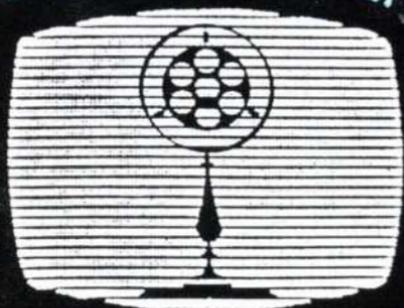


**HISTORY OF
BROADCASTING:**



**RADIO TO
TELEVISION**

by Rudolf Arnheim

*translated by Margaret Ludwig
and Herbert Read*

RADIO

DISCARDED

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**HISTORY OF
BROADCASTING:
RADIO TO
TELEVISION**

HISTORY OF BROADCASTING: Radio to Television

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URRAY STATE UNIVERSITY

by
the same author

FILM

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Illustrations

monitors above. Amplifier Rack (sound). Bottom centre to left-hand corner: Caption card drum, Photo cells, lens, scanning disc with Blank screen generator, Lantern House, all of which comprise the Caption Transmitter

facing page 257

Introduction

Not so long ago I was sitting by the harbour of a south Italian fishing-village. My table stood on the street in front of the café door. The fishermen, their legs a-straddle, their hands in their pockets and their backs turned to the street, were gazing down on the boats which were just bringing home the catch. It was very quiet, but suddenly from behind me there came a spitting and a spluttering, then screams and squeaks and whistles—the wireless was being tuned in. The loudspeaker had been set into the front wall of the café and served to catch customers. What the net was to the fishers the loudspeaker was to the café proprietor. When the screaming had stopped we heard an English announcer speaking. The fishermen turned round and listened, even though they could not understand. The announcer informed us that they were going to broadcast an hour of German folk-songs and he hoped we would enjoy them. And then a typical German male voice choir sang the old songs that every German knows from childhood. In German, from London, in a little Italian place where strangers are almost unknown. And the fishermen,

Introduction

hardly one of whom had been in a big town, let alone abroad, listened motionless. After a while the waiter seemed to think we should have a change, so he got on to an Italian station, and as an hour's gramophone records was on just then, we heard a French chansonette. French, from Rome, in that village!

This is the great miracle of wireless. The omnipresence of what people are singing or saying anywhere, the overleaping of frontiers, the conquest of spatial isolation, the importation of culture on the waves of the ether, the same fare for all, sound in silence. The fact that forty million sets are scattered over the world to-day appears to be the central problem of broadcasting.

And yet only a small part of this book right at the end will deal with wireless as a means of transmission and dissemination. I have rather devoted it almost exclusively to wireless as a means of expression. Broadcasting has constituted a new experience for the artist, his audience and the theoretician: for the first time it makes use of the aural only, without the almost invariable accompaniment of the visual which we find in nature as well as in art. The results of even the first few years' experiments with this new form of expression can only be called sensational. An alluring, exciting world has been revealed, containing not only the most potent sensuous delights known to man—those of musical sounds, rhythm

Introduction

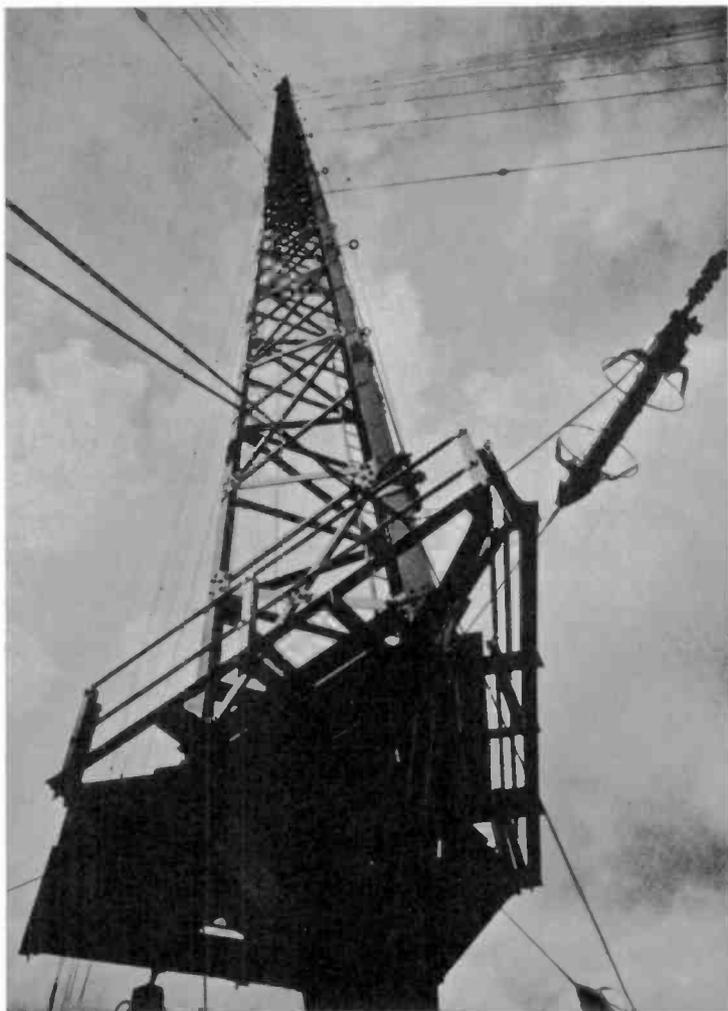
and harmony—but capable also of reproducing actuality by transmitting real sounds and, what is more, commanding that most abstract and comprehensive of all means of expression: speech. Although wireless, when it wished to, could beat the theatre at sound-realism, yet those sounds and voices were not bound to that physical world whose presence we first experience through our eye, and which, once perceived, compels us to observe its laws, thus laying fetters on the spirit that would soar beyond time and space and unite actual happenings with thoughts and forms independent of anything corporeal. In wireless the sounds and voices of reality claimed relationship with the poetic word and the musical note; sounds born of earth and those born of the spirit found each other; and so music entered the material world, the world enveloped itself in music, and reality, newly created by thought in all its intensity, presented itself much more directly, objectively and concretely than on printed paper: what hitherto had only been thought or described now appeared materialised, as a corporeal actuality.

If the artist was given the exciting possibility of making an amazing new unity out of pure form and physical reality with the combined help of three means—sound and voice; music; words—it was also of the utmost importance that the theoretician, the esthetician should follow up those fine experiments.

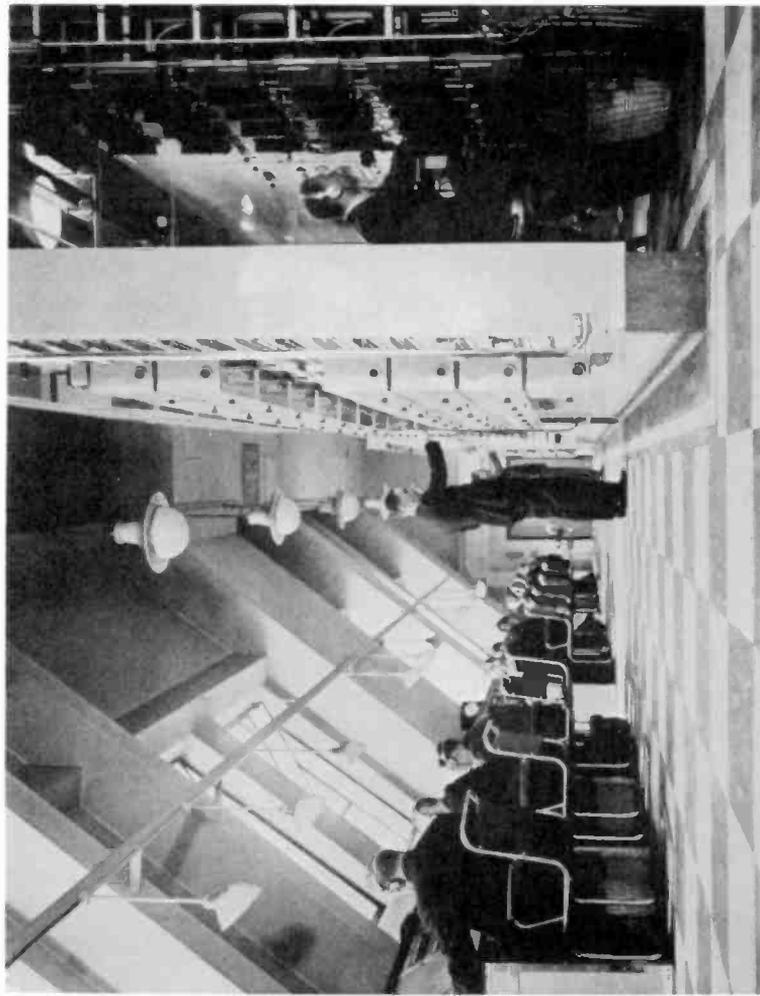
Introduction

Every expert attempts to isolate root-phenomena so as to examine them individually, and then be able to understand the more complex ones as a combination of elements; and so the art expert must have rejoiced when with wireless, artistic practice for the first time offered him the acoustic element alone. This book is above all an attempt to present the results and theories of this unique experiment.

For this reason I have given little thought to the problem of how long wireless will exist and be capable of development in the form I describe. For even if, as is highly probable, television destroys the new wireless form of expression even more radically than the sound film destroyed the silent film, the value of this esthetic experience remains unimpaired, indeed it appears as if even in artistic practice this new form of expression need not entirely disappear; we see, for instance, in the few serious experimental films of the last few years, as a consequence of the separation of sound-strip and picture-strip, which proves to be a good thing if the film is to remain as an art form, that the sound-strip in this kind of isolation arrives quite logically at wireless-forms. The declamation of the pedantic unseen commentator in the documentary film of to-day has been superseded (under a few art directors) by dialogue and sound-montage, speaking chorus, etc.—forms invented for the radio play.



West Regional Transmitting Station, 1.5.33:
One of the 500 ft. Masts.
B.B.C. Photograph.



Broadcasting House, May 1954: Control Room showing Amplifier Racks
and Transmission Position.
B.B.C. Photograph.

Introduction

Acoustic effects are more difficult to describe than visual ones, and radio-art uses far more abstract forms than the film. So it may be that the reading of this book, in spite of all the goodwill of the author and the translators—whom I should like to thank here most heartily for their conscientious and sensitive work—is harder than my previous one dealing with the film. But I hope that the trouble is not without its reward. The reader will be informed about a subject of which far less is known to-day than was known about film at the time my book on film appeared—not only because less has been written and read about it, but also because even to-day wireless is followed with much less attention than the film was in its time. So, when I speak of the forms of expression in aural art, I have not only to invent the terms and rules for a new artistic phenomenon, but also at the same time to give some idea of this phenomenon itself.

I have attempted to write as vividly as possible and to give as many examples as I can. Some of these examples are anonymous, and where I have given the names of the radio plays and their authors, they will perhaps seem superfluous to the reader. The plays are not well-known and hardly any of them have enough individuality or greatness to be kept on record as individual works of art. But together they constitute an attempt to build up a new language, and only in

Introduction

their totality are they of significance. The same applies to the work of the wireless producer and actor.

This book is another essay in an esthetic method which I have already used in my researches on film, and which, I think, might be useful in the other 'older' arts. It starts from an analysis of the conditions of the material, that is to say, the special characteristics of the sensations which the art in question makes use of are described by the methods of psychology, and from these characteristics the expressive potentialities of the art are deduced.

But it is very important for me to add that I do not like making use here of the word art. Forms of expression in wireless are valid not only for the artistic productions of broadcasting in the strictest sense, such as radio plays, but also for the simple announcements of the news of the day, reportage and discussions. Therefore the subject has been treated in its entirety, and no artificial limits, such as the term art might well have implied, have been drawn. Just as scientific or educational films, if they want to be impressive, clear and informative, have to use the same mode of presentation as the 'artistic' film, just as the schematic representation of the circulation of the blood in a medical book or the outline plan of an underground system is made with the same means of composition as a painting, everything that takes place at the microphone is submitted to the rules of

Introduction

aural art. If they are obeyed, the presentation will be clear, functional, salutary and effective; if they are offended against, the result will be feeble, confused and disagreeable. For form in art is no luxury for connoisseurs and is not felt only by those who are aware of it and esteem it greatly. It is nothing but an indispensable method of giving any determined content—whether it is of an artistic or of a purely documentary-technical nature—its most pregnant and unequivocal expression. And it covers the entire sphere of the material or representation involved. (Moreover, it seems to me that only such a conception permits one in such a time as the present to occupy oneself at all with esthetic problems of form.)

I hope that there will be found in this theoretical book some of the many extraordinary sensations associated with the broadcasting house and the wireless receiver. The carpeted rooms where no footstep sounds and whose walls deaden the voice, the countless doors and corridors with their bright little light-signals, the mystifying ceremonial of the actors in their shirt-sleeves who, as if attracted and repelled by the microphone, alternately approach and withdraw from the surgical charms of the metal stands; whose performance can be watched through a pane of glass far away as in an aquarium, while their voices come strange and near from the control-loudspeaker in the

Introduction

listening room; the serious young man at the control-board who with his black knobs turns voices and sounds off and on like a stream of water; the loneliness of the studio where you sit alone with your voice and a scrap of paper and yet before the largest audience that a speaker has ever addressed; the tenderness that affects one for the little dead box suspended by garter-elastic from a ring, richer in treasure and mystery than Portia's three caskets; the hazard of improvising a speech before the world; the allurements of the quiet room that invites confidence and homely ease, and the stage fright that lurks behind; the joy of the writer who may create unhindered fantastic spirit-plays in the realm of thought with symbols and theories as characters; and finally of the long exciting evenings at the loud-speaker, where, a god or a Gulliver, you make countries tumble over each other by a twist of your hand, and listen to events that sound as earthly as if you had them in your own room, and yet as impossible and far-away as if they had never been.

1

The Imagery of the Ear

We learn about the objects in the world around us through our senses. The senses, however, do not give us the objects themselves, but only let us feel the effects of a few of their properties. This fact has only partially penetrated to general consciousness. It is obvious that when we say 'I smell a flower', we use a simplified verbal symbol for 'I smell the smell of a flower', and 'I hear the violin' means 'I hear the sound of a violin'; yet, on the other hand, by 'I see the tree' is meant not 'I see the image of a tree', but quite literally 'a tree'. We really believe we see 'the tree itself'—a notion that becomes quite senseless and unintelligible if we begin to think about it.

But there are reasonable grounds for this various estimation of the senses, since our eye does in fact inform us very much better than our ear or nose. A man who had nothing but his sense of smell would get a very poor idea of the world, and for this reason a representational art of smell would be rather futile.

If, however, we examine the capacities of the

The Imagery of the Ear

highest human sense, that of sight, we find they are so manifold that one is justified in maintaining that they transmit to us the actual objects and not their images. It is true that the eye informs us only about the surface of objects (as distinct from the ear, for example), but much of the inner nature of an object can be read from its surface. By colour, outline and size, we easily distinguish even between objects of the same species. All kinds of movement are perceptible, with the exception, perhaps, of molecular movement—and all events express themselves as movement. We perceive the distance of objects and the course which they take; we can see what is close together and what is far apart. Hence the richness, the inexhaustibility, the universality and expressive power of those arts which make use of the sensation of sight; painting, sculpture, the film, the theatre, architecture and also literature (which often describes the multifarious sensations of sight). As means of expression, the visual arts use colour, movement and the endless variety of form present in three-dimensional space. Only two arts renounce the eye entirely and deal exclusively with the ear: music and broadcasting.

What sensory material is at the disposal of these two arts? How complete and sufficing is the version of the world that it transmits? We can see practically everything in the world around us, if the light is

Renunciation of the Eye

strong enough. For hearing there is no such condition. The air, whose vibrations transmit to us the vibrating of sounding things, is always available. Day and night, there is no time when we cannot hear (more the pity, many will say). But, on the other hand, by no means everything around us can reach our awareness through the ear. The sea and the clock are never silent, but the table and the flower are mute, and however rich in sound life may be, it does not make continuous use of its potentialities. Nevertheless, the sound-manifestations of our world are so multifarious that one can perfectly well talk of an acoustical world. This is partly due to the fact that our natural awareness informs us of the activities of objects and persons because, as an object sounds, so does it move and change. It is just those changes that are so particularly instructive, alike when we want to get our bearings in practical life, and when we want to take cognisance of what happens in a work of art. It is above all what is happening that matters most for us. It is true that not everything that gives information to our ears has the character of an event; many conditions are static. Nevertheless, in the aural as distinct from the visual, the perceptions that inform us of change so considerably outnumber those which indicate changeless duration, that aural art can present dramatic events far more exclusively than visual art.

The Imagery of the Ear

Aural art, like sound-perception in general, is possible only in time. For the eye, there exists in every moment a crowded scene extending in two dimensions of space. So there are timeless visual arts, painting and sculpture, side by side with arts existing in time like the theatre, film and ballet. On the other hand, the concept of a timeless representation of sound is meaningless. Extension in time is a characteristic of the audible; and therefore all aural arts (music, radio, the theatre, sound-film, etc.) have a time character. Nevertheless, we must observe that within this period of time there are not only successive, but also parallel representations; our ear is capable of distinguishing several simultaneous sounds.

It is further inherent in the character of aural phenomena, that the vibrations which our ears pick up have diverse and variable qualities by whose help we can distinguish them and recognise what is characteristic in them. We can determine pitch, which possesses an extremely wide frequency-range of from 15 to 40,000 vibrations a second. (It is true that the earliest horn-loudspeakers reproduced only the vibrations round about 800 cycles, whereas the normal loudspeaker of to-day ranges from 15 to 20,000 cycles.) We recognise the quality of many sounding bodies because it is contained within a certain range of pitch (soprano, bass, a cannon-shot, or the humming of midges). Pitch, too, can vary.

The Aural Arts

The most diverse pitches can be arranged in an inexhaustible succession of notes, and the resultant phrases or melodies again serve to characterise conclusively the nature and condition of the thing from which they derive. Besides the variation of pitch, the duration of the individual sounds serves to characterise the acoustical image. The intensity, too, physically registered by the amplitude (or deflection) of the curve of vibration, can vary within wide limits.

Sounds are further distinguishable by their so-called vocal character (the graph of the vibration); between the mathematically simple sine-curve of pure musical sound and the most complicated noise stretches an incalculable collection of sounds, foremost among which belong both the human and the animal voice. Human speech, with its power of conveying meaning, opens up a new world to aural art—an inexhaustible means of expression unapproached by anything available to the otherwise far richer visual arts. Further, pure musical sound, freed from all dependence on reality, brings such a strict mathematical relationship to the nature of expression that artistic form, through its help, can realise an otherwise unattainable perfection.

Sounds acquaint us not only with their *origin*, but also with their place in the world. Under certain restricted conditions, distances in space can be heard.

The Imagery of the Ear

The size and form of the space as well as the nature of the confining walls are expressed more or less distinctly by the kind of resonance.

Such, briefly, is the nature and range of the acoustical materials at the disposal of the aural arts.

The World of Sound

First the sound and then the word—A new art of sound—Natural sounds and music—Music as a medium of expression—Use with speech and sounds—Music as romantic expression—Natural sounds—Grouping of types of voices

The aural world consists of sounds and noises. We are inclined to give the first place in this world to the spoken word—that most noble species of sound—first introduced to the world by man. We must not forget, however, especially when we are dealing with art, that mere sound has a more direct and powerful effect than the word. The meaning of the word and the significance of the noise are both transmitted through sound, and have only indirect effects. It is difficult at first for most people to realise that, in the work of art, the sound of the word, because it is more elemental, should be of more importance than the meaning. But it is so. In radio drama, even more forcibly than on the stage, the word is first revealed as sound, as expression, embedded in a world of ex-

The World of Sound

pressive natural sounds which, so to speak, constitute the scenery. The separation of noise and word occurs only on a higher plane. Fundamentally, purely sensuously, both are first and foremost sounds, and it is just this sensuous unity that makes possible an aural art, by utilising word and noise simultaneously. This aural art reverts, so to speak, to those primitive ages when, long before the invention of an actual human speech, the mating- and warning-cries of living beings were understood only as sounds and only in virtue of their expressiveness, as is still the case in animal language. But all that is left in man from the life of these primitive times has even today quite a different power in him from what he later acquired by means of his mind. It is the sensuously expressive power in the voice of the soap-box orator rather than the content of his speech that affects simple people.

But this does not mean that in radio drama, too, the subject matter is of no consequence—most certainly not. But it should be realised that the elemental force lies in the sound, which affects everyone more directly than the meaning of the word, and all radio art must make this fact its starting-point. The pure sound in the word is the mother-earth from which the spoken work of art must never break loose, even when it disappears into the far heights of word-meaning. But many stage and radio producers

A New Art of Sound

to-day do not possess this simple instinct for the sensuous qualities of their raw material, whether it is that they are simply incompetent or that they think they are doing a service to the meaning of words by suppressing the sound. The repugnance which many radio producers and authors who make their approach via the written word feel towards vigorous intonation is most amusing. They suspect here a sin against the Holy Ghost. But without reason, for the final effect of their asceticism is just boredom. The words of a radio play should not go about in acoustic hair-shirts, they should shimmer in all their tone-colours, for the way to the meaning of the word lies through the ear.

In every art it is the most elementary and primitive means that achieve the most profound and beautiful effects. The most elementary aural effects, however, do not consist in transmitting to us the meaning of the spoken word, or sounds which we know in actuality. The 'expressive characteristics' of sound affect us in a far more direct way, comprehensible without any experience by means of intensity, pitch, interval, rhythm and tempi, properties of sound which have very little to do with the objective meaning of the word or the sound. The vowel 'a', which as a sound has a direct expressiveness, is found in 'father' and in 'hard'. The howling of a wind, a siren, a dog, a propeller and the noise of a car re-

The World of Sound

versing have a common and very characteristic sound-character, even though they are all such different things. Common to all such sounds is the chromatic rise in intensity and pitch, the swelling and increase of strength, and just this is the special expression that such a sound transmits to us. On the other hand, a sigh, a sob, or the slowing down of a machine have the effect of a decrescendo, an ebbing of strength, mostly characterised by a fall in intensity and pitch. The direct expressive power of a hammered-out rhythm and a soft blurred sound, a major and a minor chord, a fast and a slow pace, a sudden or a gradual rise and fall in pitch, a loud or a soft tone—these are the most elemental and the most important creative means for every form of acoustic art, for music just as much as for the arts of speech and sound!

The sound of mourning, more directly than the word of mourning, transmits sorrow to the hearer. And all natural and artificial sounds of mourning, which are soft and long-drawn-out and in a minor mode, are appropriate for increasing the effect of a mourning-chorus. To add such sounds skilfully, without constraint or redundance, to reinforce the expression and to purify it, is the task of the artist in radio drama.

The rediscovery of the musical note in sound and speech, the welding of music, sound and speech into

A New Art of Sound

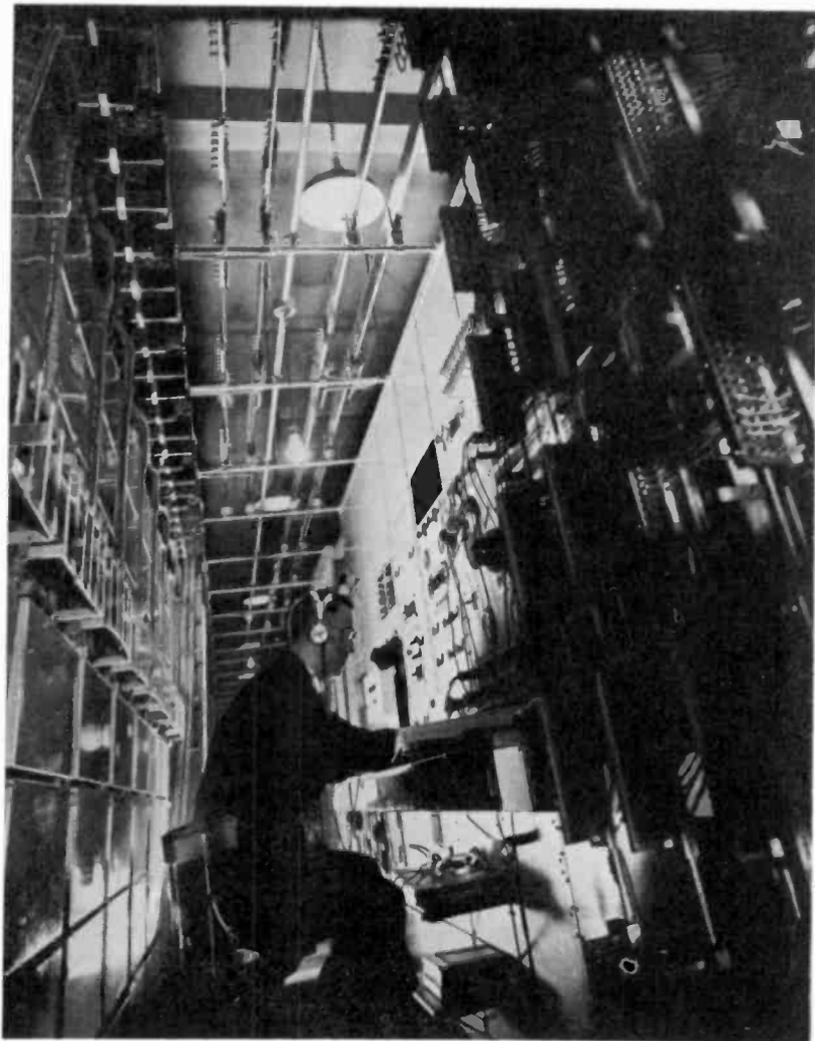
a single material, is one of the greatest artistic tasks of the wireless. But what we mean is not the cultivation of the sung word for instance. That has been cultivated quite enough; the wireless, too, cultivates it quite sufficiently. The new possibility is quite different. Novalis says: 'Our speech was at first far more musical, but it has gradually become prosaic and lost its note; it is now a noise or a "loudness"; it must become song again.' This does not mean the art-song; Novalis is referring to the dreadful rupture between art and everyday usage which has been brought about by our civilisation. Beauty is offered us in the concert-hall, in the realm of the 'non-functional'. But where sound is functional as a means of communication, in everyday speech it is impoverished, blunted, without beauty. If one listens in to an Italian station, one can still experience how speech sings. But most languages have faded and, with them, the feeling for sound-tone. One has only to listen carefully to our stage and radio performances to realise how completely our art of speech is divorced from music. On the one hand we have the concert-singer, the opera-singer and the curly-headed reciter with his cow-bell voice; on the other hand, the absolutely unmelodic conversational tone of the actor who fancies he is speaking entirely 'true to life'—as if that were an inspiring ideal!

The naturalistic style of acting and its offshoot the

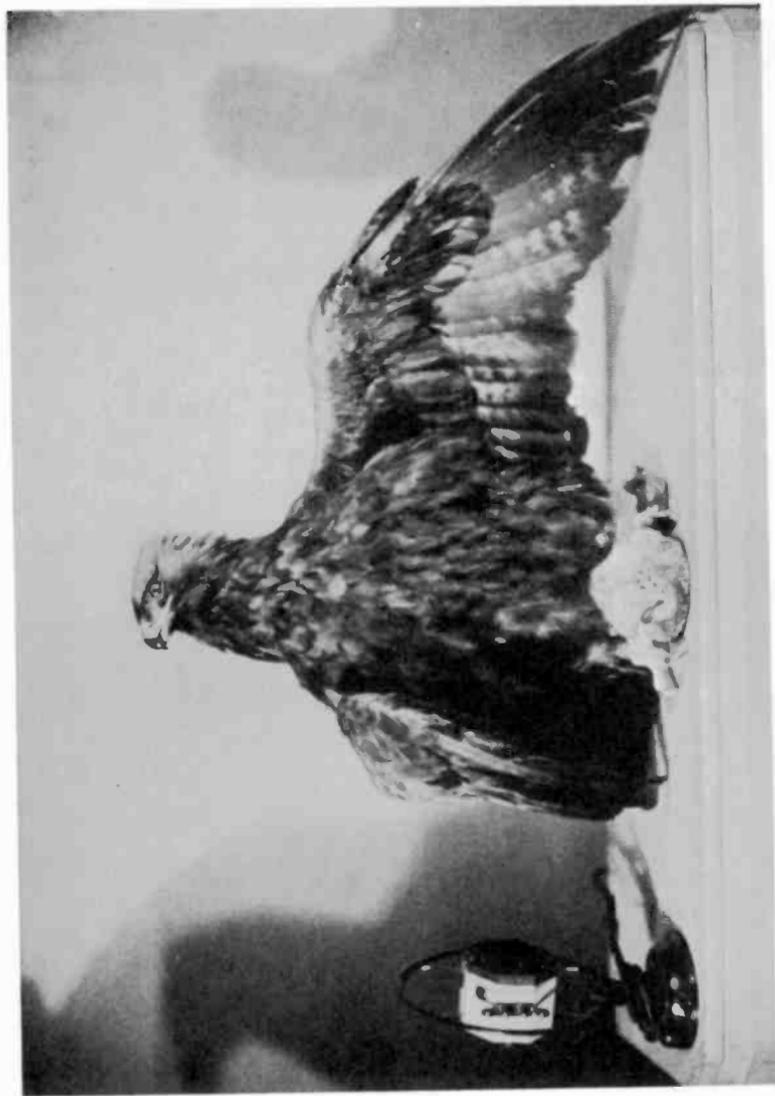
The World of Sound

naturalistic sound-film have brought with them a naturalistic way of speaking which deprives speech of all music. Alike in the declamation of classical verse and in those stylised productions that have been attempted again and again in the last ten years, it can clearly be seen how far the actor has grown away from sound and how uninspired he has become. Just as he no longer knows how to walk, neither does he know how to speak. He must go to school again.

Wireless must not take any part in enlarging the gap between music and natural unmusical sound. As a purely acoustic art, it is more closely related and connected with music than any other aural art (sound-film or theatre). Its function is to present the world to the ear, and, in the task of working up the purely formal properties of its formative material, music will suggest itself as a wonderful aid. Much more exactly than could ever be possible in a visual art, indeed with even mathematical precision, the effects of pure sound are and can be exploited. It is all the more disgraceful that in the realm of applied sound, in spoken art, scarcely any of this knowledge is utilised, whereas in the applied arts of form and colour, especially in painting, research is possible in traditional craft-work, composition, proportion and colour-harmony, all of which are comparable to the study of harmony in music even if they cannot be traced back to similar numerical formulas.



Broadcasting House, 22.1.34: The Control Room.
B.B.C. Photograph.



Capt. C. W. R. Knight's Eagle, 16.5.35.
B.B.C. Photograph.

Natural Sounds and Music

In painting, there are only instinctive rules for the relation of colours and planes. There is no limitation to a certain scale of selected colour-values, to certain intervals, outlines or surface-values (when an attempt is made to introduce a scale artificially, it proves to be an unnatural limitation). Music, on the other hand, is contented with fixed pitch, physically defined by the rate of vibration. The elementary combinations of these sounds have been fully explored, the nature of harmonic effects is well known. Rhythms, too, are arithmetically fixed. And just because the most important musical creations are composed of nothing but those sharply-defined fundamental elements, just because incalculable greatness is formed of the calculable alone, for this very reason music is the purest and the most noble art of all.

In the other aural arts, the art of speech and of sounds, the terms used by theoreticians of music are applicable. Tempo, intensity, dynamics, harmony and counterpoint, are here too the fundamentally effective elements. Only they are not so strictly regulated; nor should they be. Sounds and speech are not 'chemically pure' art-products as tones of music are to a certain extent; they are products of nature and reality. From this it follows that they are not strictly definable. Of course the artist moulds them—we are speaking just now of sound, not of content—by stylising them with the help of those musical

The World of Sound

means, but there always remains, unless it is going to result in nothing but a laboratory product, a vestige of the untamed and the incalculable. Rhythm and the vocal line of speech can be modulated, but if one starts scanning too regularly, boredom is the inevitable consequence!

Nevertheless, the success with which the concepts of musical theory can be applied to spoken- or sound-art has hitherto been neither recognised nor exploited to the slightest extent. Here, wireless could make great improvements. It is only very dimly recognised how one can work with musical terms, especially in speech-production where there is a complete lack of terminology—(the producer being dependent on gestures, mimicry and picturesque descriptions to make himself understood by the actor). Nor is it recognised how tellingly the character of a voice or of a certain mode of expression can be described, how simply its nature is explained when it can be conceived as a musical image. There are cases of the success of musicians in speech-production, especially in wireless. A realisation of such truths can only have an effect in the theatre when it has entirely recovered from its jaunt up the blind alley of naturalism. Already there is an attempt at a stricter working-out of elementary acoustical form—rhythm, verse and the melodic line.

The new and close alliance of natural and artifi-

Expression in Speech

cial sounds will not only create a new branch of art, but will also bring about a refinement of our sensibility. The new aural education by wireless, which is so much talked about, does not consist only of training our ear to recognise sounds, so that it can learn to distinguish the hissing of a snake from that of steam, and the clanking of metal from the clatter of porcelain. Such a discrimination is doubtless desirable: it brings about, so to speak, the enrichment of the aural vocabulary by whose help the loud-speaker describes the world. But it is more important that we should get a feeling for the musical in natural sounds; that we should feel ourselves back in that primeval age where the word was still sound, the sound still word.

If the speaker lacks expressiveness and tone-colour, the listener revenges himself in the simplest way—he just switches off. Should he quite unintentionally neglect the vocal line, the attractive alternation of quick and slow or loud and soft, should he declaim without dynamic punctuation and tension, he misses the point, and not only he but the work of the radio-dramatist as well. The old proverb, *nihil est in intellectu quod non prius fuit in sensu*, can be changed to 'the way to the listener's head lies through his ear!'

Excessive expression will be considered a breach of good taste. A certain type of parson and Shake-

The World of Sound

spare-reciters of the old school make an unnecessary display of uplifted voices and siren-crescendos, and in this way create a hypocritical impression. But far oftener one notices just the opposite: speakers to whom talk is nothing but a broadcast of significant symbols whose sound is less exciting than the tapping of a Morse message, which at least has a rhythm. It is not that the expressive character is simply eliminated and so does not exist at all, but that monotony is also a mode of expression, indeed a very significant and impressive one; and so it may happen that the expression of the voice is just the opposite of the sense of words, which calls for excitement, not dullness. The capacity of the average speaker for inducing a hypnotic sleep in his listener through the mere sound of his voice, borders on the occult; indeed, the general and notorious disinclination of radio-subscribers for anything spoken is less a question of the fact of its being spoken and of what is said than of *how* it is spoken. Whether regular instruction in lively modulation of speech, which is absolutely essential for actors, should be recommended for lecturers, is, however, questionable. For, indeed, it is the peculiar power of the actor, that is the artist, to give conscious form to his speech and at the same time remain guided by the content. Therefore a better selection of speakers would achieve more than the superficial training of unsuitable material.

