HEAL



MCDONALD HOBLEY





MARY MALCOLM

LESLIE MITCHELL



CHRISTOPHER MAYHEW

VIC OLIVER



SYLVIA PETERS

TERRY-THOMAS



ERIC ROBINSON

RONNIE WALDMAN



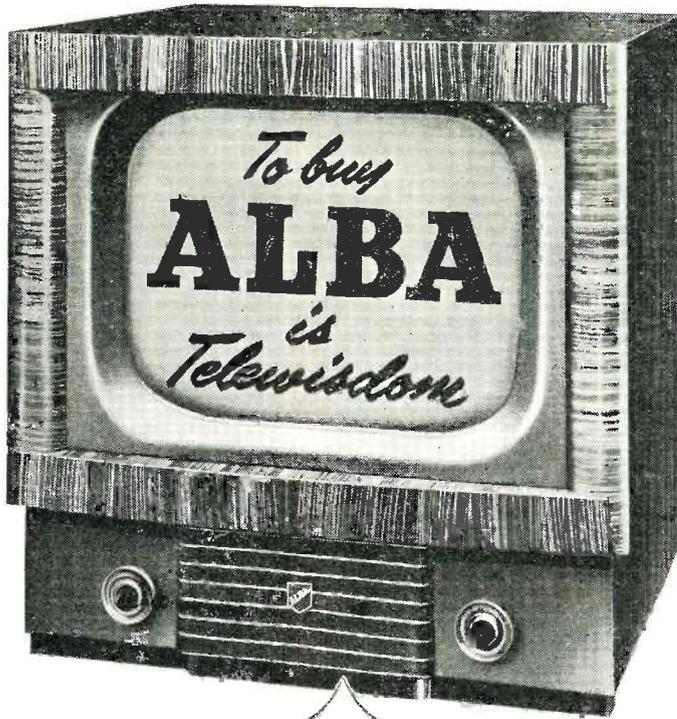
INTERNATIONAL TELEVISION

INTERNATIONAL television may be defined as letting viewers see on their screens something that is happening in another country. International relays of sound programmes are, of course, common place now, although regular broadcasting had actually been going some ten years before it



became practicable to relay a programme from abroad. It is not surprising, therefore, that the public and the programme planners began to enquire about the possibilities of television from abroad almost as soon as the television service was established. Not only is there a certain natural attraction in the idea, but there is also the fact that television programmes are extremely expensive to produce, so that the possibility of sharing a neighbouring country's programmes is an important economic consideration for all broadcasting authorities, especially in those countries where television is not yet firmly established.

As, however, the range of even the most powerful television stations is very restricted, the direct reception of foreign television transmissions is a chancy and unpredictable business. There has been, too, another outstanding obstacle: British television receivers are made to suit the characteristics of the B.B.C. transmissions and, as these are different from those adopted in all European countries, British viewers could not receive European programmes direct, nor could European viewers receive the B.B.C. television programmes, even if the waves travelled far enough to reach them. Just the same difficulties exist between the various countries in Europe, as some five or six arrangements, all different from the British and from one another, are in use. It is not just a question of varying wavelengths or frequencies, but of different numbers of lines in the picture and other technical details, which



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together are called the "standards".

But even if there had been any regular television services in the European countries in the first years after the war and even if these services had used the same transmission "standards" as the B.B.C., it would still not have been possible to interchange programmes directly because there were no cables or other means of conveying the programmes from the studios of one country to the transmitting stations of another. Actually, of course, at the time, France was the only European country with television, having a rather restricted service in the Paris district only.

Nevertheless, the B.B.C. Television Service was determined to reach out, and several methods of getting round the problem were used from time to time to let viewers in the United Kingdom see what was going on abroad. One method was the rather obvious but expensive one of bringing a theatrical production, complete with artistes, scenery and "props", to the London television studios. This was done in 1949 in the case of the Paris Lido Cabaret. This method introduces no technical difficulty, but there were serious practical difficulties in transporting so many people and so much equipment so far during the one day in the week when the cabaret was closed, and in finding time for camera rehearsals.

Another often-used method is to send a film unit to make a cinema film on the spot. The film is then flown back to London for televising. Viewers will remember series such as "International Commentary"

Alan Adair interviews a fisherman's wife and an official of the Gare Maritime in Calais. This was part of the first-ever transmission of a programme televised in another country.



Franco-British joint television programmes from Paris. Richard Dimbleby goes shopping with a French housewife.

and "As Others See Us", and, in another sphere, the films made "at the front" in Korea. This method also presents no major technical difficulty, but there is an inevitable delay.

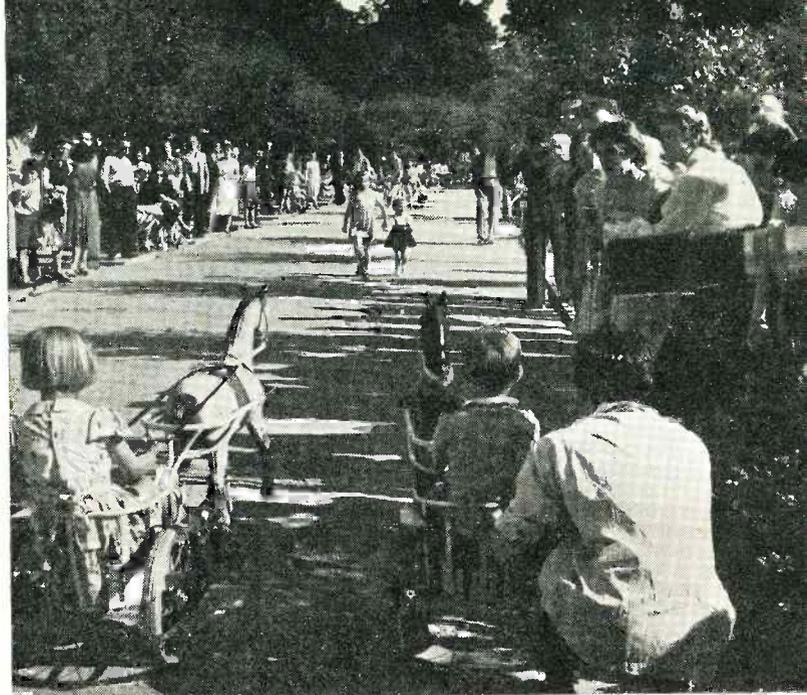
In the meantime, engineers had been tackling the problems of conveying television camera signals over long distances and had made available conveniently transportable apparatus utilising the technique of very concentrated beams of radio energy on extremely short waves, commonly called "microwaves," whereby it was possible to pass the signals from camera to transmitting station via a series of temporary relay stations set up on conveniently-located hilltops or high buildings.

A noteworthy step forward towards real international television relays came in August, 1950, when the B.B.C., using these new techniques, broadcast a "live" television programme from Calais. The occasion was the celebration of the centenary of the laying of the first cross-channel telegraph cable, but as the programme was organised by the B.B.C., and was achieved by a B.B.C. outside-broadcast unit which took all its equipment to France for the show, technically this should be considered as an outside-broadcast from foreign soil, rather than as



British viewers saw Cabaret from "La Nouvelle Eve"—a Paris Night Club.

Cameras cover the great military parade in the Champs Elysées on July 14th—France's National Day.



Sylvia Peters and Jacqueline Joubert, French commentator, describe a children's race at the "Jardin d'Acclimatation" in the Bois de Boulogne.

an international relay, because the programme was not seen by French viewers. Another more recent case of this kind was the televising of the Holland-Belgium football international in October, 1952, from Antwerp, by the Dutch Television Service, for viewers in Holland only. The Belgian Television Service had not, at that time, started.

It was evident at an early date that the key to the problem would be a device that could take television signals of one "standard" and change them into some other "standard", and research work towards this goal was going ahead in several countries. The first known successful device of this sort was the "standards-converter", invented by the B.B.C. engineers. This device made possible the world's first international television relay in July, 1952, when a week of programmes, culminating in the celebration of France's National Day, were relayed from the French Television Service and were seen simultaneously by French and British viewers. The French 819-line signals were "converted" to the British 405-line standard at Mont Cassel, near Calais, as the British standard signal is less susceptible to distortion when transmitted over long radio links.

The desire of European, and also of American, viewers to see the Coronation, undoubtedly provided the incentive necessary to accelerate the study of the many problems that still had to be solved. In the end, of course, it became evident that a "live" television relay to Canada and the United States would be much too costly, so in this case, films of the television commentary were immediately flown across the Atlantic and re-televised. In Europe, however, something was achieved through international collaboration that might well not have come about for several years had it not been for the Coronation. The signals were sent from London to Paris by the same means as used for the Paris week mentioned above, the conversion from 405 lines to 819 lines being made this time in Paris. From the north of France the B.B.C. signals were relayed across Belgium to Holland, where they were converted to the 625-line standard and broadcast by the two Dutch television stations. A further temporarily-installed radio link carried the signals from Holland to Western Germany, where they were broadcast by the North-West Germany Broadcasting Service (five stations), the Hessian Broadcasting Service (one station) and the South-West German Radio (one station). In all, it is thought that an audience of at least half-a-million people on the Continent saw these programmes, allowing about five viewers to each receiver. It was not to be expected that perfect reception would be achieved, but from most places satisfactory results were reported, in many cases much better than had been expected.

Future prospects are exciting: within a very few years there should be a European network of stations, all able to exchange programmes with each other. Then, indeed, International Television will begin to take shape.

High Mass televised from the Basilique de Saint Denis in Paris.



The Author (centre) in the film dubbing suite mixer room, where the commentary, music and effects are blended and controlled before being recorded on the sound track.

The film plays a great part in television and has a greater one to play yet. In this article the Head of Television Films for the B.B.C. writes of its use and possibilities.

TELEVISION AND THE FILM

BY PHILIP H. DORTÉ, O.B.E.

ALTHOUGH, of course, any "non 3-D" film made for the cinema can be transmitted by television, a Television Film is essentially one made specifically for showing on Television.

Such a film is normally made in one of two ways: either it is shot with the type of camera that is used in Hollywood or Elstree and is subsequently edited and recorded in cutting-rooms and dubbing-theatres similar to those which have been in use in the film industry since the Talkie came into being in the late nineteen-twenties; or it is shot by recording on film the output of an electronic camera—a Television camera—and, to avoid confusion with a film made by the first method, it is in Britain called a Telerecording, in the United States a Kinescope.

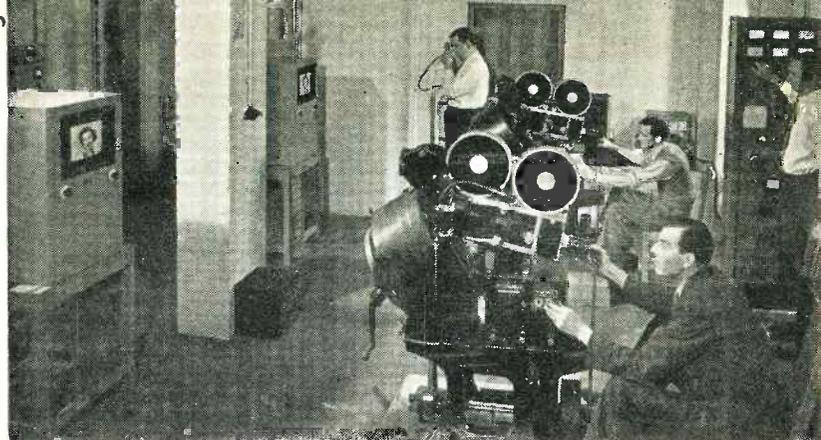
This does not set out to be a highly technical article, and it would be wrong, therefore, to go into a lot of technical detail. Suffice it to say that in making either type of film it should be remembered that, when it is televised, there will be no mass audience reaction as there is in a cinema, and that it must be aimed at numberless small groups

of three or four viewers; in consequence there must, for example, be no pauses deliberately staged to allow for laughs. Equally it must be remembered that on the small television screen "long shot" often means very little, whilst "close-up" means everything; hence "long shot" should be used only to establish a given scene, and the cameras should then go into "close-up"—and stay there. Lastly, on this point of technique, the producer of a television film—and particularly of a topical film such as Television Newsreel—can, and should, always keep to the forefront of his mind that there are no conventions or precedents which he has slavishly to follow, that any technical short-cuts which he can take to speed his film-making are more than desirable, and that by successfully taking them he will actually enhance his reputation in Television whereas, in the commercial cinema world, he would probably be courting disaster by earning himself the reputation of being merely a producer of the despised "quickie".

Two types of film

Of the two types of television film, I believe that films made beyond the confines of the studio walls will, in the main, continue for a long time to come to be in the first category, *i.e.*, made basically by ordinary film methods. By "films made beyond the confines of the studio walls" I mean, of course, news-films, travelogues and the type of documentary film which just must be shot "on site". Exceptionally, however, they will be made via an electronic camera and a telerecorder when light is almost non-existent—this because in such circumstances it would be pure waste of time to expose film in an ordinary film camera, whereas the modern electronic television camera can produce a quite reasonable picture when the only source of illumination is literally one candle.

In the second category will come more and more films that would, in the past, have been made in a normal film studio by normal film-making methods. They will be filmed electronically, because in that way they can be made so much more quickly—as fast, in fact, as if they were being produced as a "live" television programme would be produced, *i.e.*, with continuous action and with each of two, three or four cameras being cut in, as appropriate, to scan the desired points of the action. At the present time there are several reasons why this method of film-making is not used more and why, in consequence, the telerecordings which the B.B.C. now televises are confined in the main to either Outside Broadcasts, which have been staged during the hours of the working week when the television audience has thus been necessarily small, or Outside Broadcasts such as a major State Occasion, the Boat Race or the Cup Final, which are of such interest that it is only right that they should be repeated either in their entirety



The telerecording room at Alexandra Palace where television programmes (both pictures and sound) are recorded on film. The special cameras used are on the right.

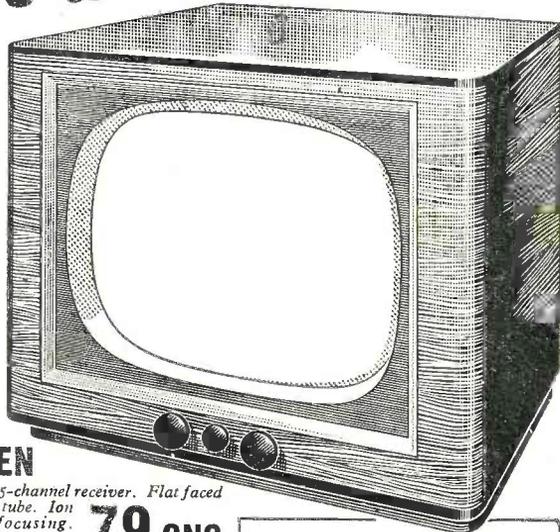
or in a shortened edited form, but not as shortened as they would have to be if they were included in, say, Television Newsreel.

When, however, agreement has been reached with the artistes' unions concerned, telerecordings will be made of studio programmes as they are being broadcast, so that not only will such programmes be available for repeats at home, but it will be possible to send them round the world for televising in such other countries as would like to have them. Specifically, of course, in the case of B.B.C. telerecordings, this will be the Dominions and Colonies. Where artistes are, on account of stage or other commitments, not available for actual televising at the time required, films of the programme will be made in advance by this telerecording system, and the programmes will thus be seen at home as well as overseas. In this connection the role which both television films and telerecordings will play in international television is, for many years as yet, enormous. It is true that programmes have been relayed across the English Channel and that, for the Coronation, for instance, the B.B.C. Television broadcast was relayed by several European countries. But international relaying is expensive and the Atlantic Ocean is considerably wider than the English Channel. Thus, despite the optimism of American technicians, film or telerecordings will, in my opinion, continue for some time to come to be the only method by which both North and South American viewers can, by television, be shown the British scene, and vice versa.

There is little doubt that more, rather than less, films will be used in Television as the years go by, and the furthering of the technique for making them is a fascinating and, I like to think, important occupation.

FERRANTI T.V.

leads the way



17" SCREEN

MODEL 17T3 AC/DC 5-channel receiver. Flat faced tinted rectangular tube. Ion trap. Astatic focusing. Walnut cabinet.

79 GNS

Ferranti T.V. sets with their bigger screens mean really large life-like pictures. Front controls and flat screen and all round technical improvements have put Ferranti sets right in the lead for perfect pictures.



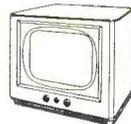
OTHER FERRANTI MODELS

14T3 TABLE · 17K3 CONSOLE

14" SCREEN

MODEL 14T3
AC/DC 5-channel
receiver.

62 GNS



17" SCREEN

MODEL 17K3
AC/DC 5-channel
receiver.

106 GNS



FERRANTI LTD., RADIO SALES OFFICE, MOSTON, MANCHESTER, 10

INSTALLATION, TUNING AND OPERATION

I. INSTALLATION

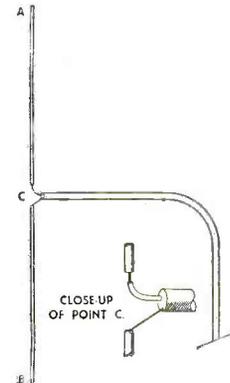
Choosing your Receiver

We do not intend to try to tell you here *which* television receiver you ought to buy. To attempt to do that would involve us in all sorts of difficulties, because there really isn't any one receiver which is the best in all circumstances. If we think of only one detail—the price—we see right away that one model cannot suit everybody. But we can point out one or two considerations which you ought to bear in mind when you are making your own choice.

First of all there is the question of the electricity supply in your house, as your receiver must be suitable for it. Nearly everywhere in the United Kingdom the electricity is of the kind known as A.C., which means *alternating current*. In most places its *voltage* is between 200 and 240, but in a few places it is 110 or 115 volts A.C. In certain other districts the supply is D.C., meaning *direct current*, and again the voltage may be between 200 and 240 or about 110. In the case of A.C. the *frequency* is also important. It is usually 50 *cycles per second* (sometimes called *periods*), although other frequencies are occasionally encountered. Television receivers can be divided into two categories, those that can be connected only to A.C. supplies and those that will work on either A.C. or D.C. The latter are commonly called "A.C./D.C." or "universal" sets. It follows that if your supply is D.C., you must use an A.C./D.C.

FIG. 1A
A vertical dipole aerial with co-axial
download cable.

The length A-B should be chosen according to the Table on page 77. The inner wire of the cable is connected to one half of the dipole and the outer metallic sheathing to the other half. The cable should be supported horizontally until it is at least half the distance A-B away from C.



receiver, but if your supply is A.C. you can choose *either* an A.C. or an A.C./D.C. set. There are no television receivers made for working directly from batteries, but special devices called "supply converters" can be obtained when it is desired to work a television receiver from a low-voltage D.C. supply such as is sometimes found in the country, as

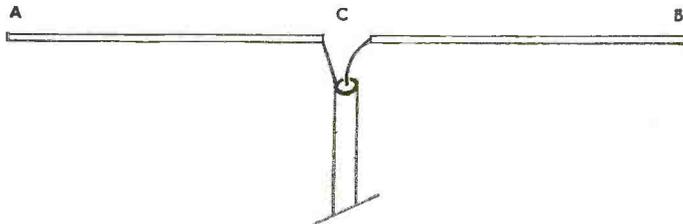


FIG. 1B.

A horizontal dipole aerial with a co-axial downlead cable.

The length A-B should be chosen according to the Table on page 77. The downlead cable is connected exactly as shown in Fig. 1A, and the dipole is to be mounted so that it is *broadside-on* to the transmitting station. (See Fig. 4).

A.C./D.C. television receivers will not usually work on less than about 200 volts.

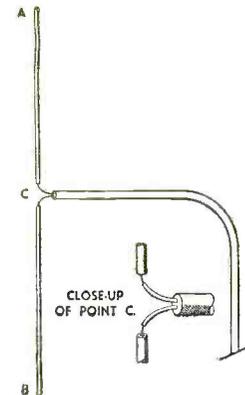
There is a special point for viewers in Northern Ireland. There the electricity supply is separate from the Electricity Grid that serves Great Britain, and certain special precautions have to be taken in the design of television receivers for use in Northern Ireland. If you live there, and you do not buy your receiver from a local agent, make sure from the manufacturer that it is suitable for operation on independent mains.

Next comes the question of tuning. As mentioned elsewhere in this Guide, there are five pairs of frequencies (or wavelengths) used for television by the B.B.C. Each transmitting station uses two frequencies, one for the pictures, the other for the sound, and as very few places are within the service areas of two of the stations and as, in any case, all the stations normally broadcast the same programme simultaneously, there is no point in making provision for tuning from one station to another, as is usual in receivers for sound broadcasting. Nevertheless, all the models on the market today can be tuned to any of the five pairs of frequencies, in case the owner should move to a district served by another transmitter. The method of changing frequencies varies from model to model, but it is usually best left to a properly equipped service-man.

The next decision to be taken is that of choosing the form of the receiver. Do you require a receiver to stand on a table or a larger

FIG. 2A
A vertical dipole aerial with a balanced-pair downlead cable.

The length A-B should be chosen according to the Table on page 77. Each of the inner wires of the cable is to be joined to one half of the dipole. The cable should remain horizontal for at least half the distance A-B away from C.



one to stand on the floor, and do you wish to have a sound-broadcasting receiver incorporated in it? This is really the first decision you can take, because the previous two points do not admit of any choice. Here it is a matter largely of personal preference, although influenced, of course, by the overriding factor of the maximum price contemplated. Many receivers are available at choice with a table or a "console" cabinet, and so far as the pictures are concerned there is nothing to choose between them. The consoles, however, because they are bigger and heavier, usually give better sound quality and always cost considerably more than the corresponding table models. In a very small flat, for example, a combined television and sound receiver might be advisable, but in most households it is convenient for some members to be able to see the television while others listen to a sound programme. It is almost impossible to do domestic chores whilst watching television

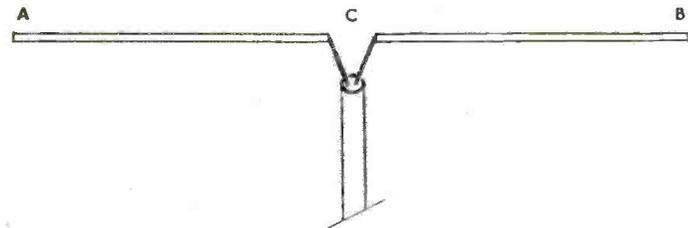
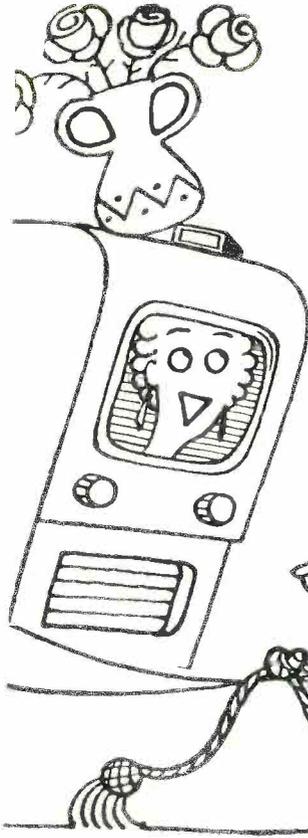


FIG. 2B

A horizontal dipole aerial with a balanced-pair downlead cable.

The length A-B should be chosen according to the Table on page 77. The downlead cable is connected exactly as shown in Fig. 2A, and the dipole is to be mounted so that it is *broadside-on* to the transmitting station. (See Fig. 4).

Viewing the easy way . . .



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 . . .

Television Specialists since 1937

200 BRANCHES
WITHIN THE TELEVISION AREAS
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which is a "full-time job"—a description which need not at all necessarily be applied to sound broadcasting. In any case, most households about to "adopt" television already have a sound receiver. Finally, independent receivers enable one to bridge the gap, should one or other break down—always a possibility with any complicated apparatus—although, of course, that risk is minimised by regular maintenance attention.

The Size of the Screen

Finally, the difficult problem of deciding what size screen to choose. The biggest is not necessarily the best, and it is even possible that the biggest screen in your particular price range might not suit you best. The reason for this is that, as explained in other chapters, the television picture is "drawn" on the screen as a large number of thin horizontal strips, and if you look at a television picture from too close you can see the individual strips or "lines". For each size of screen there is, therefore, a *minimum* distance for good viewing, and if you propose to install your receiver in a small room you do not want to have such a large screen that you cannot get far enough away to view it to the best advantage. On the other hand, you should not buy a receiver with a small picture if your "audience" is usually fairly large, as in that case some may not be able to get close enough to see any detail. The method of quoting picture size varies from maker to maker. Some give the width of the screen itself, others the diameter of the cathode-ray tube, others again quote the diagonal of the screen. A few even quote the *area* of the screen. It is obviously necessary to be a little wary when comparing specifications. It is best to measure the screens themselves, especially as some have curved sides or otherwise do not conform exactly to the shape of the pictures transmitted by the B.B.C. In all receivers the picture is formed on a cathode-ray tube, and this is either viewed directly through a glass "window" or projected on to a screen. In *direct-viewing* receivers the cathode-ray tube has to be fairly big, so that its end on which the picture appears will fill the opening corresponding to the screen. In *projection* receivers a small but very bright cathode-ray tube is used, and an optical magnifier throws an image on a larger screen. Cathode-ray tubes for direct-viewing have diameters from 9 inches (although such small ones are rare now) up to 17 or even 21 inches. These last, of course, are very expensive, and the most common sizes are 12 inches and 14 inches. Sometimes magnifying lenses are used in front of the smaller direct-viewing tubes, to simulate a larger picture. Projection receivers give pictures varying from 12 inches to 48 inches in width. Although the best distance for viewing varies according to personal preference, and probably also to different kinds of eyesight,

it is commonly considered that for the best effect the screen should not be viewed from a shorter distance than about six times the *height* of the picture. This means that your eyes should be at least four feet away from the screen if you have a set with a 12-inch cathode-ray tube, which gives a picture about 8 inches high. From this figure of six times the picture height, you can calculate the largest picture that can be satisfactorily viewed in a particular room, but remember to allow for the space taken up by the cabinet, the chairs, etc.

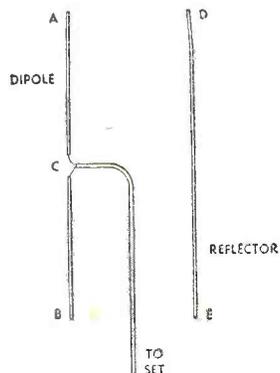


FIG. 3

The essentials of the H Aerial.

The lengths A-B of the dipole and D-E of the reflector are each as given in the Table on page 77. 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.

Finally, after taking into account the factors mentioned above and, of course, the price that you are prepared to pay, you should be able to narrow down your choice to two or three models. The final decision is best taken as a result of a demonstration. As the conditions of viewing in the majority of shops is so different from those met with in the home, we strongly recommend demonstrations in the home if at all practicable. In this connection, however, you must bear in mind that, as explained elsewhere in this Guide, the aerial contributes very considerably to the success of an installation and a retailer may not be prepared to install an elaborate aerial temporarily, unless he is fairly satisfied that you are in earnest.

Just a final word in connection with the amount that you are prepared to pay for a receiver. Do not omit to deduct from the total sum contemplated sufficient to pay for an efficient and properly installed aerial, and also for reasonable maintenance of the receiver. Actually the aerial installation is not quite so important if you live quite close to a transmitting station, but at the longer ranges, in the so-called "fringe areas," the correct aerial installation may be absolutely essential for reasonably satisfactory reception. In such cases its cost may represent quite a large percentage of your total outlay.

The maps contained in the "Television Atlas" can be used to determine the location of any place with respect to the permanent television transmitting station that serves it, so that the relative importance of the aerial may be judged. It must be remembered, however, that places on high ground have an advantage over places on low ground, when other conditions are the same, and that difficulties may be encountered in places screened from the transmitting station by intervening high ground.

Where to place your receiver

This is a question which tends to answer itself in most households, as, in practice, the choice of location in the living-room for such a large item as a television receiver is restricted. There are a few points to bear in mind, however. Light from a window or from the fireplace must not fall directly on the screen, nor must there be a window immediately in view of the "audience". Remember, too, that the relative positions of the screen, seats and fireplace are of importance for viewing in winter. If it is inconvenient or impossible to darken the room sufficiently to get good contrast in the pictures, one solution is to use a grey screen in front of the picture. Such devices, sometimes called "neutral filters", are incorporated in some receivers and can be purchased separately from any television retailer.