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Our examples already show that it is not so much a question of too little expression as of false expression. The falsifying of expression arises not altogether from the self-consciousness of the speaker. If, at the microphone, the manuscript is reeled off in a school-boy manner, there is a complete disappearance of the few natural stresses and caesuras that the very driest voice will produce if the speaker's thoughts are on his subject, if he is really thinking aloud, instead of reading it off or 'delivering' it in the notorious public-lecture fashion, which gives to every sentence quite systematically and irrespective of content an equal emotional emphasis.

The unselfconscious voice of a person in everyday life will sound boring and monotonous only when he has in any case a soporific temperament. One cannot squeeze blood from a stone. If a person speaks unselfconsciously, the voice transmits the image of a lively, reliable character. (And if he normally suffers from nervousness or selfconsciousness in public, as opposed to microphone-nervousness, it shows inhibitions that are significant for his whole psychology.)

The 'character' of a sound conveys qualities which can be traced back to the structure of its source. In music one speaks of the 'vocal character' of instruments. The part each instrument plays in the piece of music is determined very essentially by its vocal character. There is the pomp, breadth and

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might of deep brass and the doublebass; the bright, sharp force of the trumpet; the thin nasal woodwind; the versatility of the violin: soft vibrant singing, graceful agility. As we can see, these characteristics are most naturally described by the same terms that are used to denote human characteristics, and this is no mere chance.

Indeed, it would be useful for radio drama to relate, conversely, the idiosyncrasies of the human voice to such instrumental vocal characteristics, and to speak of flute- and cello- or of trombone- or harp-voices. Then it would be clear what instrumental part would fall to the vocal character of the human voices in a sound-drama. Just as further on we show the divisions of registers within a radio-drama, in the same way the multiplicity of voices, harmonious and discordant, raucous and smooth, calm and restless, nasal and resonant, repressed and open, piping and booming, serve to enrich the variety of the sound-images in the piece, not only making the characters distinguishable from each other, but also symbolising acoustically the function and character of every member of the cast through a well-chosen voice. Such symbolisation can be done quite crudely, as when the villain speaks with a sneering, oily, hypocritical voice—but it leads up to any degree of psychological refinement.

By no means all voices are expressive, not even

Expression in Speech

those that have conspicuous characteristics. Nearly every voice has some 'defect'; the perfect normal voice is rare, and even if we could succeed in producing an artificial human voice on a film-strip, one of immaculate, ideal euphony (but also of strange, unknown tone-colour) we should never do away with the human voice. It is particularly in announcers' voices, which should be as normal as possible, that we notice defects. Some little defect is there, one pronounces his 'i's' some strange way, another swallows his 'r's' oddly and unnaturally, a third has to overcome a little difficulty after he says 'z'; a fourth will hiss every 'sh', just as one letter may be faulty in an otherwise quite normal typewriter. Many voices are full of such defects and peculiarities, and yet do not represent a unified 'vocal character'. An indistinct, vague medley of phonetic idiosyncrasies is not character.

Just because in broadcasting everything visual is abstracted, it is desirable that in radio-drama definite character parts should be played only by speakers whose voice is unmistakable or can be 'disguised' as an entity. As only voices take part, the peculiarity must lie in the voice. All casting, then, starts with the finding of a characteristic basic-tone of the voice. If this is done, then the action and meaning of the play are expressed not only in the spoken text but also in the interplay of the vocal types taking

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part. Otherwise, the listener will be prevented from understanding the text by a confusion of vague voices, half-like and half-unlike, impossible even to distinguish clearly one from another—a sound-picture which will be a true acoustical representation of the action only when as little good can be said of the author as of the producer.

The growth of music, with the coming of the so-called romantic period, effected an ever increasing emphasis on expression to the detriment of musical structure. It is true that even in classical music the representation of a certain state of mind is occasionally attempted, but always without disturbing the melodic flow, rhythmic regularity or harmonic progression. Consider Handel's opera-arias, the symbolism of 'falling tears' in the Matthew-Passion, the Revenge-Aria of the Queen of the Night. By lively rhythm and melody, by characteristic interval leaps, staccatos and coloraturas, the desired expression is indicated. It was the 19th century that first brought about the picturesque overflowing of the bar-line, the revelling in temperamental harmonies, the gentle, almost imperceptible tailing-off and mingling of voices, the sudden shriek, the tremolo, the hopping and tapping and all kinds of bizarre mimicry.

Crescendo and decrescendo come into their own. The swell-organ and recently the swell-piano (Siemens-Nernst Pianoforte) are invented, defying classi-

Music as Romantic Expression

cal music, where only phrases of uniform dynamics were set in contrast to each other. Crescendo and decrescendo are natural elements and very important ones, the most direct means of representing and transmitting psychological tension and relaxation. The expressive capacity of various instruments, particularly woodwind, is cultivated to the highest degree of subtlety and attains truly magical effects, as for example in the works of Wagner, Richard Strauss and Debussy. Sensibility and nerves are directly attacked, music becomes an organic part of nature, pulsating, rejoicing, sorrowing, boundless, amorphous. Instruments storm and laugh, sigh and cry, soft breezes waft through æolian harps, basses mutter and rumble.

We may say of this romantic style, now forsaken by the best modern musicians but still firmly retained in popular music, that it fundamentally ruined the musical taste of the mass of people in Europe; nevertheless it must be admitted that the period of expressionistic music brought with it important discoveries: it explored the expressive potentialities of instruments and the subtleties of harmony to the uttermost, and this knowledge will never be lost.

A significant phenomenon, for example, is the 'hot' playing of woodwind, particularly the saxophone, in jazz music. This conscious playing out of

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tune, diverging from the note, results in expressive distortion. By the use of mutes and such-like means one can get clucking, bleating and nasal effects. In addition there is an increasing use of sound effects, the rattling of the rumba, the use of klaxons, castanets and bells. A good player can take one in by his imitation of the laughing or groaning of a human voice.

Such imitative art, always an infamous thing in pure music, can be of great use in broadcasting where, because of the stylisation involved, it is a question of raising to a super-realistic level, not only the sound of human speech, but any natural sounds. Here the wireless is not, like the sound-film, tied to naturalistic pictures; it can embed a poetically 'heightened' speech in a sound-world that will not contradict it. Such developments are more radically possible in radio drama even than in the theatre, where, in spite of every stage-art of lighting and decoration, the solid nature of things easily makes the desired effect of a new and independent reality appear as merely an odd disguising and distortion of the old earthly reality.

But what is even more important for broadcasting in the development of music is that the extension of its expressive character, whether it was a good thing for music itself or not, provides a good basis for a general art of sound, by developing to a further de-

Natural Sounds

gree our feelings for the musical elements of speech and all sounds. In those forms of radio drama, too, where it is not so much a question of definite stylisation and 'musicalisation' as of almost natural speech and sounds, the romantic underlining of the expression in the music is a significant indication of the way in which music becomes expression.

For the 'representational' radio-play sounds will be of most use which at the same time betray their source in an unmistakable and expressive way, which are, in fact, an acoustic image of the object to which they owe their existence. Conversely, those sounds are especially desirable which are not only expressive but at the same time characterise some object that belongs to the scene of action. But we cannot be so systematic as to make every sound characterise only the object from which it proceeds. We must not conclude from the howling of the wind that the wind is wretched or in fact feels like howling, but it is a sacred stage tradition to use this howling to emphasise queer goings-on. The wind, also, to a certain extent, lends expression to events that have a purely local connection. A well-known example of this sort of thing is to be found in René Clair's *Sous les Toits de Paris*, where the scene of a fierce fight with knives is accompanied by the rumbling and whistling of a passing train. Here the casualness of the connection is even more obvious than in the previous example.

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Trains and fights have nothing to do with each other; it was only by chance that the fight occurred near a railway embankment. The connection is purely local but it is the kind of juxtaposition that can occur quite naturally in reality, and so does not seem forced. Such effects are just as useful for radio drama as for the sound-film.

A sound-drama should have a basic theme or idea that can be realised in sound. An author who was working on a radio version of Meyrink's *Golem* related that he had in his mind as basic theme of his sound-drama a heavy stumbling Golem-motif. This statement, trivial in itself, is nevertheless typical of and significant for the function of radio drama and it must by no means be taken for granted. It is not natural to proceed so consciously from a sound-motif, one that must naturally, as the example shows, follow the context strictly and cannot be arbitrary. We should notice, too, that it is no such simple matter as the naturalistic sound of the Golem's voice or the Golem's footsteps, but, far more generally, simply the sound-expression of the figure of the Golem, which can be manifested in an accompaniment of sounds or music. Here rather, the sound-character appropriate to the subject is conceived non-figuratively. In what concrete form the play will incorporate it is a matter to be dealt with later.

Grouping of Voices

Round this basic theme the other players must be grouped, best of all as other rudimentary sound-motifs. It can be easily understood that, purely from the point of view of sound, it would be appropriate to contrast with the heavy Golem motif, for example, a bright, moving one, perhaps of a woman or a child. Thus pure sound alone may suggest certain motifs of action. Round the basic motif will be grouped a number of sufficiently contrasted sounds, and from the sound alone one will be able to try out how far the cast and the action can be enriched and differentiated, without blurring the clear function of the individual or covering it up by doubling. It will be very useful to be able to proceed, as in music, from the fundamental types of bass, tenor, alto and soprano—musical practice shows how flexible such a scheme is, and that it is in no way necessary to lapse into stiffness and uniformity. The cast of Leo Matthias' radio drama *The Ape Wun* reads:

Queen-Mother	-	Bass
Buddha	- -	Tenor
The Ape Wun	-	Baritone
Yün	- - -	Bass
Mrs. Hsiang	- -	Soprano
Mrs. Fei	- -	Alto

When the function of the individual characters in the play is added, we have an illuminating summary

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of the composition of the piece. The vocal cataloguing of the characters is fixed, and with the sketch of the scenario not only can the matter of content be thought out, but with the help of this disposition we can try out the various sound-combinations in each scene. At the same time the content of the scenes must, of course, be taken into consideration; it will be easier, for instance, to introduce two voices of identical range, say two basses, in the same scene if they are in violent opposition; and two accomplices with the same aims will stand out best if they are given contrasting sound-character—or perhaps if they are made just exactly alike so as to indicate in sound their common interest . . . there are endless possibilities: only it is important to study in this way the compositional function of sounds, and not to think only of the action and the meaning of the words.

If we investigate the function of the individual voices in the radio play, *The Ape Wun*, it transpires that the basic motif is the struggle between the tenor and the baritone (Buddha v. Ape Wun). The baritone Wun, at first almighty and invincible, gradually succumbs to the tenor Buddha: clumsy brute force to the physically weak intellectual. Round this basic pair gather the rest of the voices. A rough outline of the plot would look more or less like this:

Scene 1: Baritone v. bass (the Ape disturbs the

Grouping of Voices

Queen in her sleep). Bass supported by tenor (Buddha, the Queen's ally)—thus the allies are in sharp acoustical contrast.

Scene 2: Baritone v. bass (the Ape fights the Guardian of Heaven, Yün). The same sound-motif with a new cast. The heavenly party represented both times by the same vocal register, namely bass.

Scene 3: Baritone and soprano as allies (the Ape promises to help Mrs. Hsiang). The scenes of strife relieved by an harmonious scene. The two, acting in unison, tonally in sharp contrast: clumsy deep voice with delicate helpless, high one.

Scene 4: Baritone v. bass supported by tenor (dispute of the Ape with the Queen, strengthened by Buddha). Repetition of combination 1, with a heightened situation due to conflict of subject-matter.

Scene 5: Baritone v. tenor (the Ape against Buddha). The foil (tenor) comes forward with his partner. Middle scene. Dénouement.

Scene 6: Baritone v. bass (the Ape against the Queen). Scenes 5 and 6 are sections of combination 4.

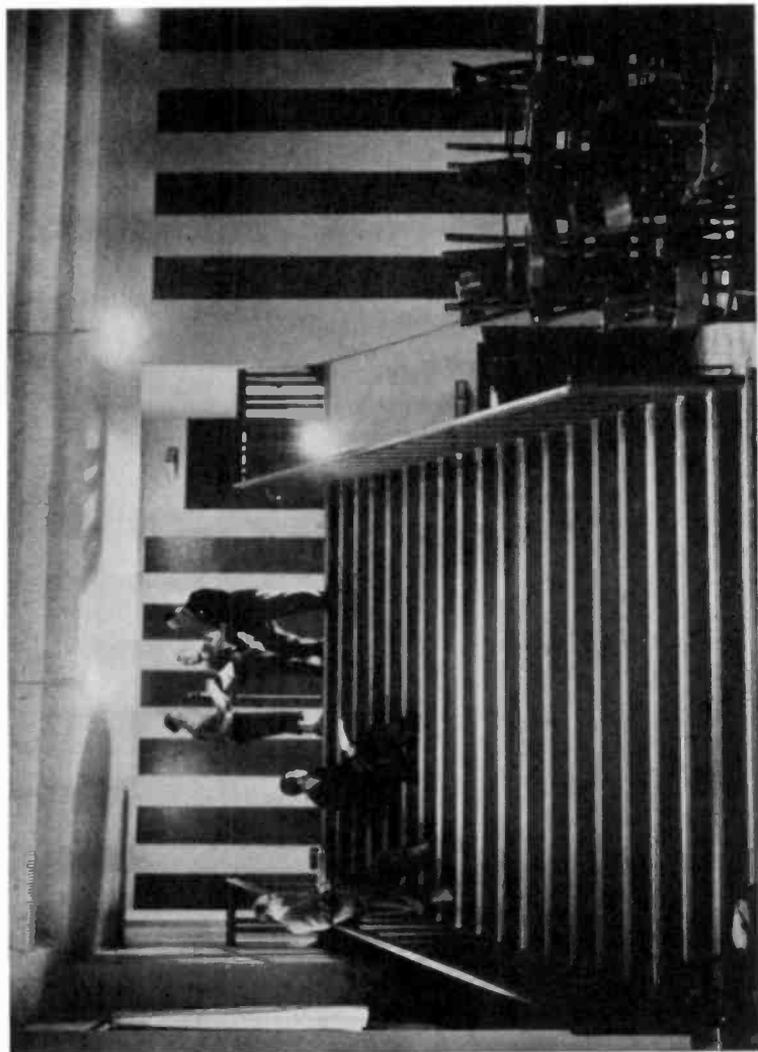
Scene 7: Soprano v. alto (dispute between the two women, Hsiang and Fei in court). Minor episode. Dispute between two high voices. Not too sharply contrasted, so as not to lessen the force of the chief conflict. The baritone, supported by the tenor, joins in. Both sides are now with instead of against each other.

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Scene 8: Concluding conflict: baritone v. tenor (the Ape against Buddha). Finale, contest of the two basic voices. Victory of the tenor. (Victory of light over darkness.)

We can see that such a summary is most instructive. It shows the counterplay of alternating voices, the succession of various combinations, always determined by the content and yet recognisable as being tonally significant. The relation of the sound-contrasts and similarities to the content is: the Ape's voice is very dark, really bass. It stands in sharp tonal contrast to its chief partner, tenor v. baritone (bass), while it is tonally almost similar to the secondary opponent (basses: the Queen and Yün). Thus the minor plots are tonally more restricted in range and tension; they do not rival the chief struggle, but support it as a supplementary motif. The counterplot is correspondingly limited in range and takes place in quite another register, that of high women's voices (soprano against alto).

Those indications should be sufficient to illustrate what is to be understood by the composition of a radio play in basic sounds. We have limited ourselves to stating the voice-type of each character, and to characterising the contents of the scenes roughly as contrasted or parallel. Contrast, which makes counterpoint possible, is notoriously the most important motif in composition. Drama is strife,



Flight of steps in the new dramatic studio, Berlin. Such steps can be used for placing a choir, or for special effects in plays.



'The White Coons' Concert Party', 13.5.55. Stanley Holloway.
B.B.C. Photograph.

Basic Sounds

spiritual strife, and our example shows well how this spiritual action in the plot is at the same time enacted, purely acoustically, as tonal opposition, and thus is apprehended by the ear as primitive acoustical contrast.

For the relation between action and sound the following basic types are available:

- (1). *Parallelism* between action and sound:
 - (a) to opposition of voices corresponds opposition in the action, e.g. bass opposes tenor.
 - (b) to similarity in the voices corresponds similarity in the action, e.g. two sopranos as allies, a twin-motif.
- (2). *Contrast* between plot and sound:
 - (a) similarity of voices as contrast to opposition in the plot, e.g. bass opposes bass.
 - (b) opposition of voices as contrast with similarity in action. Bass and soprano as allies.

This would be the basic formula for a combination of two voices. If one considers what an accumulation of voices is possible, and that instead of crude contrast and parallelism a host of finely-graded plot-motifs can arise, one realises how flexible, how inexhaustible is this basic type of composition.

Finally, let us indicate the elementary symbolism of the motif: the triumph of light over darkness—a

The World of Sound

theme well-known for instance from religious myths, and which also plays a fundamental part in the visual arts, painting and the film. The contrast in content between two dramatically opposed characters is most strikingly supported by a very sharp formal contrast, which the appropriate art-material has to put in its special place: as dark against light, deep voices against high voices. How nearly the factors in question correspond can already be seen from the fact that the same vocabulary is used in optics as in acoustics, as, for example, when we speak of a light or a dark voice, thus using optic terms for acoustic ones.

What here specifically relates to the division into vocal registers holds good, naturally, for the expression of character in general, for the grouping of tempi, vocal character, rhythm, dynamics and vocal line of speech. In consequence of the multiplicity of factors, the compositional relationships are in general very complicated.

The most superficial way of using different types of voices occurs when, as is customary in French, Russian and Italian stations, the uniformity of the latest news or advertising is relieved by letting a man and a woman speak alternatively. Here the acoustic character corresponds in no way to the substance: the formal representation does not reflect the content. But it does this in an admirable way when in a wireless discussion each side is represented by a character-

Types of Voices

istic speaker, so that the intellectual problem itself implies an opposition of tonal feeling, as, for example, when in a talk on books a naïve female voice questions a doctor, a priest and a politician on their views of a certain problem, and the representatives of the three professional types are (mutually) in good vocal contrast, and distinct from the questioner, thus resulting in an hierarchical grouping:

questioner v. questioned—
female voice v. male voices.

Such overlapping group-formations will also be very often suitable for radio drama. If it is a matter of two nations—Persians and Greeks—confronting each other, an individual Persian may and should differ entirely from another, the Greeks too; but further it will be essential for all the Persians as a collective vocal type to stand out from all the Greeks. The action is then symbolised acoustically by the opposition of two distinct, but in themselves divisible, national groups.

Direction and Distance

Hearing direction in nature—Absence of spatial direction in wireless—Consequences in practice—Hearing distance—Hearing movement—Offences against aural perspective—Normal distance: proximity—Tête-à-tête—Microphone music—Distance as a mode of configuration—Movement as expression

Part from characterisation by sound there are other aids to presentation in broadcasting. Not only what sounds but from where it sounds is important as an aid to expression in a wireless performance: that is, the situation of the sound-source in space, and, in the case of sounds coming simultaneously from several sources, their spatial relationship to one another. Most important of all is the distance of the microphone from the source of sound, because the relative distance of the sound not only serves the listener as a spatial orientation of the scene of action, but at the same time has strong expressive content. It is most forceful when near and above the level of the rest of the stage. But before we speak of the ex-

Hearing Direction

pressive value of the spatial, we must make ourselves clear as to the psychological factors involved.

Our ear can distinguish quite accurately between left and right: a sound coming, say, from our right, reaches our right ear rather sooner than the left, and

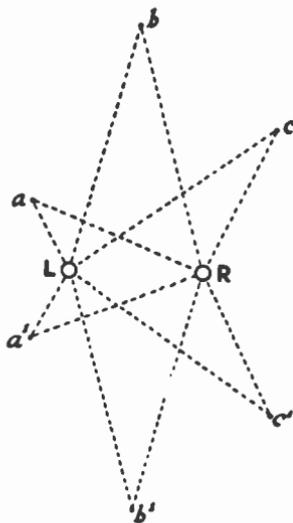


Figure 1.

this difference in time is unconsciously perceived. The difference, on the other hand, between before and behind, above and below, is much less clear. The reason is very easy to find. Before and behind are symmetrical directions with regard to both ears. So are above and below. That is to say, if the two ears are situated at L and R (fig. 1) we can determine that

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the source of sound is situated *a* to the left, *c* to the right, and *b* straight in front, and similarly if the points are situated behind at *a'*, *b'* and *c'*,—but we cannot distinguish between point *a* and *a'*, point *b* and *b'*, point *c* and *c'*. For these corresponding points are symmetrically disposed as to distance from both ears. In theory, therefore, it ought to be impossible for us to distinguish at all between before and behind. In practice, however, we help ourselves out by moving our head; animals even move their ears, and what we see and know supplements the incompleteness of what we hear.

Passing from direct transmission to transmission through the loudspeaker, we find a new and fundamental limitation: for the microphone the distinction between left and right simply does not exist! (Every listener knows that in listening-in to a dialogue he cannot possibly say which speaker is sitting on the left and which on the right.) Only by means of two ears, as we have already mentioned, can we distinguish right from left; but the microphone is only *one* ear, and it makes no difference even if we set up two microphones and each microphone uses its own transmitter and we listen in to the two transmitters through two loudspeakers! Of course, qualitative alterations in tone do exist when the source of sound stands not right in front of the microphone but sideways; these variations, however, are probably not

Absence of Direction

distinguishable from those which occur when the source of sound stands behind the microphone or the microphone stands behind the source of sound, or when the sound comes from in front but from a certain distance. In the sensory zone of audibility

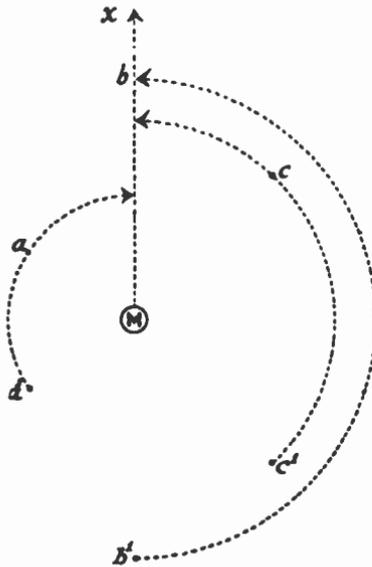


Figure 2.

which the microphone transmits to us there is probably *no direction at all but only distance*. That is, every sound-alteration evoked by the direction of the sound is apprehended as an effect of distance. Fig. 2 shows, in systematic form, how the various directions (*a, a', b, b', c, c'*) from which sounds

Direction and Distance

approach the microphone M strike the *single* line of extension in depth of the radius MX .

In fact, all those different spatial characteristics of sounding bodies in the transmitting-room are reduced, in their effect on the blind listener, to his hearing, along one extension in depth, sounds coming from various distances; and this naturally implies a fact fundamental for the whole business of broadcasting, above all for radio drama. For one thing, a realistic spatial distribution of sources of sound in the transmitting-room does not attain its specific effect on the listener—it is wasted trouble. And conversely, all desired effects of direction can be secured by simple alterations in distance and perhaps in refraction.

If someone speaks from a pit, it sounds—apart from other spatial conditions (a narrow pit)—probably just as if he were standing at a corresponding distance right in front of the microphone (and rather as if he were speaking through a large tube). For a radio play about dwellers in a lighthouse, a large scaffolding was erected in a German wireless studio, from the top of which the actor declaimed. We can assume that this expensive construction was entirely superfluous, for, acoustically speaking, voices from above the microphone sound just the same as voices on a level with it.

The acoustic impression, therefore, when it comes through a loudspeaker, seems to be neutral with re-

Absence of Direction

gard to the placing of the source of sound, and so all kinds of spatial indications can be suggested. From the content of the transmission the listener understands what remains purely acoustically unrecognisable to him, and without more ado the impression, relevant but physically entirely unfounded, is given of a sound coming from the direction required by the situation. The best example of this characterlessness of auditory direction is provided by the sound-film. During the performance all sound comes through loudspeakers which are fixed immovably either at the side of or behind the screen. Nevertheless, under normally favourable conditions, the sound always seems to come from the screen, and if we see in the film the mouth of the speaker in the right-hand upper corner, the sound apparently issues from there; if a dog is sitting below left, his bark comes down to us from there.

It is almost the same when the wireless transmits naturally weaker suggestions which make the intended spatial situation comprehensible: by the words spoken in the text of the plot, for example, or by an appeal to our experience. If someone on the roof is supposed to be talking to someone down in the street, the whole thing can be done without any house, on the studio floor. The one speaker stands near, the other at a distance from the microphone, and with this single arrangement it can be suggested alternatively

Direction and Distance

to the listener either that the microphone is situated with the one speaker on the street, who hears the other calling down from above, or that it is situated on the roof with the second man, with the first man calling up from below. Because, purely acoustically, both situations are equivalent on the microphone, except for the adjustable relations of refraction.

In just the same way, when a parliamentary sitting is being broadcast or acted, the listener will get the impression that the shouts of the Conservatives are coming from the right and those of the Socialists from the left, although, purely acoustically, there will be no reason for it even when in a set scene in the studio the actors are standing in different places.

This simplifies technical arrangements when it is a case of creating a spatial illusion in radio drama, but at the same time it lessens the comprehensibility and urgency of the spatial scene. Therefore for a radio play the manuscript must be composed so as to make quite clear the requisite spatial situation.

In all reportage broadcasts, where it is not so possible to give neat explanations to the listener, a less satisfactory impression is generally obtained. To the listener, the situation remains in many ways unclear, and even the effect of great space will be somewhat indifferently conveyed: the quality, certainly, of the space-sound will be felt—the echoing, the confused murmur and shouting of the crowd—but the

Hearing Distance

sound does not come from all directions: only loud and faint, vague and distinct sounds are heard, and all within a single acoustic extension in depth.

The question of spatial direction, of which we first spoke, is therefore obviously reduced to one of spatial distance. Now, in what way can we be made to realise how far away the source of sound is placed? There is first of all the diminution of volume with the increase of distance. Purely physically the volume of sound diminishes in proportion to the square of the distance, but 'taking into consideration the constant node of refraction one can assume that the volume of sound diminishes in simple linear ratio to its distance from the source, that is, according to the length travelled'. (E. Michel.) As for the limit of distance for direct hearing in enclosed space, Michel states 'that the force of the direct sound of a moderately loud but clear speaking-voice at 25 metres is sufficient for intelligibility, but this also represents the absolute minimum'. A similar statement for microphone-transmitted sound is not known to us, but from a communication in a technical periodical we gather that by means of a microphone, in front of which a parabolic screen is placed to catch the sound, a faultless reception is obtainable up to about 8 metres. One can assume from this, that technicians have a too narrow conception of the term 'faultless reception'. The alterations that the sound suffers, as soon as it

Direction and Distance

comes from a greater distance, do diminish the volume, differentiation, clearness, sharpness and roundness of tone, but the development of the sound-process in the sound-film has taught us that it is neither technically necessary nor artistically advisable to cling slavishly to the idea of transmitting 'the sound-in-itself' at its clearest and best. In the film, the sound is absolutely compelled to adapt itself to the movements of the 'sources of sound' in the picture, and it is well known that a film producer by no means keeps his actors at a constant and normal distance favourable to the camera but keeps changing this distance quite freely according to his fancy. In the first silent films a normal distance was kept. The actors moved substantially like the figures in a silhouette theatre on a single plane. Later we learned to appreciate the esthetic value of spatial extension in depth and to employ it for expressive effect. The actor no longer stood as a foreground figure against a scenic background; instead, the difference between foreground and background gave way to a space-continuum from front to back within which the action moved without restraint. Action used to take place *in front of* the décor; now it takes place *within* it. The first sound-films, through fear of the microphone (founded at first on technical imperfections) were retrograde. Producer, cameraman and player had to adapt themselves to the microphone, so Charles

Hearing Distance

Métain tells us. The scene had to be played right up beside the microphone. But very soon, the sound-film, too, attained the unconstrained movement in space characteristic of the latest silent films. And to-day the sound-director records dialogue and sound in the studio quite freely, even at a considerable distance. Intelligibility and cleanness of tone in no way sink below the minimum on account of this, and, by virtue of this very flexibility, an artistically important alteration in sound-character has been attained.

In wireless, this development is still in its infancy. As in the first films, a standard distance is still adhered to closely, and any departure from the normal volume of sound is regarded with disfavour. Partly through the tyranny of technicians, but also, above all, because the artistic possibilities of variation in distance have not become sufficiently obvious to producers, the dialogues of our radio-players to-day do not dare to leave the flat level of the normal position. The 'action' up-stage and down-stage is certainly used, but once the speaker has come right on to the scene he does not move a finger's breadth from the microphone until his little hour is over and he must vanish again into the background.

The impression that the sound comes from a certain distance is not necessarily given by the actual distance between the source of the sound and the microphone. Thus, for example, it is everywhere customary

Direction and Distance

in the wireless world, particularly when gramophone records are used for radio plays, to fake the approach or departure of a singer or a band of musicians by tuning down the amplifier and the right effect is achieved perfectly!

The insertion of a partition will in certain circumstances have the effect, not of a barrier, but of an increase of distance. According to von Hornbostel the sound seems nearer when a flat screen is placed behind, and farther when it is placed in front of the sounding body. Von Hornbostel further emphasises how powerfully the kind of the surrounding space influences the apparent distance. 'The sound seems nearer, the narrower the space which encloses both the sounding body and the listener, and the more completely, unbrokenly and densely it is shut off by walls (screens) which throw the sound inwards.' The apparent centre of reception, too, can be shifted: 'If one extends the opening of the auditory canal say by inserting into the ears short tubes cut off from outside by a diaphragm, the sound also seems nearer. If the tubes lead close up to the source of sound the sound seems to be close to or inside the auditory canal; if the outer end connects up with a box in which the source of sound is shut up, the sound goes right inside the skull.' These extraordinary phenomena should be examined in relation to the microphone. What happens when tubes are

Hearing Movement

placed in front of the microphone? Does the sound still seem to be inside the listener's head when the microphone is connected by a tube with a sounding body inside a box? Is there in this case a difference between loudspeaker and earphone reception?

Finally, if distance can be heard, it ought to follow that the audibility of the distance between two sounding bodies is represented by sounds which necessarily differ in a certain way. If the two sounding bodies stand equidistant from and symmetrical to the microphone, no distance between them will be audible, and they will appear to be in the same place.

Hitherto we have spoken of how far it is possible to establish by means of the ear the spatial position of a stationary sounding body. Can movement also be heard? Three main cases must be distinguished here:

(1) The movement of sounding bodies is audible, when by change of direction, of distance or of both together, a qualitative alteration of tone follows. According to what we said about direction and distance, every movement, however, will have the effect of a mere alteration of distance; that is to say, a possibly real alteration of direction is not expressed as such, but has only the effect of an apparent alteration of distance. In this way the character of a movement will in certain circumstances be completely

Direction and Distance

altered. If, for example (fig. 3) a sounding body, moves from c and passes the microphone in a straight line to d , the impression made on the listener can be that from distance c' it has gradually approached e and then receded backwards as far as d' . So that the movement would lose its continuity of

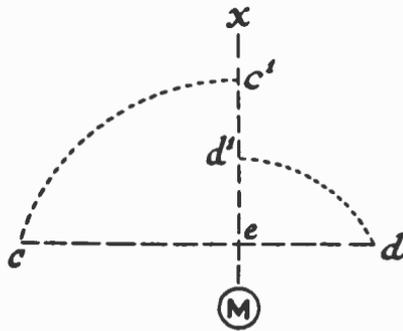


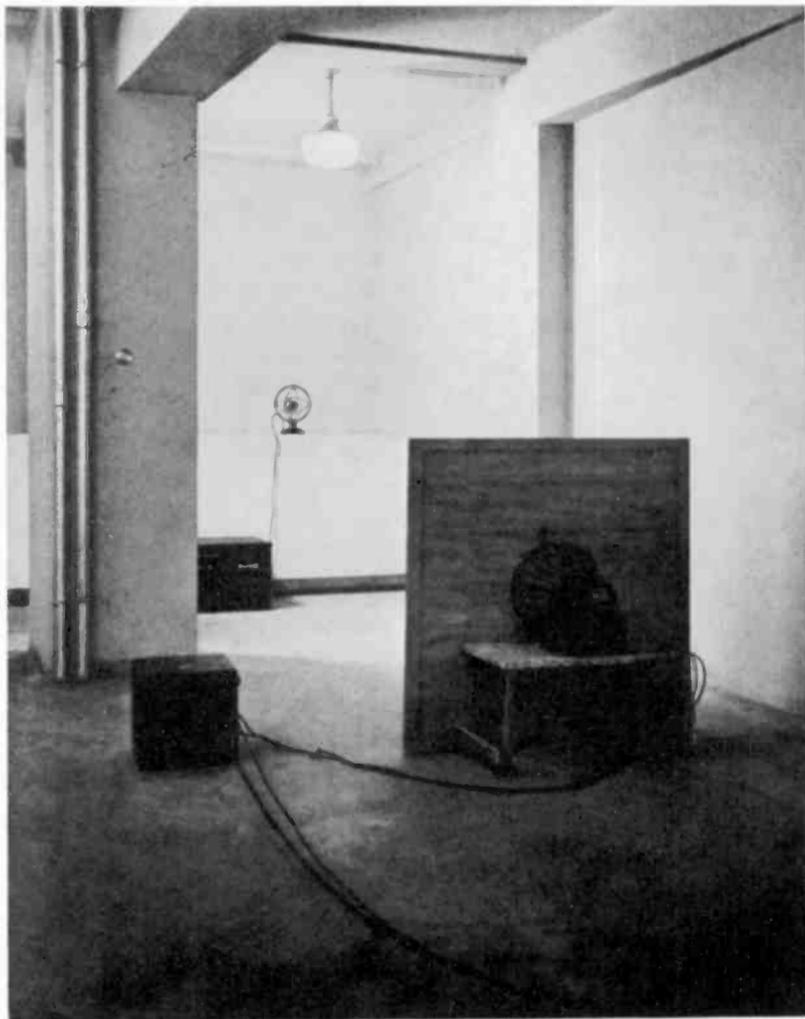
Figure 3.

direction and uniformity, and instead would revolve round the point of maximum intensity e . For this reason an entirely different esthetic impression would also be given.