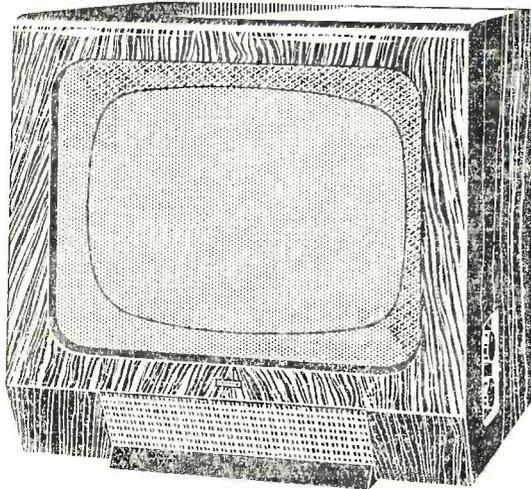
Another consideration is the electricity supply. A television receiver can be connected to any normal wall-socket, but it is important to check that the supply to the socket chosen is appropriately fused. It is a good idea to remove the plug from the socket if it is proposed to leave the receiver unused for several days and, of course, whenever it is desired to open the cabinet to gain access to the chassis. It is not sufficient to switch off.

Choosing your aerial

This is in some ways a more difficult problem than that of choosing the receiver, for almost any receiver will work well anywhere in the service area if it is properly installed with the right aerial, whereas if the wrong kind of aerial is used, even the best receiver will be unsatisfactory.

The simplest and basic television aerial is called a *dipole*, and it consists of a metal rod or tube, about half a wavelength long, divided at the centre where the downlead cable is connected. It has to be parallel to the transmitting aerial, so if used for reception from any of the high-power stations or from the Truleigh Hill low-power station

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with pictures of striking
definition and incomparable
quality

Illustration shows the Table Model 933 at

75 GNS. Tax Paid

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near Brighton, the dipole is vertical. For reception from Pontop Pike or Glencairn (Belfast) the dipole has to be horizontal. The dipole, in either case, has to be mounted in as high and exposed a position as possible in order to pick up the strongest television signal and be least influenced by possible sources of local interference. Within only a few miles of a high-power station, good results are often possible with the dipole indoors, but if it is not erected in the loft, reception will usually be affected by persons moving about close to the aerial, which will cause fading.

The performance of the simple dipole can be modified by associating with it other metal rods or tubes. In this way it can be made more sensitive to waves arriving from a particular direction or (perhaps a more important achievement, as it permits a particular source of interference to be eliminated) it can be made almost insensitive in other directions. Unfortunately these effects are only partial, as they depend upon the exact frequency of reception, and a television aerial has to be designed to receive on two different frequencies—those of the vision and sound transmitters. Examples of these more complicated aerials are the H and the four-element arrangement called the "Yagi" aerial. The X aerial is basically an H aerial with the two rods bent so that they almost meet at the middle.

Where to place the aerial

It is quite impossible to indicate exactly where to use each kind of aerial. The most that can be said is that close to a transmitting station, where there is a good strong signal, a simple dipole aerial is sufficient unless there is a quite abnormal amount of local interference. Further away an H or similar aerial will be needed to discriminate against interference, and the aerial will also have to be higher to pick up a sufficiently strong signal. Further away still, in the fringe areas, again a higher aerial will be needed and possibly one of a more complicated type. Here it may be necessary to provide additional sensitivity by using a *pre-amplifier*, which may be a separate unit used in conjunction with an ordinary receiver or it may be built into a receiver specially designed for fringe area use. There is one particularly efficient pre-amplifier designed to be mounted actually on the aerial itself.

It will be recognised that local experience is likely to be much more useful than technical theory when it comes to choosing the right aerial, and a reputable local television dealer usually knows the standard of reception that can be expected in various parts of the district and also which kinds of aerials give the best results under the particular conditions met with in the neighbourhood. Alternatively, a fairly good idea can be obtained by observing what kinds of aerials are most commonly used in your district, and how high they are usually erected.

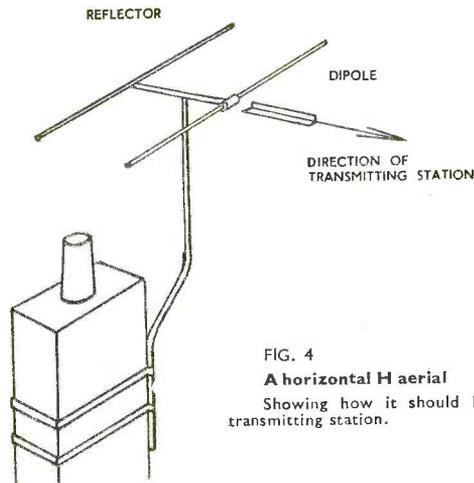


FIG. 4
A horizontal H aerial
 Showing how it should be directed towards the transmitting station.

Where to put the aerial

The choice of the right place for the aerial can be even more important than choosing the right kind of aerial. Again it is not easy to generalise, and local knowledge is an important factor. Generally speaking, the higher the aerial is mounted the better the results. Except in locations very close to a transmitting station, it will be necessary to find a location that is clear and unobstructed, especially in the direction of the transmitting station. There should not be any metal objects such as pipes, railings or other aerials within several feet of the aerial.

A common, and usually successful, arrangement is to mount the aerial on a chimney stack, and it is a useful precaution, where practicable, to make use of a stack that is as far as possible from the road, so that some part of the building acts as a screen between the aerial and passing cars.

At longer ranges it will be necessary to set the aerial on a mast, which can be attached to a chimney stack or otherwise erected on the top of the building.

In this connection it should be remembered that the roof of a house can easily be damaged when erecting or attending to the aerial, so if you are not the actual owner, it is wise to obtain his permission beforehand, and also to make sure that whoever actually works on the roof

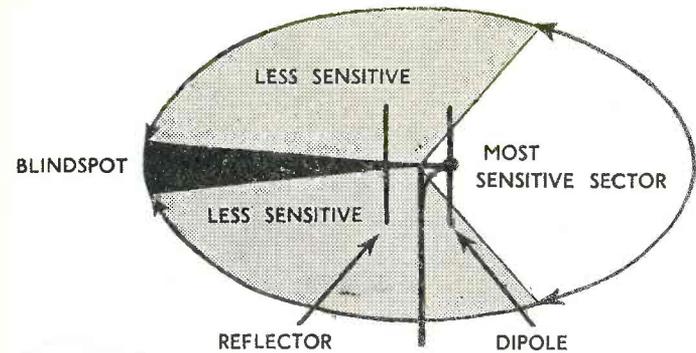


FIG. 5
The directional effect of an H aerial

Because the sensitive arc is much wider than the "blindspot", this aerial can be used to reduce interference coming from a particular source, as it is not necessary that the aerial should point exactly at the transmitting station.

is covered by insurance against any harm that he may do to the house or himself by accident.

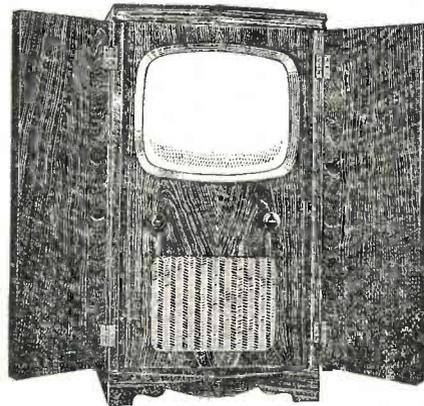
The downlead cable

There is an important difference between the downlead cables used in television, and those ordinarily used with aerials for medium-wave reception. Television downleads do not necessarily have to follow the shortest or most direct route from the aerial to the receiver, and they can therefore be installed in a neater and less obtrusive fashion. It does not matter if they are attached directly to a wall or other support.

Two kinds of downlead cable are in general use, and the particular kind that must be used with your receiver will be explained in the instruction booklet supplied with it. The more common is called a "coaxial" (or concentric) cable, one of the wires having the form of a flexible metallic tube with the other wire inside it. The other kind is the "balanced pair", consisting either of two wires enclosed in a flexible metallic tubular screen, or of two wires each individually screened in that way. There are different qualities, and for long downleads or at a long distance from the transmitting station it is worthwhile to choose a grade that is described as having a specially "low loss" or superior screening against local interference.

an eye for music

Not by ear alone is music best appreciated, but with the eye to follow the pattern of sound as cymbals are seen to clash and tympani to thunder, as bows dip and lift in unison like reeds in rain. Music must be *seen* to be believed; so must the excellence of the Defiant. For on the Defiant's magic screen the vivid scene is splendidly displayed, in its voice are the overtones of truth. Here, for you, is the speaking likeness of reality.



Model No. TR 1753

17" tube. Five channel tuning.
Price (tax paid)

CONSOLE : 97 GNS.

TABLE : 83 GNS.

DEFIANT
TELEVISION

FROM CO-OPERATIVE SOCIETIES EVERYWHERE

Sharing aerials

As television aerials should not be erected very close together, and as the cost of purchasing and erecting them is by no means negligible, it is sometimes convenient for two neighbours to share a single aerial. It is true that the energy picked up by the one aerial has to be divided between the two receivers, but by sharing the cost it should be possible to erect one good aerial rather than two that are mediocre. In this way the loss may be offset and in any case the pictures are likely to suffer less from interference. The actual arrangements for joining the two downloads depend upon the kind of cable and the receivers used, and the job should be entrusted to a competent technician.

More elaborate schemes of this kind have been installed in some places, such as in blocks of flats and hotels, where a single aerial serves a large number of receivers through an amplifier which provides sufficient energy to give an adequate signal for every receiver.

Alternative positions for the receivers

It is sometimes found convenient to be able to move a television receiver from one room to another, and many viewers use tea-trolleys to support their receivers just to provide this flexibility. The problem then is how to deal with the aerial download cable. The simplest arrangement is to have sufficient cable to reach to the more distant position of the set, and to coil it up behind the receiver when this is in the nearer position. The disadvantage of this arrangement is the risk of damage to the cable, especially if there is the possibility of its being squeezed between a door and doorpost. In such cases a good arrangement is to install permanently an extra length of cable between the first position and the second. At the first position the extra cable should have a socket into which the main download cable can plug, and at its other end a plug to fit into the receiver.

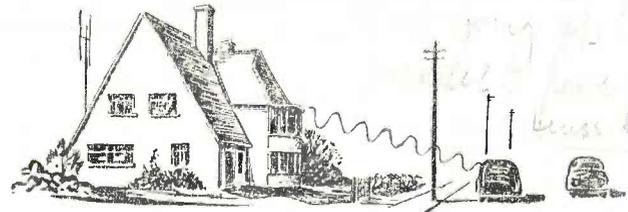


FIG. 6

Where severe interference is caused by motor traffic, it is often helpful to mount the aerial so that some part of the building acts as a screen between the cars and the aerial.

Earth connection

The aerials used in television combine in themselves the functions of both the aerial and the earth of medium-wave reception. There is therefore no need in television for an earth connection *so far as reception is concerned*. A television receiver is a "mains-connected appliance", however, and like all such it should have an earth connection as a *safety precaution*. This is usually provided through a third wire in the mains cord connected to the third pin of the wall-plug.

Change of address

As mentioned earlier, if you move from the service area of one transmitting station to another, you will probably have to have the receiver modified to tune to the new wavelengths. The same applies to the aerial, too, but in addition it may be that the new conditions will make an entirely different kind of aerial necessary.

A rather similar situation arises when it is the transmitting station that moves. In due course, the London station is likely to be moved from Alexandra Palace to Crystal Palace, which means that nearly all viewers in the south of London will get stronger signals, while those who live very close to Alexandra Palace will receive weaker signals. These last viewers may have to erect more efficient aerials to get good results, but all London viewers will have to make sure that their aerials are properly directed.

Similar problems will arise in connection with the temporary stations at Glencairn (Belfast) and Truleigh Hill (Brighton).

II. HOME CONSTRUCTION

Kit sets

For those enthusiasts who have a certain amount of experience in such matters, several television receivers have been specially designed for home construction. Complete kits of parts for these are on the market, together with full instructions for assembling and adjusting the receivers. With care it is possible for anyone who can make a good soldered joint to build himself a satisfactory television receiver in this manner, but it cannot be too strongly emphasised that television receivers make use of *very high and very dangerous voltages*, so that the greatest possible attention is necessary when testing a set, until it is safely housed in its cabinet. The voltages used are such that accidental contact can have very serious or even lethal results.

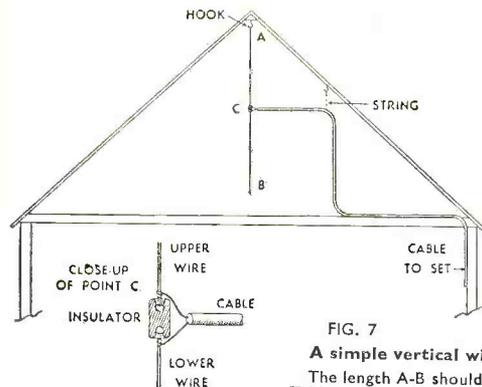


FIG. 7

A simple vertical wire dipole aerial in the loft

The length A-B should be chosen according to the Table on page 77.

Where a horizontal aerial is required, the ends A and B should be attached to hooks in the roof woodwork and the centre insulator should be supported by a string to keep the dipole horizontal. The cable should hang straight down from the insulator.

Home-made aerials

It is, however, possible for a handyman to make and install his own aerial without risk, except of course the inevitable one when working on the roof or up a tree.

Actually television receiving aerials are by no means expensive, but the prices quoted by dealers may seem rather high at first sight because of the installation cost, which must naturally have some allowance for transport, assessing the merits of several possible locations, insurance and the risk of having to re-position the aerial later, as some intermittent interference may not be in evidence when the aerial is first installed.

As explained earlier, the starting point for practically all television receiving aerials is the *centre-feed dipole*. This can be elaborated into a large variety of arrangements, each having its own particular merits and demerits. The simpler can readily be made at home, and it is fortunate that these are the types that suit the majority of situations. If satisfactory results are to be obtained, the construction of the more elaborate types requires technical apparatus which is not usually available to the home constructor, so we advise those viewers who, for one reason or another must use a multi-element aerial, to purchase one that is professionally-built.

The following Table gives the lengths of dipoles suitable for the B.B.C. television stations. It is to be noted that the dipole has to be mounted vertically in all cases, except for Pontop Pike and Glencairn. For those two stations the dipole has to be horizontal.