(2) Not only the movement of sounding objects, but also in certain conditions the movement of soundless objects is audible—that is to say, when such objects cause modification of sound. If we hear people talking at a certain distance and some object passes between them and the microphone, a car, for instance, this event can be made audible even if the



The Red Sarafan, 7.5.35.
B.B.C. Photograph.



Broadcasting House, 28.6.32: Echo Room.
B.B.C. Photograph.

Hearing Movement

car moves quite silently—by a temporary subduing of the voices. In a similar way one ‘hears’ the opening of a door or a window. By this sort of indirect representation remarkable effects can be obtained.

(3) But even the centre of hearing itself, the microphone, can move. Up till now little use has been made of this wonderful possibility. The approach of the source of sound, indeed, is obtainable most simply, without moving the microphone, by tuning-up in the amplifying-room (and vice-versa the withdrawal of the source of sound), and this expedient is used frequently in radio plays and revues. By actually moving the microphone about, quite different effects can be achieved.

Purely acoustically one cannot distinguish whether the microphone is moving towards the source of sound or vice-versa. For in both cases it is a matter of an identical diminution of distance and therefore of increase of sound. Practically speaking it is quite easy to suggest to the listener which of the two situations is intended. If one hears the ticking of an office clock suddenly becoming louder, one will immediately regard it as a movement towards a fixed source of sound, for office clocks don’t as a rule walk about on legs, but are usually fastened to the wall on a nail. If, however, one hears the clattering and clanging of a fire-engine growing louder, one will regard it as the movement of a source of sound.

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(4) There is also audible movement 'on the spot'. Somebody turns his head while he is speaking or bends down, and the movement is heard because of the so-called directive effect of the sound. This directive effect, which is slight in stringed instruments with resonant bodies, like the violin and piano, but great in all conical wind-instruments and especially in the human vocal apparatus, means that the sound in the vicinity of the mouth of the instrument is very loud, whereas it becomes diffuse and diminishes towards the sides; moreover, waves of different frequency vary considerably in direction, high frequencies being cut off towards the sides, so that the sound becomes more dull and inarticulate the more obliquely it spreads. There is, therefore, a quantitative and qualitative difference, according to whether one sings (or speaks or plays) directly into the microphone or to the side of the microphone. Particularly when the source of sound stands right in front of the microphone, every alteration of the direction of the sound effects a powerful alteration in the tone. How far it is possible to indicate correctly the movement of the source of sound according to these alterations should be exactly determinable. The impression of movement arises, however, in any case. Such movement has no sense in ordinary talks, announcements, etc., and therefore should be avoided as an artistic error. But as an aid to vividness in

The Perspective Element

radio drama, it is a device which has not been nearly sufficiently made use of. The speaker at the microphone, however, is only allowed to make movements, so as to keep the volume of tone within technically controllable limits; if he roars he must step back or turn his head away, but if he whispers he must speak close to and right into the microphone. (These esthetically senseless movements are often audible and confuse the effect.)

The various directions in space by which a sound can reach the ear seem, as we have said, to disappear in wireless. Only distances are heard, not directions; and for that reason the perspective element is one of the most effective means of representation in broadcasting. That the difference between near and far (in wireless) has such an impressive effect is not only due to the fact that the qualitative change in the microphone from the near to the distant sound is given a much sharper contrast than in direct hearing, but above all depends on the absence of the visual. To the visual observer aural indications of space are secondary experiences, because his eye delineates the scene so well that what he hears has no relative importance. On the blind listener, however, the spatial characterisation of a sound makes a forcible impression, for it is through it that he first becomes even aware of distance. It maintains, there-

Direction and Distance

fore, such an important place in the listener's consciousness that the radio artist is bound to call in the spatial properties of sound for representational purposes; the result cannot fail to have its effect on the listener. For what kind of artistic effect can distance be used? Often, in art, physical facts are interpreted in a symbolic sense: physical distance serves to represent the relation of the actors to the plot, to the listener and to each other.

• This expressive content of distance, however, is not, as we have said, considered often enough in practice. On the one hand, the speaker is mostly kept at a normal distance affording the most favourable conditions. At the most a sound-background is set behind the speaker who occasionally, when the situation demands, is allowed to move backwards or forwards, but there is no question of using the whole available distance as a conscious aid to representation. Distances due to chance or to technical considerations which are either meaningless or contradictory are even allowed to remain. Different orchestral instruments are made to play at audibly different distances. An acoustically very active sound is allowed to come from far away, so that it will not make too many demands on the microphone, and it is not observed that this obvious distance lends the sound a meaningless or at least unintentional expression. There is an occasional attempt at expressing

The Perspective Element

the unreality of abstract voices by placing them far off. The sound certainly echoes very strongly then, as intended, but at the same time it comes not only from far away but also in a very earthly sense from behind, so that when the 'earthly' speaker stands right in front, a dialogue, involuntarily comic in its futility, takes place from the front to the back and vice versa, instead of from the heavenly to the earthly. In such a case one must dematerialise the abstract voices by rather less primitive means.

• In the use of music in radio drama, too, sufficient attention is not always paid to the correct distance from the microphone. Incidental music must be kept sufficiently far off throughout; it must not, because it is wanted a little louder, be pushed into the foreground and thus confuse the issue. If it is a case of using music to bridge the intervals between scenes, it should be placed close up so that the music sounds from the same distance as the main dialogue, and so that the listener may become conscious that it is not meant as an accompaniment or as background music, but as an independent, equally important and therefore foreground performance.◌

Occasionally apparent distances come about unintentionally. Voices that are acoustically very active, 'full', 'strong', 'good radio-voices', come out above others. If one of these voices takes part in a dialogue with one less active, it very easily creates the im-

Direction and Distance

pression of meaningless distance between the two speakers, through the apparent nearness of the stronger voice. In just the same way the louder voices seem to be standing further forward than the softer ones. The same applies to singing voices and orchestral instruments. Here, therefore, relative adjustments are necessary.

It will often be impossible to get a certain sound effect with one single microphone, but microphones may be placed in different parts of the room and used simultaneously; transmissions from different rooms, too, may be united to give a single sound effect, a device which deserves to be used more than hitherto. In spite of the fact that naturally only one sound-image issues from the receiver, whether one or several microphones are being used, all that is necessary is to give the resultant sound product a unity which represents accurately the spatial and tonal properties of the work being performed.

The same holds good if the impression of a definite distance is obtained by electrical means, through amplifying and diminishing, which, under certain conditions and for certain effects, is preferable. The final test is the effect in the loudspeaker.

The normal distance between the stage actor and the audience is so great that the normal sound volume of the stage performance must be considerable. On the other hand, the normal distance be-

Normal Distance

tween the microphone and the source of sound is very small, so the normal volume of sound in wireless transmission must be attuned to a listener considered as sitting very near the source of sound. This is also a very characteristic difference between wireless and sound-film. The voice of the film actor is, much more than the stage-voice, attuned to intimate effects. In spite of this, the normal and original focus of the film is that distance which depicts the entire human form, and the close-up, which always represents only a part, was only introduced much later and remains a special adaptation. It is just the contrary on the wireless; the 'close-up', taken from as near as possible, is the normal position and historically the first. Nearer approach is now just possible to a moderate extent: any alteration of distance will generally be from the normal position to one more distant. This is a fact which fundamentally affects the whole attitude and conduct of wireless transmission. From this it follows that the normal tone of transmission, for example, has to be that of a light, intimate conversation between broadcaster and listener. Physical conditions demand this, and so all wireless performances, when they are being tested for broadcasting appropriateness, should also be tested from the very first as to how far they satisfy this demand.

Again and again technicians have insisted that a

Direction and Distance

light intimate personal way of speaking has the best effect on the wireless. In spite of this we notice a dozen times a day that speakers do not talk in a confidential conversational tone into the microphone as representative of the *one* listener who sits in front of millions of receivers, but bellows *through* the microphone to an audience of millions. Many speakers believe that when they speak to a multitude, they must also speak loudly; many again are accustomed by public meetings and public halls to speaking in a bellow that makes the microphone shake.

It is quite clear that the problem here is not only the technical question of volume of tone. It is rather that loud speaking has functions different from low speaking, and depends on different emotional conditions. Speaking softly is more appropriate to a peaceful than to an agitated state of mind, and is more suitable for the practical presentation of arguments than for stormy haranguing, for dealing with individuals than for addressing a multitude.

The latter fact seems to contradict another wireless hypothesis: that the broadcast is always addressed to millions, never to the individual. Now it has often been said that the wireless addresses those millions not as a mass but as individuals. It talks to every one individually, not to everyone together. This, then, is a further reason why the radio-speaker should proceed softly and as if 'à deux'.

Intimacy

This rule, however, is by no means universally carried into effect. The trouble begins with the announcer. Too many of our announcers still assiduously cultivate a schoolboy over-emphasis in pronunciation which introduces a certain embarrassing constraint into their talks, and is contradictory to the proximity from which their voices come. They cultivate in their expression a pompous funereal tone which is quite out of place when the individual is being addressed. Perhaps this is due to the tendency, which many wireless-directorates show, to rely in such matters on grammarians and philologists rather than on men who have a sure feeling for popular effect. They rack their brains over the proper pronunciation of foreign names or the avoidance of faults of transmission, and in this matter precise and systematic aids are devised, but they do not think of talking in a simple and unaffected way which, of course, can scarcely ever be learned but is just peculiar to certain people. Whoever studies the methods of popular public-speakers, lecturers and compères will realise that the audience is gripped, not by what is said but by the effective tone in which it is said. This applies to a much greater extent to broadcasting. Anyone who does not possess this unaffected personal way of speaking suited to the short distance between the source of sound and the microphone, and to the isolated position of the

Direction and Distance

individual listener, will never have his text understood by the listener, and anyone whose profession is speaking on the wireless will not be able to sin unpunished against the fundamental stipulations of wireless.

Germans, especially, who are certainly not natural orators, will find difficulty here. In the character of the Italian language, for example, there is always something full-toned and rounded, which persists even in conversation. No fundamental difference exists between refined scholarly speech and conversational talk, and so the Italian announcer, even when he is speaking formally, does not necessarily create the impression of chilly distance, but rather wearies us by his unending euphony. The French announcer is helped by his natural vivacity of temperament, the frankness and unaffectedness of his character. The Englishman is distinguished generally by a pleasant ease and lack of constraint. The transmission suffers no loss of dignity on that account—just as a natural distance is not a matter of raising formal barriers but of being able to preserve distance and poise by a natural way of behaviour. The English announcer generally speaks in a friendly way and as if improvising, but also clearly and distinctly throughout. With the German announcer, unfortunately, one frequently has the feeling that he reads even the goodnight greeting off a paper. It can

Directi

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on and Distance

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Lack of Constraint

at the microphone—and now and then in every country similarly gifted people appear, who are lively but not loud, popular but not provincial, vivacious but without the officious temperament of the usual kind of aunt in the children's hour.

At the Katowice station there is a man who, in the evening after the programme is finished, runs a French post-box. It deals with private letters whose contents are read out for foreign countries. This broadcast goes on for hours. In the quiet of the night the man comfortably reads out his letters. He makes little pauses to acquaint himself with the contents, murmurs to himself, bursts out into cheery laughter when something amuses him, gabbles hurriedly through unimportant passages, stutters over some difficult name, reads it again, spells it out, growls with annoyance, falls silent and starts happily all over again. Perhaps it is too much of a good thing, and this sort of shirt-sleeve business would scarcely do as a regular item, but he too charms directly by the intimacy of his way of speaking. One feels like the guest of an old friend who is looking through some dusty old correspondence by the fireside.

Something of this spirit should animate everyone who functions as a broadcaster.

The physical fact that the normal distance between sound-source and microphone is inconsiderable, implies as a normal condition of the art of broad-

Direction and Distance

casting a spiritual and atmospheric nearness of broadcaster and listener. In music especially, under the influence of these conditions, a special art of intimate singing and playing for the microphone has already developed. It started in England and was originally used, not so much for the wireless as for the gramophone, where the same conditions hold good. The Whispering Singers, Jack Smith, the Revellers and others, by their intimate approach to the listener, charmed us in an entrancing and quite original way. They brought an entirely new principle into public performances which hitherto had been almost universally based on methods of the lecture-hall, pulpit and stage, and which therefore employed powerful mass effects. With the Whispering Singers one had the comfortable feeling of how well suited their speciality was to the technical conditions; and it was only right that the same singers, who had become world-famous through their records, should be a tremendous disappointment as soon as they presented themselves in the flesh to their public on a visiting-tour. They were and are representatives of the first microphone generation. Just as we take it for granted to-day that film and stage should not without more ado lend their actors to each other, in the same way in the acoustic realm microphone artists will be differentiated from 'concert-hall artists'. According to the nature of their

Microphone Music

voice and personality, actors, singers and speakers will devote themselves to one or other speciality.

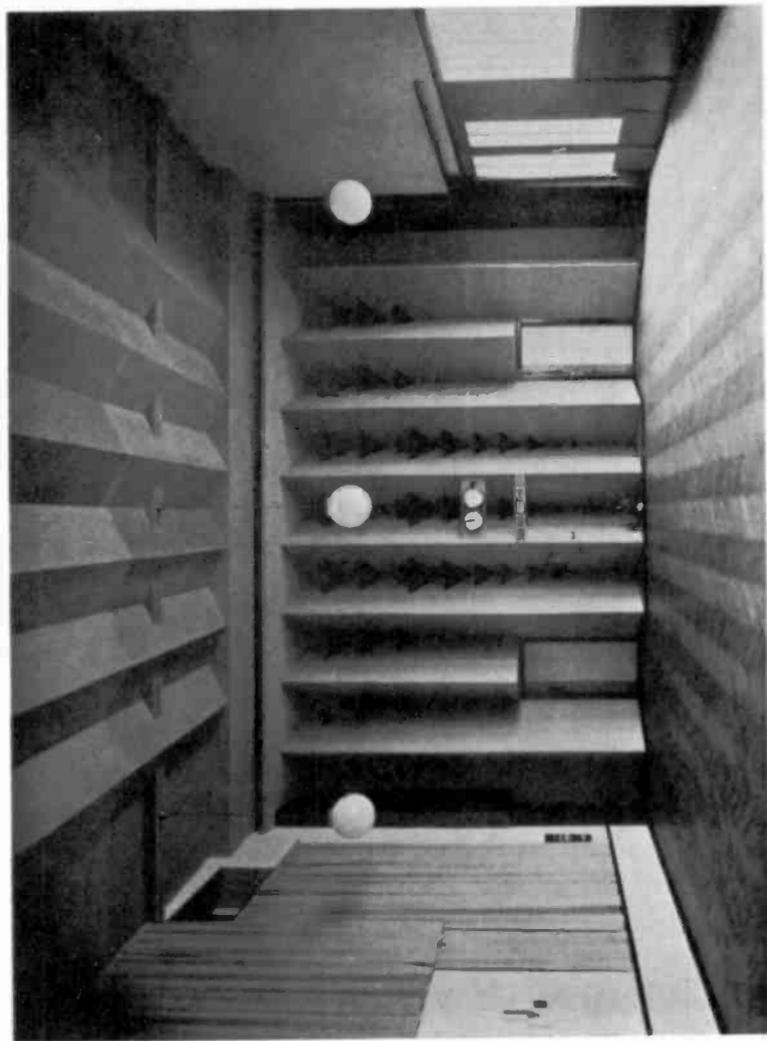
The economically-orchestrated, soft almost asthmatic dance-music broadcast from England every night from 10 to 12 excellently answers the demands of the wireless. The Englishman's preference for what is restful, rather morbid and quiet, here coincides happily with the character of wireless. For years composers for gramophone, sound-film and wireless have been aiming at a type of instrumentation that limits the volume and fulness of sound to an average level, and aims more at clearness than strength and at finesse than bravura. The volume of a large symphony or opera orchestra, which even at best depends on an extremely optimistic conception of the capacity of the human ear, is absolutely without value in broadcasting. Fulness of sound and polyphony become mere noise.

But should everything that cannot be attuned to the intimate note of such chamber-music be simply excluded from the wireless? Large realms of acoustic art seem to be utterly incapable of fitting into those limits. For example, there is a type of singing whose normal volume in opera as well as in concert-song is acoustically too loud for broadcasting. It cannot be denied that such singing through the loudspeaker generally sounds unpleasantly obtrusive, the listener feels too near and is struck by the impact of an ex-

Direction and Distance

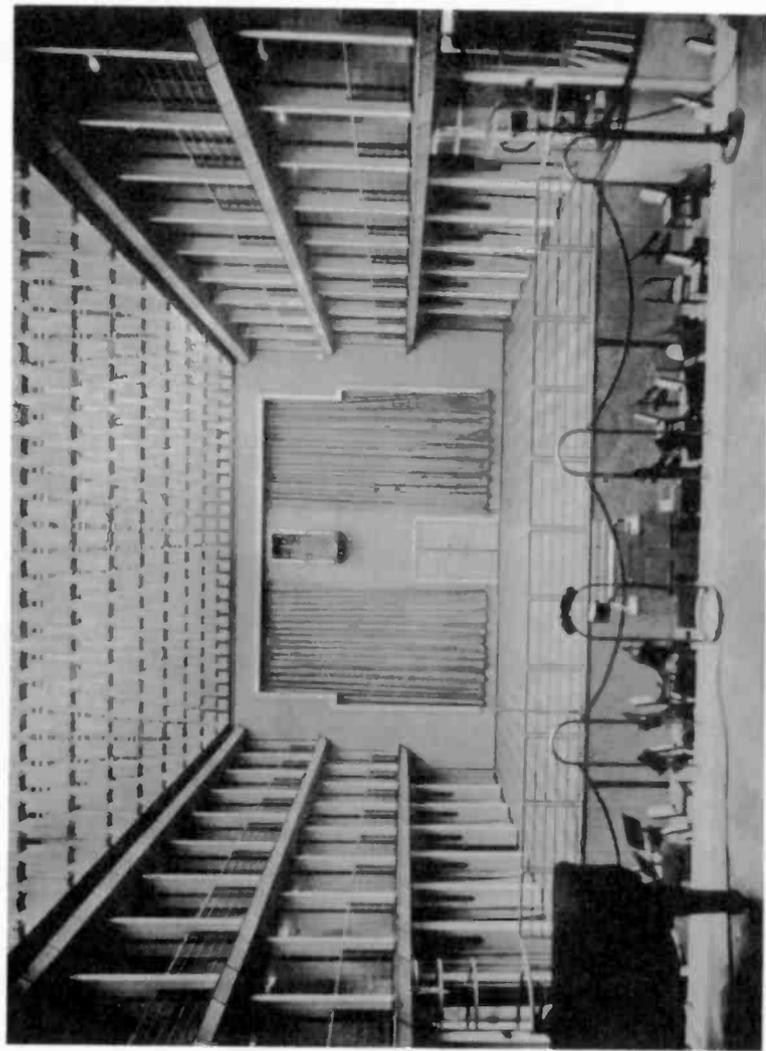
cessive effort of strength. It is just a question whether essential elements of this type of singing are involved which cannot be abolished for wireless, or whether methods of voice-production adapted to performances in large halls have led to a certain style of singing which could be replaced by one more suitable for broadcasting. Perhaps it is only too natural that the singing-teacher should aim at a 'big' carrying voice. Perhaps there is a type of voice more suited to the microphone which hitherto was compulsorily strengthened, or was from the very first rejected as being unsuitable for concert singing. Perhaps there is a kind of delivery, which could also be suitable for lively, quick-moving songs without the singer being under the necessity of roaring.

It is well known that unselfconscious beings, like children and animals, fear and detest concert and opera singing, whereas they are mostly fond of songs and music in general. This might suggest that something unnatural is associated with our art song, and indeed it seems that most people have to overcome a slight physical repugnance to the acoustic effect of the art song before they learn to enjoy it as an art. Would it be possible for serious concert- and opera-singers to learn from their more frivolous colleagues, the gramophone artistes, a more intimate, less massive, in fact, a microphonic way of singing, without sinning against their art? The first question



Medium-sized studio at Königsberg. Note devices such as broken surfaces of walls and ceiling and curtains for absorbing sound.

Reichs-Rundfunk-Gesellschaft Photograph



Large studio at Hamburg: Acoustic control by means of sliding walls, adjustable orchestral well, curtains, etc.
Reichs-Rundfunk-Gesellschaft Photograph.

Microphone Music

to consider is whether in this way all the vocal charm of a singer would have free play, and, secondly, whether highly dramatic parts could be adapted so as to dispense with a maximum display of lung-power. If that were possible, another important improvement could in this way be achieved. Unfortunately, it hardly ever happens in opera singing that the listener understands one syllable of the text. The text, however, is a most essential part of the work of art. Probably the bad articulation of singers is not entirely unconnected with the fact that they sing too loudly. If they sang more quietly they would be understood much more easily. The words of the Evangelist in Bach's Passions, if sung by a fairly good singer, for instance, are almost always comprehensible because they are sung *mezza voce* and as a recitative.

But how about huge emotional climaxes? The same difficulty, indeed, is experienced with the speaking voice. It easily happens that a powerful vocal outburst not only does not come off but may even provoke a feeling of involuntary mirth in the hearer—probably because such force in the milieu of wireless, dependent as it is on intimate effects, sounds exaggerated and extravagant. Nevertheless, there is a possibility of producing a strong note of feeling in a way suitable for broadcasting, even occasionally with splendid effect: the quiet voice trem-

Direction and Distance

bling with inner emotion, the suppressed outburst, the note of real feeling that needs no blustering to make one aware of it.

Undoubtedly there are situations for which such half-tones are inadequate, but all that we mean is to indicate that they are more suited for broadcasting and therefore more advisable; for one cannot deny the fact that a great many actors as well as singers, partly from stage tradition and partly from vanity, are inclined to 'open a big box' when a little box would be more appropriate, and that many radio-producers do not oppose this bad habit strongly enough.

It follows from this consideration that at political meetings the ringing, enthusiastic proclamation is less suitable for broadcasts than the intimate address which appeals to the listener's reason, but which need not on that account have the effect of being confidential (in an undignified sense); it can have quite an official ceremonial character. The possibility of firing a huge mass-meeting with enthusiasm will always be beyond the wireless. For this reason it should be clever enough to recognise its potentialities and confine itself to those methods of address which can be effectively directed to the listener's heart and head, because they alone answer to the particular nature of the broadcast. Wireless could bring into being an entirely new form of political speech: be-

Effective Eloquence

sides the normal type of loud hectoring address, a confidential discussion between leaders and people, a simple account of the difficulties, cares and joys of politics. But if no trouble is taken in selecting suitable material, the right effect will never be achieved.

The film has already gone through a similar development. The early film-actors used to give a theatrical display of mime and pantomime; they flung out their arms violently, tossed their heads back, rolled their eyes, dropped their jaws—things that to-day are just as comic to us as certain broad-casts of to-day would be if we were to hear records of them again in about 15 years' time. Even to-day the film-actor does not altogether avoid a display of great emotional climaxes, but he economises his material more; he has learned to make a greater impression with less bodily activity.

Broadcasting will undergo the same development, and this involves a moderate use of situations which, for the sake of naturalism, require a terrific vocal display. This applies especially to public speeches which occur frequently even in radio drama. For there the loudness of tone is not only an expression of strong inner emotion, but is also necessary simply for technical reasons in order that the speaker may be heard.

Here producers sometimes choose the expedient of letting the orator talk *mezza voce* in spite of every-

Direction and Distance

thing. But this is no real solution, for the ear of most listeners is very sensitive to such unnatural things. Another way of overcoming this difficulty is even more frequently attempted: the man who is shouting is simply placed further away from the microphone or tuned down in the control-room. But these are very dangerous methods, firstly, because every distance from the microphone has its own expressive value, as we shall see presently from examples; but, secondly, in order to attract the attention of the listener, it is usually essential for the voice to come from close at hand. Listening carefully to a speaker standing further than usual from the microphone is very hard and demands a special effort, because the acoustic contact, the feeling of being addressed, is no longer there. It is a common experience in broadcasts which involve the simultaneous presence of a large ensemble of performers, that individual voices or, indeed, the whole transmission, seems to come to one through a fog, with the result that very soon the attention wanders. One knows it, for example, from oratorio-performances, where either the choir or the individual musical instruments or the soloists are very cavalierly treated with regard to microphone-position, which results in the attention of the listener not being held, and all contact being lost.

But the effect is entirely different when the distance from the microphone is used as a deliberate

The Use of Distance

aid to production. Then it never seems as if the transmission as a whole were fading away; the placing of the individual sound has the effect of a significant deviation from the normal distance. The sound is given a spatial register, and thus is no longer an isolated sound as such, but is characterised in relation to the other sounds contained in the same space. This, of course, very considerably enriches aural means of expression. Normal distance loses something of its neutrality, that is, it is no longer a transmission uncharacterised as to distance, but by the additional presence of more distant sounds gains the character of nearness and, with this, its distancial expressive value. The elementary arrangement of a dialogue against the foil of a background can be elaborated to the extent of the entire continuity of spatial depth within which several grades of distance can be distinguished.

It will be understood that the placing of the microphone has in this connection a far more important function than that of merely assisting in the spatially realistic presentation of a scene. It is not only a matter of making it clear, for example, that a new character is approaching step by step, or that the firing of a gun comes from far away, or that two men are having an argument across a river.

It is not only a matter of getting the natural relations right in such ways, but rather of making use

Direction and Distance

of the expressive value of distance by so arranging the natural relations in a naturalistic radio drama, that the logically resulting distances have an expressive significance.

• With the help of distance it is possible to introduce a perspective vector in the dramatic situation similar to the 'shooting-angle' in photography and film. By certain sounds coming from near at hand while simultaneously others come from farther away, the listener is given, so to speak, a definite observation-post within the scene, from which he gets a subjective grasp of the situation. It makes an important difference whether in a public hall one is sitting at the chairman's table beside the lecturer's desk or in the middle of the audience, and this difference can be convincingly featured in broadcasts: if the voice of the speaker is loud and near and the crowd is at a distance (the usual situation in relays) then the speaker is the most important centre of the action. But if, on the other hand, one feels the audience quite near and hears their interpolations and whispered asides loud and near while the voice of the speaker sounds faint and far-away, then everything depends on the reception of the speech and the reactions it provokes; that is to say, no longer on the speech but on its effects.

The good radio-producer will in any case consider which angle conforms more to the sense of the scene

The Use of Distance

in question; he can also shift the angle while the action is going on. In any case this kind of perspective vector will add a powerful thrill to the scene, a tension of depth, so to speak, which is not present when speaker and audience are heard at an equal distance. On the other hand, these effects of perspective, being incapable of much variety, must not be overdone; every scene in a drama, for instance, must not be provided with such a strong contrast. It is rather part of the producer's task to attract by ever new impressions, and therefore he should employ alternating flat and perspective scenes according to the sense, i.e. scenes where the spatial division fluctuates and veers round, then some where it remains fixed, scenes with distance-nuances and scenes with crude division into background and foreground, some where the main action is enacted in front and some where it is at the back. If he succeeds in doing this without confusing the listener, perspective can become a sort of 'acoustic pointer', which not only enhances the form but at the same time enriches the meaning.

If the stage represents a café in which several conversations are going on at several tables, the centre-point of events can be now at one of the tables, now at another, but on the stage such a change of scene within an unchanging set is only possible when conversation and action at one table suddenly subside

Direction and Distance

unnaturally to let another flare up. The wireless can solve this problem as easily as the film does, through change of position. If the conversation at one of the tables is near, loud, and thus the centre-point of our consciousness, they do not need to start whispering or stop talking at the other tables: the perspective contrast succeeds in guiding the consciousness and dividing up the volume of sound without any interference with the proceedings themselves. The listener does not find himself, as in the auditorium of a theatre, at a fixed distance from the scene, but alters his vantage-point within the scene of action strictly in accordance with the will of the author and producer. If a car is driving through a busy street, the listener can, for instance, stand among the pedestrians, can regard the car from their point of view and hear what they say and think of it, and the very next moment he is also sitting in the car, he hears the driver speaking and experiences the people in the street as being at a distance and of secondary importance.

The distance from the action can be casual, variable and momentary, or constant and essential. One radio drama introduced an imaginary conversation by European voices with which an Asiatic voice—at a distance—was mingled. This remoteness indicating at once the geographical and psychological distance of the Oriental from the subject of the scene,

The Use of Distance

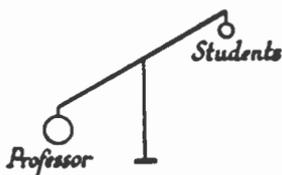
fitted in acoustically with the character of the Asiatic voice, as the melody and tempo of his speech: the distance became the symbol of the distant, and characterised his detachment of mind.

In most cases, of course, the distance will simply denote the attitude of the person concerned to a given situation, not to life itself. In one German radio drama there was a sort of chronicle of the last fourteen years in German politics; you heard Scheidemann, a member of Parliament, proclaim the republic, and his voice, in contrast with the chronicler's in the foreground, came from a great distance. Here what is actually and temporally long past was tellingly illustrated by the great distance from the microphone. On another occasion the prologue to a radio play was delivered by a gradually approaching speaker. As in a film 'fade-in', the performance emerges from nothing, the listener is slowly initiated.

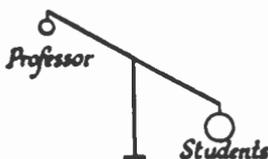
In another play two students are heard talking in their college. The voice of the Professor lecturing comes faintly from the distance. The students' conversation is quite close. Actually, to conform to the academic nature of the situation, the Professor's lecture ought to be brought to the front as the most important thing and so made loud. Instead of this the emphasis is shifted just to suit the action in which two out of the mass of students are taken as

Direction and Distance

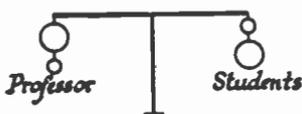
protagonists. In the perspective of the situation, what is really the centre of the scene is relegated to a side-issue in favour of a detail, subordinate in itself, which is instrumental in first bringing the particular action to our notice. In this way an exciting balance of tension results between two opposing emphases:



Division of stress in the lecture - room situation 'in itself'.



Acoustic shift of stress perspectively effected according to the particular action.



Balance of two unequal subjects for the sake of harmony.

Figure 4.

Even the emphasis on actually equal protagonists can be shifted by perspective means in accordance with the plot. If, in the course of a telephone conversation, one end of it first acts overbearingly, the producer will perhaps make that voice very loud at

Movement as Expression

first, and then when the other speaker gets the upper hand and makes the first one pipe down, he will change round the perspective relation so that acoustically, too, the second will sound more powerful.

Movement in a spatial direction will seem particularly pronounced, if instead of a steadily progressing dialogue a constantly recurring call in monotone is borne towards or away from the microphone; a military command, perhaps, handed on by relays from post to post, starting close up and ending far away and faint, or vice versa. Here the event consists only in an alteration of distance; the other conditions are constant, the text remains the same, and so from the point of view of composition all the emphasis of the action is laid on this spatial alteration. What is amusing in this example is that a sound moves through space without anybody moving with it. Each relay stays in his post, but the sound moves along their ranks and the same effect is produced as if one man were moving across the scene shouting the same word at intervals. To the blind listener the position and movements of the source of sound are only indirectly recognisable through the sound itself. If the same sort of sound occurs at different points of a line, it seems to be travelling along that line, just as in the dark two similar points of light appearing successively (in time and distance) create the impression of a single light moving from place to place.

Direction and Distance

Correspondingly the listener concludes that it is one moving sound unless the context instructs him otherwise.

There is a story that one day an old professor broadcast a lecture which to the alarm of the listening-room 'came through' acoustically remarkably unevenly. Through the loudspeaker came the sound of his voice growing louder and louder then dying away entirely and again rising in a crescendo. The official telephoned through to the technicians, but the cause of this vacillation could not be discovered until at last, with a presentiment which proved correct, he looked down into the studio and discovered that the professor in the excitement of the lecture had fallen into his old University habit of walking up and down while he talked. This the loudspeaker made perceptible by a periodic fluctuation in the volume of tone. Such movements are undoubtedly undesirable. For reasons which we will speak of later neither lecturer nor announcer should make himself 'spatially noticeable'; just as in general, movement of the source of sound should be made audible only when it is essential to the proceedings. If two people are talking in a moving car, the movement may be quite unessential to the conversation, which could just as well take place in a room. In this case the producer could omit any naturalistic indications of movement—as, for example, by acoustically re-

Movement as Expression

presenting apparent movements in the surroundings through which the car was driving without the listener missing anything. But when, on the other hand, the young poet, Michael Reinhold Lenz, is riding furiously through the night, as in Fritz Peter Buch's radio drama, the wild galloping of the horse has an expressive connection with the passionate nature of his monologue. One will want to give the impression of violent movement which, however, is technically not easy, because the speaker must of necessity remain at the same distance from the microphone, which is considered as riding with him, so to speak, while his surroundings whizz past in seeming motion.

A really compelling acoustic representation of motion will hardly be possible, unless one perceives either from the sound-manifestations of the moving body itself or its surroundings, that there is an alteration in the dimension of depth. However realistic the rushing past of a horse may seem from the cries of the coachman and the clattering of its hoofs, the dynamic factor will be lacking in the transmission, and, with it, the real correlate of movement, unless one hears the sounds growing louder or dying away.

It is possible that the extension in depth of the average microphone to-day cannot reproduce the fine gradations that should be obtainable. Technique directs its efforts according to esthetic demands. It

Direction and Distance

seems likely that to-day, when the expressive power of distance is not properly recognised, and, indeed, when an overfine register of all alterations of distance is felt as an unsettling disturbance of the favourite normal arrangement, the technical character of the microphone has developed in a direction unfavourable to the realisation of the methods of presentation we propose. Certain microphones will emphasise and exaggerate distance, others again will blur it. As soon as we proceed to record radio plays on film strips, it will be possible without any trouble for each scene to employ its own microphone, as the film operator chooses his lenses according to the angle of the shot and the emphasis of depth best suited to the needs of the individual case.