THE STANDARD OF EXCELLENCE

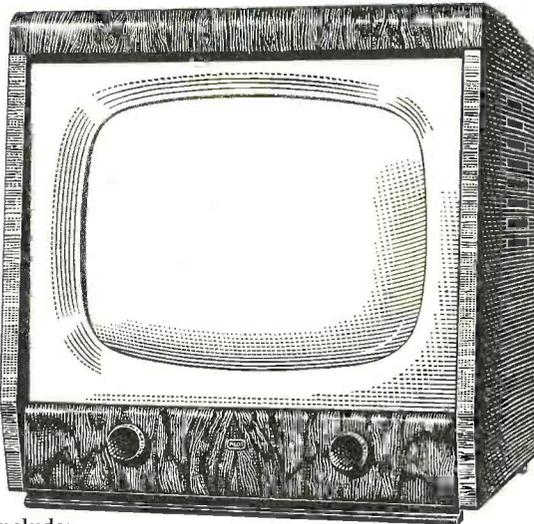
Extra **BIG** ... extra **BRIGHT** ...
extra **STEADY** pictures

Pilot 17 inch TV

TABLE MODEL TV 87

- 17" Aluminised Tube with flat face
- Automatic Gain Control
- Simple Controls
- Filter Screen
- A.C. Circuit

A bigger, sharper picture of such brilliant clarity and rock-steadiness that you feel it must be *real*—that's Television with the Pilot TV 87.★



Special features include:—
AUTOMATIC GAIN CONTROL
—for constant signal—
aluminised tube for 30%
brighter pictures. **FILTER**
SCREEN—better daylight
viewing. **AC CIRCUIT**—no
long wait for receiver to
warm up—picture appears
20 seconds after switch on.
Beautiful Walnut Cabinet.
See a demonstration at your
local Pilot dealer.

Please send me without obligation Pilot Television and Radio leaflets.

Name

Address

Post in unsealed envelope (1½d. stamp) to:—

PILOT RADIO Ltd. (Dpt. DMHB) Park Royal Rd. London, NW10

TABLE

Television Station	Overall Length of Dipole
Alexandra Palace and Glencairn	10 feet 5 inches
Holme Moss	9 " 4 "
Kirk o'Shotts and Truleigh Hill	8 " 7 "
Sutton Coldfield	8 " 0 "
Wenvoe and Pontop Pike	7 " 2 "

The dipole may be made of rod, tube or thick wire, and it consists of two equal lengths with a small gap at the middle. A reflector, if used, should be the same length or slightly longer than the dipole, and can be made of the same material. It is to be supported between a third and a half of the dipole-length behind the dipole. The down-lead cable is connected across the central gap in the dipole. If coaxial cable is used the inner wire is joined, preferably by soldering, to one half of the dipole, and the tubular or outer part of the cable to the other half. If balanced-pair cable is used, one wire is joined to each half of the dipole. No connection at all need be made to the reflector. The manner of installing the aerial will depend upon whether it is made of wire or tube and whether it is to be indoors or outdoors. In the case of an outdoor aerial, the connections will have to be suitably protected against the weather, and the aerial itself and its supports must be strong enough to resist high winds. These supports, however, must not have any metal parts near and parallel to the dipole or reflector.

Where a vertical dipole is used, with or without a reflector, it should be mounted in such a manner that it is clear of obstruction in the direction of the transmitting station. In the case of a horizontal aerial (that is, when it is desired to receive from Pontop Pike or Glencairn) the dipole must also be arranged so that it lies across the direction of the transmitting station. The reflector, if used, is then arranged at the same height and parallel to and behind the dipole.

The difficulties

One of the difficulties that the home constructor has to face is the decision as to what kind of aerial to construct and where to install it. As mentioned earlier, it is a good idea to study other installations in the neighbourhood, but anyone living quite close to a transmitting station could best try first of all a simple dipole in the loft. If this shows the signs of a weak signal, *i.e.*, inability to get sufficient contrast and "speckly" shadows in the picture, then the same aerial can be tried higher and outside the house, and only time will have been wasted. If satisfactory results are then obtained, it is only necessary

to make a permanent job of the aerial. If, however, there are "ghost" images or some specific interference, a reflector may be tried, arranged so that it shields the dipole from the source of interference. The job is inevitably one of trial and error, but ultimately there is no reason why success should not be achieved, provided you live in the recognised service area of a transmitting station.

It is possible for an aerial, especially near a transmitting station, to pick up *too much energy*. This is a good fault and can do no harm to the receiver. All you need to do is to connect an "attenuator" between the downlead cable and the receiver. Any television technician will make you an attenuator for a few shillings, and you will get better pictures with a high aerial and an attenuator than with a less efficient aerial alone.

III. OPERATION

The controls

To the new viewer the control knobs of a television receiver are usually rather disconcerting, although it must be agreed that recent models tend to be less confusing in this respect as the number of knobs at the front of the set has been reduced considerably. It remains, nevertheless, rather difficult to describe in words the effect and proper adjustment of each control, the more so as the controls provided, and their effect, vary from model to model.

Every new receiver is sold with an instructional booklet, and this will certainly explain the controls provided, probably with illustrations. This and a few minutes' practical explanation by the dealer, followed by careful observation of what happens when the various controls are moved slightly, should very soon provide you with a sound understanding of their use.

The controls are divided into two groups—those that have to be adjusted once and for all (or at any rate only very rarely), and those that may need slight adjustment each time the receiver is used. The latter are called the main controls and are usually knobs or levers at the front of the receiver, while the former are placed inside or at the back of the set. The difference between various models is largely a question of which controls are included in each class, but the general rule is that the controls which determine the size, position and shape of the picture and the sensitivity of the amplifiers and so on, go inside or at the back, whilst at the front you will find those that control the loudness of the sound and the highlight brightness and shadow depths of the picture. The volume control is identical with that of the ordinary sound receiver and, like it, sometimes has the main off-on switch incorporated. There remain then, in most cases, only the

"brightness" and "contrast" controls (although some makers use different names for them) to need to understand. The trouble arises from the fact that, although it is true to say that you use the *brightness control* to adjust the shadowed parts of the picture and the *contrast control* to regulate the highlights, the two controls are not independent and any *adjustment of one of them needs to be compensated by an adjustment of the other*. This sounds more difficult than it really is, and a working knowledge is very soon acquired. There are two rules that must be observed:

- (i) Never make an adjustment unless you are certain that it is necessary,
- and (ii) always make certain that the receiver has had a chance to warm up before you adjust it.

Any adjustment made before the normal working temperature is reached will almost certainly be wrong and have to be corrected.

Three Adjustment Stages

There are really three stages in the adjustment of a television receiver, and it is helpful to keep them separate. They are:

1. The adjustment of the secondary controls to regulate the size and position of the picture. This is normally done by the dealer when he installs the new set, and no attention need be given to these afterwards—at any rate until the operation of the receiver is well understood.
2. The *first* adjustment of the main controls on the front of the set. This, too, will be done by the dealer when the set is installed, but it is advisable to find out how to make this adjustment yourself, as a readjustment may be needed if the original setting is disturbed, possibly in dusting the cabinet or by children.
3. Any slight readjustment of the main controls which may be needed each time the receiver is used, to take account of different room temperatures, fluctuations of the electricity supply voltage etc. This, of course, you must always be prepared to do.

Assuming that the secondary controls are at least nearly correctly set—that is, that the size and shape of the picture are about right—we will describe first of all how the main controls may be adjusted. We must emphasise that the method described overleaf should not be used if a different one is recommended in the instruction booklet provided with your receiver. The method described here, however, works with most receivers and is that recommended generally by the B.B.C.

The first thing to do is to make sure that the internal apparatus has reached its ordinary working temperature. This means that the receiver must have been switched on for at least a quarter of an hour.

It does not matter whether there is any programme being broadcast, or not at first, but it should be timed so that the set will have warmed up by the time either the Test Pattern or the Tuning Signal is being shown, because it is much more difficult to adjust the set whilst moving pictures are being transmitted. Then, when the set is warm, follow this procedure :

- (a) Turn both the contrast and the brightness right down.
- (b) Set the volume control for about the usual loudness of sound.
- (c) Turn the brightness up very slowly whilst you watch the screen carefully.
- (d) Stop as soon as a faint glow appears on the screen, and then turn back until it just disappears.
- (e) Turn the contrast up so that the picture appears, and stop when the highlights are fully white. If you turn too far, the parts that should be pale grey will become white too and you will have *no detail in the whiter parts of the picture*.
- (f) Now look carefully at the shadowed parts of the picture, that is to say, those parts which are nearly black. You may find that a slight readjustment of the brightness control is required to get the proper tonal values. Incorrect adjustment is indicated by a *lack of detail in the darker parts of the picture, or an absence of any true black*.
- (g) Finally, look again at the highlights, if you had to readjust the brightness, because by so doing you may have disturbed the whites. If the whiter parts seem too dull, or if there is insufficient detail in the highlights, make a final very careful adjustment of the contrast control.



The B.B.C. Tuning Signal

Now all the above sounds rather complicated, but once the idea has been grasped it is quick and easy enough to do. We must stress, however, that it is the *full* adjustment and need not be done except when the settings are, for one reason or another, completely incorrect.

In the ordinary way, when the set is switched on with the intention of seeing a programme, the knobs will not have been touched since the previous programme and, if reception of that programme was satisfactory, it is reasonable to suppose that the adjustment of the receiver is still correct. Nevertheless, when the picture appears it is often found to be obviously out of adjustment. *Do not touch the controls*. The reason is almost certain to be due to the fact that the receiver is not yet warm internally. Leave it alone and the picture will gradually correct itself. It is, of course, possible that when the set is warm it may be necessary to make some *very slight* adjustment to compensate for a difference of electricity supply voltage or perhaps for the amount of light in the room. In such a case, remember that it is the *brightness* control that affects the detail in the shadows, and the *contrast* control that affects the detail in the *highlights*. The brightness should be adjusted *before* the contrast.

All the above applies to reception within the first-class service area of a transmitting station. At longer ranges, as we have explained, considerable variations of the strength of reception may occur, due to weather and other effects, and in many cases these will have to be corrected by suitable readjustment of the controls.

IV. UNSATISFACTORY RECEPTION

If your reception is unsatisfactory and it is not evidently due to some obvious fault, the first thing to do is to decide whether it is the receiver or some other part of the installation at fault. This can be done by trying the receiver on another aerial which is known to give satisfactory results.

If there is still a picture, but it is distorted, it is a good idea to make a complete readjustment of the controls as described earlier, to make sure that defective adjustment is not the only fault. The "tele-snaps" reproduced on pages 84 to 91 may help you to recognise some possible faults.

Television receivers, like all electronic apparatus, tend to deteriorate slowly and gradually, as valves and tubes age and as small changes occur in coils and other components. Many of these effects can be corrected by a competent technician.

If you do not live within the first-class service area of a transmitting station, reception from time to time, or even frequently, may be unsatisfactory because of weather conditions. The effect may be either of rapid changes of strength (known as "fading"), or for quite long periods the signals may be abnormally strong or weak. Inquiries among neighbouring viewers will determine whether such effects are due to general conditions or to some defect in your receiver, but you should remember that such conditions are sometimes very localised.

Interference is another common cause of unsatisfactory reception, and it may take the form of spots on the screen, bands of white or black lines, the appearance of pale "reflections" of objects in the picture (called "ghosts"), or—in severe cases—a complete break-up of the picture. Some examples are illustrated among the "tele-snaps". If you are sure that your receiver is itself in good condition, and that your aerial is reasonably efficient, your best course (if you suffer from interference) is to consult the Interference Advisory Service provided by the Post Office. This is free of charge, and application forms may be obtained from any main Post Office.

Then, of course, from time to time unsatisfactory reception may be due to a fault at the transmitting end, although this is rather unusual as the B.B.C. prefers to abandon a transmission completely rather than to transmit below the accepted standard. When it does occur, an announcement is always made explaining the circumstances.

The moral of all this is that one should not immediately assume that the set has broken down if the picture seems to be below the usual standard. On the other hand, if there is some obvious short-coming such as the appearance on the screen of a very bright vertical or horizontal line or a single bright spot instead of the picture, it is wise to switch off quickly and notify a service-man.

V. MAINTENANCE

This brings us to the question of maintenance. The principle of the "stitch in time" applies to almost anything that can wear out, and to scientific instruments—amongst which television receivers must be included—it is particularly appropriate. Regular inspection cannot ensure that no break-down will ever occur, but it can reduce the probability of repairs and also substantially reduce the amount spent on them.

We do not wish to give the impression that television receivers are fragile or unreliable, or that they are expensive to maintain—that would be very far from the truth—but merely to point out the wisdom of having your receiver properly looked after from the start.

This can be conveniently arranged by subscribing to a maintenance scheme or contract. These are usually arranged by a dealer at the time of purchase, and an annual fee is paid in advance. The actual amount depends on the district and upon the frequency of inspection and other details of the service provided. It is, of course, also possible to take out an ordinary insurance covering you against, say, failure of the cathode-ray tube, but this is quite different from an inspection and maintenance contract.

It is interesting to notice that the cost of subscriptions to maintenance schemes has shown a certain tendency to fall recently, partly because of the larger number of subscribers, but also because it has been shown that the commonly-held opinion that the average cathode-ray tube lasts only a few months was completely unjustified.

To complete the list of possibilities, we should not overlook an interesting alternative to purchasing a television receiver and taking out a maintenance contract. This is the scheme of hiring a receiver, where the rental includes, of course, full maintenance of the installation.



CHILDRENS' TELEVISION. Andy Pandy and Teddy—two other puppets who are also much appreciated by the very young.

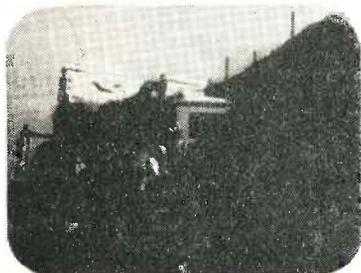
FOR BETTER

THE "TELE-SNAPS" on these and the next six pages have been especially supplied for this book by Mr. JOHN CURA. A careful study of them will help you to minimise, and sometimes to eradicate, the effects upon your television screen caused by maladjustment of the control settings, and by outside interference from motor vehicle ignition, electro-medical apparatus, etc. For



1. TOO MUCH BRIGHTNESS

Picture appears washed-out, is out of focus, and frame return lines are visible. Reduce brightness until sloping white lines disappear and increase contrast until sufficient depth is obtained.



2. INSUFFICIENT BRIGHTNESS

Picture appears dim, the highlights are correct, but there is no detail in the shadows. Increase brightness until the picture is evenly illuminated and full detail appears in the shadows. Finally, reduce contrast slightly if high-light detail becomes insufficient.

RECEPTION...

explanations to asterisks, see bottom of pages 90 and 91.

A WARNING NOTE.—Do not tamper with the *INSIDE* of your set as this is a job for the expert. When the apparatus is exposed, contact with certain components can cause serious, and even lethal, shocks—although it is perfectly safe when normally enclosed within its cabinet.