Spatial Resonance

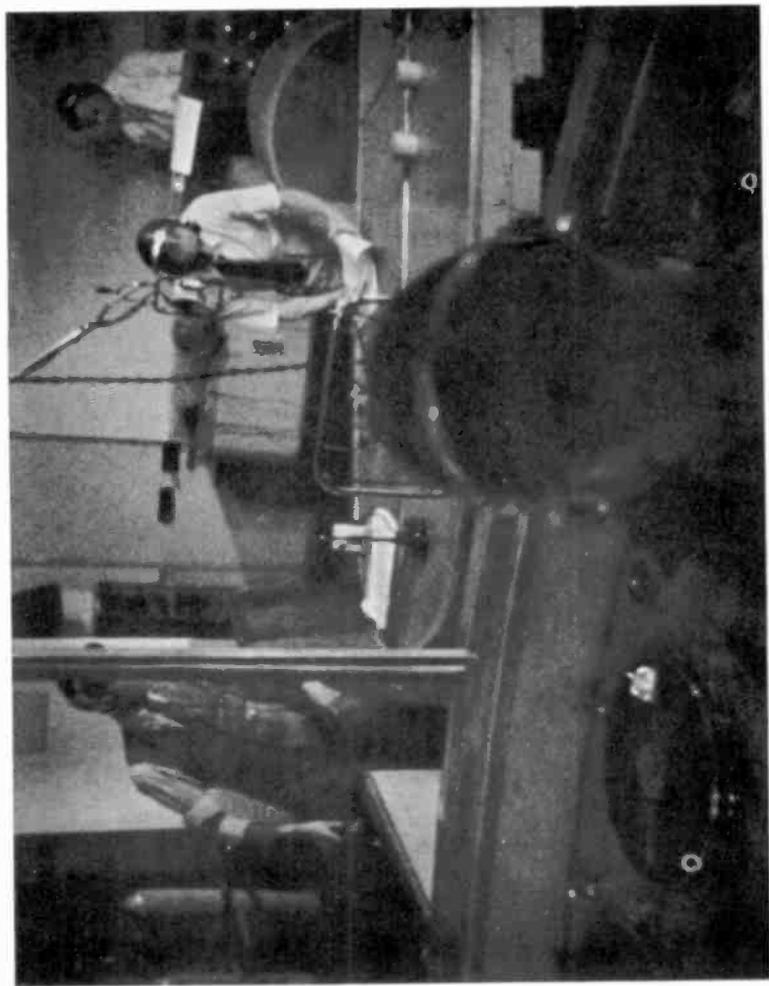
Combination of several spaces—When should there be no resonance?—What happens to a sound in space?

Can we hear space? Yes; our ear is certainly indirectly aware of space by the way sounds behave in it. Sounds can inform our ear in two ways about the extension of space. First by the kind of reverberation that the sound finds in the walls, or by the lack of echo (in open spaces or in artificially deadened rooms). Secondly, by the distance between the places where the sounds occur in a scene; if all the sounds in a scene are crowded together into an inconsiderable space, it gives a spatially narrow effect, but if one hears perhaps bells ringing at a great distance while near at hand a conversation is in progress, such widely separated sounds will denote great space. Naturally both factors work together, and occasionally it is most effective when they work in opposition; when, for example, in a space recognisably large through its powerful echo-effect, the sounds are confined to a quite narrow area, e.g. two

Spatial Resonance

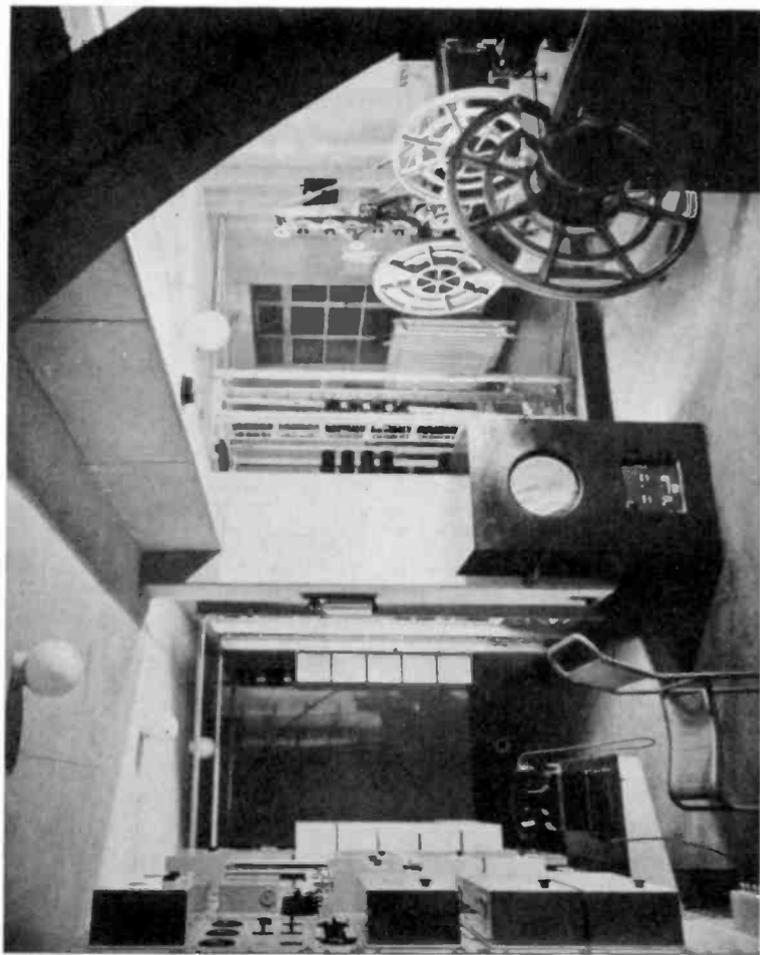
men having a quiet confidential talk in a large room. One can also use several spaces of contrasting sound-character for one scene: one microphone could stand with one actor in a narrow space, another with a second actor in a wide one. And then one would hear both spaces one after the other, or even simultaneously.

One should experiment thoroughly with the sub- and superimposition of different kinds of space. It is quite certain that many startling and novel expressive possibilities would be the result. Up to now the use of a combination of several studios has been almost exclusively confined to a direct sequence with contrasting spatial effect. But the latent possibilities may be now seen from the fact that one can, for example, vary the spatial resonance quite independently of the space in which the speaker is actually situated. A broadcaster might speak, let us say, from a deadened studio. His voice goes over the transmitter, but at the same time to a second transmitting-room which may have a strong echo, into which the sound comes through a loudspeaker. The sound from the loudspeaker awakens a very powerful echo in this second room, and this echo can likewise be transmitted in any measure desired. But not only can we add to a sound the resonance of a certain space in a desired or even in a fluctuating volume; we can also of course vary the resounding



Broadcasting House: The effects department. In the foreground, gramophone desk to mix records of natural sounds, music, etc., with the sounds of the transmission room.

By Courtesy of the Controller, H.M. Stationery Office, and the G.P.O. Film Unit.



Maida Vale: General view of No. 1 Steel Tape Recording Room, showing, from left to right, tone source and amplifiers, checking loud-speaker and two steel tape recording machines. 7.5.35.

B.B.C. Photograph.

Variety of Spaces

space and make the sound of the voice, unaltered in itself, come suddenly from an entirely different space.

In this way we can represent, for instance, the passing from the open air to a narrow room of a person speaking continuously through the microphone

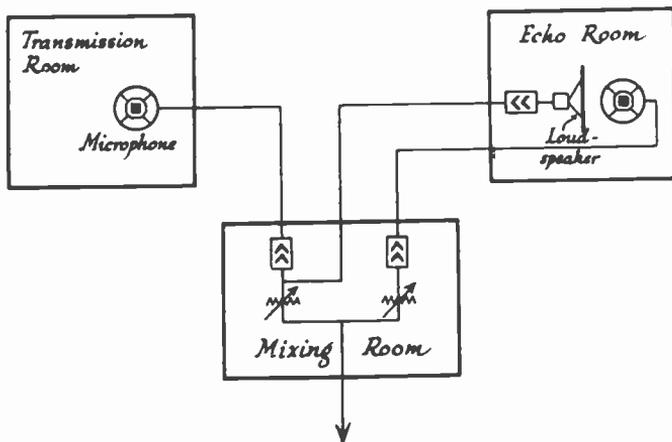


Figure 5: Resonance Room.

from an unchanging distance and actually standing still on the same spot; that is, we have here a new means of representing apparent movement and change of location.

Change of spatial resonance, exactly like change of scenery, serves to suggest acoustically a change of scene. If, instead of a reverberating space, we suddenly hear a narrow one, we shall infer, at least in a

Spatial Resonance

naturalistic radio drama, a change of scene—indeed, not only infer, but even hear it. The real solution of the question, when space must be characterised and when it must not, demands a fine perception on the part of the producer. The reason why announcer, lecturer and musician should not function in a space of conspicuous sound-character is shown on another page (p. 143). In such cases the space should make the sound carry fully, clearly and evenly, but without making itself distinctly heard along with it. In relays from public halls, and frequently even in concert-rooms as well, the clearness of the performance is damaged by a too powerful resonance. If, at the opera or in the concert-hall, anyone were to examine with the score, how much he had actually heard of what the composer had written, he would notice with a shock the amount that is lost, even with good singers and musicians. Many a polyphonic ensemble is probably never made sufficiently clear, and is only fully effective when the eye supplements the aural awareness of the music. Particularly with bad singers one can hardly ever make out even the broad line of the melody, and with bad conductors important counterpoints are quite indistinguishable. These imperfections, which are partly due to insufficient consideration of acoustic effect, are considerably enhanced when in broadcasts the space is unsuitable for transmission purposes.

Resonant Space

In radio drama in general, when the content of a scene characterises the place of action, one cannot do without the proper spatial resonance. If, in a wireless play, the scene is laid in a church and there is no echo, it will sound unnatural. There are, on the other hand, wireless plays which concentrate or can concentrate on psychological problems, so that there need be hardly any or no regard at all for the scene of action. Here the producer will conform particularly well to the sense of the play if he emancipates the human voice entirely from its earthly appendage of material space and lets it sound abstractly in nothing. But then he must do without space consistently in all the scenes, because, if some scenes have spatial sound, even the unresonant room will take on a certain spatial character from the others.

The fundamental difference between deadened and resonant space consists, in the first case, in implying to the listener sitting in his room that the sound seems to come from somewhere out of the same space that he himself occupies; whereas in the second case he is listening in to another, foreign space. In the first case the sound retains only the spatial characteristics of the room in which the loud-speaker stands. In the second case it is accompanied by a new, peculiar, invisible space; the broadcast is enacted on an 'aural stage' the character of whose resonance can be heard. This second form, then,

Spatial Resonance

will always be chosen when corporeal reality is to be given to events, and when the relation of sounds to space and the spatial relation between sounds are to be included as an expressive factor in the representation.

Spatial resonance serves primarily to render the spatial content of the scene of action in a radio play true to nature. But this is not an artistic function. In addition it conveys expression, and, in a good and well-produced radio play, the spatial resonance conforming with the place of action also gives an expressive quality typical of the inner meaning of the scene. The spatial resonance characterises the relationship between the person made audible through sound and his surroundings. It states whether his resonant capacity fills out the surroundings, or only represents a tiny unit in them. If an individual person is speaking, he must not be tiny in relation to the surrounding space, as the actor is on the stage, where an incongruity always arises between the great importance of the human being in the play and the inconsiderable space he occupies within the frame of the stage. In wireless, a single properly placed voice can fill the entire space and thereby express that for the moment it is the only thing of consequence and apart from it nothing exists!

So it rests entirely with the producer whether the space is to be filled equally completely by a single voice or by a plurality of voices. If, in a radio play,

Resonant Space

the hubbub of a crowd scene is suddenly interrupted by the voice of a politician, this one voice, if it is rightly placed spatially, has the effect, compared with the hundreds before, not of a volume a hundred times diminished but—according to the occasion—of one equally important and equally powerful in filling the space. In this way the weight and importance of an individual figure can be acoustically adjusted to any degree: a voice is not simply a voice, but, according to its position in space, an impressive individuality or a mere nothing. Thus, through spatial conditions, the original acoustic equality of all human beings (as represented by their voices) gives place to a hierarchy determined by spiritual values.

The fate that the sound suffers physically in space, becomes a tonal expression of a corresponding human experience. The hopeless, depressed mood of a man can be acoustically represented by the sound of his voice breaking on the near walls of a narrow room. Whereas the voice of a strong, free and inspired man, soaring untrammelled in space, will effectively enhance the meaning of the action and the text by its acoustic range. With such a primitive use of sensuous symbolism, the feelings of the listener can be most powerfully worked on, but again we must bear in mind that we are dealing here with a not very flexible and therefore an easily exhaustible means of

Spatial Resonance

representation which will have to be used sparingly if it is to retain its effect. From this it follows that, above all, resonance must not be squandered senselessly on accidental effects, but must in every case be consciously related to the spatial character of a scene, must not take by surprise but must always be intentional.

In radio plays where no naturalistic situation is, or need be, represented, resonance can be used purely as a means of expression. The prologue in Heaven from Goethe's *Faust* produced on the wireless could make the voice of the Lord soar far and free, while Mephisto's earth-bound voice would echo from a muffled room.

Resonance is not only dependent on the four fixed walls of the studio. This room can be adjustable, and for many broadcasting houses technicians have already made remarkable fittings for this purpose. A reporter here describes the hydraulically movable walls, ceiling and floor of a Hamburg wireless studio:

'The enormous back wall of the hall, the size of a fairly large house-front, suddenly approaches noiselessly. In a few seconds the room has diminished by more than half its size. The wide orchestra well with its stools and desks instantly sinks down about two yards. On the stage, a ceiling is lowered complete with all its lamps; heavy curtains draw aside; in the wings several blue, wooden interior walls push for-

The Uses of Resonance

ward, all at the same time, and so make the giant room smaller; then walls of insulated material replace the slabs of wood, in this way changing the acoustics of the room. There are walls that rise and sink, above and below and at the sides, huge curtains moved by invisible hands, on signs given from somewhere . . . From somewhere? From that little room—opposite us—where a young technician in a white smock seems to be playing with wheels and levers.’ (Eduard Rhein.)

Magical halls, still waiting for the right magician. For far too little of this kingdom out of the *Arabian Nights*, which arouses such transports of admiration in the visitor to broadcasting headquarters, comes through the loudspeaker, and so, up till to-day, many achievements of space-acoustics are more of a miracle to the eye than to the ear.

Sound-reflectors, screens, tents, make space within space, divide it up, multiply the potentialities of resonance. If the actor speaks through a funnel, the confining walls of this funnel will again produce a particular kind of space whose effects can be made good use of. A producer, broadcasting a reading of Wedekind’s *Spring’s Awakening*, for example, would in the churchyard scene let Moritz Stiefel talk through a speaking-tube to indicate acoustically that a dead man was speaking to the living from a far strange land.

Spatial Resonance

The conversation between a man and himself could be very skilfully effected by the same man taking both parts, but with each voice coming from a different room: the voice of the tempter coming, perhaps, from a narrow cabin, and the warning voice of conscience from a resonant room.

Sequence and Juxtaposition

Sections of time and space—Scene-changing—Demarcation by contrast—Demarcation by content—The interval—Fading and superimposition—Imposing a similar sound—Is montage to be recommended?—Documentary mosaics—What goes together?—Sound-effects archives

Every broadcast extends over a certain span of time—lasts, for example, from 8 to 9 by the clock. In spite of this, every broadcast does not present an uninterrupted section of time: the radio play, like the drama and the film, takes the liberty of extracting from the course of an event in time certain characteristic fragments which it joins together in one sequence. But the actual order of these scenes is not interchangeable, and, moreover, within each individual scene, time is uninterrupted and complete. There are also broadcasts that represent no event, and so have also no time-vector. A 'variety hour', a loose collection of short scenes, song recitals and recitations, is a juxtaposition of equally important parts

Sequence and Juxtaposition

rather than a sequence. The details of a large building, which our eye cannot completely perceive from close at hand, pass our gaze in succession, but this succession in time is not part of the nature of the object in question. In the same way, the sequence of the parts of a broadcast need not be essential to it.

But as soon as action is represented, we are concerned with a quite particular period of time, an unequivocal sequence which must be respected, even if only episodes are given. This montage of separate scenes, in stage drama frequently nothing but an indication of external limits, in the film has been, as is well known, developed into a first-class artistic medium. The possibility of lightning changes of space has led to the action taking place, not only successively but even simultaneously in different places, so that an alternation between the happenings in the different places becomes quite possible.

This sort of 'cutting' no longer separates, on the contrary it joins up. Whereas the interval between scene and act splits up the action into sections, this other filmic method of cutting joins up in a continuous time-sequence parts of the action which though divided in space are closely connected in the plot. *These* cuts do not imply an omission of time; the time sequence is kept unbroken, only in different places. If one scene ends one evening and the following one starts the next morning, that is a break in-

Time and Space

volving an omission of time. But if the shots switch about showing the police car rushing up while the criminal points his revolver at the detective, it is one closed scene whose time-continuum is observed in different places.

This kind of change of space within an unbroken time-continuum has found in films another use, i.e. the so-called shift of angle. Here the action is not composed of events in various places, but the happenings in one single place are shown successively from various viewpoints and distances. A conversation between two men, for instance, will be taken as a close-up, medium-long or long-shot—that is from various distances; or first behind the first actor, then round behind the other and finally looking down from the ceiling—that is from various viewpoints.

Turning to wireless, we see that theoretically it too can use all three kinds of 'cutting technique'. Of course, 'the shift of angle' in broadcasting is limited, as we have seen, to change of distance only, and for this reason we dealt with this type of wireless-montage when we spoke earlier about distance.

Change of scene, on the other hand, can actually be much more easily effected in wireless than in film. Whereas in film, each of the scenes which are to be mounted afterwards must be taken in a certain spot or in a certain setting, the wireless scene, apart from spatial resonance, exists in fact only as the sound of

Sequence and Juxtaposition

objects. We may hear someone say: 'Good-bye, Fritz, I'm going off to mother now.' Then a pause, then the same voice saying: 'Good evening, Mother, here I am.' So within a second we have jumped from the one place to the other. This springing from place to place and omission of time demands nothing acoustically but a short pause, or perhaps a dividing gong-stroke. The break will be explained only by the context of the dialogue. The actor can stay at the microphone in the same studio and after a short pause start the second scene; no reconstruction of the setting is necessary. Of course, a foreigner listening to this broadcast without understanding the dialogue would hardly notice the change of scene, unless there were a gong-stroke. For, as regards sound, Fritz's room need differ in no way from the mother's.

It is, therefore, a very convenient method, but it has great disadvantages. For this sort of scene-changing has a corresponding poverty of expressiveness. It is no more effective and probably less illuminating than when on the Shakespearean stage they took down the notice 'The King's Castle' and hung up 'Terrace by the Sea' in its place. Under favourable circumstances the public will of course understand that the scene has changed, but when such an important event as a change of scene is realised only by taking thought and by the course of events, and not

Scene-changing

by direct acoustic sensory experience, nothing much can be done to make it artistically effective.

It is an improvement to characterise the space somehow or other. The mother's room, for example, might be accompanied by the ticking of a clock which starts as soon as the scene begins. Or a very resonant large room can replace a small one. But lest such a method of characterising a scene might appear to be mere naturalism in sound, one will see to it that the 'sound-wings' of a scene are used not only as an external aid to indicate the situation, but also as a means of creating the general atmosphere suitable to the scene. The quiet, steady ticking of a clock will denote, for instance, the peace of the mother's room, especially if in the scene before and after the hubbub of a noisy street supplied the background. Incidentally one may say that such a scenic background, consisting of a uniform rhythm and sound, delineates the general character of a scene in much more concentrated and unequivocal form than any visual decoration. However suggestive the old-fashioned properties and shaded lights of a room may be, such decoration can never attain the simple, clearly stylised form of the ticking of a clock. At the same time it must not be forgotten that it is not only a question of attaining simple forms but also of what quality and individuality, how much reality and vitality, they contain. The sound-wings, in a way

Sequence and Juxtaposition

characteristic of wireless, gain the almost musically stylised simplicity of their aural form with a minimum of perceptual content: when the materials are few, it is easy to be simple.

Since you cannot give more than you have, wireless will have to make good use of its few means. If the scenic indications are at the same time to indicate the atmosphere, the radio play must be planned first and foremost with regard to these acoustic values. That is, the author of a radio play must, at the outset, construct the action and set the scenes so as to bring the content of the scene and the sound-character of the place of action into expressive relationship. If he does not succeed in doing this, the producer can only very exceptionally disguise the fact by the use of various makeshifts. A proof of how involved and inseparable the writing and the producing of radio plays are!

The difficulty of scene-changing in broadcasting, as we have said, consists paradoxically of its being too easy. It is easy for the actor to assert, without contradicting any essential in the broadcast, that he has just been in the law-courts and is now in the open fields. It just depends whether this effortless scene-changing can be made plausible and vivid to the listener. What methods of scene-changing are there?

A change of scene can be manipulated, first by the

Sound Contrast

contrasting character of the adjacent scenes, secondly by the context alone, and thirdly by the way the moment of transition is organised.

Contrasted character of the adjacent scenes: the first scene could take place in a resonant, the second in a non-resonant space. Or the first might introduce a dialogue at a distance and the second bring it close up. Or a quiet sound-background opposed to a rowdy one, rhythmic opposed to unrhythmic and amorphous, high-pitched to low-pitched, intermittent to constant, regular to irregular, foreground to background. Or in dialogue, animation in contrast to calmness, quick speaking to slow, monologue to a chorus, dialogue with frequent pauses to dialogue with none, male voices to female, or combinations of several of these possibilities.

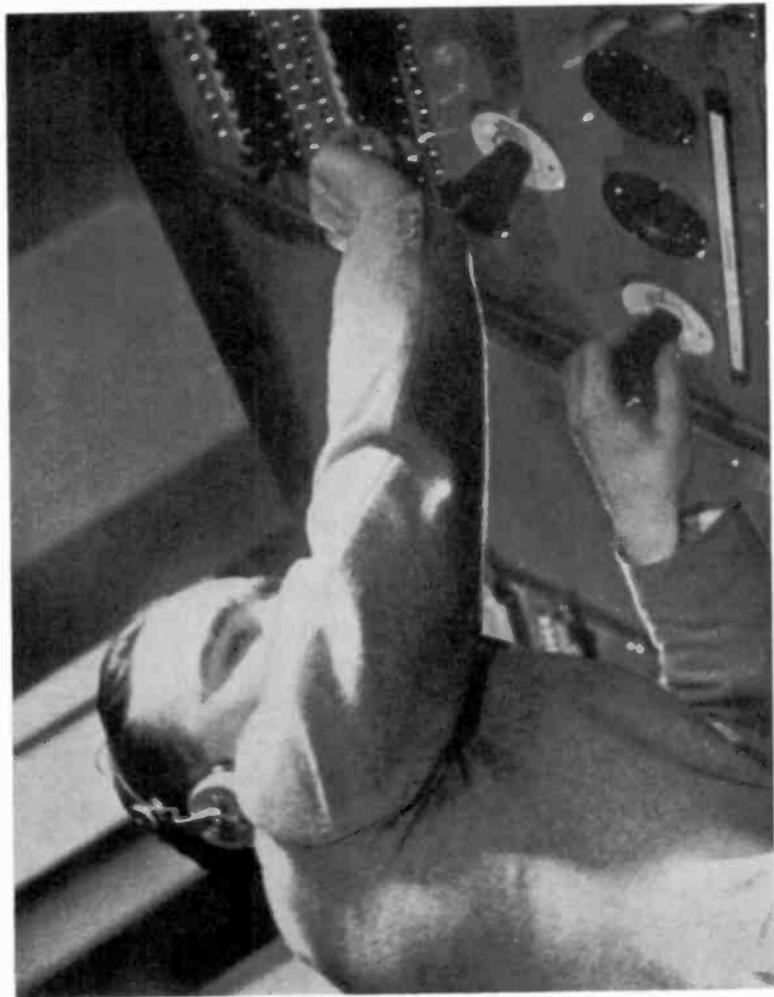
Change of scene inferred from the context only: we have already given an example of this in the scene: 'Good-bye, Fritz, I'm going off to mother now!'—'Good evening, Mother, here I am!' or else the innkeeper says: 'Go to the stables and take him a glass of beer!' and after a pause the maid's voice is heard saying: 'Here's a glass of beer from the boss!' Then the listener *knows* that the scene has changed from the bar to the stables, even though he has not perceived it aurally. In this way any period of time can be spanned, as when, for instance, a person is introduced to us in the act of arriving in the town, and

Sequence and Juxtaposition

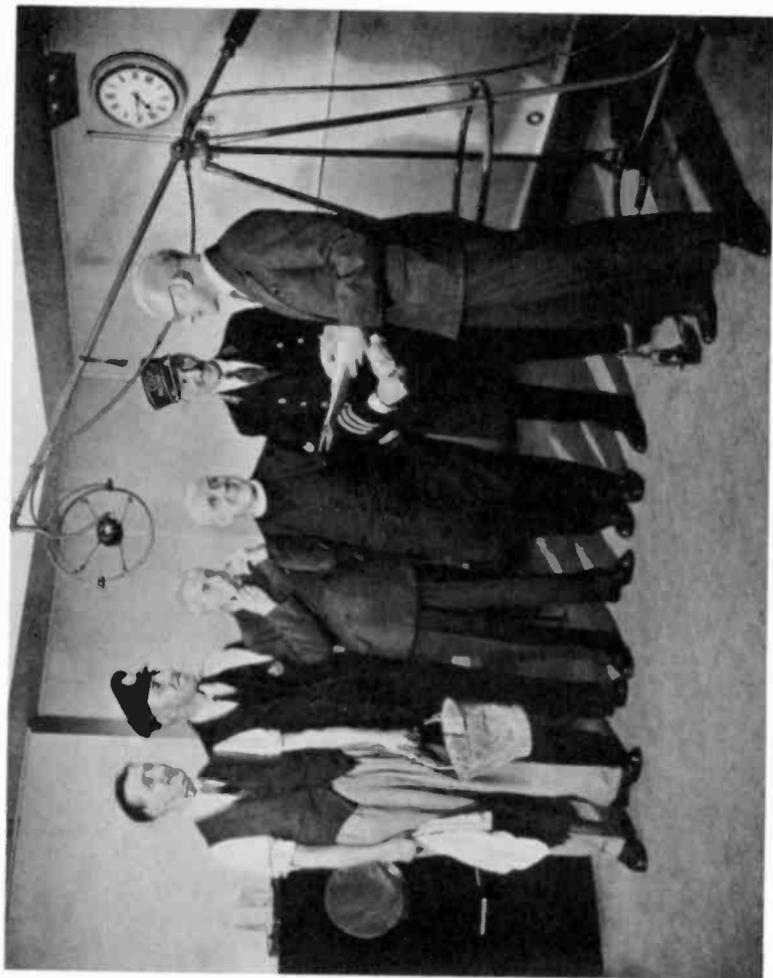
after a pause it is said of him: 'Now he has been here for weeks!'

Not only will the sense of the dialogue elucidate the change of scene, but also the sudden presence of people or noises which up till then could not possibly have taken part in the situation. If we had just been listening to a lonely wanderer in the desert and immediately after came the chattering of two girls, it would be at once clear that we were no longer in the unpeopled wilds. And if we had just been in a ploughed field, the sudden delicate tinkle of a champagne glass would in a stroke transport us to a completely different situation. This is also an example of how the shortest, simplest sound can conjure up an entire scene, if it is charged clearly and sufficiently with unequivocal associations. For example: any dull thud is indefinite, but the sound of a champagne glass is unmistakable, and the tinkle of glasses unequivocally recalls conviviality, comfortable rooms, good cheer; while a motor-horn or a clock ticking carries with it a much more fortuitous and less compelling association.

In radio plays which present no continuous action, there will be frequent possibilities of making even abrupt breaks in the subject-matter. In a radio play dealing with Frederick the Great, every scene started with one of his sayings, which was then illustrated by dramatised episodes from his life, a



Broadcasting House: A control panel.
By Courtesy of the Controller, H.M. Stationery Office, and the G.P.O. Film Unit.



'In Town To-night' (52nd edition) 13.10.34. *Left to right:* A window cleaner, Postman to the Pool of London, a manufacturer of Jews' Harps, the Costers' Bishop, Cook's chief representative at Victoria, and the Producer.
B.B.C. Photograph.

The Interval

series of co-ordinated scenes, each of which was opened by the speaker with the words 'Frederick said', etc. This breaking up of the broadcast into an alternation of dramatic dialogue by actors and recitation by an announcer resulted naturally in exceptionally clear divisions. In the same way in literary extracts, a dialogue will frequently be followed by the reading of a letter or a poem.

But even when dialogue scenes follow one another, it is possible to keep distinct divisions throughout. If the above methods are skilfully employed, the listener will know quite exactly, even without a gong-stroke, where one action leaves off and a new one begins. A short intermediate pause is quite enough. Of course, in one's experience, it nearly always takes a certain time for the listener to learn to regard the silence as an interval. At first he generally takes it to be a conversational pause in the play: there is a 'painful silence'—an angel is passing—until he jumps to the real meaning and the scene is felt to be finished. How long the pause must be, and whether in general it is enough to have a silence only, depends on how effective the close of the preceding scene is felt to be, and how great the actual contrast between the scenes to be separated.

A difficulty also lies in the fact that the silence of the interval does not distinguish it so fundamentally from the play as lowering a curtain on an open stage.

Sequence and Juxtaposition

Probably in the course of development, it will be more and more usual to construct broadcast scenes so as to follow on without a break, at the same time keeping the divisions between them quite clear; unless it is desired to emphasise the divisions by an entr'acte. The use of pauses will also be inconvenient, because one cannot simply break off and just let a silence follow. Dividing up the dramatic action by giving it a beginning and an end must never have the effect of being a part of the events themselves, but rather must always be obviously introduced for external reasons. If, for instance, the sound of the sea serves as background for a scene and this sound suddenly stops because the scene is at an end, it has the effect of an interference with the action, an annihilation of the sea, instead of the impression it was intended to create, that of moving away from the sea.

¶ The most primitive resource is that of a slow fade-in and -out of the sound. If the sound slowly dies away it has the effect on the one hand of taking the listener slowly away from the situation, leaving the scene of action in the distance, and, on the other hand, of a gentle transition from something to nothing. Instead of fading-out and then fading-in again, one can simply fade from one scene into the next without any pause by making one scene slowly fade in at the same time as the other slowly

Fading-in and -out

fades out. Two simultaneous sounds that could not possibly belong to one situation will make the listener realise—just as he would in a film—that this is a case of the superimposition of separate situations.

It will do, too, if the scene to be finished is smothered by a new, louder sound, so that it vanishes as it were behind a curtain. In this case, however, the new sound must be quite clearly interpretable as belonging to the new situation, as when the noisy bell of the chairman at a public meeting drowns the quiet talk of two solitary men. As this sort of covering-up of one sound by another can occur naturally even within a single scene (as, for instance, when the loud laughter of a surprised eavesdropper overwhelms the quiet talk of two lovers) the division must be made to depend clearly on the context. A good example of this sort of 'acoustic curtain' is the sudden striking-up of entr'acte music which, so to speak, drowns the scene. With this sort of covering-up or uncovering, a scene can start in the middle of a sentence or even of a word.

The difficulty of distinguishing between two scenes of similar acoustic consistency has now led to a contrary solution, namely, not of trying to enhance the acoustic contrast as much as possible, but rather of specially emphasising the consonance, so that the difference of content stands out. A practical example: the puffing of a railway-train changes into the very

Sequence and Juxtaposition

similar sound of the snoring of a man, who, in the next scene, is found asleep. Both scenes are thus brought to an acoustic common denominator; the acoustic resemblance is enhanced to a complete unison, and, following a fundamental esthetic rule, this essential constancy of all the other elements brings the typical inequality of the exception into prominence. Of course the new significance of the sound must be such that it could not possibly have been heard in the preceding scene.

This principle can be carried to extremes, as when (according to a method frequently used in films) not only is an acoustic consonance evoked, but the last sentence of the first scene is made to correspond with the first in the second. In the first scene, for instance, the nurse says reassuringly to the invalid: 'Of course you'll get better!' and immediately one hears the doctor say in a consultation: 'Of course the patient will never get better!' Here, then, the correspondence is even more striking, and therefore the contrast between the two scenes becomes all the more distinct, and with it the change of scene—which here, moreover, not only denotes a continuation of the action in another place, but at the same time establishes a relation of idea between the adjacent scenes.

The musical interlude is likewise a device for separating scenes. Many listeners may wonder why

Superimposition

music is so frequently used between the scenes of a radio play. They do not realise that music in such cases is used as an 'acoustic curtain' because, as a neutral abstract sound-material, it divides up the different parts of the action in a simple way.

Apart from the use of such technical expedients in radio dramatic art, we must be fundamentally clear as to whether in theory the use of change of scene can be recommended at all for radio drama, or whether one should not rather construct a play of one or two scenes to run without a break. Change of scene makes it possible to select the characteristic episodes from the period of time between the beginning and the end of the action, and to leave out the rest. This is in any case an important advantage which one must not neglect, for only in a very few cases will it be expedient to limit the action to a closed period of time. Change of scene further permits us to spread the action over as widely separated places as we please. Thus it becomes possible to show the relationship of characters in the action even when they are not in the same place; and, moreover, to characterise them by their behaviour in different surroundings. The latter is not possible on the wireless in the same striking way as in the film, where we can observe the characters in various costumes in various settings at various occupations. In the matter of such external variety, of course, the wireless can-

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not compete with the film, but even in wireless the change of background will give the cast good opportunities of appearing in piquant situations and of talking with different sorts of people.

But, whereas every film simply has to change the scene of action frequently (even if it is only within a small area such as a house) so as to avoid being visually monotonous, wireless, besides giving plays abounding in changes of scene, can in others strictly preserve the unity of place throughout, because there can be no visual monotony where there is nothing visual at all, and, because in a work of art depending chiefly on words, action abounding in external changes is not only superfluous but even disturbing. If it happens that the material includes a great number of different and differently conditioned people in one central theme, it can straight away bring in a multiplicity of little scenes in different places. But if the destiny of a few people is being shaped whose lives are closely bound up, it will frequently mean a play concentrated on words and psychological activity, and then wireless can take advantage of its immateriality: external action, and with it change of scene, can give place entirely to internal complexities, conflicts and solutions. This sort of radio play, whose manuscript demands little or no scene-changing, but only perhaps a few leaps in time, will be produced with all spatial and scenic

Montage

factors (echoes, sound-effects) suppressed, and in this way will succeed in reducing externals to an extent unattainable in a theatre.

The ease with which wireless can present occurrences at various places and times as a unity and in spatial juxtaposition is especially suggestive if it deals not only with imaginary themes, but also with genuine ones taken from reality. If, for instance, sound-shots of various episodes from the life of a politician existed, they could be put together in a sound-picture and so a whole life could be concentrated into a single hour. Another politician could be made to comment on the original recorded speech of an opponent even if this opponent were dead or gave his speech in another part of the world. The fertility of this principle will only be proved to the full in the future when records of the most important political events and speeches of a comparatively long period in history will be available. With this material it will be possible to give historical and systematic extracts and demonstrations with a force we can scarcely imagine to-day; history will speak, and it will be at least a little more difficult to falsify it! Wireless directly juxtaposes what is farthest removed in space, time and thought with amazing vividness. One of the most dramatic events in the history of the wireless occurred on New Year's Eve, 1931-1932, when the New Year's speech of President

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von Hindenburg was interrupted by Communists: here, unexpectedly and at a significant moment, two extremes of political thought were manifested directly after one another, and those opposites seemed to come from the same room. A similar effect is obtained when the long-distance receiver picks up two antagonistic transmissions one after another or even on top of each other. It represents a triumph of the mind that it has succeeded in creating new worlds of the senses in which actual space- and time-relations are of no value, but where the associations of thought of the directing mind decide what—not only in thought but also in the senses—belongs together. What is happening at the moment of listening-in in different parts of a sports ground, of a town, of a country or of the world can be picked up by wireless and so arranged that one can experience the one period of time common to the whole world alternatively in different parts. In this way wireless can directly confront the noise of war in one country with the peace of another, the midday bustle of one part of the earth with the quiet of night in its antipodes, the city stock-exchange with the country market, the luxurious music of a dance-club with the wretched pianola in a low public-house. And all this at first hand, as an actual event of the moment. These same effortless leaps in space governed by the central thought of a broadcasting official can be

Superimposition

achieved by the listener himself; he rushes from station to station on his long-distance receiver and abandons himself to the ecstasy of the breadth, the depth and the diversity of earthly life; or if it is more to his taste and way of thinking, he selects from the hundred-fold broadcast events of the moment such as suit and please him, and thus makes a subjective montage out of the products of a whole world.

Wireless achieves its effects not only by the succession of sounds but also by their superimposition. Sounds which are heard together are placed by the listener in relation to one another; the sensory coincidence suggests a relation of content. Wireless, unlike the film, does not force what is simultaneous into the narrow, compulsory limits of the screen, but even the mere simultaneity brings about a close contact in the acoustic sphere, because there the individual things do not lie *beside* and separate from each other as in visual space, but *overlay* each other completely, even when, objectively, the sounds come from different spatial directions. For even these spatial differentiations disappear in wireless: sounds are not distinguishable by their different spatial directions—and so this ‘want’ in wireless brings about such a complete sensory superimposition of simultaneous sounds that the use of simultaneity in production is particularly effective: as, for instance,

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when the peaceful chime of a church-clock breaks in on a noisy brawl, or when, amid the faint echoes of a distant funeral march, there suddenly comes the lively twitter of a bird near at hand. While voluntary workers speak of the reconstruction of Germany the sound of their shovels is heard, thus making the abstract meaning of the word concrete by a sensory symbol.

This superimposition is particularly apt too, when it is not a case of things belonging scenically together, but where different things are superimposed according to the association of meaning and mood. All accompanying music has this character. It will be impossible to superimpose a multiplicity of texts, or they will become incomprehensible, but it is just this melodramatic counterplay of music and text (dialogue or recitation) which makes such pleasing effects in radio revues and similar forms of montage, where the various items are momentarily covered up to blend them in, so that a loose hazy texture is obtained which conveniently hides the seams of the montage.

In many cases, it is practicable and commendable to make up the sound-content of a radio scene from a mixture of several individual records, instead of doing everything at once in the studio at the time of the broadcast. Firstly, this makes it possible to use records of the original sounds, above all for sound

Sound-effects

effects. This has already been done to some extent, but this expedient is not nearly so much exploited as it might be, and in any case it is done with impracticable gramophone records instead of soundstrips. The use of the former on broadcasts of radio plays largely depends on choosing certain little bits of the records, and, in spite of the finest judgment, it is a matter of chance, even for the most skilful and experienced people, whether they will manage to put the needle in the right groove at the right moment in the broadcast. A film-strip, on the other hand, can be cut at will, so that it fits quite exactly into the play.

Nevertheless gramophone records already enable us to utilise the whole range of naturalistic sounds for radio drama, and for a real radio dramatist there can be nothing more exciting than the study of the archives of those records. Besides records of famous political events and speeches and interpretations by world-famous singers, instrumentalists and conductors, there is a wealth of naturalistic records:

‘And now the smiling librarian, a new record in her hand, goes up to the gramophone: the little room is filled with the deep breathing of a man, as loud as if a giant were snoring! . . . Then the narrow walls seem to fade away, a landscape appears, enlivened by the prattling and plashing of rushing streams. Then

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cars go racing through the tiny room, rumbling omnibuses and little rattling tin lizzies; a storm crackles and thunders by; noises of the stock-exchange emerge and turn into children's voices; we hear the wheezy organ on the merry-go-round and the subdued roar of the fair. . . Again space dwindles to the size of the room, and suddenly invisible hands begin brushing clothes, crumpling paper, blowing noses, and then, in bewildering contrast, the walls extend into a factory with machines stamping and engines humming, harbour-noises surge up and mills creak, and so it goes on almost indefinitely: laughter of girls and growls of rage, battle-cries, drumrolls and trains puffing . . . The young lady smiles again, conscious of the astonishment in store for the listener: an entire zoo with its thousands of voices appears! Monkeys scream and chatter, the walrus snorts, the polar-bear yawns, deer bell, dogs of all sizes and breeds bark, the tiger growls, the lion "speaks his mind", a pig grunts, bees hum—and birds trill and whistle and sing, from the canary and the nightingale to the kestrel. . . '—(From a newspaper article by Curt Corrinth.)

Only when one has sat at the 'effects-table' oneself, fantastically mixing all sorts of records at will and blending them together, does one know the fascination of this game.

A large number of these records can be played at

Sound-effects

once, and they can be combined with what is being produced for the first time in the studio. Thus, for instance, it will be quite superfluous to imitate the bark of Frederick the Great's greyhounds by the more or less realistic yelping of a few worthy wireless officials—a genuine greyhound-bark can be obtained.

The Necessity of Radio-Film

Film recording—Use of the effects-table—Obstruction of the artist.

It would be a step of great importance for the development of the art of radio drama, if every radio play which used space and montage as a means of expression were not 'performed' in the studio as if on the stage, but were recorded piecemeal on film-strips like a sound-film, and the individual strips cut properly afterwards and mounted as a sound-film. This would be superfluous in plays depending entirely on the words, plays in which there was absolutely no question of the voices sounding in materialised space nor of scenic indication by sounds, nor of rapid changes of scene. But it is correspondingly more important for filmic wireless plays.

Of course, even to-day, wax records are frequently made of wireless plays. But that has as little to do with what we are talking of here as the filming of a stage performance has with a real film play. Records are also being used to an increasing extent in radio

The Use of Recording

plays, and this is the first step towards the use of the sound-film. There is the objection that mechanical recording will make the broadcast independent of that inspiration of the moment which is the special glory of wireless, allowing the listener to participate in events *in statu nascendi*. That is true. There is certainly a thrill in following an event during its hour of birth and not taking only belated cognisance from a copy. As an experience—even if both representations are completely identical—it is not the same thing whether one hears a piece of music from the record or the original: in the first case we are offered a finished article; in the second we participate in a birth, an undertaking that may still fail, whose issue is still uncertain. This tension which arises whenever people watch the present taking shape, should not be underestimated; and for this reason—apart from others—it is not worth while recording perfect specimens of all music, for instance, and then only transmitting from records. An art in which the time-factor is essential should not be deprived of time's special charm, that of making an infinitely small part of it actual and present, of fixing past and future alike.

This only holds good, however, as long as important artistic considerations do not urge the contrary, as in the radio play. Even the most mechanical recording offers action and issue, and any movie-fan

The Necessity of Radio-Film

will bear witness to a sufficiency of tension, even when he knows that the end of the drama lies recorded in celluloid in the operator's room, as unalterable as if in the lap of destiny. In the same way radio drama can also plead quite convincingly that it is not necessary for a work of art to be actually happening in a superficial sense.

Let us again enumerate the advantages of recording. It makes us independent of the time and place of production; original records of real sounds as well as of historical events can be mingled in the broadcast, also records of all previous productions which one does not want to produce all over again during the broadcast (orchestral illustrations, for instance, in a lecture on music). Indeed whole scenes of a radio play can be taken in the open air at any time and in any place so that it is no longer necessary—as happens occasionally—to send the performers on to the roof or out into the courtyard of a broadcasting-house for a specified open-air scene . . . which is not such fun for the performers if a heavy shower happens to fall during the broadcast.

All this can also or could at need be accomplished in the present usual way with gramophone records. But there remains the difficulty of fitting in these records during a broadcast at the right moment with the right balance and in desired relation to each other and to the studio performance. An important



B.B.C. Symphony Orchestra conducted by Dr. Adrian Boult, 9.5.55.
B.B.C. Photograph.



Large studio at Königsberg, containing 200 fixed seats—the side walls are not parallel, the ceiling is inclined, with hanging panels to improve the distribution of sound. The inscription means: 'Everything sounds, even silence.'

Reichs-Rundfunk-Gesellschaft Photograph.

The Use of Recording

part of the work of production is left to the technician in the effects room, who, even if he is an artist—which one can hardly require of him—cannot possibly have all the producer's most complicated schemes at his finger-tips; and, even if he is a marvel of dexterity and presence of mind, he cannot possibly give every entry and nuance during the broadcast with the same exactness that is possible when it is done peacefully at the film-montage table. If the producer himself sits at the effects table during the broadcast, the first difficulty is lessened, but not the second. The system usual to-day of lightning-speed production may have its attraction as a sport, but the result is often comic.

In addition there are a number of means of representation, some of which cannot be used at all with existing methods, and some only by taking so much trouble that in practice one is limited to simple cases which only require primitive results, or does without them altogether. Scene shifting during the broadcast demands such quick changes that to some extent complicated arrangements are impossible from the start. For very many scenes, for example, one might wish to place several microphones in quite a particular way, but how can it be done if in the very next scene, after a second's pause, a completely different microphone-arrangement is required? It is neither possible to rearrange things so quickly nor is it prac-

The Necessity of Radio-Film

ticable to set up all the necessary equipment side by side right away, so that it only needs to be connected up. This would be a very considerable complication to say the least of it, so we make shift with more primitive arrangements which can be retained more or less for every scene. It does quite well of course, yet in this way the development of radio art is more powerfully retarded than we imagine. For it is always technical possibilities that inspire the artist to new forms.

How can one make any elaborate use of a speaking chorus when the group has to be drawn up in a few seconds during the broadcast, and then must clear the ground in an equal hurry for the next grouping? How can one, to get a certain effect, test to a hair-breadth the distance of a speaker from the microphone and the strength of voice for the transmitter, when afterwards in the hurry of the broadcast nothing but a rough approximation is possible? How can one prescribe a relay of microphones to be connected one after another when immediately after a mob of supers will rush past and fall over them?

That is why to this very day most producers group the scene for the microphone, not the microphone for the scene, just as in the early sound-films. That is why authors of manuscripts adjust their plots not to what might be done, but to what can be done.

In the production of radio drama to-day, micro-

Use of the Sound-strip

phones are as fixed as if they were rooted to the ground. But before long there will be no choice but to move them: to turn them here and there with the help of the so-called gallows, to move them about the studio on a trolley. That will mean considerably complicated arrangements whose functioning will depend on a lot of details and chances, so that a responsible producer will not risk setting up that sort of scene only at the moment of broadcasting. Here he must safeguard himself by recording it. If he works with mechanical records, he has then, like the film producer, the possibility of choosing the best of several shots. And if the records are made, not on gramophone records but on sound-strips, he has the further possibility of exactly determining the 'cutting', that is, of specifying the beginning and the end of every piece of montage exactly to a second. This is especially important for the exact timing of fading out and in, whose success or failure to-day depends on first-night luck. And it is not only a matter of fading in and out at the right moment and with the right dispatch, but frequently, for example, of harmonising the last sounds of the first scene with the first of the following one, so that they blend in the manner desired.

It may occasionally be exciting, in a wireless chase through theatres and cabarets of a town or even round European stations, to break in by chance on very

The Necessity of Radio-Film

different types of production. The excitement of what the producer will manage to get and whether it will be at the right moment is shared by the listener and gives him a sporting pleasure. But there is no doubt that it is more reliable and profitable first to record the individual themes and then to strike off a selected sequence. Outside broadcasts to-day are done more and more by first making records of the whole thing and then broadcasting successful extracts, which also has the advantage that the time of the broadcast is not bound to the time of the original.

So long as radio drama neglects to take advantage of montage-forms and fails to use the most natural technical procedure for producing them, no zeal or imagination will carry broadcasting in this department beyond the first stages. To be free from the time and place of the original event, to do away with the art of improvised sound-effects produced during the broadcast in favour of a careful montage-work which is finished before the broadcast begins—this is the right policy for the future.

In Praise of Blindness: Emancipation from the Body

(i) *Against using imagination—Ineffective ‘relays’—The bodiless announcer—Music without musicians—Action and background—Dramatic economy—Exposition—Noises.* (ii) *Dialogue and monologue—Abstract figures, symbols, personifications—Voices without bodies—Essential form of radio drama—In defence of the announcers*

There is in art a general law of economy which demands that nothing but what is essential for its form should be admitted in a work of art. Of course there are works of art of extravagant profusion, broad of outline, as rich in figures and images as nature herself, but in such cases just this profusion is the effect aimed at, not rank dead flesh. We demand that nothing should be brought in just for its own sake, but everything must be essential to the effect produced. The frame of a picture must not only be merely an accidental limit (because even

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the largest picture must come to an end sometime); in a play every character must have his definite rôle, in a piece of music no instrument should merely have the task of filling in parts. It is just this indispensability of all its parts that differentiates the work of art from reality.

But not only is there a creative economy in art; there is also an economy of enjoyment. A certain unbearable type of art-connoisseur, on perceiving a work of art, uses his 'imagination', sees in it alone the criterion of a real work of art and estimates the worth of the work according to how strongly it 'excites' the imagination.

Now every work of art should indeed 'indicate something more', in so far as in any particular case something universal is depicted—in the destiny of 'a man' the destiny of 'man', in the dynamics of a symphony-movement, the struggle of 'strength' with 'despair'—but the listener is in no way entitled to supplement the work on his own and thus to take away from the representation its essential limitations. He has rather to keep strictly to what the artist offers him, he has to respect the choice made from a wealth of possibilities—an essential element of artistic composition—and not to supplement it by his own imaginative frills.

This consideration is particularly necessary for the understanding of wireless-form, for wireless rules

Misuse of the Imagination

out a certain range of senses in a most startling way. It seems much more sensorily defective and incomplete than the other arts—because it excludes the most important sense, that of sight. In silent films the deficiency of speech was scarcely noticed, for mere sight already gives a most comprehensive picture of the world. Painting certainly does not make us think that we are missing the aural, for it is, to a lesser extent than the film, a part of reality. It is very far from the material world, so one does not apply material standards to it. Wireless's sin of omission, on the other hand, is most apparent. The eye alone gives a very complete picture of the world, but the ear alone gives an incomplete one. So at first it is a great temptation for the listener to 'supplement' from his own imagination what is 'lacking' so obviously in the broadcast.

And yet nothing is lacking! For the essence of broadcasting consists just in the fact that it alone offers unity by aural means. Not in the external sense of naturalistic completeness, but in affording the essence of an event, a process of thought, a representation. Everything essential is there—in this sense a good broadcast is complete! One can dispute whether the aural world alone is rich enough to give us lively representations of our life, but if one agrees, even with reservations, no further doubt is possible that the visual in any case must be left out and must

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not be smuggled in by the listener's power of visual imagination. Statues must not be subsequently given a coating of flesh-tints, and a wireless broadcast must not be envisaged.

The wireless artist must develop a mastery of the limitations of the aural. The test of his talent is whether he can produce a perfect effect with aural things, not whether his broadcast is capable of inspiring his listeners to supplement the missing visual image as realistically and vividly as he can. Just the contrary: if it demands such supplementing it is bad, because it does not succeed with its own resources, but has a bitty effect.

The sensory preponderance of the visual over the aural in our life is so great that it is very difficult to get used to considering the aural world as more than just a transition to the visual world. Thus there is a widespread fixed opinion as to the task of the wireless, which can be best summed up in a sentence from a speech given at a meeting in Cassel in 1929 by Dr. von Boeckmann, then one of the heads of the German wireless: '. . . as a result of such aural education, we get a quite incredible activity and intensification of the imagination. Thus the wireless listener experiences in daily renewed moments of keen inner concentration the true omnipotence of the word and its pictorial force. I maintain that the listener trained in such concentration gets further with the translation

Visual Images

of aural impressions into pictorial images than he does with the most complete kind of stage-naturalism. If we can only succeed in producing an acoustically correct aural-impression, then, gentlemen, you can suggest what you wish to the listener; he will make the requisite picture out of it, even to the fourth dimension.' It will be seen that this opinion is quite the opposite of ours.

How far the average listener makes supplementary visual images for himself is worth investigation. Probably to a considerable extent, for, as we have said, the unusual situation of only hearing compels, at least first of all, the usual experience of supplementing hearing by visual impressions. But it does not follow that this unaccustomed and therefore seemingly unnatural situation might not be beneficial, and worth experiencing and cultivating. We shall try to prove that it is so. Seen from the wireless point of view, one must make it quite clear that the urge of the listener to imagine with the inner eye is not worth encouraging, but, on the contrary, is a great hindrance to an appreciation of the real nature of wireless and the particular advantages that it alone can offer.

That radio drama, in spite of the undeniable features of an abstract and unearthly character, is capable of creating an entire world complete in itself out of the sensory materials at its disposal—a world

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of its own which does not seem defective or to need the supplement of something external such as the visual—will be granted at once, as soon as one compares a tolerably efficient production of a radio play with an outside broadcast or relay. The wireless play is self-sufficient, completes itself in the aural; the transmission of an opera, a theatrical production, a cabaret performance, a race, a celebration or a meeting, judged by the sound that comes through the loudspeaker, must appear to be only the part-utterance of a greater whole whose perception is denied the listener. It is not only that he is conscious of a space to which the broadcast is not adjusted, and which frequently drowns most of the performance by its reverberations, not that voices and music are going on somewhere in the distance and making the prerequisite of attentive listening impossible—in such transmissions the aural has only the part-function allotted to it in the life of reality and of the senses all together, and so the whole procedure is frequently incomprehensible because what is essential is not presented with such completeness that it is possible to forgo all that is not sound. The acoustic void, the silence in which sound is embedded, has less the effect of a background free of content than of a stage agitated with important events which, however, are withdrawn beyond the listener's power of comprehension. Thus while in radio drama the

Self-sufficiency of Wireless

listener has the peaceful feeling that he has a complete grasp of the proceedings, during the relay he feels himself crippled. He hears people tramping up and down and doesn't know what they are doing, he hears a happier audience laughing loudly and doesn't know what they are laughing at, he hears sudden applause or shouts of greeting and hasn't even noticed anyone come in. These ineffective transmissions, which defy every wireless law of form and effect, may have a certain justification when it is a matter of participating in unique 'historical' events, or where a 'slice of life' is to be listened to. The acoustic gain is, however, very often surprisingly meagre—not only does one hear little, but even that little is ambiguous, expressionless and chaotic; but when the event itself is sufficiently important to the listener (a political announcement, news of a scene of disaster, or a boxing-match), he is forced, even by this little, to feel that he is present and participating in it; and if the microphone visits a fishmarket or a factory, the listener will be repaid by fragments of the purest local colour occasionally breaking through the amorphous and incomprehensible noise. But this will seldom result in a full, undisturbed impression, even when the reporter, the blind man's dog accompanying the helpless listener, does his best. Generally the reporter lacks that rare talent for improvising coherent and vivid information at the microphone, at

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the same time resigning 'the word' in favour of the sound of the thing itself at the right moment. Instead one gets a garbled account, the fiasco of the man who in the small hours can provide a 'style' at his typewriter, but has none by nature, hence the ghastly ground-out gabble, adorned with dead flourishes, the usual journalistic cant of the average man. And how embarrassing it is when in the busy, informal sphere of work or pleasure, a stilted voice starts asking: 'Now, Mr. Foreman, just tell the listeners how you . . .' and the unfortunate foreman in his turn, paralysed in head and limb, reads off a paper: 'Now in this first room . . .' The first requisite for the success of this sort of relay, which is meant as nothing but a fragment of raw life made audible, is that the reporter, by his own ease and heartiness should know how to leave people's everyday natural manner alone, and interrogate them quite imperceptibly in a conversational chat, not drill it into them as if it were a school-lesson or listen severely to them as if they were going to be answerable to God for every word. (This, however, can only happen when there is no fear that the person questioned may say things that are to be kept from the listener.)

If this sort of relay can be brought off no objection can be raised. It is true that it hardly makes an entirely satisfactory impression, but at least it conveys distant happenings to the listener by the most direct

Relays

method conceivable to-day, that is to say, it artificially cuts out slices of reality, by this isolation making them the object of special attention, sharpening acoustic powers of observation and drawing the listener's attention to the expression and content of much that he ordinarily passes by with deaf ears.

But to be condemned as unworthy of the wireless are all relays from operas, theatres and cabarets, of performances, that is to say, which could be much better done in the studio. A grievous wrong is done to any work of art, however humble, if the audible is rudely torn from the wholeness of the visual plus acoustic impression and presented alone. Moreover, there is no more effective way of destroying the only means of training the listener to concentrate on the audible. For if he is offered transmissions that can only be fully appreciated by the effort to enlarge them to the whole of which they may be a part, one cannot demand that in the radio play next day the world of sound should retain its hold without the aid of a visual supplement. If wireless is seriously no longer to be treated as a mere relaying-apparatus but rather as a world of sound differentiated from reality by its own formal laws, the abolition of those relays which are justified only by their convenience for programme directors is an undeniable necessity.

It can easily be proved, on the other hand, that there are wireless forms that emphatically need no

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visual supplement. One need only think of simple enough cases. The simplest form, the original form of broadcast, is the voice of the announcer, or the singer, or the sound of instruments in the studio. Only a very over-imaginative, misguided man, listening to such a transmission, would feel the need of picturing the actual situation in the studio and the performer at the microphone. The listener rather restricts himself to the reception of pure sound, which comes to him through the loudspeaker, purged of the materiality of its source. It is very significant that certain expressive voices do not strike the naïve listener as 'the voice of somebody one doesn't see' and whose appearance can be speculated on, but rather transmit the experience of an absolutely complete personality. This can be particularly observed with voices that are familiar to the listener through daily intercourse: 'the' announcer, 'the' physical instructor, are familiar *people* to him—not familiar voices of unfamiliar people. The visual supplement is not directly missed; curiosity first awakens with an occasional wonder 'what is the man really like'; then, if his photograph ever appears in a wireless paper, the old friendship may be seriously impaired.

With a sure feeling for form, such as does not yet exist in the higher types of broadcasts, care will be taken that the listener does not receive any unintended acoustic effects in these very simple

The Bodiless Announcer

wireless performances. Whilst in certain broadcasts echoes give a very desirable illusion of space, in building studios meant for announcements, talks and musical performances, resonance is eliminated, out of a very proper feeling that the existence of the studio is not essential to the transmission and therefore has no place in the listener's consciousness. The number of aural phenomena should be deliberately limited in accordance with the law of economy we have already mentioned, instead of being included in their entirety in the broadcast.

A step in the same direction is the attempt to de-humanise the announcer as much as possible. Nothing should be heard of his bodily existence in the studio, not even the sound of his footsteps. Even his voice, the only thing that is left of him in the damped room where he has to be painfully quiet, must have no character, nothing peculiar or personal, but must only be distinct, clear and pleasant. For the function of the normal type of announcer today in no way differs from that of print, which should be inconspicuous, agreeable, easy to read and nothing more.

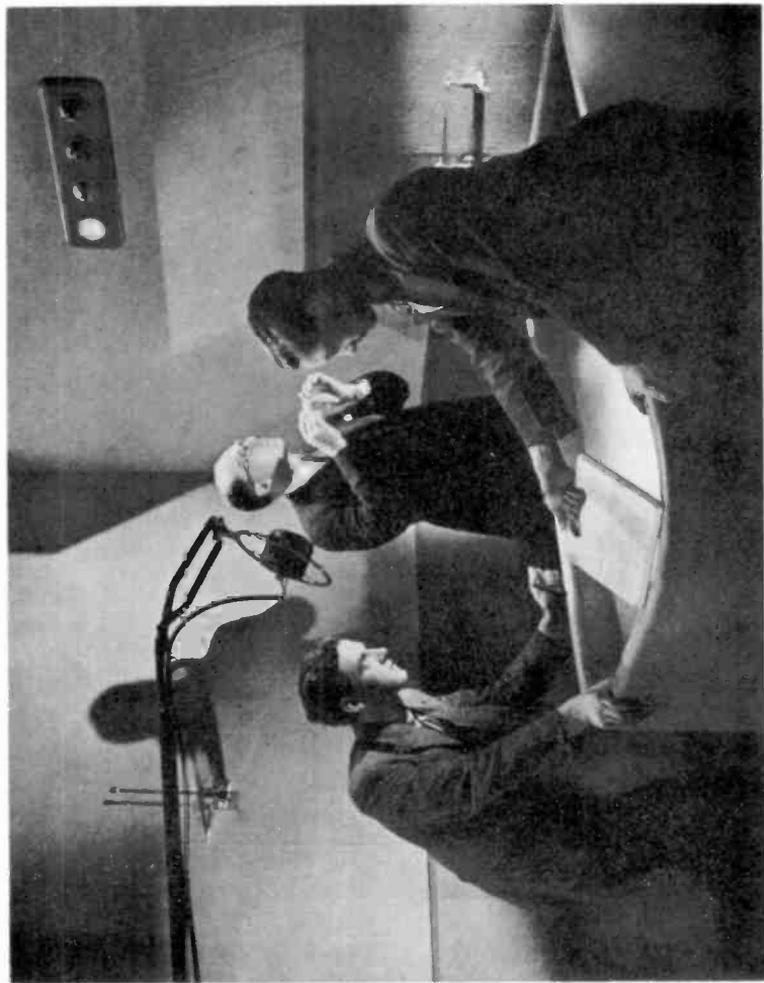
The same applies to performances of music. 'True music', says Goethe in *Wilhelm Meister*, 'is for the ear alone. I want to see anyone I am talking to. On the other hand, who sings to me must sing unseen; his form must neither attract nor distract me.'

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The sight of the musician, the performing instrument, contributes nothing to the music, and even disturbs its character; in the first place, because if you watch the process of playing at the same time, you get the impression that not the music but the human figure is the chief and central feature. The music has the effect of merely isolating this human figure and its instrument. In the second place, the movements of the musician frequently do not correspond to the line of the melody: the sliding in and out of a trombone-tube has no tonal parallel; cellists and basses lower their hands when the melody is ascending. But, thirdly, and what is more important, the orchestra sitting on the platform is inactive and static, whereas music is characterised by its movement in time.

Here, then, is a most fundamental contradiction between visual and aural phenomena. Our eye shows us an arrangement of the musicians on the platform that is only occasionally characteristic of the music performed (since the violins who sit in front have by no means always the lead). The musicians are always seen, even when they have rests. This gives an impression of comfortable inactivity alternating with playing.

Very musical people can ignore this contradiction of visual and aural impression right away. They listen undisturbed even when they see at the same



Effects Department: A scene from the film, *Death at Broadcasting House*.
By Courtesy of Phenix Films.



The three Witches in a rehearsal of *Macbeth*. A scene from *B. B. C.: The Voice of Britain*.
B. B. C. Photograph.

Music Without Musicians

time. But they too, perhaps, more than anyone else, will have a new and thrilling, purely musical experience when they consciously hear blind music for the first time, best of all by wireless. This new experience starts with music emerging out of the empty void. There is no one sitting in front with his instrument ready. No disparity between fifty waiting men, from the violins in front to the kettledrums at the back, and the one modest flute which perhaps has to start the piece all alone. The flute now sounds really as tremulously little and lost in nothingness, as was the composer's intention when he wrote the beginning as a solo. The flute plays, and no longer sounds like the isolated part of some nice man 'in the act of playing' whose appearance never changes; in some very exciting way, everything static has vanished from the performance. Time passes most perceptibly; nothing of what has just been is left the next moment; only the course of the single line of melody exists; all the action is pure movement. The flute is quite alone and suddenly the oboe joins in, likewise emerging from nothingness, unexpected and coming to life only at the moment the composer brings it in, not previously present as 'counting bars'. And so the work is gradually built up. Whoever has nothing to play vanishes completely out of the picture, simply does not exist. If the piece is *adagio*, then the whole world is *adagio*;

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if it is *allegro* then nothing exists but the rushing course of the rapid motion—no men sitting waiting or suddenly stopping in the middle of the situation.

It is terribly hard to record somehow or other in words this experience, perhaps hitherto never properly described. It is hard to describe how, to the blind listener, the leading voice stands really isolated in the foreground instead of being localised in a fortuitous, stationary position on the orchestral platform. Only in this way does the incessant alteration in the body of sound, the change of leadership, the increase and decrease every second in the number of players, really penetrate to the senses. The contrast between cello and piccolo consists now only in the difference between a deep, warm, mellow note and a shrill, sharp, high one; the fact that both are nevertheless similar because they are produced by two individuals of the genus man no longer exists. Cello and piccolo sit close and alone beside each other when they have to play together. The tonal proximity is no longer contradicted by the spatial distance of the two players on the platform. There is no more hard and fast arrangement of players nor a constant number of instruments, but what the composer intended to be for the moment dominant is dominant, and nothing exists but what has for the moment a tonal function. Music has become the supreme consideration.

Music Without Musicians

Music moves essentially in three dimensions: in time, dynamics and pitch. Pitch has an entirely spatial character. 'Increase of acoustic clarity', says the psychologist, von Hornbostel, 'has not only the effect of heightening a static phenomenon, as in the brightening of a patch of colour, but also of rising-up like the upward movement of a thing seen.' The effect of movement and its direction are so compelling that most languages talk of 'rising' and 'falling', 'high' and 'low' pitch. This spatial height and depth has nothing to do with the real space in which we see music produced; there is no correspondence between them, but rather a contradiction. Therefore its full force is only developed when this space, in which the sounding body is contained, is abolished. It is the same with the alternation of loud and soft sounds, which at one moment fill the acoustic space full to bursting with their force and the next moment leave it almost empty again. Thus the blind listener scales the heights with the melody, plunges into the depths, is carried over an abyss on the bridge of a counter-movement; now he feels he is in a gripping, thrilling region of power, now he is alone in the void with whimpering cries. Now space is crowded with the most bewildering polyphony, now everything moves in block formation; now space is torn by discord, by simultaneous but unrelated sounds, but in the next moment this melts into an even flow of harmony.

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One can well understand how fundamental and important is the contradiction between this sound-space with all its possibilities and the actual space in which the sounds are made, a space that always remains equally empty or full, where there is more or less constant movement or lack of it, organisation or lack of it, which is equally harmonious or non-harmonious, and which is, above all, static, constant and without any time element.

Interesting considerations follow in relation to the spatial qualities of broadcasts of music. The concert-goer is more or less conscious of the acoustics of the concert-hall from whose walls the sound-waves are in various degree refracted; he also hears the sound of the various instruments, coming from different distances and directions according to their position in the orchestra. But for him these impressions are only minor acoustic accompaniments to his visual perception of the concert-hall. He sees the space, and so he does not particularly notice that he hears it too; he sees the musicians in various places and at various distances and so he is not surprised to hear accordingly. He certainly would notice the disappearance of those acoustic space-impressions, presumably with disquiet. It is quite different for the wireless listener. He does not see the studio, and so, in the beginning, at least, it makes a positive impression of being inherent in the production when

Action and Background

he hears the resonance of the room, and so is forced to 'include' the surrounding space in his impression of the music. Above all, he sees no musicians sitting at various distances and in various directions, so the different distances from which the sounds come, become for him factors essential to the music, or give him an opportunity of conceiving a concert-room 'in his imagination'.

Now both these things are undesirable. It follows from the contradiction between real-space and music-space, of which we spoke above, that no actual transmission-room ought to be imagined, and that this sort of fancy not only has no place in the musical performance, but acts even as an impediment. But even spatial resonance and distance perceptions as such can hardly be taken into consideration as factors in the composition of music. Spatial resonance indeed is a fairly unspecific, general and constant sound-factor, which is easily 'cancelled' when heard for long, does not create overpowerful and arresting illusions of a real transmission-room, and so does not grievously offend. Nevertheless, the walls should have no perceptible resonance, but should only reflect the sound sufficiently to make it full and euphonious. By abolishing any notions of a real space the subjective awareness of the acoustic space can develop unchecked. The more abstract the music is in relation to the actual environment of the source

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of sound, the more surely will the listener be persuaded into a proper state of receptivity.

It is undoubtedly disturbing when the individual instruments are distinguished in character from each other by their position in the room, when the flute is heard in front and the percussion behind. Here it is not a question of a constant factor of delimitation, as with the resonance of the walls of the studio, but of a quite specific characteristic of the individual utterances of sound of which we are conscious at the entry of each new instrument. Here the listener either feels strongly induced to imagine visually the 'missing' actual-space, or else he considers as essential what is only accidentally conspicuous: the flute in the foreground seems musically 'in the foreground' and more important than the percussion, which by chance or for physical reasons, is further back.

In this matter, the practical side of broadcasting still errs frequently. Even between solo-part and accompaniment the spatial distance is often considerable. And especially in orchestral performances one finds again and again that the instruments are arranged in a senseless way inconsistent with the music, mostly following the purely phonetic fact that some instruments sound better or more distinct away from the microphone and vice versa. Here probably, only the exactly determined co-operation of

Dramatic Economy

various sorts and strengths of microphones can be of use. The same holds good for performances of choral, oratorio and operatic performances.