3. TOO MUCH CONTRAST

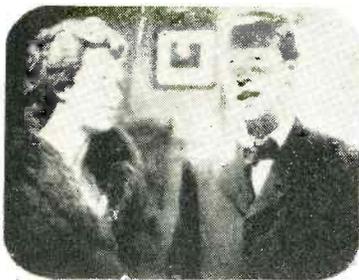
Picture has a "soot and whitewash" appearance with brilliant whites and jet black shadows, but is devoid of greys. Reduce contrast until all tones from black, through grey, to white are satisfactorily reproduced. Finally, increase brightness a little if detail is insufficient in shadows.



4. INSUFFICIENT CONTRAST

Picture appears flat and is devoid of true blacks. Increase contrast until all tones from black, through grey, to white are satisfactorily reproduced. Reduce brightness slightly if "blacks" are too pale.





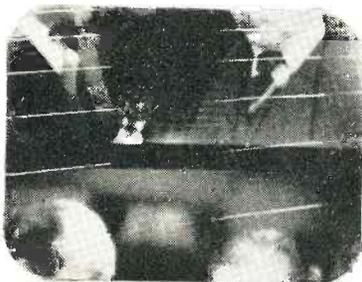
5. VISION LIMITER OVER ADVANCED

The greys of the picture are not reproduced and the whites assume a muddy appearance with loss of detail. Decrease vision limiter until the greys become visible and the highlights are unaffected. This control is usually interdependent with the contrast control and the latter might have to be slightly readjusted.



6. VISION LIMITER ADVANCED EXCESSIVELY

Picture appears "negative" with the whites appearing a blacks and vice-versa. This usually occurs when an excessive amount of contrast is also being used. Reduce both controls to their limits, and slowly increase contrast until the picture is normal. Then slowly increase vision limiter until the whites begin to grey over. Now reduce slightly until whites are unaffected.



7. VERTICAL SLIP

Picture will not lock and appears to revolve slowly, and sloping white lines become visible. Slowly adjust the vertical hold until the picture locks into its correct position within the mask aperture.

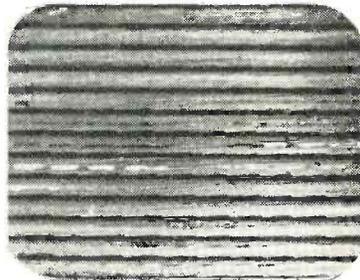
8. HORIZONTAL SLIP

The picture begins "tearing" at the top and jumps to the left of the screen, leaving a straight or wavy black band on the right of the screen. Slowly adjust the horizontal hold until picture jumps to the right and is again normal.



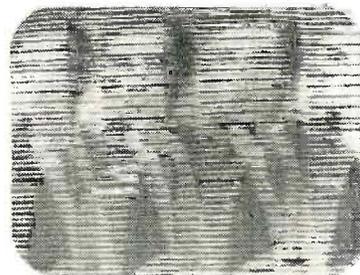
9. HORIZONTAL HOLD INCORRECT

Screen is covered with a "wickerwork" pattern, no distinct image being visible. Adjust horizontal hold until picture is again normal.*



10. HORIZONTAL HOLD INCORRECT

Several images appear side by side, the screen being covered with prominent horizontal lines. Adjust horizontal hold until picture is again normal.*





11. PICTURE TOO NARROW

Black vertical bands appear each side of the picture and all objects are tall and thin. Adjust width control until the black bands just disappear behind the edges of the mask.*



12. INSUFFICIENT HEIGHT

Black horizontal bands appear at top and bottom of the picture and all objects are squat. Adjust height control until the black bands just disappear behind the edges of the mask.*



13. PICTURE TOO HIGH

Top of the picture is lost behind the mask and a black horizontal band appears across the bottom of the screen. This can be due to misalignment of the scanning coil assembly.**

14. PICTURE TO ONE SIDE

One edge of the picture is lost behind the mask and a vertical black band appears on the opposite side of the screen. This can be due to misalignment of the scanning coil assembly.**



15. PICTURE TILTED

Picture appears sloping because it is not square with the mask aperture. This can be due to misalignment of the focus coil assembly.**



16. MOTOR VEHICLE IGNITION INTERFERENCE

Causes numerous white dots to appear all over the screen. Can be reduced in some receivers, to some extent, by careful adjustment of the vision limiter. Otherwise, nothing can be done apart from suppression on the vehicles themselves or, in some cases, re-positioning the aerial.





17. ELECTRIC MOTOR INTERFERENCE

Distinct from ignition interference in that the white dots usually appear in bands across the picture without affecting the image between these bands. Little can be done at the receiver to remedy this trouble.***



18. ELECTRO-MEDICAL (DIATHERMY) INTERFERENCE

This is quite unmistakable, as a "herring bone" pattern appears across the screen in one broad band near the centre, or else as two separate bands, one at the top and the other at the bottom. The rest of the picture remains free of interference.***

**This adjustment is best made when the tuning signal is being radiated.*

***If instructions for correcting this fault are not described in the manufacturer's instruction book supplied with the receiver,*

19. RADIO-FREQUENCY INTERFERENCE

Screen completely covered by vertical or sloping lines, which are sometimes stationary and at other times drift across the screen. Can be caused by a receiver fault, by interference from a neighbouring television receiver, or by a radio transmitting station.***



20. A TECHNICALLY PERFECT PICTURE

Definition is needle-sharp and all tones from white, through various greys, to black are reproduced in their correct tonal values.



seek the assistance of a competent technician.

****The assistance of the Post Office Interference Service should be sought in such cases. Application forms can be obtained at all main Post Offices.*

PROGRAMME SURVEY

BY PETER BLACK

JUST as the Coronation of the Queen was the greatest national event of the post-war years, so television's handling of it was the B.B.C.'s greatest achievement. I judge that half the population of Britain shared personally in this great event.

The decision to televise the service—and what a wise second thought it was—added immeasurably to the day's significance. Without the service, the Coronation would have been for viewers an hour or two of splendid pageantry. As it was, no one who watched the Queen moving with such touching dignity through the ritual of crowning will forget what he saw.

Technically, television surpassed even its own hopes. Everything that twelve months of preparation could do was done. Intricate rehearsals enabled commentators and cameramen to plan their coverage to within fractions of a second. But at 10.15 on June 2, when Sylvia Peters, with a pardonable excitement in her voice, said "And now, over to the Victoria Memorial", there were still six or seven thousand things which could have gone wrong. They did not. For almost seven hours a stream of pictures went out to Britain and North-Western Europe, of a quality which no film director, with all the resources of cutting and editing, could have surpassed.

Focussing the Camera

The technique of focussing a camera on an empty space as the procession filled it produced scores of shots which still glow in the mind. I recall three outstanding examples: the first moment of the journey to the Abbey, when the state coach rolled slowly into the empty frame of the archway leading from the courtyard of Buckingham Palace; the first sight of the procession rounding the corner outside the Abbey; finest of all, perhaps, the shot from the centre of the triforium down the empty aisle—and then, in the top of the picture, the feet of the heralds leading the Grand Procession.

The Abbey scenes, shot from five cameras, gave viewers a closer view than anyone saw who was not in the service. The ban on close-ups of the Queen was applied only to her head and shoulders. Many times close shots brought her apparently within a few feet of the cameras, with an overwhelming emotional effect.

Yet it was all made to look simple. Television ruefully draws the moral: on television the big jobs are comparatively easy; it is the everyday programmes, the bread-and-butter jobs of television, which are hard.

If television could confine itself to the important occasion—Coronations, Shakespeare, Bertrand Russell debating with the Archbishop

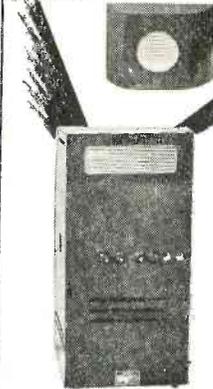


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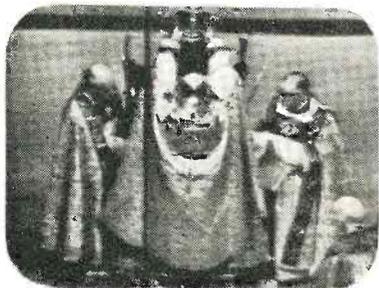
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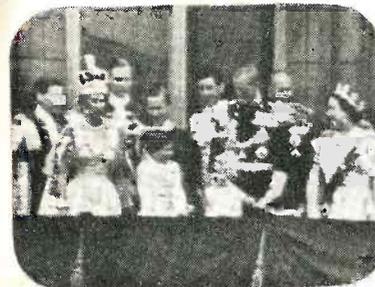
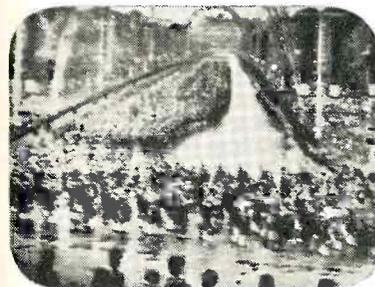
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THE CORONATION OF HER MAJESTY THE QUEEN



These "tele-snaps," taken direct from the screen by JOHN CURA, show some memorable moments during the Coronation Day of Her Majesty Queen Elizabeth II.



of Canterbury, and variety bills headed as a matter of routine by artistes like Chevalier—producers would look ten years younger. But television has to fill about 30 hours' programme time a week, and the viewing audience wants not only the big show but the occasional hour of unimportant diversion. It wants it, moreover, in as many different ways as there are different levels of taste, humour, discrimination and, to put it brutally, intelligence.

Since this is clearly impossible with only a single programme, we need not ask whether television achieves it. To the question, "how far does it succeed?" I say that it does almost as well as anyone can reasonably demand.

Its resources are limited (at the moment) in money, material, producers and artistes. So much time each week has to be filled by drama, talks, outside broadcasting, feature programmes, children's programmes music and light entertainment. Somehow the schedule is filled and the programmes go out. More money and easing of building restrictions would mean not only an alternative programme (which would automatically halve the odds against reliably good entertainment); it would mean more money for producers, artistes and, above all, those writers who at present write for the theatre, cinema and radio.

Television's Successes

As it is, television's list of successes, week in and week out, is impressive. The standard of drama is being raised monthly. Discussion programmes are widening their field. Features such as "Special Enquiry" have evolved a new television technique. Enough has been done by one or two producers to show that music, opera and ballet deserve more space than they get. Light entertainment has the most difficult job in television, for visual comedy has to be re-discovered after 25 years of sound radio, and its successes are correspondingly fewer; but it can point to its parlour games, "Music for You", "Café Continental" and (among the majority of viewers) "Kaleidoscope" and "Music Hall".

Outside broadcasting and newsreel are not strictly within the scope of this short survey. But there are two other departments which regularly clock success after success and tend to be taken for granted. These are the splendid women's magazine programmes and Children's Television.

I don't think their success is entirely due to their advantage in playing to a specialised audience whose tastes are fairly clearly defined. I prefer to think it is because they are based on the proposition that their audiences dislike being talked down to.

The assumption that viewers are sensible people is perhaps a desperate gamble for television as a whole. But I think it might do worse than take it.

It is very difficult to explain to the layman the principle upon which television operates. Here is a completely new article which endeavours to describe in straightforward terms . . .

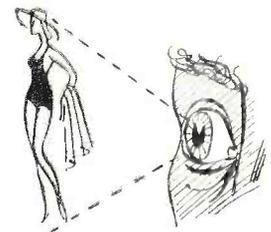
"How Television Works"

OF course it isn't feasible, in a single chapter, to explain the principles underlying every aspect of television. Nevertheless, provided our readers are prepared to take rather a lot for granted, it is probably possible to give a fairly clear general idea of the main principle involved in the system of television used by the B.B.C.

It is perhaps best to attack the problem in two stages and to deal first of all with the process of reproducing on a nearby screen the scenes being enacted in front of a television camera. In this first case the reproducing apparatus is supposed to be in, say, the same building as the camera, so that they can be connected directly together. After that we shall consider the really quite distinct problems involved in broadcasting the scenes seen by the camera and in reproducing them on a distant television receiver.

Television cameras have been called "electronic eyes", and while the parallel between television cameras and human eyes mustn't be pushed too far, at least it is sufficiently true to help us to understand the main principles. But obviously it is not going to help us very much unless we know something of how the eye works. Now although we all commonly say that the eye sees things, this statement is not strictly true, because what it really does is to collect information which it passes on to the brain, which interprets the information by the sensation that we call sight.

The front of the human eye consists of a lens which focuses an image of the scene on to a screen called the retina inside the back of the eye. The retina is covered with a large number of tiny spots each separately



"The Eye Sees"

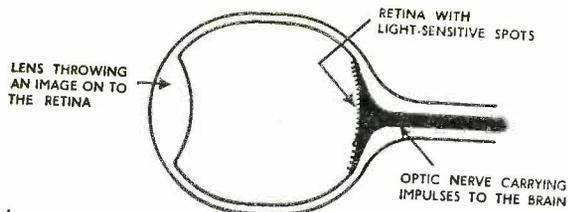


FIG. 1

A much simplified diagram of the human eye

The light-sensitive spots on the retina send separate electric impulses to the brain when light falls upon them.

connected to the brain by the optic nerve. These spots on the retina are sensitive to light and, according to how much light falls on them, cause minute electric currents to flow along the optic nerve to the brain. In this way the brain is able to form an impression of the scene before the eye.

Now an arrangement very like this was adopted for the ordinary photographic camera, where, in the place of the retina, a plate or film coated with very small grains of light-sensitive material is used. These grains blacken when light falls on them, and this effect makes

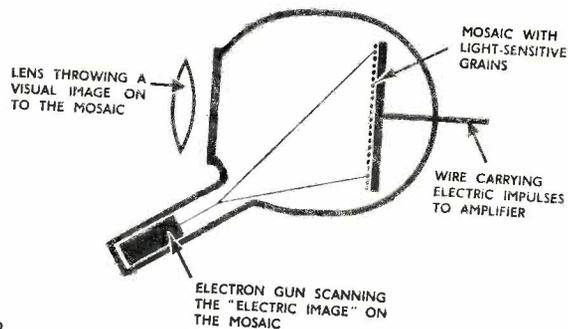


FIG. 2

Diagram of a simple television camera tube

The light-sensitive grains on the mosaic become charged electrically according to the amount of light falling upon them. In more recent types the conversion from light rays to electric impulses is usually made in two steps.

it possible to make a photograph of the scene in front of the lens of the camera. A photograph in this form is, of course, a still photograph; it does not indicate any movement.

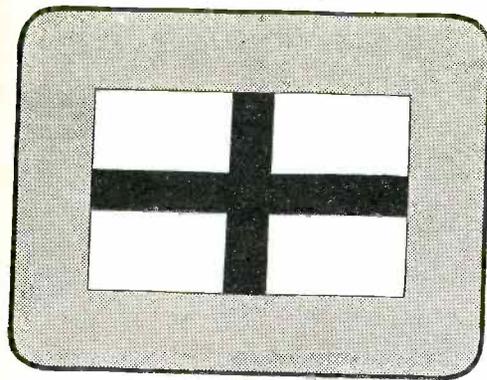


FIG.

A simple scene, consisting of a white flag bearing a black cross, against a grey background.

A similar arrangement was adopted for television cameras. There are several different kinds, but in each there is a lens which throws an image of the scene upon a little screen corresponding to the retina. The screen is coated with tiny light-sensitive grains, but when light falls upon them, instead of blackening, these grains develop electric charges. The grains are said to be "photoelectric", and the screen is usually called the "mosaic". It may be considered that an "electric image" of the scene is produced on the mosaic. Each grain is charged electrically according to the amount that it is illuminated, brighter areas being charged more highly than those corresponding to shadows in the scene.

LINE NUMBERS

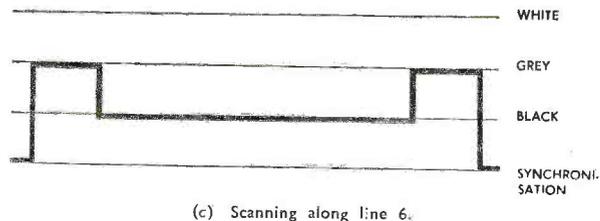
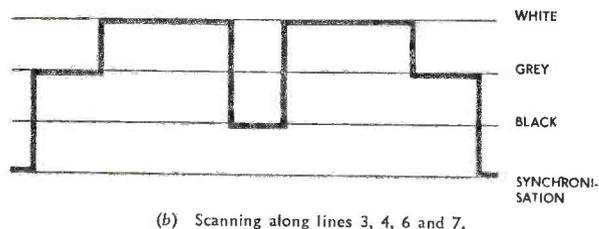
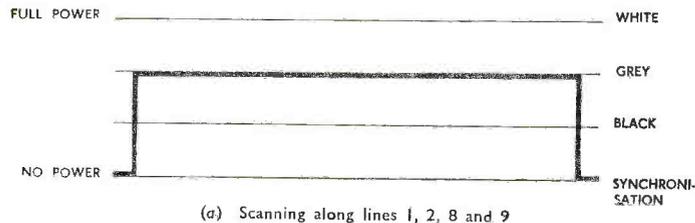


FIG. 4

The scanning pattern of a "9-line" television system. In an actual system the picture would be built up of several hundred such strips, instead of just nine, and from a reasonable distance the individual strips are not separately apparent.

FIG. 5

How the power of the transmitter would vary if the scene shown in Fig. 3 were scanned in nine lines. To signify a white area, full power is radiated, black is indicated by 30 per cent power, and greys are intermediate. At the end of each line the power is cut off as a synchronising signal.



Now if we were to take a wire from each grain to some device that would light a little lamp, and if each of these lamps was mounted on a screen in the place corresponding exactly to the position in the mosaic of the grain to which it was connected and, again, if the lamp lit brightly or dimly according to the electric charge on the grain, then we should be able to reproduce on the screen of lamps the scene in front of the television camera. Unfortunately, however, we cannot do it this way, at any rate if we wish to have any detail in the picture, because too many lamps would be needed. Not only is it difficult to imagine a screen composed of at least 200,000 lamps, but there would also have

to be the same number of wires to the minute grains on the mosaic, and, of course, for each wire the rather elaborate equipment which we should need to control the lamps.

Since, then, it isn't feasible to use thousands of lamps and wires continuously connected to the grains of the mosaic, the principle adopted is to use a single wire connected in turn to each grain. This principle is called "scanning". The viewing screen consists of a sheet of glass coated with a fluorescent material mounted in front of an electron-gun which directs a stream of electrons against it. Fluorescent materials glow brightly when struck by electrons, which may be considered as particles of electricity, and the whole arrangement is called a cathode-ray tube.

An electron-gun is used in the camera, too, because a stream of electrons is the only means of making contact to each of the grains of the mosaic rapidly enough, as the whole scene has to be scanned and the pictures presented to the viewer quickly enough one after another to give the impression of continuous movement. Actually twenty-five complete pictures are seen every second. The electron beam in the camera moves horizontally across the top of the "electric image", taking account of the charge on each grain of the mosaic that it passes over, then it moves rapidly back to start again, but just slightly below the line just followed. In this way in due course the whole of the mosaic is covered and then the electron beam returns to the top to begin all over again.

Scanning

The whole process of scanning may be compared with that of dictating to someone over the telephone exactly what appears on each page of a book. One would read the first line, then tell the other person to start the second line. At the end of that the start of the third line would be indicated, and so on to the bottom of the page, when one would give instructions to start the next page. Then the next page would be described line by line.

In the case of television, the electron beam in the reproducing cathode-ray tube is made to travel across each line (there are 405 lines to the "page" in the B.B.C. system) exactly in step with the electron beam that is scanning the mosaic. The strength of the beam is similarly varied according to the amount of light and shade of each point in the scene, and this causes the corresponding points on the reproducing screen to glow to a greater or lesser extent and thus to reproduce the original scene. The instant to start a new line or new picture is indicated by special synchronising signals.

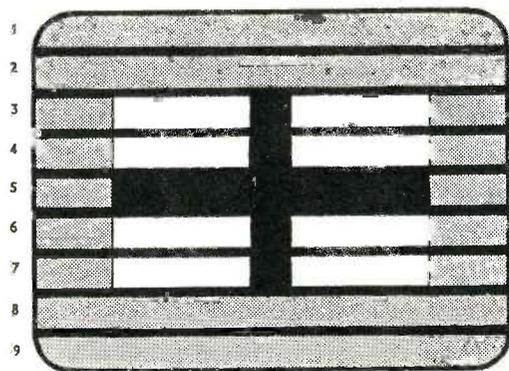
So far we have been considering the case of "transmitting" pictures by television from a camera to a receiving screen a few yards away,

and all that is required is a single pair of wires to convey the varying electric current, which corresponds to the variation of light and shade along each line in turn, plus the synchronising signals from the camera to the receiver. It is a different problem when it is a question of broadcasting the pictures so that they can be picked up by thousands of viewers, without any direct connection. In this case a radio transmitter is connected to the camera in such a way that the amount of power that the transmitter radiates corresponds to the light and shade variations, and the power of the transmitter is cut off momentarily as a synchronising signal, to show when the end of each line and each picture has been reached.

FIG. 6

How the scene shown in Fig. 3 would be reproduced in a "9-line" system,

LINE
NUMBERS



At the receiving end, a radio receiver is sensitive to the fluctuations of the strength of the transmissions, and the strength of the electron-stream discharged by the electron-gun in the receiving cathode-ray tube is varied in sympathy. At the same time the point of aim of the gun moves across each line in turn, under the control of the synchronising signals. In this manner the pictures "seen" by the camera are continuously drawn on the receiving screen and, as they follow one another at the rate of 25 per second, the eye—or rather the brain—gets the impression of continuous motion.

It is hoped that this description has succeeded in explaining to the reader, in general terms, how the pictures on his television screen are reproduced.

The Queen in Scotland



Photographs taken from
the television screen,
of Her Majesty The
Queen and the Duke
of Edinburgh on their
Coronation visit to
Edinburgh



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. 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 Mullberry," "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.

The National Television Awards

BY FRANK COVEN

AS early as June 15th, 1920, the *DAILY MAIL* sponsored the first wireless concert ever broadcast from Britain, when Dame Nellie Melba sang to Europe from Chelmsford in Essex, and on 11th May, 1922, when Carpentier fought Lewis at Olympia, the first big fight summary to be heard over the air was transmitted through Marconi House under the auspices of the newspaper, prefaced by the once-familiar call-sign "2LO Calling". Subsequently in later years the *DAILY MAIL* became the donor of the first National Radio Awards.

With the advent of television as a national cultural and entertainment force, once again it was felt that as much support as the journal could give should be offered to the pioneers in this remarkable medium. Hence, in 1950, came the inauguration of Britain's first National Television Awards. As a commencement it was decided to confine these Awards to the Outstanding Man and Woman Personalities on the screen, and, after a country-wide vote, the first recipients became Richard Dimbleby and Petula Clark.

In 1951/2 it was decided to combine the Personality Award for men and women into one, and for the second year in succession Richard Dimbleby emerged triumphant. In addition, an Award which created great interest was devised for The Most Entertaining Programme on Television, and the winner was judged to be that outstanding "quiz" programme, "What's My Line?" It was also felt that, in view of the great increase in interest in Children's Programmes, the children should have their own Award, and a special panel of young people decided that Humphrey Lestocq was the Television Personality enjoyed most by children of all ages.

By now the Awards had established themselves nationally, and to keep pace with the ever-increasing expansion of Television it became necessary to add to their number. In 1952/3, therefore, the *Daily Mail* offered no fewer than six National Awards for the categories listed on page 108. These were presented at a great Gala Show, which was televised by the B.B.C. from the Scala Theatre, London, on Saturday, January



John Slater

NATIONAL TELEVISION AWARDS WINNERS

1952-53



Yvonne Mitchell with Robert Brown
in "The Infinite Shoeblack"



Annette Mills and
"Muffin"



Richard Dimbleby



Television Newsreel 'on the job'

The Winning "What's my Line?" Team



Eamonn Andrews, Question Master



Ghislaine Alexander



Gilbert Harding



Barbara Kelly



Jerry Desmonde

31st, 1953, with the exception of the Children's Award, which was presented on Children's Television during the afternoon of the same day. The results were as follows:—

<i>Outstanding Actor of the Year</i>	...	JOHN SLATER
<i>Outstanding Actress of the Year</i>	...	YVONNE MITCHELL
<i>The Personality of the Year</i>	...	A tie between RICHARD DIMBLEBY & GILBERT HARDING
<i>Most Entertaining Programme ..</i>	...	"WHAT'S MY LINE?"
<i>Best Documentary or Factual Programme</i>	...	TELEVISION NEWSREEL
<i>The Personality of the Year on Children's Television</i>	...	ANNETTE MILLS

Now already the Awards for 1953/4 are under consideration, and one thing is certain—however great the competition has been in the past for these National Television Awards, it will grow ever fiercer as artistes and producers alike become more and more familiar with the unlimited horizons that stretch before them in this new and exciting medium.

Brian Johnston, well-known cricket commentator, presents a Kangaroo mascot to Lindsay Hassett, the Captain of the 1953 Australian Touring Eleven, during the Australians' first appearance on television.



Television

from **A** to **Z**

The number of questions that can be asked regarding Television is infinite. This alphabet attempts to answer some of them in brief and to refer the reader to other pages in this guide where the subject under discussion is dealt with more fully.

A. AERIAL

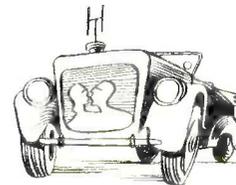
The choice of the correct kind of aerial for your particular installation, and of the best position for it, can make all the difference between excellent and mediocre pictures. Unless you live very close to a television transmitting station, you would be well advised to erect the aerial as high as possible. At long ranges a high aerial is particularly valuable and sometimes just raising the aerial a few feet turns severe fading and interference into reasonably satisfactory reception.

You will find information about the different kinds of aerials on page 67 of this book.

B. BATTERY SETS

Television receivers are not made for use with ordinary batteries, but if you have no main electricity supply in your house, you can use a television receiver intended for A.C. (alternating current) supply, by using a device called a "converter", energised from accumulators such as are commonly used for electric light in some country houses, or even from a motor-car accumulator.

You should make sure from the manufacturer of your receiver that the converter is suitable for it and that the guarantee is not affected when the set is used in this manner.



C. CATHODE-RAY TUBE

This electronic device may be considered as the heart of a television receiver, as the pictures appear on the flattened end of the cathode-ray tube. They are complex and therefore expensive components, but they are not nearly so unreliable

or short-lived as many people suppose. Any fault in manufacture is almost certain to show up in the first few working hours, in which case it will be replaced under the guarantee. Most tubes go on working almost indefinitely, but after several years' service the pictures begin to get gradually dimmer, so that eventually the tube has to be replaced.



COAXIAL

A cable is said to be "coaxial" or "concentric" if one of the two wires is inside the other. The outer of the two "wires" therefore takes the form of a tube. Cable of this kind is often used for downleads from television aerials.

COLOUR TELEVISION

No colour television system has yet been developed to a point at which it can be confidently adopted. As soon as practicable, colour television will be introduced gradually, although any programme transmitted in colour will be receivable in black and white on an existing set.

CONTROLS

Control-knobs are provided on television receivers 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 seem rather complicated, but in practice some of the controls are set once and for all, while others need attention only very rarely. Accurate adjustment of the few (usually two) that have to be used more frequently is most important, and every viewer should make sure that he understands how to set them to get the best results from his receiver.

Full instructions for the correct use of all the essential controls are given on page 78.

D. DEFINITION

This term is used to describe the fineness of detail that can be reproduced by a television system. It depends in part on the number of "lines" in the picture, but perhaps more so on what is called the "vision-bandwidth", or the ability to reproduce rapid changes from black to white or vice-versa.

The definition adopted for the B.B.C. Television Service is based upon a picture composed of 405 lines and upon a vision-

bandwidth of 2.7 megacycles per second. This combination is considered to represent the best compromise between picture quality and receiver cost. It is also less subject to distortion in transit between cameras and transmitting station than most other systems.

DIPOLE

This is the basis of most television receiving aerials. It consists of a metal rod, tube or wire, divided into two equal lengths by a small gap at the centre, and in all about half the length of the waves radiated by the transmitting station from which it is desired to receive. Because the length is important, it is usually necessary to modify the aerial, as well as the receiver, if you move to a district served by another transmitting station. The downlead cable leading to the receiver is connected across the central gap.

The dipole must also be parallel to the waves. The main B.B.C. television stations radiate upright waves (called "vertical polarisation") but the auxiliary stations at Pontop Pike and Belfast radiate with "horizontal polarisation".

E. EARTH CONNECTION

The aerials used for television receivers combine in themselves the features of both aerials and earth connections of ordinary "sound" receivers and therefore no earth connection is needed as far as reception is concerned. Nevertheless, a television receiver is a mains-supplied electrical appliance, and considerations of safety require that the frame of the receiver should be connected to earth. This can be done either by the third pin of its wall-plug or by a buried metal tube or plate.

Television aerials are permanently connected to earth through the downlead cable, so that there is no need to take any special precautions against lightning. As an added safeguard, however, the aerial plug may be removed from the receiver when there is a severe thunderstorm in the vicinity.