Let us pass from music to the spoken word, that is to say, to the wireless production of dramatic action, and here, too, ask ourselves what is essential and what is superfluous? In drama the human soul must be characterised, not by simply being described, but through the representation of physical and psychological events. But physical habits and peculiarities are not always absolutely essential for characterisation. If one man cherishes strong fatherly feelings, it will probably be important for the delineation of his character. But the fact that he breeds rabbits in his leisure hours or always carries his father's gold watch as an heirloom about with him, can, according to the point of view and style of the composition, be important or not. The naturalistic stage drama, like the film drama of to-day, used to endow its figures liberally with such details for the sake of a life-like representation. But in the eternal fluctuation between verbal and visual art in the history of the theatre there is, on the other hand, another stage style which radically purifies scenery and acting from realistic detail, and either completely cuts out scenery, costumes, lighting-effects and pantomime (even the expressiveness of speech) or interprets the

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spiritual content of the drama quite unnaturalistically by means of form, colour and music.

Wireless inclines much more to such a stylised, abstract verbal art than the theatre, however unnaturalistic. The stage actor can certainly, if one wants to show *man* and not a certain ordinary man, be put into a straight black robe, but that is not abolishing all costumes; it is still a particular costume even though it is stylised. Since there is a stage where the acting is done and is watched by the spectator's eye, this sort of omission and simplification generally has the effect of a conscious and too obvious stylisation.

But in broadcasting the abolition of the visual is no artificial cut, but a natural consequence of technical conditions. The visual, if it must be had, must be painfully constructed in the imagination. So in this case it is possible quite freely to do away with everything not necessary for the dramatic action. It is possible to be near to nature and at the same time severely 'matter of fact'.

These considerations bring us to an amazing conclusion, namely, that in essence the aural is more related to dramatic action than is the visual. This is actually the case, and here we come to a fact essential to the art of broadcasting.

Essential to what is happening at a certain moment is not so much the existence of the inactive 'being', but rather that which is just changing, just happening.

Action and Sound

The visual world does give us a good picture of the happening, namely, by producing it as movement of the limbs and face-muscles, etc., but it also gives at the same time much of the condition of the unalterable 'being'. It shows a man suddenly shaking his fist in fury, which is what is happening at the moment, but it shows also his moustache which he has had for a long time and the painting which has been hanging on the wall of his room for twenty years. Aurally, on the other hand, almost nothing static is given. The ticking of a clock, for instance, is static like the form and colour of an object, but the great majority of sounds imply momentary, actual *happening*! The best example of this is the human voice. It is silent when there is no action; when nothing is happening. If it speaks, it is to show that something is going on. Activity, then, is of the essence of sound, and an event will be more easily accepted by the ear than a state of being. But this is the very aim of drama! Drama is the course of an event in time: it contains action and should render the static only in so far as is necessary for the comprehension of the event.

Wireless does this with more ease than the stage. Moustache and picture are perhaps important for the understanding of the man shaking his fist, but perhaps not. Much of what is placed before the eye on stage or screen for the sake of naturalistic com-

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pleteness is only there so that the lack of it should not disturb one; it is not used positively. In wireless, on the contrary, the natural condition is simply that everything is lacking. It starts from a background of a silent void. Almost everything static is absent; existence is created only by acoustic action and the plot.

Modern mathematics has invented the notion of 'implicit definition'. That is to say, it defines the axioms which can no longer be traced back to higher notions by the functions which they fulfil in the highest theorems. Thus things are defined by their activity. This procedure also holds good in esthetics. A man acting in a drama is delineated by nothing but just this action. He is not in the outer naturalistic sense a complete person who exhibits, among other attributes and actions, those needed for the drama; nothing about him exists that has not a function in the drama. So he is 'implicitly' defined by nothing but his actions (spiritual or bodily).

Wireless drama is particularly suited to fulfil this strict demand, because it happens to deal in a material of representation which expresses its essence by action. Hence the dramaturgic difficulty of the radio play consists not so much in ruling out the superfluous static, but, on the contrary, rather in including what is necessarily static in the action itself.

The finest and simplest example of this is the

Conveying Character

human character. Under this term we will include for the moment everything, all the influences of disposition, breeding, education, profession, age, etc., which determine the psychical condition of a person. It is this psychical condition alone which first makes the actual utterances of the person comprehensible, and which must therefore of necessity be included in the aural drama. This is achieved very simply by the tone of voice and the way of speaking which, of course, are determined on the one hand by the exigencies of the moment (excitement, caution, sorrow) but also on the other hand by habit. The difference between mimic and physiognomy, between the momentary and the permanent facial expression, is true also of the voice. One hears an inhibited or an uneducated or a young person speaking, and so in the activity of the actual speech one hears at the same time the permanent basis. This is the most ideal solution imaginable for the important dramatic task of finding a permanent basis for the action in the action itself—for the famous and notorious 'exposition'!

If one limits the characterisation of the figures of a radio play to the essential, it will lead to the various figures appearing in varying 'completeness'. A principal character will generally be distinguished by a greater number of traits than a subordinate figure which only comes in occasionally to give cues. Fre-

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quently such characters need have absolutely no characterisation. One hears of course whether it is a man or a woman speaking as well as a certain characteristic tone of the voice, but no nearer connection is established with the earthly function of the figure. It is—an implicit definition!—characterised by nothing but the voice that asks this question or raises that cry.

This gradually increasing measure of characterisation, from the almost abstract voice that says 'the horses are saddled!' and then returns to its obscurity, to the fully drawn figure in the foreground, is one of the finest resources of the art of radio drama, because it sets 'existence' very clearly in relation to artistic function: one only exists as long as one has a function, and if one's function is small, one's existence is small also! This principle of art—which is also a principle of morality—is realised in the wireless much more radically than on the stage, where the subordinate figure appears before the footlights just as fully and completely embodied as the title-rôle, and generally stays there longer than is necessary, for the sake of naturalism.

The length of the time, too, that a single character occupies in the course of a drama, stands in a much tenser relation to its function in the play in broadcasting. There are no supers standing gracefully around beguiling the time away before one's eyes; everyone need only exist as long as he acts and

Characterisation

speaks, the chief character for quite a long time, the subordinate part often only for a few seconds. The moment the figure becomes active is the moment of its real entry. A man's voice may suddenly be heard, and one may assume from this that he has been present for some time as a silent listener. From the point of view of the action he can be considered as being present without encumbering the course of events by functionless existence. He exists only as long as he 'comes in', and in spite of this there is no need for 'entrances' and 'exits', with motives in the action to justify them. The number of characters in a scene can vary, even when the action remains more or less constant, that is, say, when ten people are sitting under lock and key, so that their number neither increases nor decreases. If only a few of them are engaged in conversation, the others in the meantime are submerged in the listener's consciousness. It is left to the writer's skill to keep them alive in spite of this in a deeper layer of this consciousness, so that the listener does not get a false impression of the situation by thinking that there are only four people there, whereas the sense to be conveyed is of a scene with ten men, only four of whom speak. From the context we should be able to deduce whether a certain figure, even if it neither acts nor speaks, is to remain in the listener's consciousness or whether he may be submerged, even if he has not explicitly

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'gone off'. A corpse, for instance, can be constantly in the foreground of the listener's consciousness for the whole of a long scene in a wireless play although it never utters a sound—it can be important not to let its presence be forgotten (Julius Caesar in Mark Antony's speech) whereas a fairly passive but none the less 'living' spectator may well be forgotten once he has spoken his part.

In a broadcast dialogue, only the person who is speaking exists acoustically. For this reason it is difficult to preserve the dialogue-character of a scene in the listener's consciousness if one of the speakers keeps on talking for any length of time. The one who has stopped talking certainly remains for a second in the listener's consciousness, but then he is lost and it comes as a shock when he suddenly takes part in the conversation again as if he had dropped from the sky. Monologues are as appropriate for broadcasting as long speeches by one of the participators of a dialogue are inappropriate. So the radio dramatist must avoid these forms. Far better is a closely knit dialogue where the acoustic existence of the partner is always secured after a short pause, even by the most modest interpolation. Otherwise the listener avenges himself on the long speech by gloating on the thought, 'When you stop, you'll be surprised to find that there's nobody in the room!'

How radically the existence of a person is reduced

Dialogue

to a partial utterance, and what a powerful effect can be achieved in this way, is shown in a very successful scene from a radio play, where a desperate unemployed man hears his neighbour counting her money through the wall. One does not hear the woman speak or move, she exists only as the jingling of coins; the essence of her is concentrated with wonderful consistency. Only a characteristic sound, very emphatic by its rhythm and monotony and so very suggestive, remains of a person!

This radical restriction to the essential—this is important!—does not result from a stylistic simplification, nor is it a departure from reality. The omission of the unessential cannot be compared, for instance, with the bareness of the Elizabethan stage, for when figures in costume act on an empty stage it results, if not in a discrepancy of style, at least in a stylisation, whereas the radio play gives an effortless excerpt of a situation without any feeling of a surgical operation and without any effect of incompleteness or unreality. So one can produce a completely naturalistic plot with naturalistic colloquial dialogue on the wireless without feeling that this approximation to nature is in contradiction to the 'unnatural' emptiness of the scene of action—while on the stage, the more naturalistic the plot, mime and language, the more disturbing was the effect of the lack of décor.

The blindness of wireless permits the particularly

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good use of certain old tricks of 'exposition' technique. In literature we are familiar with the method, which we have just sketched roughly for wireless, of developing the characters in the plot with varying degrees of completeness. Occasionally in a novel, too, arguments or questions are raised without the questioner being described in detail, or an action is described without any mention of who is engaged on it. In literature, as well, there are many examples of the narrator giving an exact description of his character straight away in a particular situation, without having given the necessary general facts about him: who and what this person may be, how old he is and how he came to be in the present situation. We shall select at random two examples of the two opposite methods of exposition. Kleist's *Kohlhaas* begins quite generally with what is essential and central:

'On the banks of the Havel there lived, in the middle of the sixteenth century, a horse-dealer called Michael Kohlhaas, the son of a schoolmaster, one of the most upright and at the same time most terrible men of his time.'

The very first sentence gives the particulars and character of the hero. A complete contrast is the beginning of B. Traven's *Treasure of Sierra Madre*:

'The bench on which Dobbs was sitting was by no means good. One board was missing and a second one sagged so much that sitting on it was really a sort of



'Emil and the Detectives' by Kästner.
B.B.C. Photograph.



*B.B.C.: An audition.
By Courtesy of the Controller, H.M. Stationery Office, and the G.P.O. Film Unit.*

Exposition

punishment. Whether he deserved this punishment, or whether it had been unjustly inflicted on him as most punishments are, wasn't bothering Dobbs at the moment.'

Here the narrator plunges into the middle of a particular concrete situation and describes it in detail (the missing board!) without giving any idea what sort of figure is concealed behind the name Dobbs. This second form of presentation resembles that of drama. But in drama it cannot often be used so effectively, because if Mr. Dobbs's bench is standing on the stage, we shall immediately perceive a certain human figure with all sorts of idiosyncrasies. Of course it is possible to have expository scenes where Dobbs is continually mentioned, although one does not learn who he is. But this dulls the fascination of the paradox of taking part in events and experiences which are happening to someone we do not know; who indeed is present, but as a stranger.

On the wireless this effect is even more powerful than in literature, for with the written narrative we participate only indirectly in the plot through the agency of the writer. We are not direct actual witnesses as we are when we sit in front of the loud-speaker and hear a man talking, about whom as yet we know nothing. Wireless makes the living man present before us in his voice or in some other way,

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without our needing to know anything about him. This makes it really exciting.

In almost every scene in radio plays we have no idea at first who are speaking. Gradually the mist clears and the figures become more distinct. This characteristic of blind drama can be consciously employed with most subtle effect; the excitement of the audience increases and at the same time its attention is directed in a quite particular way (far more unequivocally than is possible among the distractions of a crowded and three-dimensional stage). In certain cases this sort of exposition can also serve to depict the particular sensations of a blind man, or of an invalid waking out of a stupor: he hears voices and does not know who is speaking.

Of course we have here a good method of achieving the important effect of surprise. Surprise follows when something unexpected happens, special surprise when suddenly some hitherto unsuspected presence is revealed. If one suddenly hears 'Put your gun up!' without having suspected the existence of a weapon, it will give an effective shock; the impression is striking and overpowering.

In Fritz Peter Buch's broadcast drama, *Lenz*, a long passionately agitated monologue by a speaker riding through the lonely night is suddenly interrupted by the voice of the sentinel crying: 'Halt, who goes there?' from quite close at hand. The listener thought

Surprise

he was quite alone with the night-rider—the sudden breaking in of stark reality on the sentimental soliloquising voice is much more precise than if on the films, for instance, one saw lights and the outlines of the sentry's figure looming out of the darkness. An uncanny effect can also be achieved in this way. Willy Haas's broadcast drama, *Johann Heinrich Merck's Last Night*, contains a scene where there is a dialogue between two men in an otherwise empty room:

'*Merck*: Then I must try a more powerful spell. (He strikes the table heavily three times. The room is filled with the hum of a myriad human voices. Breathing, whispering and scratching can be heard and one feels that the whole room is full of forms).'

It does not seem like the 'entry' of a crowd of people. But the empty room is suddenly full of beings who are felt and heard, but who are not seen and therefore cannot be identified. This is eerie, for the same reason that darkness is terrifying: in the dark, forms near at hand can be effective without being seen and recognised. They are there and yet not there—ghosts! Thus can the blindness of aural art be exploited for special effects!

The above-mentioned money-counting scene is also a typical example of the use of sounds in broadcasts. The first enthusiasm of producers is past; the

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studio is no longer constantly flooded with sound-effects. The problem of which sounds were to be reproduced and which left out was also acute in the first sound-films. But there the strong evidence of the picture necessitated a fairly complete sound-reproduction, because if you saw a door shutting you would miss the corresponding sound much more than if, sitting at the loudspeaker, you only knew without seeing it that one of the characters had just come into the room. In spite of this even the experience of the sound-film has taught us that many sounds can be left out without creating an unnatural impression. This holds good even more so for broadcasting. Here the producer has a free hand within wide limits, and it will depend on the style of the piece to be produced as well as on his personal style of production, whether it will be thickly or sparingly 'orchestrated'. We know that in other arts, many an artist likes his painting, symphony, literary style, film or building to be intricate and profuse, overladen with a baroque abundance; in the same way, many a wireless producer will want his aural picture to be full and confused, while another will prefer an economical use of sound against a background of silence. This sort of stylistic preference, however, must not be confused either with the noisy stunts of certain wireless producers who drown every word in the roar of threatening crowds, the howling of

Undertones

storms and the thumping of machinery, or with the bloodless and miserable declamation which is the only effect other producers are capable of: lack of inspiration is not the same as economy of form.

Sound will frequently serve as a more or less definite undertone of atmosphere, and there is really nothing to be said against this. It is not a case of a dead background of silence being more distinguished and dignified than a sound-background. Both can have their significance, just as in painting a figure can be set either against a homogeneous gold ground or against a landscape complete with a mass of tiny episodes of every-day life. It all depends on whether a style, a conscious will-to-form, is felt—on it being not pure accident, pure theory or merely the urge to be true to nature that determined the producer's precepts.

In all attempts to make a place of action or milieu audible by sound effects, a certain caution is required; for if the functioning of a sound-illusion ever goes wrong, the desolation of the silent studio is at once strongly felt, and this does not occur so easily when all scenic indications are eliminated. One might attempt, for instance, to indicate a factory by occasionally letting the noise of machinery emerge, but everything depends on whether this noise—and the atmosphere and the kind of scene in its entirety

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—is powerful enough to include the intervals of silence in the illusion. If it does not succeed in doing this, it splits up the production and creates the bad impression of a gap. (There are water-colours and oil-paintings where the partially untouched paper or canvas also fits into the tonality of the painting—and others where such parts just look like gaps!) It is the occasional noise that first leads the listener to include sounds and silences as well as speaking voices in the performance. On the other hand, in a play depending entirely on speaking voices, the void out of which the voices come will from the beginning be outside the field of perception; there is no attempt at interpreting this void in the first place as a negative sound or a silence, and so there is no danger of the attempt miscarrying. On the other hand, the danger of breaking up the performance can of course be lessened by having a constant, uninterrupted sound-background instead of occasional sound effects. But there, again, too many demands in mere volume are apt to be made on the receptive capability of the ear, and at the same time the possibility of indicating the sound-character of the scene by various entries of sounds in the background is lessened.

Sound becomes of dramatic interest when, as in the example of the counting of the money, it is an intrinsic part of the plot and not only a picturesque addition. The clinking of money is actually the

Sound-motifs

counterpart of the desperate monologue of the unemployed man.

Characterising a person by a sound-motif has its precursor in the musical leitmotiv, which became well-known through Wagner's operas. The same sort of thing, too, is familiar to us from the sound-film, as when in Fritz Lang's *M* the murderer always whistles the same Grieg melody to himself. In the wireless where all visual characterisation of a figure disappears, such a leitmotiv naturally gains greatly in intensity. It can be given in varying degrees of vividness. Reducing the miser to the sound of coins is very effective. In another broadcast drama of the grotesque genre a cripple was characterised by the rhythmically stylised squeaking and creaking of a bath-chair motif: a relatively superficial but very amusing idea.

It should be noticed that the artistic effectiveness of such means depends on the fact that the public only hears and does not see them. In the sound-film where one sees at the same time, this kind of acoustic leitmotiv will be only one incidental feature among many others. The squeaking of the bath-chair, for instance, would seem the natural accompaniment of the chair, which one saw before one's eyes, and as such would be less striking. Only for the blind public will the squeak have its *pars pro toto* effect, and the object would be reduced to the sound. This unforced

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yet most powerful stylisation also loses its effectiveness if the listener imagines the bath-chair visually: it then, as in the sound-film, becomes a mere attendant phenomenon, and forfeits its function of 'sole agent'.

A periodically recurring sound can, as we have already indicated, conjure up a scene in more pregnant and artistically terser fashion than the usual sort of confused overloaded 'sound-scenery'. The groans of patients in hospital, the neighing of horses in a stable, or the periodic ringing of the doorbell in a porter's lodge, gives the place of action by means just as economical as—by their emphatic form—effective. In these cases the noise is often something more than a detached utterance from some corner of the scene of action, for by the disappearance of the visual and also of acoustic indications of spatial direction it loses its character of a particular utterance localised at some point or other, and spreads, so to speak, over the whole aural space. A scene from a radio play in which a film-operator is filming a political demonstration will serve as an example. We hear the cries of the demonstrators, the noise of the crowd, the voice of the speaker, and in the foreground, loud and clear, the sound of the cranking of the film-camera. In reality or in a sound-film or on the stage the camera would occupy a particular place in the scene somewhere in the foreground, and the sound of the

Sound-motifs

camera would seem quite natural and less remarkable as an attendant phenomenon. In a broadcast the same scene makes a strong impression, firstly because the film apparatus is represented in vivid symbolism by its sound alone, and, secondly, because the sound does not come from a certain direction, but spreads evenly over the entire foreground like a transparent curtain, through which one is aware of the actual proceedings. By the perspective superimposition of the two aural factors, the noise of the cranking and the sounds of the demonstration, a very evident close connection ensues between the two, which could scarcely be made perceptible in a scene visually complete. This very effectively illustrates the special relationship of the two motifs: the film-operator and the demonstration do not appear to us as physical phenomena in various parts of the scene, but the filming represented by the cranking becomes the dematerialised, homogeneous, formlessly uniform medium in which the outlines of the really important happenings are reflected. Just as Cavalcanti photographed his film, *La Petite Lili*, on a uniform background of sacking, here the process of working the camera has the effect of a constant sound-set on which the central action is projected. The almost indescribable effect of this really quite primitive scenery can stand as an example of the entirely novel and amazing effect which aural

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art transmits to us merely by the omission of the visual.

Here by means of a sound placed in the *foreground*, the physical quality of acoustic transparency was exploited for artistic effect. The opposite, naturally, is more frequent: the basic-sound of the scene is placed *behind* the principal curtain. Behind a conversation, for instance, which takes place on board ship, is heard the thumping of the ship's engine. This sort of sound-foil fulfils the task of background far more effectively than a visual background could. If one saw two people talking on board ship, they could, of course, be recognised as the chief characters and the chief action, because they were standing in the foreground as opposed to the rest of the ship also visible at a greater distance; but what one saw of the ship (rails, deck, bridge, funnels and so on) would also be just as much in the picture as the two human figures. But if one only hears talk and the noise of the ship, then the background, the noise of the ship, is as uniform, unorganised, and as featureless as it possibly can be, and the speaking voices stand out against it, important, distinctive, alternating, significant—just as, in a portrait by an old master, the outline of the subject is projected on a uniform background. The aural world, formally poor compared with the rich visual world, here supplies, by means of such a formally poor motif as a monotonous noise, the potenti-

Sound as Background

ality for very strict compositions such as are only rarely possible in the visual arts and then generally not without strong stylisation; nearly always only when one makes a void, the empty sky or a bare wall the background. But in wireless a something, 'the ship', supplies a similarly uniform ground.

Particularly successful is a sound-effect which is not only indicative of place in a 'geographical' sense, but at the same time has a dramatic function. If one hears a passionate speech about life and death against a background of cheerful café music, it does not only indicate that the scene takes place in a café, but the affecting seriousness of the speech is also specially emphasised by the contrast of the gay music. Here, again, the music does not come from some corner of the scene but stretches over the whole background like a stage perspective.

A few examples have shown us, that by the disappearance of the visual, certain dramatic scenes appear to be more tersely and economically composed, more concentrated on essentials and heightened in power of symbolism. The examples we cited gained therefore an artistic advantage from the 'defect' of blindness.

Yet one could also imagine those scenes visually completed. We must now pass on to other examples, in which the visual part not only weakens the effect

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but is also generally speaking impossible—scenes therefore on which the visual imagination must founder as completely as we could wish for the sake of broadcast drama. There are, as we shall see, wireless-motifs in abundance which would be completely meaningless and impracticable as soon as we attempted to supplement them visually!

There are in the first place transition-forms, which also, of course, exist in stage drama, but which under the influence of the special and, for them, favourable conditions of broadcasting, are more conspicuous in radio drama.

We know that speech and dialogue play a sovereign rôle in stage drama. The chief constructive medium of the drama as a verbal art is oral discussion between human beings. On the other hand, drama on the stage is performed before the spectators' eyes, and these eyes also need to be fully occupied. Speeches are little qualified for this. During real speech not much happens that is worth looking at. It cannot be denied that in a fine play such as Goethe's *Tasso*, the eye is offered not much more than a little group of men who for three hours stand about the stage in various groupings. Whether it has a boring effect or not depends very much on the ability of the producer, for indeed one of the stage producer's chief tasks consists in always keeping dialogue scenes fairly lively for the eye by 'business',

Transition-forms

by attractive stage arrangements and the treatment of the detail which he inserts. Of course, the playing of a good actor offers a great deal to the eye; of course, good grouping and the clever placing of the actor can emphasise the sense of the text; and, of course, many stage pieces contain more external action than *Tasso* or Corneille's *Cid*, or a conversation-piece by Shaw. But on this account we must not blind ourselves to the fundamentally insoluble contradiction contained in all theatre pieces and due to the fact that a verbal work of art is performed not only before the ear but also before the eye. Every medium in art is imperialistic, and so it is inherent in the verbal work of art to attempt to give the whole situation if possible in words and, if possible, to include nothing in the situation which cannot be expressed by words or which is contrary to the proper functions of a verbal art. On the other hand, the existence of the stage and of the spectator's eye induces a rivalry between word and external action, décor, mime and gesture. But long speeches hinder pantomimic action, and more especially if the theatre-style becomes naturalistic, a new difficulty will probably be added, since the long speeches delivered in metrical language will not suit the naturalism of the action, the décor, the costumes and the gestures.

But fortunately the word cannot be suppressed. Again and again the writer brings in a long mono-

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logue which cannot be fitted into lively action and evokes a condition of visual rigidity. However nimble and animated the actor may be—in a higher compositional sense there is a breach of form. It has led to particularly grotesque conditions in opera, where the sung word must dominate the action even more obviously—hence the comic acrobatics of lovers singing to each other from afar long after they should have got down to kisses and embraces. The fault does not lie with the composer or the librettist, who know perfectly well that lovers do not behave like that, but have no reason for taking that into consideration. The fault lies in the incompatibility of a stage style (with perhaps just a hint of naturalism) and the basic form of operatic art. Just as in spoken drama, such incompatibility is not to be solved by greater realism but, on the contrary, only by fundamentally rejecting any resemblance to reality. Only when the stage offers a stylised art of movement, for which verse-speaking choruses, dance-dramas and propaganda plays are doing important pioneer work to-day, only then will it become more suited to the style of drama and opera.

A special subject of discussion lately has been the visual insufficiency of dialogue in the sound-film, where it is even more painfully obvious. Sound-films, which contain far too copious dialogue scenes, are as a rule bad, or at any rate not 'filmic'.

Dialogue

Whilst the tendency in this case is to use the spoken word sparingly, in wireless the contrary more and more holds good. Conversations in a wireless play need not be boring or hold up the dramatic action. Nobody is seen sitting or standing about—there is nothing of the undramatic ‘inactivity’ of a conversation. In wireless the inner action flows with as much animation as the external action in a good film; the process of thought in the conversation, the clash of differentiated characters, tangles tying and untying, and tensions increasing and relaxing. That such inner actions are the proper subject of a good radio work is an opinion which fortunately has already been frequently expressed. It is perhaps the only important sound proposition in wireless esthetics which up till now has been carried out to any extent, which has remained in practice and has exercised a certain influence. More and more radio plays are being performed in which the external action is limited to some simple, uncomplicated motive while the thought processes dominate the foreground. The conscious politicalisation of the radio play in particular and the desire to give an intelligent exposition of ideas has hastened this development.

Speech, then, is the real form of expression of broadcast drama. It is the most spiritual form of expression that we humans know, and from this it follows that wireless, although it may be the poorest

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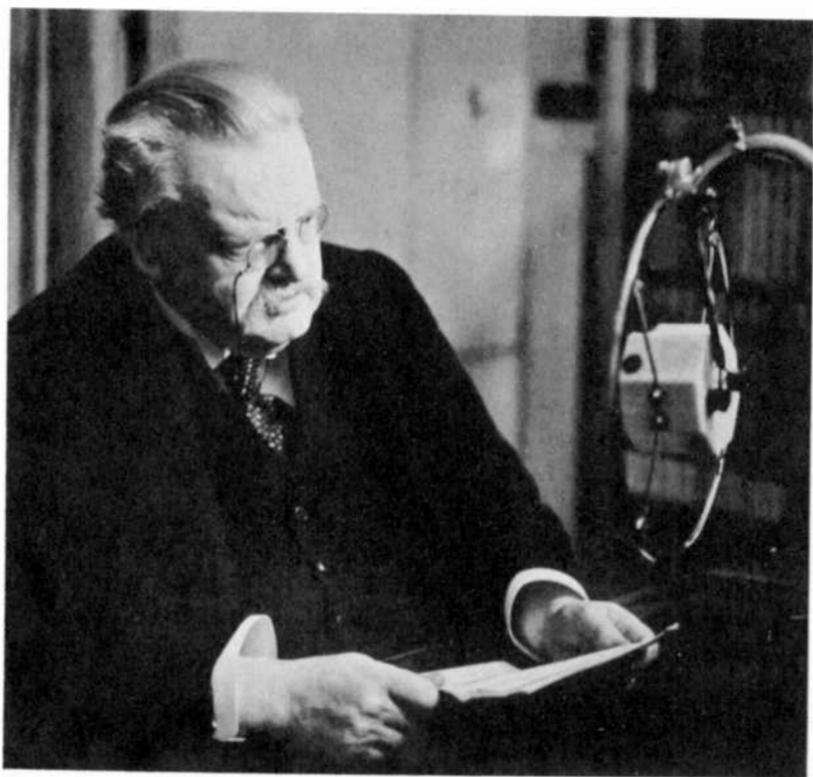
of all arts in sensory means of expression, on spiritual levels is, with literature, the noblest. But fulfilling the obligations of this nobility is not easy, as we see in practice.

The particular development of wireless towards its real essentials begins, then—under the influence of its blindness—with the spoken word taking precedence over dramatic action. This becomes specially clear in the predilection for and development of the monologue. There is hardly a radio play without a long monologue. Indeed, one frequently finds a type of radio play performed in which one single continuous monologue is only occasionally varied with dialogue scenes. The monologue, as we said, was always the great problem of stage production, but again and again it won the day by the victorious onrush of the word. But what can the stage producer do? He had better abandon any attempt at motivating the monologue at all naturalistically, and simply let the actor come on to the stage and make his speech to the audience. In this way, of course, the décor of the scene becomes completely out of place. When we read that an opening monologue of *Richard III* is set in 'a street in London', we shall find that the street in this case is really superfluous, indeed, it is actually distracting, and is only given because custom demands some scene of action.

So with the monologue we have more or less



Listening-room, Berlin: Acoustics adjusted to those of a normal living-room. Echo-absorbing materials on the walls give the right amount of reverberation; zig-zag ceiling to prevent echo. Control desk in the foreground.



Mr. G. K. Chesterton, 13.3.55.
B.B.C. Photograph.

Speech

arrived at the point where the verbal work of art begins to resist transplantation into a visible situation. In broadcasting this contradiction does not arise. The monologue is even welcome in the radio play, for it fulfils the primary function of broadcasting, which is that of a voice speaking to an audience. A monologue scene generally needs only a minimum of external action. It gladly confines itself to what is going on in the hero's mind, the events of which the monologue informs us.

The monologue is unnatural in a superficial sense, certainly—but why is it nevertheless ineradicable in verbal art? Every art translates all content into the means of expression most suitable to the medium of representation. In dancing all content becomes plastic expressive movement; in literature all content becomes the word. So if a conflict is waged in the soul of a dramatic figure, that soul begins to speak. And therefore the monologue is a natural form of expression for drama, because inner conflicts which a man fights out alone are as frequent in life as in drama, and are in general perhaps the most important of all dramatic events. So the monologue is the simplest and most natural precipitate, in the medium of words, of an important spiritual experience.

On the stage the monologue can very easily have a boring effect or hold up the action, but it is quite

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the opposite in wireless. In the broadcast version of Wedekind's *Spring's Awakening*, for instance, the monologue scene with Hänschen Rilow or Frau Gabor's letter to Moritz Stiefel—scenes which are difficult on the stage—are particularly vivid because their entire content lies in words, and no external action has to be indirectly represented. They seem to have at least as much action as any of the other scenes and are by no means foreign bodies. That Frau Gabor reads her letter out loud does not seem artificial. Here too the content of the scene, namely, the content of the letter, is clad simply in the material of expression of verbal art; it becomes sound, through the voice of Frau Gabor.

The broadcast opera-aria sounds just as natural as the spoken-monologue. No external action is visible whose course it would hinder, but singing and music, the sole means of representation, determine the course of events. (That, in spite of this, opera-broadcasts are generally so unsatisfactory lies in the ghastly custom of relaying stage performances. The unsuitable acoustics, the instrumentation unadapted to wireless, the bellowing of the singers pitched to a huge building, which makes the text and thus the action incomprehensible, and furthermore the fact that the opera is written for the stage and therefore is not fully comprehensible without it—all this combines to make the usual opera transmission an un-

The Monologue

comfortable affair and a doubtful pleasure. It makes no difference to the fact that operas written for broadcasting and produced in the studio would constitute a particularly pure and fine form of operatic performance.)

In the monologue, as we said, a spiritual condition is clothed in the representational material of verbal art, without taking into consideration the 'naturalness' of this procedure. Seen from the point of view of the world of reality it is unnatural, but from that of art it is the most natural. In this way, then, one can go so far as to portray by monologue, not only the momentary psychological condition of the character but all its characteristics. Bert Brecht's *Lindbergh Ballad*, for instance, which was written for the wireless, begins with this sort of introductory scene:

My name is Charles Lindbergh
I am 25 years old
My grandfather was Swedish
I am an American
I chose my own machine
It does 210 kilometers an hour
Its name is *The Spirit of St. Louis*, etc.

This most simple form of exposition is already well known, too, from certain theatre pieces, both very ancient and very modern. But it is particularly ap-

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appropriate to wireless, for here with unsurpassable simplicity the substance of Lindbergh's figure is translated with the aid of Lindbergh's voice into the sphere of words. This technique, which renounces all indirect, unobtrusive and skilful modes of heightening the effect, but gives straightforward information about what is worth knowing, may be called primitive, but in art the simplest forms are notoriously not only the easiest to use, but also the most difficult to clothe with great art—and great art always employs the simplest forms.

If we go one step further from the corporeal and visual stage, we come to the characters in a radio play who take part in the action as voices, but lose their meaning as soon as they are given bodies. Hermann Kesser's radio play, *Man in the Street*, begins with a prologue, in which an 'announcer' disturbs a director at his comfortable breakfast by requesting him please to listen to Kesser's radio play. The director is imagined as any concrete, flesh-and-blood figure, but the announcer exists only as a voice. If he came into the breakfast room dressed in ordinary clothes, one would have a right to ask who he was and what was his business there. But in the scene in the radio play an abstract voice invades the concrete scene of the room. Questions which would be addressed to the director are here made actual by a corporeal, enquiring voice, and the character of the

Abstractions

announcer here has no other substance but that of an embodied question. The confinement of a character to its essence, which is a consequence of wireless, is here already conveyed so radically by the manuscript, that to supplement it with a concrete figure appearing in a concrete action is no longer possible.

Symbolic figures, which, realised on the stage, are visually presentable but not without an involuntary comic effect, are quite suitable for the wireless. If Mephisto in *Faust* has a cloven hoof, Chiron a horse's body of papier mâché strapped on, and finally Faust himself an enormous house-key, so that he can open up the Kingdom of Mothers ('Here take this key!'), those figments of the imagination take on a painfully earthly character—from symbols they become museum curiosities. Nevertheless—such is the difficulty on the stage—the characters must appear in the flesh. Wireless solves this difficulty, by making the scene where the key is handed over, for instance, take place quite concretely by an acoustic representation, yet the listener is only allowed to *know* about the key, and there is no need either for the actual appearance of a pyrotechnical apparatus with the key 'shining, twinkling'.

If the centaur has at least a human mouth to speak with, it will be all the harder if imaginary forms are to be represented with a voice but no body, or a body but no voice! What will happen in the case

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of the spirits, the angels' and women's-choruses in Faust's study? They are supposed to be invisible and so they can only be hidden behind, above or below the stage, which again is contrary to the sense of the scene which demands the presence of the phenomena, not voices out in the passage, in the cellar or up in the attics. An indication of how appropriate for wireless these phenomena are, is shown by the attempts already being made to represent them by placing loudspeakers on the stage.