ELECTRICITY SUPPLY

Your receiver must be suitable for the electricity supply where it is to be used. The supply may be either A.C. (meaning "alternating current") or, less probably, D.C. ("direct current"). Any voltage of A.C. is satisfactory, but where the supply is D.C. the voltage must be at least 220. If it is less than 220 volts D.C., then a converter should be used.

If you have an A.C. supply, you can choose *either* a receiver

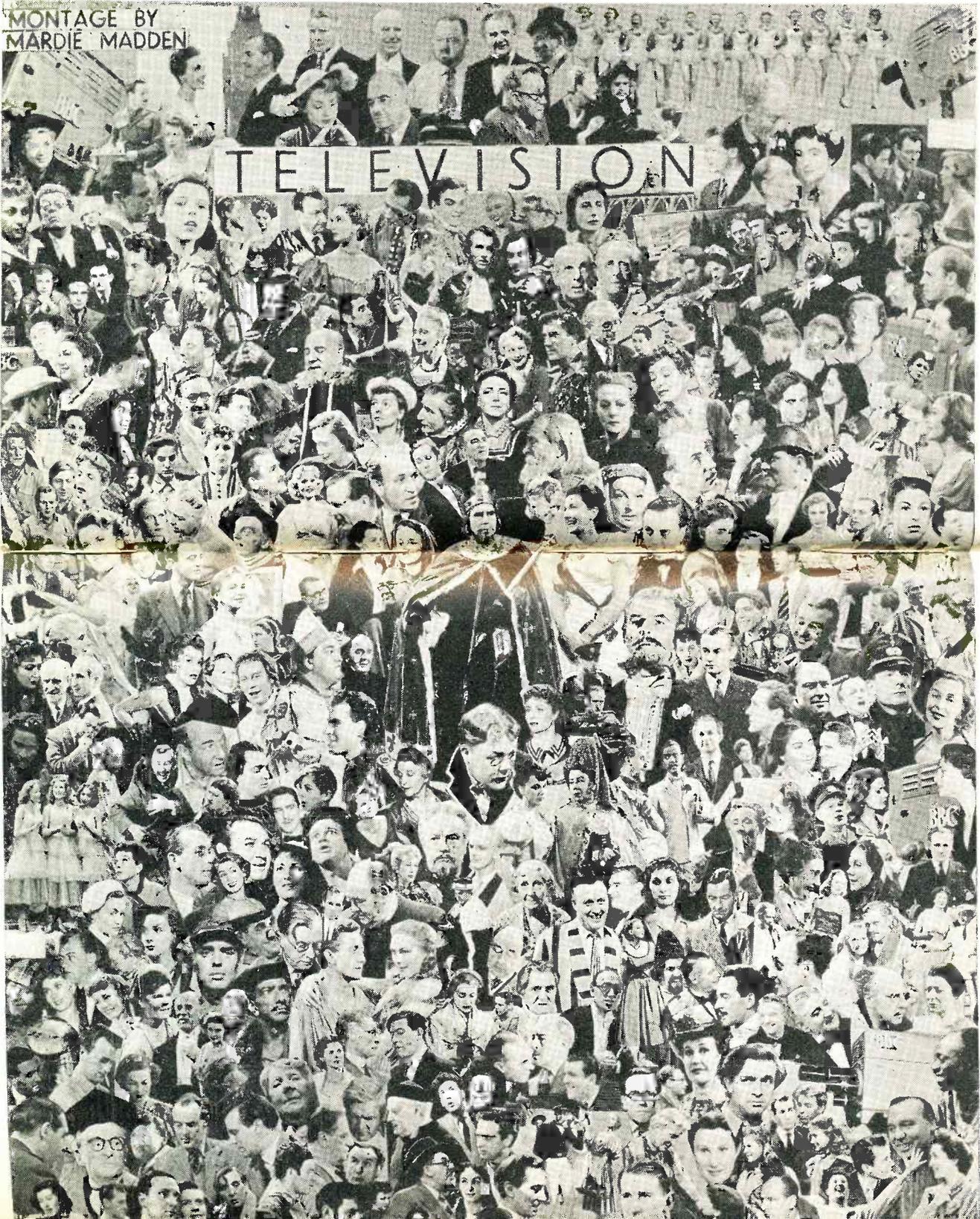
PERSONALITY PICTURE QUIZ

HOW MANY OF THE TELEVISION PERSONALITIES ON THESE TWO PAGES CAN YOU IDENTIFY? NO PRIZES! NO CORRESPONDENCE! IT'S JUST FOR FUN.



MONTAGE BY
MARDIE MADDEN

TELEVISION



made exclusively for this kind of electricity or what is called an "A.C./D.C." model, but there are certain technical factors in favour of choosing an exclusively "A.C." set. If you have a D.C. supply, then you must purchase an A.C./D.C. receiver. The electricity supply has a *frequency* of 50 cycles per second practically everywhere in the United Kingdom, but, in the few districts where other frequencies are still used, special receivers are needed and the advice of local television dealers should be sought.

EYESIGHT

There is no evidence to suggest that viewing under reasonable conditions is in any way harmful to the eyesight. It is not at all essential to sit in complete darkness to see the pictures clearly, and many people prefer to have in the background a diffused light, especially if this has an orange tint.

F. FADING

This causes variations in the brightness of the pictures, and viewers living outside the first-class service area of a television station will experience this effect to a greater or lesser extent. There is no means of overcoming fading altogether, but it can be rendered less troublesome in certain circumstances by using a very high aerial or a special aerial of one of the kinds designed for this purpose.

The fading is actually caused by certain conditions of temperature and dampness in the atmosphere, and so the strength and steadiness of the reception will be affected very markedly by the weather.

A TELEVISION PLAY. Margaret Johnston and Tony Britton in "The Man With A Load Of Mischief."



FREQUENCY

This is a property of the waves emitted by transmitting stations by virtue of which a receiver can be tuned to a particular station. In the case of television stations, the frequency is usually quoted in megacycles per second (Mc/s) and, of course, the vision and sound transmissions are on different frequencies. The B.B.C. uses five pairs of frequencies thus:—

Alexandra Palace and Belfast vision	45.0 Mc/s,	sound	41.5 Mc/s
Holme Moss	51.75		48.25
Kirk o' Shotts and Truleigh			
Hill	56.75		53.25
Sutton Coldfield	61.75		58.25
Wenvoe and Pontop Pike	66.75		63.25

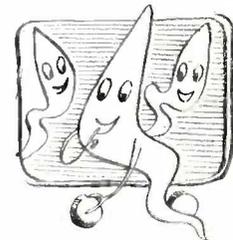
As very few viewers are served by more than one transmitting station, and as all the B.B.C. television stations normally broadcast the same programme, television receivers do not need any external control for tuning from one station to another. When this is required, for instance when a viewer moves to a district served by another transmitting station, the adjustment (which is usually very simple and inexpensive) is carried out by a local dealer.

FRINGE AREAS

This is a name given to those districts that are actually outside the service areas where the B.B.C. reckons to provide consistently satisfactory reception, but where good reception occurs often enough to make the purchase of a television receiver worthwhile. In the fringe areas it is necessary to have a better-than-average installation and sometimes an extra amplifier.

G. "GHOSTS"

This is the name given to a certain kind of interference which causes a transparent image of each object in the picture to appear a little to the right of the object itself. Sometimes, in severe cases, there may be two or even more "ghosts" of each object. The effect is produced by the viewer's aerial receiving the waves direct from the transmitting station and also, at the same time, waves that have been reflected from some object—a hill or a large building, for example—on their way from the transmitting station. In some cases a cure is easily



effected by altering the position of the receiving aerial or by changing to another type of aerial. Occasionally the remedy is more difficult and expert advice is required.

H. H AERIAL

One of the commonest kinds of television aerials. It consists of a vertical dipole with another element of about the same length mounted close to it. The second element, called the reflector, shields the dipole from waves arriving from one direction, so this form of aerial is useful when it is required to exclude interference coming from a particular point.

A horizontal form of the H aerial can be used for receiving certain of the B.B.C. auxiliary stations.

See pages 67-74 for details of various kinds of television aerials.

HOME-MADE AERIALS

The average viewer will no doubt prefer to purchase an aerial and to have it installed by an experienced radio dealer. However, those with sufficient technical knowledge and who are at the same time handymen, can make and erect the simpler kinds of aerials for themselves.

In this connection see page 75.

I. INDOOR AERIALS

Indoor television aerials can be quite satisfactory at short distances from a transmitting station, and there are on the market many models specially made for this purpose. Special care must be taken to choose a suitable place for an indoor aerial, otherwise the brightness of the picture may vary when people move about near it. The same applies to portable television receivers with built-in aerials or aerials concealed in the mains cord.

INTERFERENCE

As in all kinds of radio reception, interference is the factor that usually sets a limit on the useful range of good television reception.

Among the more common causes of interference are some kinds of electro-medical and domestic electrical appliances, motor-vehicle ignition systems, nearby overhead high-voltage transmission-lines and private transmitting stations. Sometimes the fault is in the interfering apparatus, sometimes (perhaps more frequently) in the receiving installation, and occasionally it is a combination of both.

The interference can show up in several ways, for instance as bands of "sparkles", "shooting stars", "snowstorms" or the appearance of "herringbone" patterns over the screen. It may or may not be heard at the same time as buzzes, clicks or extraneous voices with the television sound.

Where the cause is not apparent and the local dealer is sure that the installation is in order, viewers are entitled to seek the advice of the Post Office Interference Service; application forms may be had at main Post Offices and the service is free of charge to television licence holders.

In this connection it is suggested that close attention is paid to the "Tele-snaps" shown on pages 84-91.

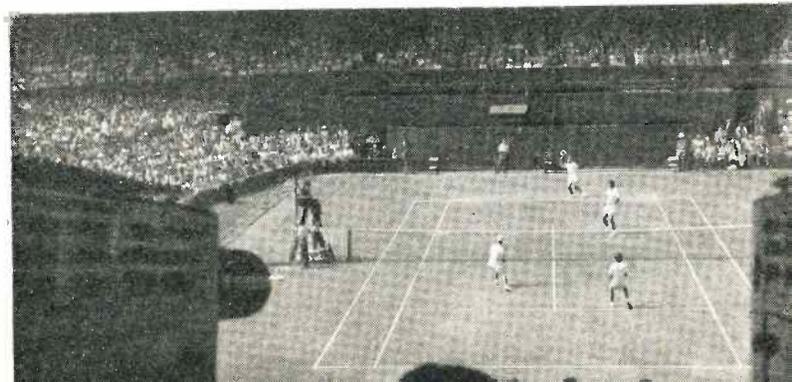
J. J AERIAL

This is a vertical television aerial which is convenient in certain circumstances. It got its name because originally it was made of two vertical elements, one very much longer than the other, so that it had something of the appearance of the letter "J". Modern versions often make the short element in the form of a tube surrounding the lowest part of the long element, which makes a very neat and unobtrusive arrangement when mounted on a mast. This aerial has no directional properties.

K. KIT-SETS

Complete sets of parts for making television receivers at home together with instructions, are advertised in the technical periodicals, and can be built successfully by anyone with the necessary experience. *But it must be borne in mind that very high voltages are used in television, and contact with certain components can cause serious, and even lethal, shocks—so that the greatest care and circumspection are necessary when testing the apparatus before it is safely enclosed in its cabinet.*

OUTSIDE-BROADCASTS. The Centre Court at Wimbledon.



L. LICENCE

Before a television receiver is installed, a Television Receiving Licence has to be obtained from a Post Office. The annual cost is £2, which includes also reception of the ordinary sound broadcasting. If you already have a £1 sound licence, you can obtain a refund from the Post Office of 1s. 8d. for every full month unexpired when you buy the television licence.

“LINES”

In television reception, the pictures are “drawn” on the screen by a rapidly moving spot of light, which varies in brightness and crosses the screen horizontally very rapidly, drawing each “line” just below the previous one. This process is called “scanning”. In the B.B.C. 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 every second, so quickly that the eye is deceived and the brain is unable to discern that the movement of objects in the scene is not continuous.

A system using a larger number of lines does not necessarily produce clearer pictures, and in fact there are several technical reasons why the reverse may be the case in practice, and at any rate the difference would be too small to justify the considerably higher expense involved at both the transmitting and receiving ends.

In general, a television picture should be viewed from just far enough away for the horizontal lines to be invisible. For average eyesight this is estimated, for the B.B.C. system, at about six times the height of the picture.

M. MAINTENANCE

A television receiver is, after all, a complicated scientific instrument, and for this reason you should not expect it to continue to work indefinitely unless it is regularly and efficiently maintained. This is also, in the long run, the cheapest plan. Viewers are therefore recommended to buy their receivers from experienced local television agents, who will be well informed on reception conditions in the district and also better able to give immediate assistance in case of difficulty. Most reputable dealers operate subscription service schemes, in which a fixed fee is paid in advance for regular attention for a year or more, rather than an unknown amount each time some attention is necessary, following the principle that “prevention is better than cure”.

N. NEUTRAL FILTERS

These are screens of dark-coloured glass or plastic, mounted in front of television screens with the object of shading the picture from light in the room. They enable a greater contrast between highlights and shadows to be obtained in a lighted room, but of course they serve no useful purpose where the room can be darkened enough to give comfortable viewing. Some receivers have built-in neutral filters and, in other cases, suitable screens can be purchased separately.

O. OBSOLESCENCE

There is no point in delaying the purchase of a television receiver for fear that it might soon become out-of-date through some new discovery or the adoption of a different transmitting system. It has been authoritatively stated that when, in due course, some improved system is adopted (and there is no suggestion that anything of the sort is contemplated or is even feasible in the near future)—whether it be to provide colour, higher definition, or anything else—if the receivers already in the hands of viewers could not work with the new system, then adequate public notice would be given and both the new and the existing system would be operated side by side for a reasonable time.

P. PROGRAMMES

Briefly, programmes are transmitted every day, including Sundays, with both afternoon and evening sessions, the Sunday afternoon session, however, starting with the Children's programmes at five o'clock. In the ordinary way the weekday afternoon programmes last for about two hours, including the Children's transmissions, and the evening programmes start at either 7.30 or 8 o'clock and continue until about 10.30. Entertainment offerings include plays, newsreels, variety shows, magazine programmes, documentaries, illustrated talks, dance items, cooking and handicraft demonstrations, fashion parades, ballet and outside broadcasts of sporting and historic events.

See page 18 for fuller information.

PROJECTION RECEIVERS

These are television receivers in which the pictures are projected on to a screen, instead of being viewed actually on the end of the cathode-ray tube, as in “direct-viewing” receivers. The pictures are formed on a very small, but extremely bright, cathode-ray tube and a system of lenses and mirrors magnifies them as desired.