And how will it be with the talking monkeys in the witches' kitchen, the homunculus, and the weather-cocks, will-o'-the-wisps, xenias and shooting-stars which speak in the Walpurgisnacht scene? It is amazing how little Goethe worked for the stage, how entirely in the expressive material of verbal art. For, from the point of view of verbal art, everything that has a dramatic function is vocal straight away whether or not it is in reality endowed with a voice. All forces and characters are translated into voices—so that even inanimate objects play a part, and it makes a fine effect when, for instance, in Brecht's *Lindbergh Ballad* the airman contends with the Mist, the Snow-storm and Sleep, which try to frighten or lull him by their words. The physical struggle of the airman with the elements is transported to the sphere of words. And the broadcast is successful because no hindering eye demands

Symbolic Figures

that the mist should be introduced as a man muffled up in grey. It is only by the character of the voice and by speech or song that the essence of the personified object is suggested, and in the above particular case of the *Lindbergh Ballad* the whole action is moreover very successfully lifted by music on to a supermundane plane.

In his Napoleonic radio play, *A Dispatch Arrives*, Hans Kyser has the admirable idea of making the 'voices' of the press audible:

Time: A dispatch from the Prefect of Toulon!

Voices of the Press: Sensation! Sensation! Sensation!

Monitor: State dispatches are in my jurisdiction!

(Calls.) Journals and newspapers come to a press conference!

(The stormy entrance of the journals and gazettes is heard).

Monitor: Sit down! Every newspaper according to its subsidy. (Everyone sits down.)

Monitor: Stand up! (Everyone springs from his seat.)

Monitor: The Government has just received a dispatch from the Prefect of Toulon informing it that Bonaparte has left Elba. The Government desires the following message to be issued: The monster Napoleon has escaped from exile. Repeat! (All the voices of the press speaking in chorus): The monster Napoleon has escaped from exile.

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Monitor: The Government desires your unanimous laughter. Laugh! (The voices of the press break into appropriate laughter, which continues with various nuances during what follows as a laughing chorus.)

Time: Attuned to the scale of their subsidy
The journals of Paris spread perfidy. . .

Thus the jeering laughter of the press becomes real laughter; their unanimity an actual and un-metaphorical unison of voices. Later there is a scene where the Monitor appears with a gag in his mouth so that he can only utter incomprehensible sounds. Thus things and ideas, by being given a voice, are made into people and in this way brought nearer the listener. Complicated events and circumstances such as the influencing of the press by the Government are without more ado expressed in the form most natural to verbal art: as speech, as an imaginary press-conference.

Similarly in Wolfgang Weyrauch's radio play, *Die Ilsebill*, everyday objects are given voices. The door, for instance, says to the fisherman:

I don't quite shut,
I'll let the thief in!
How d'you like that?
What'll you do then?

Personification

There are also quite different examples of this method of expressing a character or an occurrence acoustically. In a sea-fight scene the movement of a searchlight was expressed by the notes of a siren. In spite of the material difference between light and sound, the transposition was so completely convincing that one was scarcely conscious of it, but believed one was actually hearing the searchlight, so directly was the characteristic searchlight movement, the sudden increase and decrease of perception, conveyed in the crescendos and decrescendos of the siren. Just as visual things can be translated into sound, so also can processes of thought and feeling. Unity, comradeship and solidarity find their simplest expressions in unison: in the measured rhythm of marching, in sung or spoken choruses. In a radio play dealing with tuberculosis the common fate of famous composers who died of consumption was represented by a skilfully interwoven montage of characteristic selections from their works.

It is needless to emphasise the fact that listeners to such scenes who attempt to imagine it visually either are completely lost, or fail hopelessly to reach a proper understanding. But for those who are emancipated from the visual, such performances are neither strange nor far-fetched, but quite natural. For there is an important artistic law to the effect

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that performances, even if they are quite unnaturalistic, have never an unnaturalistic effect when they are directly derived from the character of the relevant artistic material. When, for example, the Egyptians depict the victorious Pharaoh as enormous and the vanquished foes as tiny, it is directly contrary to all experience, but it is felt, even by ordinary people, as illuminating and natural, because in a visual art 'size', even of a spiritual or political nature, is most simply represented physically. Thus abstract notional facts are translated into the corresponding sensory characteristics of the world of perceptions, and so in a radio play the idea of scorn becomes the sound of scornful laughter.

With the same fine unconcern, things can be perceptually confronted which stand in ideal but not, so to speak, in geographical relation to one another. The conversation between God and the Devil, in the prologue to *Faust* is not suitable on the stage, for it is meant less as a physical meeting than as a discussion between two spiritual principles. In the abstract sphere of aural art such an occurrence is quite conceivable; the discussion between employer and workmen, for instance, in Alfred Döblin's theatre piece, *Marriage*, is not thought of as a conversation in the factory office, but as a spiritual conflict made audible and acoustically conveyed in conversational form. A naturalistic 'décor' is no longer imaginable

Symbolisation

for it, because such a scene does not take place in real circumstances.

In Hermann Kesser's radio play, *Absturz*, the father-in-law, friend, wife and mistress of a hill-climber who has fallen into the crevasse of a glacier appear before him to have a reckoning with him. The thoughts of the fallen man, the reckoning before death, are here externally projected, and to express their meaning a conversation takes place between various voices. Again an abstract content is made concrete, a conflict of souls becomes an acoustic opposition of real antagonists.

It has often been said that Faust and Mephisto are at bottom not two persons but two different sides of the same person. To make this duality perceptible, Goethe has divided the person into two voices, and to bring these two voices somehow on to the stage he has had to develop them into two stage figures. It is possible that he might have omitted to do this if he had written *Faust* for the wireless. A substitution of the figures of Faust and Mephisto by 'Faust voice A' and 'Faust voice B' would have worked out the basic idea of the poem more directly, even if in this way the piece would perhaps have lost in vividness and wealth of motive. At all events, the division of one figure into several is very suitable for wireless and has already been practically tried out. In the radio play, *Johann Heinrich Merck's Last Night*, the figure

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of Merck is split up into five speakers, incorporating the different sides of Merck's character and the phases of his life. The cast reads:

1. Merck in despair.
2. Merck the sceptic.
3. Merck the youth.
4. Merck the boy.
5. Mephisto-Merck.

No other art-form but the wireless could dare to dramatise directly such a soul conflict—and it cannot be denied that the theme is very fertile and significant! In wireless the experiment succeeds straight off without the least faking. It is just the naïve listener who will fall in with the idea quite ingenuously when, for instance, a wicked 'self' and a good 'self' are in conflict. Here there are no kinds of symbols to be understood, no external events to be given inner meanings, but one principle can be heard fighting the other in naked words. The average man in the street does not think perceptually like the artist, but notionally—and this way of thinking suits the wireless. But this advantage implies at the same time a certain artistic poverty.

We spoke just now of disembodied figures in a radio play, pure voices which have no other place in any earthly scene or action. But those scenes had still a remnant of the illusion of action, since what the

Disembodied Voices

voices said had the character of information, served as a dialogue, and was the expression of living beings. Even if animals or ideas or inanimate objects were only endowed with human voices, this made them into living expressive beings, and an assembly of such speaking beings was based on the assumption that it was not a case of voices-speaking-one-after-another but of being-in-the-same-space-at-the-same-time. As we have already mentioned, a conversation on the wireless, in default of the visual, loses much of the character of the static and becomes rather an action taking place in time. But on the other hand, the process of voices exchanging words is only comprehensible when they or their bearers are imagined as existing at the same time *side by side*.

Knowledge of the constant co-existence of the speakers must be gained indirectly from the sound presentation of the loudspeaker with the help of experience, because purely acoustically nothing but a *succession* of sounds is there. That the listener nevertheless understands other 'existence-relations' from the transmitted situation, that he considers the sequence of phases of thought at the same time as the congruence of people taking part in a discussion, is the most elementary and primitive illusion that hearing transmits.

Even this illusion, however, is no longer required in certain radio forms. These are meant to be just as

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one-dimensional, moving only in time, as the corresponding physical acoustic event that sounds in the ear. We are thinking here of the stringing together of turns and gramophone records in a sort of revue, that has become popular for superior 'variety' hours. These forms are used also for 'literary excerpts' and 'radio montages'. The sound here is not intended to acquaint one speaker with another; it is only subject-matter made into sound, and the juxtaposition of various pieces has a connection only of subject-matter. Thus, for instance, the figure of 'Egmont' would be depicted by a monologue from Goethe's drama, an excerpt from Beethoven's Egmont-music and Schiller's representation of the execution of Egmont (in *The Decline of the Netherlands*). Or a Haydn minuet would follow on an 18th century poem, and Rilke's Merry-go-round poem the music of a fair. (In a *Sunday Hour's Entertainment* on the Westdeutscher Rundfunk, Fritz Worm has made these montages highly popular with his vast audience of listeners—a proof that there is no question of unpopular abstract forms of representation.) A short sketch of the dancer, Fanny Elssler, in a *Berlin Wireless Calendar* was made by giving short documentary descriptions by different speakers of her appearance in various towns to the background of continuous dance music. In readings from a famous author, passages from his letters and works were skilfully combined

Disembodied Voices

with contemporary testimony about him, supplied where necessary by voices asking and answering questions. Dialogue scenes are, of course, often inserted, but what is important for us here is the successive recitation of documents and writings, connected by music and announcements. It is a case of pure succession; the relations between the various representations are not of the nature of action but follow only from the subject-matter. There are no speakers addressing each other; the love-letters and love-poems of the same poet, for instance, stand in juxtaposition only of unity in idea, history or mood. The basis of a substantial space with substantial speakers who can listen to each other, disappears. Voices have neither feet nor ears.

The following example might serve as circumstantial proof of the special situation in such revue-forms: in an ordinary scene in a radio play it does not matter if one speaker, who for the moment should be silent, clears his throat, for instance, while another is speaking, and so makes his presence noticed. As it is, the sense of the scene implies that the other man is present although silent, and such interruptions are frequently arranged intentionally, so as to prevent the silent partner slipping the listener's memory. But if, in a radio-montage, the reciter clears her throat while her colleague is reading a letter, the listener's attitude is sensibly disturbed. From a suc-

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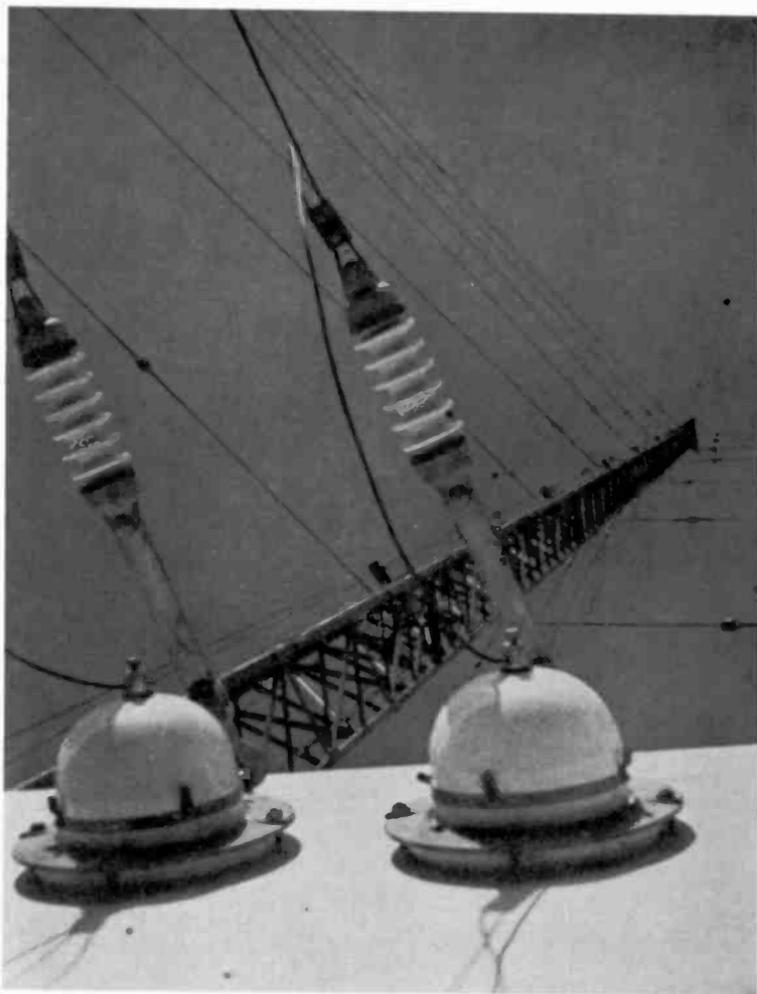
cession it becomes a juxtaposition, a spatial congruence. But if, on the other hand, she begins reciting a poem while a gramophone record is still playing, it does not denote a breach of style, for here the coincidence of the sounds is merely a tonal superimposition—just as different from physical coincidence in the same physical space as in a film the superimposition of two pictures differs from the appearance of two objects in the same picture.

Sceneless effects of this sort occur too as interpolations in otherwise naturalistic dramas, in the representation of dreams or visions, for instance. In one radio play there was a very effective dream scene in which the characters spoke in their natural voices, but in chaotic confusion without any connection of action or place. Each voice was isolated, no one answered anyone else—a kaleidoscope of voices. The realistic plot of the piece appeared to be reflected in this dream scene as in the mirrors of an acoustical labyrinth; every little detail was actually accurately reflected, but uprooted from its natural position, and placed in a bewildering new context.

But we should be doing an injustice to the most individual type of radio play if we went on speaking only of combinations of old and new forms. A radio play can be more than a combination of scenes more or less connected by place and action, interwoven with recitation and musical accompaniment. Should



Effects. A scene from *B.B.C.: The Voice of Britain*.
By Courtesy of the Controller, H.M. Stationery Office, and the G.P.O. Film Unit.



A mast and insulators from *B.B.C.: The Voice of Britain*.
By Courtesy of the Controller, H.M. Stationery Office,
and the G.P.O. Film Unit.

The Radio Play

it be called a mere juxtaposition of dialogue and musical accompaniment when a voice is set in opposition to music? This would be missing something essential. Actually in this sort of scene the final effect is derived from the transposition of a person into a voice. He is only a voice and so he can have music as an adversary—sound versus sound—can drown in this music as in a sea. In Gerhard Menzel's radio play, *John Lackland*, one of the characters blasphemes; indignant music then wells up, he shouts arguments above it; it roars even louder and finally swallows *him* up, for he is nothing but his voice. This kind of scene has no longer anything to do with a real occurrence, it is only a reconstruction of an inner event: the struggle of argumentative reason against the thundering music of the conscience—and is nevertheless effortlessly incorporated in the representation of a ride through the African primeval forest!

In this pure aural world, sounds from quite separate spheres of the material world are united: actual sounds from the stage, the platform and the orchestral well. 'Inner' voices mingle with substantial ones. A sentence delivered by a flesh-and-blood person immediately becomes the theme of an abstract speaking-chorus. The words of the hero are quoted against him by a strange, cold voice in the day of retribution. The cries of abuse from the assembly-

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room are heard again in a later scene in the middle of a lonely forest, but now stylised in a ghostly rhythmic spoken-chorus, half chanted to an impressive musical theme which finally is the only thing left, so that the music carries on the burden of the dying choir. Or music takes over for a space the description of the hero's spiritual development: up to the climax of the excitement his monologue is heard, then it fades into an equally affecting rush of music, slowly the sounds become calm, at last a lovely melody is left, and in the midst of this is heard the quiet voice of the comforted man.

It will be realised that there are no parallels to such motifs in any other art. Here there is really something quite individual. With the expressive means of pure sound: acoustic relationship between expression of speech and music, annihilation of softer sounds by louder ones, translation of mood and character into dynamics of sound—by such means spiritual experiences are embodied in a new material world, just as material as the world of 'reality', taken from it and yet possessing its own laws; but the laws of the sound-world only become effective and recognisable when one is aware of this sound-world quite alone, without any recollection of the 'missing' corporeal world.

The formal expedient, by whose aid the complete new unity of such varied sound-presentation is

Formal Unity

achieved, which hitherto could appear at most merely as a 'combination' in the same work, we shall call the '*acoustic bridge*'. The acoustic bridge which the sound builds is the only sensory quality common to all these different modes of representation. Dialogue and song in the theatre, in film and in opera are just as much sound, but sound that is bound to a corporeal world perceived by the eye. Thus orchestral music, which is pure sound, can meet dialogue and song on a common ground, but cannot be knit into a sensory unity with them. It is just the same with the recitation: the reciter can be combined with a stage scene, but cannot sensorally blend with it, as his voice does with those of the actors. By the disappearance of the visual, an acoustic bridge arises between all sounds: voices, whether connected with a stage scene or not, are now of the same flesh as recitations, discussions, song and music. What hitherto could exist only separately now fits organically together: the human being in the corporeal world talks with disembodied spirits, music meets speech on equal terms.

This was a further radical step towards the eliminating of all factors only inferred from the sound performance, and not already present in it. If we go so far as to say that even the word itself is only made possible by imposing a meaning on the sound,

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we arrive at pure sound with neither word-content nor place-indication, that is to say, music. Only now, perhaps, will what we said about music in broadcasting at the beginning of this chapter be fully understood—why we set so much value on the listener not seeing the musician nor being tempted to imagine him bodily in a room because the studio's resonance is also heard or because the various sounding-bodies, whether instruments or voices, obviously come from different places. Music has significance only when it is conceived not as the partial expression of people sitting beside each other in a room, but as voices existing in a time dimension sounding after or with one another, being separate and unconnected by any 'place'. Music is the purest wireless product conceivable. It indicates nothing beyond the loudspeaker, it is not sound coming from an invisible space, but it is a process—so to speak—in the loudspeaker itself. It demands no interpretation of the sound, but only the apprehension of the sound itself and of its expression!

Now our deduction is not to be taken as a biased opinion, implying that the quality of a wireless performance should be judged according to how far it is, in a given sense, free of illusions and merely limited to sound. Certainly music is the purest embodiment of the essence of broadcasting, but at the same time it is also the richest field of wireless effect, only be-

Essentials

cause in the field of pure and no longer representational sound the whole depth of harmonic, melodic and rhythmic relations can be employed, and it is these things which constitute the inexhaustible mine of expression in music. Suggestions of these can be transmitted—though still more extensively than one believes to-day—even in representational forms of broadcast.

A form like stageless radio montage, for instance, has not nearly the tonal possibilities of expression that pure music has, while, because of its lack of scenery, it has not the rich means of entertainment of the radio play proper. And so although thoughts, ideas and moods can be very purely expressed in this way, a certain poverty and monotony ensue.

Whether in its development practical broadcasting will avail itself increasingly of these sceneless and illusionless, therefore directly acoustic, radio forms and will try to enrich them, or whether then as now the pretence of action and scene will be maintained so as to let the listener take part in an 'event'—that the future will show us.

Just a word on the problem of the announcer. His is one of the purest of radio features achievable in words. He is nothing but a voice, his corporeal existence is not included in the broadcast. He exists, like music, not beyond but in the loudspeaker. Never-

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theless there has been much racking of brains precisely about his justification in broadcasting. One is considered a particularly stout champion of esthetic purity of style if one proclaims that the speaker, who plays no part but only 'passes on' information, is a foreign body in dramatic action, a *pons asinorum* of radio dramatists, who can find no more skilful method of giving the audience all the necessary information—so down with the announcer! The example of the silent film has also been cited, and it has been said that just as printed sub-titles were an un-filmic emergency measure, bringing in the aid of literary resources where the language of the screen was insufficient, so in a radio drama the announcer is a breach of form, the youthful offence of an art which is now in about the same stage of development as the silent film was in its time. Wireless will abandon the announcer just as the film did sub-titles.

This is false reasoning. For whereas in the film, printed dialogue did actually smuggle in a medium of expression which was essentially foreign to it, in wireless the announcer makes use of words just in the same way as the actor who is playing a part. There is therefore no departure from the 'material sphere'. On the common basis of the spoken word the performance can shift without constraint from scenic (drama) to sceneless (announcement) forms. Here, of course, one must again make an energetic

The Announcer

breakaway from optical illusion. It is just in wireless where there is no optical illusion to be destroyed, and where only the acoustic element of the scene of the drama is given, that the style of performance can be changed without any trouble. And this is just what constitutes a particular charm of broadcasting.

We have already said that it is not so much the function of wireless to give the listener the vivid *illusion* of a real event, but rather to keep always a certain distance that will lead to an observant, critical attitude, a participation from a distance. This attitude will be greatly assisted if the plot is not only given, but is also discussed. Then the task that faces the announcer resembles that of the chorus in a Greek play. In Hans Kyser's radio play, *A Dispatch Arrives*, the whole continuity of action is effected by 'Time' as an announcer. Time relates the events hardly 'objectively' but in an ironic or enthusiastic tone, which suggests a certain bias to the listener. It connects the separate dialogue scenes which are only quite brief sketches, and this gives the listener a chance to find out quickly who is speaking and where. Of course, this sort of composition makes it almost impossible for the listener to enter into the situation so entirely that he feels he is present as an ear-witness, but this very desire to dream yourself into a strange place and a strange

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destiny is a relatively unintelligent way of enjoying art. The man who stands very close to a matter can rarely pass a good judgment, and as art is not there merely to transmit experience, but aims rather to make one wiser through experience, the kind of broadcast play that constantly places the listener at a distance is no bad training for the enjoyment of art in general.

Frequently the announcer is used more externally merely as a means of announcing the scene and the characters taking part. What in printed drama is understood as 'stage directions' is generally spoken by the announcer. There is nothing to be said against this either, for the radio dramatist, if he does not wish to, need not bother to inform the listener unostentatiously of all the necessary details during the actual play. It is not desirable that this way of using the announcer should vanish with the development of wireless; on the contrary, not only should he be employed in making simple, general announcements, but he should also play an important part in the radio play as a reasoning explanatory voice outside the action.

We mentioned that in wireless various forms of verbal art very easily overlap, that in an instant the platform becomes a stage and the stage a platform just because neither stage nor platform is seen. However welcome this adaptability may be for elaborate

The Announcer

changes of form, radio authors and producers have to be just as strictly on the watch that a collocation of different forms does not become a dislocation. This applies particularly to the announcer in a radio drama, who must always be kept firmly out of the action proper and must be distinct from the characters taking part, and even in dramatic scenes his speeches must be interpolated in a matter-of-fact way. This formal limitation must be already textually provided for in the manuscript and then carried out by the producer and speaker, by the distinct contrast of the announcer's vocal expression and also, best of all, of the spatial acoustics. The task of the announcer can be of as wide or narrow range as is desired: whether he describes the situation in a few brief words and then hands the word on to the actors, or whether on the other hand he relates the plot in epic manner and the actors only play the part of participating and critical listeners—in every case the function must be quite clearly differentiated. Only by this limitation will the radio artist's supreme control of the most varied forms be revealed in all its freedom and effectiveness. A simple, incontestable example of the most primitive use of the announcer is the beginning of the already-mentioned radio play, *Johann Heinrich Merck's Last Night*:

The Announcer (speaking): On the evening of the 26th July 1791 Heinrich Merck, author and Minister

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for War, is sitting in his study. He has a decision to make. He rings for his servant.

Joh. Heinr. Merck (rings).

Servant: Did you ring, sir?

Vague and confusing, on the other hand, is the use of the announcer in Hermann Kesser's *Man in the Street*, where, for example, the 'author' as an abstract narrating figure describes the incidents in a street, but at the same time is represented as a corporeal person whom passers-by request to move on, to get out of their way and not to hold up the traffic by his meditations; where an unnaturalistic monologue is heard in the same scene with the naturalistic sound of slang; where one person as a corporeal figure can be spoken to but as the speaker of a monologue cannot answer!

The announcer, as we see, is at once the most abstract and unnaturalistic and the most natural and naïve wireless-form. There is no contradiction in this. The contradictory features only result from considering the matter in two different ways: if wireless is regarded as primarily the mediator between the ear and a stage with corporeal actors (scenes from a dramatic radio play), then the soliloquising, uncorporeal announcer is the most radical abstraction imaginable; but if one conceives of the broadcast as a flow of mere sounds through the ear of the blind listener, then the announcer (with music) is the most direct and simple

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form of expression in wireless; whilst from this point of view a scene from a radio play which implies a stage is, on the other hand, only a very indirect presentation interpreted in sound with the aid of knowledge and experience. That is to say, either the naturalistic stage is merely the point of departure or, alternatively, it is the basic form of the material of presentation.

The African fetish roughly carved out of a lump of wood is from a naturalistic point of view a most abstract production, but if the material is taken into consideration, it is the most natural, obvious and simplest way of creating a human figure!

With the announcer, at once the most abstract and the simplest wireless form, our chapter began and to the announcer it has again returned. This completes the train of thought.

Author and Producer

We know that the functions of author and producer are very clearly marked out in the theatre and, hitherto, very unclearly in the film. What is the position in broadcasting? Is the wireless producer, like the stage producer, a relatively subordinate executive officer not to be compared in importance to the author of the piece, or is he—like the film producer—in most cases the real author and composer of the work, whom the author of the manuscript supplies merely with stimulation, raw material and text?

Producing, translating a paper suggestion into a sound-production, exists not only in the radio play but elsewhere in broadcasting. A lecturer 'mounts' the text which he has prepared at his writing-desk at the microphone, or else a speaker takes over the work of production. And the musician's, singer's, instrumentalist's and conductor's function of interpretation is not fundamentally different from the function of a producer in its true sense. In all these

Production

cases there is an already complete work which, according to the particular way of interpretation, gets very different performances, but does not, like the film, contain any particular element of performance as a permanent part of its make-up. The circumstances are much more similar to those in the theatre, where, too, the manuscript already represents a complete work, so that in the printed play no essential part of the conception is missing. Actor and producer, who give the written text verbal expression, merely realise the conception by making the creatures of the imagination bodily visible and by setting them in space. It is only another skin on the onion, so to speak, for the form was already completely fixed and determined.

The same holds good for the production of radio plays entirely dependent on the words. Here the work of production is limited to the delivery of the text. The very considerable supplementing of the dialogue by grouping, costumes and movement, completely disappears. So here there is no doubt that the writer of the manuscript is the actual author and the function of the radio producer is even more limited than that of the stage producer.

It is a different matter with radio plays in which the spoken word is part of a comprehensive sound-world, localised in material space and on equal terms with material sounds. Here details of production are

Author and Producer

an essential part of the conception. The written dialogue no longer contains all the essentials of the work. For the speciality of this kind of 'filmic' radio play consists just in the fact that sound, space and music are not merely possible additions but take their part in the conception equally with words. For similar reasons a difficulty, which so far has not been resolved, has arisen in the film. The film producer to-day is the man who has to follow in the footprints made by the author of the manuscript, but who in doing so destroys those traces beyond recognition because he takes a different size in shoes. The same work is done twice in a film: once on paper and once in the studio, and since two men and especially two artists interpret the same problem differently, it amounts to a reconstruction, generally, indeed, to a mutilation, of what the author created in the manuscript. The functions are not separate like those of composer and conductor, where the one writes the notes and the other performs them; it is the single task of inventing the details of a plot and of so presenting them to the camera that the desired result is obtained. So, as we said, the author of this kind of radio play should not write 'the text as such', and think out 'the plot as such', but should invent every scene with reference to the appropriate acoustic space and include in the directions the distances of the speakers from each other and from the micro-

Author and Producer

phone, and have the sounds employed play an independent part, just as essential as that of the actor.

Nevertheless, the clash of interests found in films need not occur in the wireless. Although details of production are elements of the work itself, they never become so important in relation to the text that one could think of replacing the author by the producer, and by producer is understood a man whose talent lies in conceiving an event through the expressive means of the world of sensation. Even in films, since the advent of the sound film, the author can hardly be dispensed with, for he has to write the dialogue—the only reasonable demand is that the author should draw up the film scenarios with the collaboration of the producer. To put it more exactly, the film producer would have to make a draft of the scenario, and then let the author subsequently work in the dialogue; for after all in a film the producer is the real author and creator. There can be no question of such a *modus operandi* even in a radio play which has a film element. There in practically every case the written text supplies the basic ideas and form of the conception, although, of course, the requirement holds good that the author should be able to think sufficiently in the wireless medium to enable the normal means of producing effects to be used. Otherwise he can try to bring in an assistant more gifted in that branch and they can carry on the work

Author and Producer

together. But utterly useless for this form of radio play is, on the one hand, the author who only writes the plot and text and leaves it to the producer to translate this piece of literature into terms of sound and space, and, on the other hand, the producer who himself patches up some sort of dialogue necessary for the presentation of the plot he has in mind. Writing a radio play is a poetic activity—and even though the cry ‘Bring the poet into the studio’ is false, because a real poet will hardly subordinate the word to material considerations in the manner necessary to the film, poets should emphatically be brought into the wireless studio, for it is much more conceivable that they should be able to adapt a verbal work of art to the limits of the world of space, sound and music. The film demands the visual artist who has also a feeling for words, the wireless on the other hand needs a master of words who has also a feeling for modes of expression appropriate to the sensuous world.

Theoretically, it should be possible for the film author to specify in his scenario, camera-angle, grouping, form, lighting and movement so exactly that the producer would have nothing else to do but conscientiously carry out these arrangements in the studio and in this way preserve the creative unity of the work. But in practice, quite apart from the fact that the personality of the most self-effacing pro-



Broadcasting House from the film, *Death at Broadcasting House*.
By Courtesy of Phoenix Films.



Wireless Discussion Group at Duncow, May 1952.
B.B.C. Photograph.

The Function of the Author

ducer cannot be entirely suppressed, even the smallest film scene is composed of such a number of almost indescribable individual details that with this method every film manuscript would fill a large volume, and even then an unequivocal and complete description would not be achieved. Moreover, when the set is constructed and lit in the studio, however true to the manuscript it may be, other conditions will arise, possibilities of hitherto undreamed-of effects, difficulties and inspirations of all kinds, which could not be foreseen at the writing-desk. This is not the case with wireless. The conditions of producing a radio play are far less complex and can therefore be determined fairly unequivocally and summarily described in words. There is no complicated form-world of three-dimensional visual space. The point in one-dimensional time at which a certain sound is to come in can be quite easily indicated; the desired spatial distances and the kind of the resonance can be given; mere simultaneity and succession are unequivocal terms; and the character and mood of the music, the rhythm and peculiarity of a sound also admit of a fairly definite description. Nor can the actual situation in the studio bring any essential surprises, although even there occasionally an idea conceived on the spur of the moment during rehearsal may be the spice of the whole broadcast. So it may be asserted that a radio play can be planned

Author and Producer

out with all details of production and described with sufficient exactitude at the writing-desk. (Naturally we assume that the author knows exactly the potentialities and effects of wireless from practical experience.) For the producer there remains—in this case!—the modest task, like the musician's or the reciter's, of recreating the performance. If he would do more, he should try to write radio plays in collaboration with a poet, or participate himself as a radio dramatist. What is unbearable, although it is dying out to-day, is the type of radio producer who, imitating the supremacy of his film colleague, which was brought about by completely different material conditions, is eager to do things, and plays wildly about with the written text, burying it beneath cata-racts of sound- and space-effects; like certain stage producers, who, also following the mistaken example of the film, turn the theatre—the home of poetry—into a travelling circus.

The Art of Speaking to Everybody

*Addressing the hearer—Making oneself understood
—Improvising*

In broadcasting to-day it is customary to read from a paper what one wants to say to the listener. Announcements, lectures, stories, poems, news—everything is prepared in black and white. Is this procedure the right one?

Firstly: if a man is speaking *before* others, the most natural thing would be that he should also speak *to* them—and that he should do this not only mentally, by adapting what he says to the capabilities and needs of his listeners, but also outwardly, by addressing them, by turning to them, as if they were sitting in front of him and could even answer him. That the most natural procedure is to speak not only before people but also to them, arises historically from the fact that Greek drama, for instance, sprang from the narrating chorus and its soloists, that

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it is not the dramatic action, framed in its stage and disregarding the spectator, that represents the original form, but rather the narrator; even after the rise of drama proper, the chorus is still given the task of establishing personal contact between play and spectator. We should demand, therefore, that radio speaking should be not only a spoken 'text', but that the performer himself should be recognisable as a human being addressing human beings.

A second demand would go even further. If one man is speaking to another, the natural thing is not that he should deliver an already formulated text from a paper or by heart, but that he should tell him just what occurred to him or what he was just feeling, or that he should put into words at the moment of relation whatever emerges from his memory in the way of information, thoughts, and earlier experiences. Are we to infer, then, from the fact that it is spoken, that it should be improvised and not merely reproduced? In this way the present usual spoken product of the writing-desk would be merely a crude primitive stage of broadcast speech. Future developments would see to it that a literary production became more and more a microphone production, that the moment of production was shifted from the writing-desk to the microphone, and that thus an act of transmission was made an act of creation. The process of putting thoughts and feelings on paper

The Direct Address

would appear in this connection as a mere makeshift arising out of the necessity of making the product of the mind accessible to an increasingly large circle of people, and of fixing it for the future. But if wireless and gramophone took over dissemination as well as recording, writing would be superseded, the minstrel could appear again, strike his harp in front of the microphone and a new culture of directly communicated inspiration would redeem the art of speech. . . . But let us consider this matter more carefully.

As regards the first requirement, it will be admitted that it is immaterial whether the listener is actually addressed or not. Contact with the listener is certainly made easier by the use of such expressions as 'Now perhaps you want me to tell you whether. . . ' of 'Just imagine that. . . ' 'All of you have at one time. . . ', but these expedients are not very numerous and therefore very soon lose their force. If they were found systematically in every talk, the sensitive listener would soon be raving mad. Therefore they should be sparingly employed, best of all where a personal connection with the listener is really required by the content, above all in sermons, instruction, confessions and exhortations—that is in forms of broadcast where it is essential that the listener should be addressed with urgency, or that an atmosphere of intimate conversation should be created.

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It is more important that the *content* of the transmission should be attuned to the listener's understanding. Here the first demand is for clarity and un-equivocation in the form of address. The listener is far more sensitive to mistakes than the reader—and so here wireless could also exercise an educative effect on the written word. The German language in particular is always accused of being difficult to understand, on the one hand on account of its almost inexhaustible permutation of word-construction and meaning, with which a skilled performer can conjure up with ease a glittering chaos of apparent content and relation; on the other hand on account of our predilection for telescoping words. In comic despair over this, Mark Twain once noted the following example of German sentence-construction:

'The trunks being now ready, he DE— after kissing his mother and sisters, and once more pressing to his bosom his adored Gretchen, who, dressed in simple white muslin, with a single tuberose in the ample folds of her rich brown hair, had tottered feebly down the stairs, still pale from the terror and excitement of the past evening, but longing to lay her poor aching head yet once again upon the breast of him whom she loved more dearly than life itself—PARTED'.