In addition to the large sets used for cinemas and schools, smaller projection receivers are proving popular in the home. One of their advantages is that the small cathode-ray tube, when it comes to be replaced, costs considerably less than the large direct-viewing tubes, but on the other hand projected pictures do not have such bright highlights.

Q. QUERIES

This guide endeavours to answer television queries that may be in the mind of the experienced viewer as well as of newcomers to the medium. However, should you have a query which is not answered in this book, please write to the Editor of the Daily Mail Television Guide, Northcliffe House, London E.C.4.

R. RECEIVERS

There is a large number of excellent television receivers on the market at prices to suit most pockets. As many representative models are advertised in these pages, no useful purpose would be served by describing their features. However, it should be mentioned that certain considerations should be borne in mind when choosing a receiver:—

- (1) The price that you are prepared to pay. Do not forget to set aside enough for the installation of an aerial that will do justice to the set and for a maintenance subscription.
- (2) The electricity supply at your home, which will have a bearing on whether you choose an "A.C." or an "A.C./D.C." receiver.
- (3) The size of the room where the receiver will go and the number of people who will normally watch the programmes. This will indicate the most appropriate screen-size, based upon the distance from the screen at which viewers can sit comfortably.
- (4) Whether you want simply a television receiver or a combined receiver for television and the ordinary sound programmes. Combined receivers are convenient for very small flats, etc., but many larger households find it more suitable to use separate receivers, so that some members can hear a sound programme while others look at the television.



Remember that busy shopping streets are not usually favourable for good television demonstrations. When the choice of set



"BALLET FOR BEGINNERS." One of a series of programmes designed for viewers wishing to know more about ballet.

has been narrowed down, try to arrange a demonstration in your own home. In any case, look out for clear pictures with good detail both in the highlights and the shadows and with crisp outlines. Pay particular attention to the right-hand edges of objects in the scene, which should show no tendency to smear. Do not forget to consider the quality of the sound.

See page 61 for further hints for choosing a receiver.

S. SCREEN-SIZE

The choice of screen-size is very much a matter of personal taste, but it must be considered in conjunction with the distance from the screen that viewers will normally sit. If your room is not very large, do not choose a projection receiver with a big screen, or you may not be able to sit far enough away to avoid seeing the lines of which the picture is composed. On the other hand, a screen that is too small makes it difficult for more than two or three persons to get a good view.

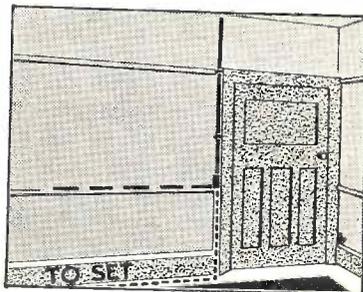
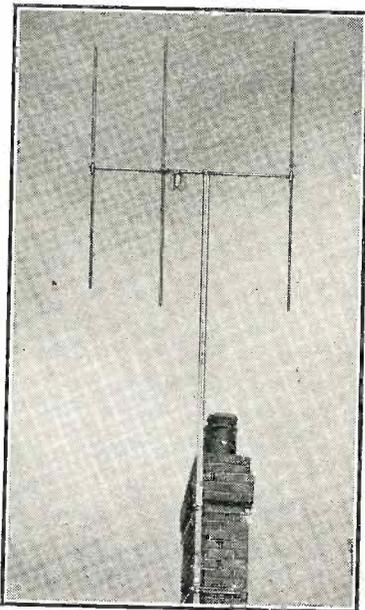
Screen-sizes are quoted in several ways, which causes some confusion. The transmitted pictures are rectangular, however, having an "aspect-ratio" of 4:3, the same as cinema films. This only means that the width is one-third longer than the height of the picture. Most receivers have a frame of this shape surrounding the screen. Direct-viewing receivers are usually quoted according to the size of the cathode-ray tube used, by its diameter in inches for round tubes or its diagonal for rectangular tubes. Sets having 12-inch tubes are probably the most widely used at present, although 13-inch and 14-inch tubes

WHAT TYPE OF TELEVISION AERIAL?

Never an easy question to answer, but it is one we are constantly asked.

It depends on so many factors; distance from the transmitter, the lie of the land, both in front of and behind, the proposed site, and the amount of interference likely to be encountered in proportion to the signal available. In order to meet the many conditions, "Belling - Lee" manufacture a range of aerials designed to give the best results over the greatest number of locations. This has resulted in a diversity of types, extending from multi-element aerials for extreme fringe reception, down to indoor types designed for unobtrusive fixing in the sitting room.

The most elaborate aerial is not necessarily the right one for the job.



BELLING & LEE LTD
CAMBRIDGE, ARTERIAL D., ENFIELD, MIDDX., ENGLAND.

are running them very close. Receivers with direct-viewing tubes up to about 20 inches are made, but larger screens than that are obtained by the projection system. Projection receivers with screen-sizes down to the equivalent of a 12-inch direct-viewing tube are also on the market.

SERVICE AREAS

Television transmitting stations necessarily use waves that are very short compared with those used by the ordinary broadcasting stations—actually the B.B.C. Television Service uses wavelengths of between about 5 and 7 metres. These very short waves cannot bend over the crests of hills in their path as readily as longer waves can, so that "shadow zones" are formed on the remote sides of high ground. It is therefore not possible to define the service area of a television station simply in terms of the distance from the station, and so it is not easy to show the service areas on a map. In the Television Atlas in these pages, areas are indicated within which reception will generally be satisfactory at the majority of places, but it must be understood that there will be, within the area, very many "islands" of poor reception corresponding to particularly low ground or places in the shadow of high ground. Conversely, outside the area there will be places particularly favourably situated on hilltops, etc., where good reception will generally be possible.

SUPPRESSORS

Suppressors are devices of various kinds used to prevent or minimise the interference radiated by electrical appliances. Although the Postmaster-General has the power to enforce the suppression (or cessation of use) of an electrical device where complaint is made by anyone suffering severe interference from it, details of the degree of interference that may be tolerated and the degree of suppression that would be required have not yet been worked out. These considerations apply more directly to cases such as where an unsuppressed vacuum-cleaner or refrigerator causes interference with television or perhaps with a police-car radio-telephone system, or the special navigation devices used at airports, for in such cases the investigating engineers can locate the offending appliance. The interference caused by motor-vehicle ignition systems cannot usually be made the subject of individual complaints, so the Postmaster-General has made a regulation requiring all new motor-vehicles sold after July 1st, 1953, to be adequately suppressed. Cars sold before that date are not affected, although many of the

OUTSIDE-BROADCASTS. A "tele-snap" of Blackpool scoring the winning goal in the 1953 Cup Final at Wembley.



more reputable car manufacturers have been fitting suppressors for several years. For most ordinary cars an easily-fitted device costing about 2/6d. is all that is required. Incidentally, if you are a car owner yourself, have you thought of suppressing your own vehicle for the sake of other viewers?

T. TELERECORDINGS

"Telerecordings" are films of actual television programmes. The process was invented by B.B.C. engineers, and it permits a television studio production to be repeated, or a television commentary of a sporting event or a public ceremony to be shown again later the same day for the benefit of viewers who could not watch the original transmission.

They are not to be confused with the ordinary cinema films that are televised, or with the films—such as Television News-reel—specially made by the B.B.C. Film Unit.

TRANSMITTING STATIONS

The B.B.C. Television programmes are broadcast by a network of five main high-power transmitting stations, which are being augmented by a number of other stations serving minor concentrations of population beyond the range of the main stations. The Government has so far authorised the construction of

OUTSIDE-BROADCASTS. Blackpool's captain, Harry Johnston, receiving the F.A. Cup from the Queen at the 1953 Cup Final.



five of these on medium-power—two of which are already in service—and two others of lower power. A temporary "booster" station—at Truleigh Hill, near Brighton—was also authorised in time for the Coronation.

The main stations are:—

ALEXANDRA PALACE,	opened in 1936, serving London and the Home Counties.
SUTTON COLDFIELD	1949, serving the Midland Counties.
HOLME MOSS	1951, serving the southern part of the North of England.
KIRK O'SHOTTIS	1952, serving central Scotland.
WENVOE	1952, serving South Wales and part of the West of England.

The four post-war stations are the most powerful television stations in the world.

The three auxiliary stations already in service are:—

GLENCAIRN	opened in 1953, serving the city and environs of Belfast.
PONTOP PIKE	1953, serving part of the north-east of England.
TRULEIGH HILL	1953, serving the Sussex coast.

The temporary equipment at the first two stations will be replaced in due course by more powerful transmitters, whilst Truleigh Hill will eventually become redundant.

The Television Atlas elsewhere in these pages indicates the location of the transmitting stations, the routes of the cables and permanent radio-links that are used to carry the programmes from the studios to the transmitting stations and the approximate areas served by each main station (see also S—SERVICE AREAS).

All the stations normally transmit the same programme. In the case of studio productions, they nearly always have their origin in London, where the main studio centre, Lime Grove, is situated. Outside-broadcasts, of course, can originate almost anywhere in the country and from time to time "live" programmes (as opposed to films) originating abroad are broadcast. Occasionally a programme of local interest is transmitted regionally only, usually before the opening of the national service in the evening.



TELEVISION LIGHTING. Massed banks of lights in Studio "D," Lime Grove.

TUNING SIGNAL

The Tuning Signal, which is broadcast for about five minutes before each programme session, consists of a special pattern designed to assist viewers to set the focus, brightness and contrast controls of their receivers before the actual programmes begin. Full details of how to use the Signal to best advantage, together with a "Tele-snap" of how it should appear, will be found on page 80. Always remember to let the receiver attain its working temperature before making the adjustments.

U. UPKEEP

Compared with the amount of entertainment obtained from a television receiver, its "running expenses" are most moderate. First of all, there is the annual licence fee, £2, and then the cost of the electricity consumed. You can work this out by finding out from the catalogue or the dealer the *consumption* of the receiver, which will be quoted as so many watts, say 200 watts. You divide this figure into 1,000 and the answer (in this case 5) is the number of hours that the receiver will work for 1 unit of electricity. In many districts the cost of 1 unit of electricity is round about one penny, so that some television receivers can be operated for about a farthing an hour for current. It is difficult to estimate the cost of repairs and replacements. In any case, however, it is advantageous to subscribe to a maintenance insurance scheme. For an annual fixed charge, the amount depending on the type of receiver, the locality, and

certain other details, you need not worry that an unexpected breakdown may result in a heavy repair bill at an inconvenient moment. This insurance relates to breakdown of the receiver, of course. There is no need to insure the receiver separately against, for instance, fire or theft, as most insurance companies will include it, at no extra charge, in the household comprehensive policy, if informed when it is installed. This cover includes also the aerial, provided it is installed in a workmanlike fashion.

Although cathode-ray tubes are commonly supposed to have only a short life, this idea is not supported by the evidence. The tubes either fail during the first few working hours, due to a manufacturing fault, in which case they are replaced under the guarantee, or—and this applies to the great majority—they last almost indefinitely. Ultimately the pictures will gradually become dimmer and the replacement of the tube will then be advisable.

V. VALLEYS

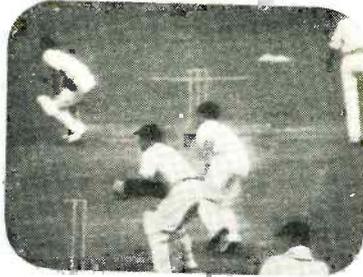
Particular care must be taken to secure an effective arrangement for the aerial when the receiving location is in a valley, because of the shadow effect of higher ground between the receiving aerial and the transmitting station. Not only will the signal tend to be weaker, but the risk of fading and "ghosts" is correspondingly greater. If you live in a valley, then, especially if it is not very near the transmitting station, it is recommended that advice on the best aerial installation should be obtained from a technician having experience of local conditions. In such districts it is particularly important that the receiving aerial should be installed as high as possible, clear of obstruction by buildings, trees, etc.

W. WEATHER

At longer distances from the transmitting stations, for instance in the "fringe areas", the weather has a very pronounced effect on reception. Viewers will find that some weather conditions will cause reception to be extremely weak, other weather causing very variable reception, while during other conditions abnormally strong and steady results will be obtained.



OUTSIDE-BROADCASTS. An action "tele-snap" of the 1953 Australian touring team batting.



These effects cannot be avoided entirely, but in many locations they can be reduced to tolerable proportions by using one of the aerials specially designed for this purpose.

This should be understood, because some viewers, unprepared for these effects, make unnecessary calls on service-men, supposing that some fault has developed in the receiver.

X. X AERIAL

This is another type of vertical television receiving aerial and it is somewhat similar in performance to a dipole with reflector (the H aerial). However, its special properties make it more suitable in certain installations.

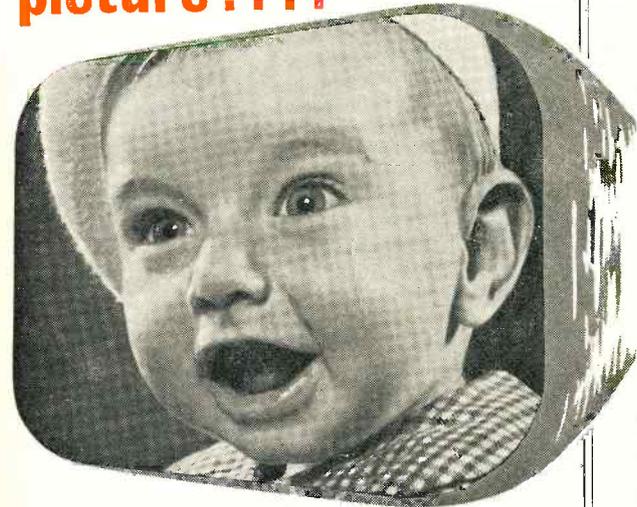
Y. YEARLY CHARGES

When working out your budget, in addition to the licence fee and the cost of electricity, you must allow for a certain amount of repairs and replacements each year. The allowance under these headings for the first year can be quite modest, for not only is less attention likely to be necessary, but there is also a guarantee in respect of premature failure. Estimates vary very considerably, but one-tenth of the cost of the receiver for the first year, half as much again for the second, and twice as much for the third year, should not be far out. This uncertainty can, of course, be avoided by taking advantage of one of the many subscription maintenance schemes.

Z. ZOOM LENS

A "zoom" lens enables a television cameraman to enlarge a particular point of interest in a scene until it fills the whole screen. For instance, the goal in a general view of a football match can be made to come into close-up without any interruption, to emphasise some finer point in the play. Previously it was necessary to switch to another camera or another lens to get this effect.

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