The reader can go over the sentence a second

Making Oneself Understood

time, but how much worse it is for the person who listens to this sort of complicated structure. In formulating any communication intended for the ear, then, it must be carefully considered on the one hand how far, by breaking up words and sentences, unnecessary demands are made on the listener's attention, but also, on the other hand, how far the logical relations between thoughts dependent on one another are in this way made sufficiently clear; for it is not a good way out, for instance, systematically to form quite short sentences with very few subordinate clauses: in this sort of mosaic, logical connections are often left out. A process of thought can be presented entirely in short sentences and for this very reason be entirely incomprehensible in its sequence. A single sentence can last for two minutes and yet be so clearly constructed that the listener follows it without any trouble.

Furthermore, one should avoid pseudo-elegant references such as 'the former' and 'the latter', 'this' or 'that', and should rather without any shame call a thing by its name whenever it crops up. Technical terms should be avoided, and the theme should from the very first be chosen so as to require the use of only such terms as can be explained in necessary detail within the available time and without distracting the listener from the main issue.

It should be borne in mind that the average listener

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must first familiarise himself slowly with the subject and that in general he is unaccustomed to thinking; therefore one should not begin with an abstract theme but with some actual facts within the listener's range of interest. Stimulation to thought and fundamental, abstract inference should arise out of practical experience. Introductions should be avoided, especially those that begin: 'I must deny myself the pleasure', 'it is not for me at this point', 'let me tell you briefly' and 'before I come to the real theme of my discourse'—for the problems of selection and construction are matters for the speaker only, much more indeed than most radio speakers seem to realise. Preference should be given to a simple style seasoned with a great many illustrations and little pleasant-ries, but the jovial told-to-the-children tone should be strictly avoided in expression and wording, for the listener wants to feel that he is being treated like a rational human being, not with tender care and condescending indulgence. Particularly before children all playfulness, to which elderly 'aunties' are especially prone, must be suppressed, for every child examines with a serious face a grown-up—even if he is only a voice—to see whether he is being ridiculous or whether one can really have fun with him. Children are always embarrassed by the grown-up 'funnyman'.

There are people who have the gift of giving popu-

Modes of Address

lar but informative talks, and who can even make a difficult subject palatable to the listener. It is the business of the wireless to find out these people, but it has no right to demand that artists and savants should be popular and commonplace if they have no such gift. We could not ask Goethe to make a popular version of *Faust, Part 2*, or Beethoven to make his late quartets more acceptable to a wide public by rather more pleasing rhythms and harmonies. Both Kant and Einstein have tried to popularise their doctrines, but the power of comprehension of to-day's radio listener is not sufficient either for the *Prolegomena* or for the treatise on *The Special and General Theory of Relativity*. An important philosopher or writer knows only one task: that of setting down his experiences and conclusions in the one and only form that seems right to him. In his work he can take no consideration of anyone else, and the fact that what he creates is not comprehensible to everyone is not his fault, but is due to the cultural inequality of the people of to-day. We can help by creating a uniform popular-culture, but not by insisting that the intellectual should come down to the level of—unfortunately—most of his fellow-beings to-day. It cannot be denied that a certain isolated intellectualism in art and research avoids the central problems of life in favour of side-issues. Without actually defending this, it may be doubted whether

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the level of the average man to-day could be taken as the norm to be striven for in the intellectual life of the community.

But although it may not be suggested to the most important intellectuals that they should pursue their work on any but the one plane natural to them, nevertheless, they may possibly have the gift and perhaps also the need of occasionally telling their fellow-creatures, in a way they can understand, about their activities. If they can do this we should congratulate ourselves on our good luck. But in general it will be the task of lesser men to spread the knowledge of the great. The radio must require in such mediators a capability of adjusting themselves to the listener's ear and power of comprehension. To secure this, they will not only have to be careful in preparing their text, to offer only what is comprehensible and attractive, but also at the same time to choose their words for a spoken talk. Much that, if it were read, would seem clumsy or liable to misunderstanding at the microphone, makes a vivid and personal impression because of the special cadence and emphasis given to it by the speaker. So, when one is drafting out a wireless talk, one must consciously include in the script the personal tone of voice and way of speaking, quite indifferent as to whether the resultant 'score' of the talk makes at the same time a good piece of printed literature or not. To print

Animation

broadcast talks quite literally is in most cases a complete mistake.

But wireless talking is not for this reason necessarily 'slip-shod'. There are speakers who, to avoid sounding dry and prosy, degenerate into a dreadful pertness, become rowdy and noisy—a procedure which often sounds not only unnatural but spasmodic. The speaker should not forget that although he ought to infect the listener with his animation, at the same time he serves him as a pattern in matters of speech. People who during the day only hear the language of their environment, ruined by slang and journalese, and in the evening the cheap dialogue of the film, should get from the loudspeaker an example of natural, simple, individual, but absolutely pure and logically unequivocal speech, even when it is only an unpretentious chat.

So much for the considerations that the speaker should have for the listener, 'the inner appeal', so to speak. As regards the 'outer appeal', it is easy to make one-sided demands if one fails to recognise that language can be employed in two ways: as the speaker's instrument of expression and information, and as a text existing by itself which can be made into sound. Wireless can on the one hand let a man communicate and express himself in his own words. This is the original, historically the primary form of speech; it occurs when the listener is actually

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addressed. But, on the other hand, wireless may consider a text as worthy of being transmitted to the listener. To make this possible the text is lent a voice. And in this case any kind of personal interpretation would falsify the sense of the transmission.

With regard to this double function of language, it must also be pointed out that, when the second requirement is in question, the wireless speaker must improvise freely. As a human being's instrument of information and expression, a speech will undoubtedly seem purest if that person does not read it off a paper, but lets the thoughts, sensations and memories which well up in him while he is speaking, take form. The freshness and directness of the creative process—that is what gives this sort of broadcast its particular charm.

This sort of improvisation is familiar to the listener of to-day mainly through reportages, and in these the advantages and disadvantages of the method have already been tried out. The good reporter has the presence of mind, quickness of perception and gift of speech to give a direct description of what he is just experiencing in language that is not only agreeable stylistically, but is also so graphically descriptive that the listener actually seems to take part in the proceedings. But this faculty of instantly grasping and formulating significant detail in an event is notoriously rare. The average reporter only

Improvisation

sees what has already been seen and described hundreds of times on hundreds of similar occasions, and for descriptions of processions, sporting events and national fêtes uses formulas which long since have become clichés. That is to say, in such a case the directness of impression and of description does not extend to the information; on the contrary, the narrative power of the speaker is very strongly diminished through his having no time to select the best of his experiences and the best words to describe them. Anyone who has frequented political meetings knows that although a good speaker is at his best and is most direct when he improvises, on the other hand, not only the average person, but even a clever man with something important to say, comes out with something unbearable the moment he is unprepared. In such a case improvisation is not necessarily the same as spontaneity, but rather a recourse to all the most formal thoughts and definitions. Metaphors, already so worn out by their use in thousands of speeches that their import is no longer felt, flow in streams. The improviser is inclined to bias and exaggeration, to verbosity and vagueness. If wireless wanted to make improvisation the general rule for talks, the average quality of performance would deteriorate greatly, not only from the point of view of form, but also of content.

Such a demand, moreover, implies a very wide-

The Art of Speaking to Everybody

spread and false conception of the intellectual process. People like the picturesque idea that in one moment of inspired intuition the intellectual product runs all ready-made out of the brain of its creator. They like to forget that in most cases it is only prolonged hard work on the part of the reason and the sensibility that achieves the final unity and unequivocal meaning which alone give the work its value!

It follows that even the suggestion made at the Radio Congress at Cassel in 1929, that a studio should be placed at the disposal of writers for their 'inspired hour of creation', was a fundamental error. It is even very doubtful whether any attempt should be made in future to increase the dissemination of ideas by the spoken rather than the printed word, for although the attention is more attracted by direct address, the understanding is deeper and more permanent if what is offered can be thought out and considered again and again at any speed and at any time! But even if the visual process of information were actually supplanted by the acoustic, it would never be possible to make the art of writing an art of improvisation. For apart from other considerations to the contrary, literature, even when it is produced at the writing-desk, is hardly ever the product of 'the inspired hour'. It may have a decisive significance for a work—but it will hardly ever see anything approaching the realisation of its final form. We are

Improvisation

familiar in painting with the freshness and charm of the rough sketch, qualities which sometimes disappear in the finished version. But who would wish on this account that the whole of the history of art had handed down nothing but sketches! 'Art cannot be improvised', as Alfred Döblin pointed out at the same conference at Cassel.

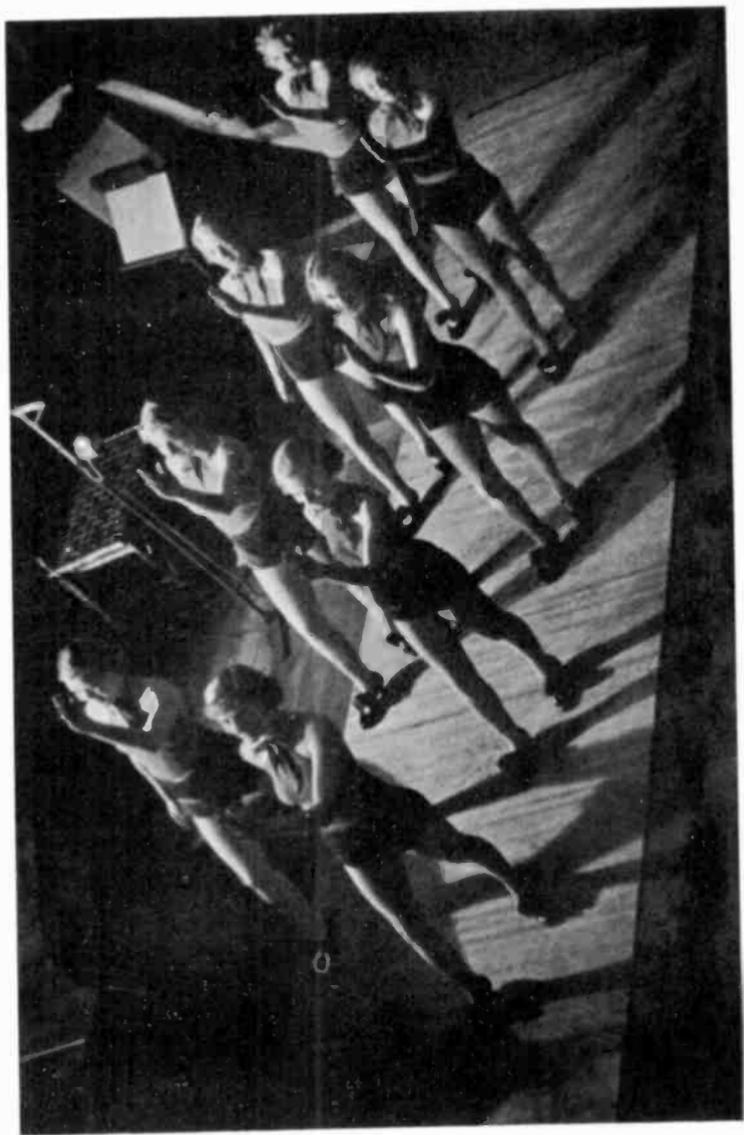
So if we are really clear that it is going too far to assume the fundamental need for improvisation from the fact that the wireless does actually introduce the creative artist and his work, we may also safely admit what a rare experience this sort of improvisation can occasionally give the listener. It cannot take the place of real intellectual creation, for this sort of process is not like the hour of birth when the child comes ready-made into the world, but is equivalent to the nine months of gestation, and the listener has neither the opportunity nor the patience to witness those nine months. But it will be quite feasible sometimes to ask a poet or philosopher to meditate out loud, to 'sketch out'. The free play of ideas, the functioning of an important thinking apparatus, will give the listener an insight into a noble work of nature, and the real value of the broadcast will depend on this natural process rather than on what the hour produces in the way of philosophic or poetic achievement. Natural forces are heard engaged on their highest work, but one experiences

The Art of Speaking to Everybody

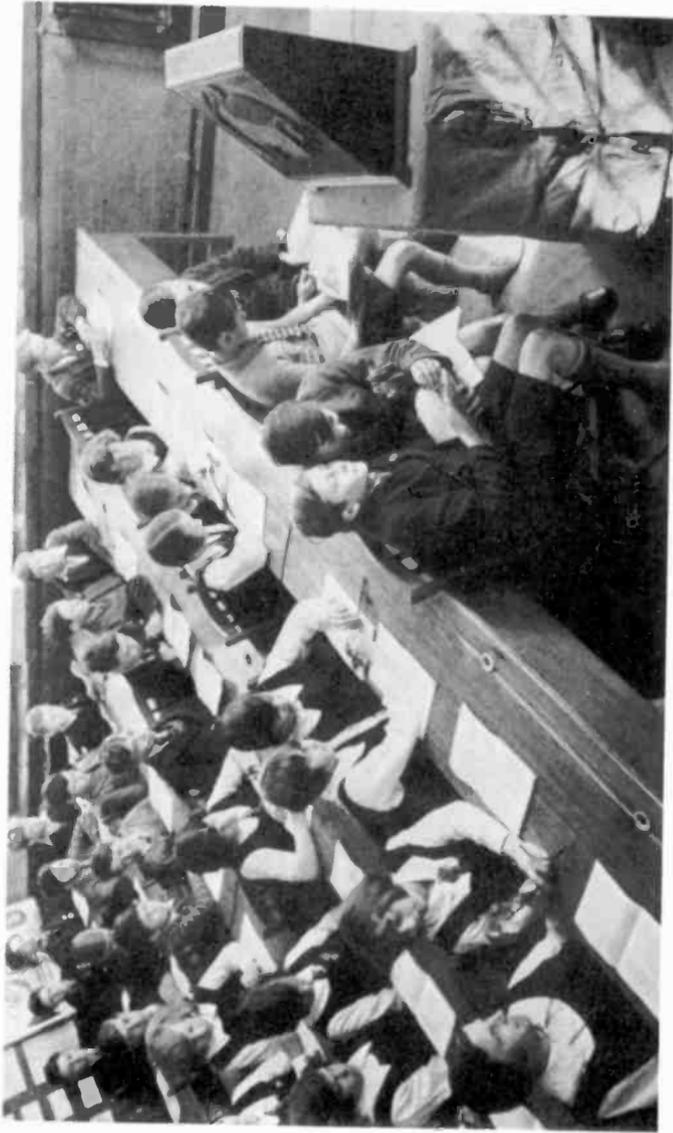
more of the act of creating than of the actual creation—it is so to speak a relay from a superior sort of factory; or, in an improvised debate, the transmitting of a sporting event in the intellectual field.

The art of improvisation might be improved by practice, and this would be in keeping with the strenuous efforts made in these times to return to freer and more animated forms of community-life. But in addition there remains as a guiding principle this consideration: that the huge radio-audience is owed such respect that one dare not offer it anything imperfect, incomplete, casual or immature! In general it is only finished art—and thoughts specially prepared for broadcasting—that is of any value for the least and the most pretentious broadcast alike. In this case human speech is not used as the momentary expression of an excited or confidential fellow citizen, but becomes the sound of what an intelligent human being has finally fixed as his last and best word.

Further, let it be noted that it is not necessarily 'improvisation' if someone gives a talk at the microphone without a manuscript. If anyone masters a subject so completely that at any time he can talk on it without any preparation, then it cannot be called improvising. Mental preparation is not fundamentally different from any other kind. In such cases—if the speaker is good enough—it will always be pre-



'The Desert Song', 8.5.35: The Dancing Daughters.
B.B.C. Photograph.



Wembley School, 7.5.31.
B.B.C. Photograph.

Improvisation

ferable to have talks without manuscript, for in this way a more lively and freer expression comes into the voice than when it is merely reading off a paper. Improvisation in its real sense rather means that a person at the moment of defining, works out and formulates an experience or a process of thought for the first time.

Wireless and the Nations

*Rien ne se fera plus que le monde
entier ne s'en mêle.*

PAUL VALÉRY

*Dethronement of space—Le temps du monde fini
commence—Armaments in the ether—Broadcasting
and the state—Liberal broadcasting—Broadcasting
and the spirit of unity—Creating a community—
Monopoly stations—Central and regional stations*

If wireless claims the whole attention of the theorist of art because for the first time in the history of mankind it makes practical experiments with an entirely unexplored form of expression in pure sound, namely, blind hearing, it is a no less enthralling phenomenon for the sociologist. An apparatus whose technical peculiarity simply consists in enabling sounds made at a particular spot to be simultaneously reproduced in as many and as far removed places as one wishes by disrespectfully breaking through boundaries of class and country, signifies a spiritual event of primary importance, and

The Conquest of Space

creates a situation at once dramatic and humorous. It invades, with the naïve impetuosity of what is really an entirely unpolitical idea, a century in which men are less clear than ever before whether those walls, which have been worked at for thousands of years, are to be kept as they are or built higher or torn down altogether, and moreover at a time when, on the other hand, an unequivocal decision seems increasingly unavoidable.

The relation of man to man, of the individual to the community, of communities to one another was originally strictly determined by the diffusion of human beings on the surface of the earth. Spatial propinquity of people—so we used to think—makes for a close bond between them, facilitates common experience, exchange of thought and mutual help. Distance, on the other hand, makes for isolation and quiet, independence of thought and action, versatility, individuality and the possibility of sinking into one's own ego and doing what one likes without considering others. Contrariwise, the proximity of others disturbs us in quiet and meditation, demands consideration and attention, promotes assimilation to an unoriginal mass-type and, by division of labour, limits production to a one-sided specialised department. Whereas distance condemns people to do everything for themselves and so perhaps they achieve less, are apt to think of their own interests

Wireless and the Nations

and in time of danger are thrown on their own resources. Spatial proximity demands collectivism; distance individualism—in each case with all their advantages and disadvantages.

But the more fundamentally the mind conquers nature, the greater will be its effort not to let social relations be dictated by spatial considerations. It seeks to preserve boundaries and build up walls where spatial propinquity would make too close a contact, and, on the other hand, bridges lands and seas so that even the antipodes may effect a cultural and economic change. The many separate and spatially far distant centres where people used to live independent of one another, because their feet and eyes and ears failed before such distances, have gradually established such a close network of connections that one single community has begun to evolve, which hitherto has functioned so appallingly badly simply because it was not hatched from a single egg. If a new town is built on a vacant piece of land according to a preconceived ground-plan, an harmonious unity can be obtained. But if a city has been gradually built up from a market-town, or the property of a citizen has been developed by each generation according to its new needs, but only as allowed by the buildings still standing which might not be demolished, and if several small towns have merged into one big one, even the boldest measures

The Conquest of Space

can only make a patchwork. And so our age is faced with the task of having to build up something quite new from the foundations with hands that are loaded with the chains of tradition.

Wireless, with television, is the last phase of a development that was begun by the first seafarers and nomads. Man leaves his birthplace, crosses lands, mountains and seas and exchanges produce, inventions, works of art, customs, religions and knowledge. European doctors, missionaries, educational officials in Asia and Africa; Chinese, Japanese, Indians and negroes at European universities; the African fetish in the metropolitan drawing-room and the stiff collar round the neck of the black chief: and to-day a voice singing, teaching, preaching, conquering, going everywhere, coming from everywhere and making the whole world instant participators in everything. Waggon and sailing-ship are replaced by railway and steamer, and again by airplane. But the simpler and swifter it is to move from place to place, the more man can do without it, for hearing, speaking and seeing, which play such a large part in our activities, are becoming more possible even across space. Letters travel round the world with increasing speed but the telegraph altogether eliminates the time element; the telephone makes the deviation of writing superfluous; photography replaces actual sight; wireless-photography saves the trans-

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port of photographs by post; and finally wireless and television enable any number of people to hear and see simultaneously what is happening everywhere in the world.

Side by side with this conquest of space proceeds a development of the community from the tribe to the people, from the city via the province to the nation, and now there is already a decided trend towards grouping by continents. But however great or small these aggregates may be, the world to-day is divided up into individual centres, the limits fixed on grounds of national bonds or historically determined federations, each of which is self-governed, actually—to borrow a term from the psychology of the individual—according to egotistical principles. The axiom of doing everything for one's own good—which can only be carried out at the expense of one's neighbour—the peculiar mingling of friendship and enmity in the attitude of nations most clearly shown up by the fact that they export guncotton to one another to make explosives which they then use to shoot at one another—this entire mode of life, of course, closely influences cultural life and also, above all, cultural relationships.

Diplomacy, trade, industry, art, religion and speech tend sometimes to divide and sometimes to unite. Diplomacy creates alliances and enmities, trade and industry sometimes demand exchange of

Language

goods and sometimes the cutting out of foreign competition. Art shows on the one hand what is common to all mankind in the characteristics of the individual country, and on the other seeks to exploit national characteristics. Religion raises and destroys national barriers. Knowledge alone, in so far as it is pure research, has an almost exclusively international character.

One of the most essential means towards unity and division is language. Between countries where the same language is spoken a deadly enmity cannot possibly be maintained; and, if a state annexes foreign-speaking territory, it will first of all try to effect a change of language by taking energetic measures in the schools and the press to achieve also a cultural conquest of its new subjects. The desperate resistance that is usually put up in this very matter is significant of how little language is merely a superficial matter, or is felt as such. Conversely, if a state has lost its inhabitants either by readjustment of boundary or by emigration, it always tries in every way to keep the mother-tongue alive. On the other hand, there is an unmistakable tendency towards greater unity of language. Not only do world-empires occasionally spread one language over an entire part of the globe for a certain length of time, as in the case of Greek, Latin, French and English, and in this way introduce elements into foreign languages which are

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not easily discarded again, but modern culture also necessarily tends to reduce provincial dialects to one unified language, generally artificially created. While in a land of low educational standard like China it can happen even to-day that three people born in different parts of the town of Canton are unable to understand one another, in modern lands books, newspapers, films, schools, postal and transport facilities produce an increasing standardisation. (The reactions of various governments to this phenomenon are very mixed; while in Italy dialect is opposed to-day as a decentralising factor, in Germany it is preserved as an element of the old national culture.) Even the languages of different countries may become more nearly related although political factors hinder this development. Travelling, emigration, military occupation, economic and cultural exchange, and also the general raising of the cultural level, have not only increasingly promoted the study of foreign languages but have also created an international technical terminology in specialised matters so that, for instance, a German who cannot understand a Frenchman can as a chemist talk shop with his French colleague. And to-day there is already a distinct demarcation of a European-American family-language, the expression of a uniform culture.

Wireless without prejudice serves everything that implies dissemination and community of feeling

International Understanding

and works against separateness and isolation. Whereas books, films and newspapers must first be exported, an event which the countries from which they are exported and to which they are imported can influence at will, wireless is equally available on either side of the frontier. Nor is it like a letter, message, telegram or telephone conversation which can be suppressed or stopped at the frontier; it passes all customs-officers, needs no cable, penetrates all walls and even in house raids is very difficult to catch. All attempts at jamming certain foreign transmissions and at forbidding the reception of certain foreign stations have hitherto been more or less unsuccessful. Wireless lets everything out at any rate wherever it can make itself understood. It is a new tool for the development of language indicated above. Just as it incessantly hammers the sound of 'educated speech' into the dialect-speaking mountain-dweller of its own land, it also carries language over the frontier. Not only to the educated people do those sounds become familiar, but also to the poor man whose only knowledge of languages hitherto has been drawn from his experiences on the battlefield or as a prisoner of war. The next ten years will bring enormous progress in this direction, especially since television with pictures that are comprehensible without any acquaintance with the language will make long distance broadcasts considerably more attractive.

Wireless and the Nations

As it is already possible to listen in to what a foreign country is saying and suggesting to its people, wireless even to-day is quite consciously directed more and more frequently beyond its frontiers. It speaks to its countrymen abroad and in the colonies and so makes the political and sociological idea more and more independent of the old conception of space. The Pope, by his short-wave transmitter, is in direct communication with every legate in the world—the best example of a super-geographical wireless spiritual realm. Politicians address each other over frontiers which physically they may not cross—during election campaigns, for example—and protests against such ‘interference’—which is, of course, an impressive proof that isolation can no longer be maintained—by their very helplessness seem just a little laughable and out-of-date. Russia, Italy and Germany by daily broadcast announcements in foreign languages enlist understanding of their system of government. The possibilities of keeping from a single country facts which the rest of the world are discussing, or of spreading lies about other countries, vanish, for the voice of enlightenment sounds from without. The listener who hears in the evening within an hour the latest news from London, Paris, Berlin, Rome, Moscow and Basel finds the same facts subjectively interpreted from the various centres of interest, and on this basis can

The End of Isolation

build up an approximately accurate opinion for himself. It becomes increasingly difficult in a culturally isolated nation for public feeling towards foreign countries to be influenced in any way, and this is of special importance in the case of a war. Let us imagine a war in which every wireless listener remained in daily contact by television with the life in the interior of the other country. Is it not essential for the creation of a war-spirit to have a certain distorted caricature of one's idea of the foreign nation; is it not essential to forget that beyond the trenches are men like ourselves living in the same way? And will the figure of the enemy created by newspapers, cartoons, films, books and speeches survive, when at the same time the long distance wireless is functioning? These are the problems which military technicians should not forget to study.

Of course in this matter two things should be kept in mind. First, this is very much a matter for the future, for to-day long distance reception is still to a considerable degree the privilege of those who can afford a good wireless set and understand foreign languages, etc. But, secondly, new means to knowledge do not necessarily imply new knowledge; an open, lively and independent mind is essential for evaluating what it sees and hears. Most people are of course capable of learning facts from facts, but not of forming conclusions and judgments. They form

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'their' opinion rather by assimilating something from other people's, and the faculty of overlooking the clear simple lesson of a fact or of interpreting it wrongly verges on the alarming. So wireless and television do not necessarily widen the horizon of the mind along with that of the eye and ear.

We further said above that international relations to-day are characterised by a conflict of separate egoisms. This appears particularly clearly when—as is the case to-day in so many spheres—the sources of buying and selling begin to grow too few for individual interests to be any longer effective alongside and independent of one another. If it is true that the period of free expansion is closed and that, as Paul Valéry says, *le temps du monde fini commence*, the consequences of such a situation are shown with striking clearness in the matter of dividing up the ether-waves in Europe. The total range of frequencies available for short and long distance extends over about 1120 kilohertz. To get a good reception which would include the notes in the upper limits of the human ear, a range of about 10 kilohertz per station would be necessary. Therefore in Europe, if they did not want to cut each other out, there would be room for about 112 stations altogether. But in 1933 there were already 235 stations in Europe. Now there is in existence an International Broadcasting Union to which all wireless companies and

Dividing up the Ether

postal administrations subscribe, a 'wireless police' stationed at Brussels; but if, in spite of that, we still meet with a medley of voices screaming together in a long distance set, it is because it has never been possible to divide up the European wireless area reasonably and systematically: to delegate to every country as many waves as it requires according to its size and structure, to divide up the number of the high-power stations so that, geographically and according to the wave-length scale, sufficient distance is retained between them to keep within the maximum transmission force, to divide up the so-called joint waves properly, and so on. In the international conferences which have taken place for this purpose (1927 in Washington, 1929 in Prague, 1931 in Lausanne, 1932 in Madrid, 1933 in Lucerne) the only thing that could be done was to try to restrict the demands of particular countries, every one of which had created as many, as loud, and as favourably situated stations as they possibly could. The 'ether wave plan' for this reason had necessarily to remain a matter of compromise. Actually there arose a bitter struggle for existence; each country strengthened its own transmissions so as to drown the disturbance of foreign stations—which was sometimes done with the conscious intention of prejudicing foreign broadcasts in favour of home ones—whereupon the next country did the same thing and so it came to be a

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wireless war in which it was no one's fault but everyone's together; voices sounded, as they do wherever there is rivalry and no question of arbitration, not softly and in order, but loudly and on top of one another. What we hear to-day from the loudspeaker is an artistically forceful symbol of constant war in peace, of the deficiency of central authority which we permit around us—a chaos concretised in discord and as such directly perceptible to the human ear. So the dance music of one country comes through the funeral march of another, political announcers and speakers make their reports all together; and is it not highly significant that none of them hears any of the others, but quite unaffected, like deaf people, they go on with their own monologues on their own cultural wave-lengths. Even if there is a certain beauty, a bountiful plenty, a natural abundance, a rich cultural life, yet something is lacking that should differentiate human work from free untrammelled nature: proportion, meaning and form.

Wireless eliminates not only the boundaries between countries but also between provinces and classes of society. It insists on the unity of national culture and makes for centralisation, collectivism and standardisation. Naturally its influence can only be extended to those who have a set, but from the very first there has nowhere been any attempt to reserve wireless reception as a privilege of certain

Wireless Within the State

classes, as it might have happened had the invention been at the disposal of feudal states. Rather is it the case that wireless, like every other necessity of life from butter to a car and a country-house, is accessible to anyone who can pay for it, and since the price of a wireless set and a licence can be kept low, wireless, like the newspaper and the film, has immediately become the possession of everyone. But if everyone can get everything that is transmitted, then conversely, everything that is transmitted must be arranged largely according to principles laid down by the government. While the newspaper and even the film were founded as insignificant little private enterprises generally in times which were entirely favourable to individual private companies, and have developed into public concerns of the first order so gradually that the state could never find the right occasion to lay its hand on them and control them, wireless, from its technical character, immediately proved to be a universal commodity, born at a time when it was already becoming natural for such a matter to be either guided or even controlled by the state, like traffic, light and water, and street-repairs. Thus it was either under state jurisdiction from the very first or else private companies which had taken possession of it, gradually got under control of the state, and finally became replaced by the state. It is obvious that this development

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succeeded sooner in states ruled authoritatively and collectively than in liberal-democratic ones, which, as essential guardians of cultural and economic liberty, found it difficult to understand such socialisation.

In many countries ruled by a dictatorship an anti-regional policy prevails, with the result that the local station was anyway at first superseded. In Germany, for example, the wireless stations of the various regions were at first culturally completely independent. With the increasing strength of the central power, there came first of all the Government 'official news-bulletin', which had to be transmitted without any alteration, then certain compulsory broadcasts—mostly political speeches—and so on, until as part of the constitutional reform a united state wireless arose. But until then, there were constant little wireless wars; for instance, the South German states would refuse to accept certain official Berlin broadcasts.

The same sort of thing happens with regard to the cultural content of the programmes. Here, too, the authoritative or collective state insists on uniformity, whereas in the liberal state the most diverse currents make use of the wireless side by side. In this latter case there are two possibilities, and both of them have been put into practice: either representatives of different points of view speak on the same programme, or there are independent stations with different policies. Thus either there is a talk by



'Television': Back cloth for the Ballet 'Cleopatra'.
B.B.C. Photograph.



Television, 26.6.34: 'The Gods go abegging' Ballet. The
Courtiers: Rosalind Idène, John Regan and Mari Scott.
B.B.C. Photograph.

National Culture

a Conservative at 5, by a Socialist at 6, at 7 a discussion between a militarist and a pacifist, and Sunday services conducted by Catholics and Protestants alternately, or else there are in the country a Catholic and a Protestant, a bourgeois and a socialist station. For example, in July 1932, the American Workers' Guild founded with a capital of 120,000 dollars a 25 kilowatt-transmitter which, independent of the National Broadcasting Company and the Columbia Company, built up a purely socialistic programme in which the negro workers were also conceded regular hours.

The liberal principle in making up a wireless programme assumes that a monopoly undertaking should not be one-sided like a newspaper. So if, instead of several 'party' transmitters with as definite a policy as a party newspaper there exists only a single one, its administration must have not a policy, but a system: it must take care that the performances 'in themselves' are maintained on a high cultural or artistic level without bothering about the point of view expressed; it should see to it that about the same space of time is allotted to the different tendencies and that nothing is given that might 'offend those who think otherwise'. This fine loyalty is at the same time the weak spot of the system, since it easily leads to fussy fear of any polemics and cultivates touchiness. In place of courageous and directly

Wireless and the Nations

effective statements one is apt to get abstract and guarded speech which certainly contains no shock but also gets nowhere. Should wireless administration govern not according to one point of view but objectively as the organ of every opinion, it will in practice become the slave of the 'listener's letter', the helpless victim of protestations from social and professional organisations. The freethinker will make a complaint about the performance of a miracle play, the women's religious society will protest against the lecture on birth-control, the abstainer will object to drinking songs and the doctor to a talk by the homœopath. The housewife in the name of her children will rage at indecent cabaret songs, and the elderly bachelor will be bored stiff with readings from fairytales and verse recitations. The directors carefully read every letter, keep a special official who from morning till evening does nothing but listen to the indignant accusations of licence-holders at the telephone, and the censor strives with increasing zeal here to cut out a joke, there to suppress a point, in the manner of Mr. Edward Nutt, the chief editor of the *Daily Reformer*, of whom Chesterton relates in one of his excellent stories: 'He took a strip of proof instead, ran down it with a blue eye, and with a blue pencil, altered the word "adultery" to "impropriety", and the word "Jew" to the word "alien", rang a bell and sent it flying upstairs.'

The Liberal Principle

In a community where there is no common spiritual foundation of life all will go fairly well as long as the individual groups live in isolation side by side with their own books, newspapers, theatres and schools. But if it is a matter, as in the case of wireless, of having a standard performance for everyone and of giving in it a slice of genuine communal life instead of a mere side-by-side existence, then there arises a compromise which satisfies no one. The advantage of such a procedure is that in favourable cases very comprehensive information will be offered: the listener will be told about all cultural movements. If he is a man of trained intellect, he will examine the material critically and sum it up according to his own philosophy of life. Where he disagrees he will feel himself stimulated to give himself a more correct explanation, and in the universality of the programme he will see a useful corrective to the one-sidedness to which every productive man is prone. But if he is culturally untrained, and accustomed to take advice without much criticism—and the majority of wireless listeners to-day are of this type—his head will soon swim with all this contradiction; he will no longer know what to believe, what to reject, what to praise, or what to deplore, till finally he will become resigned, blunted and apathetic, lose the knack of forming an opinion for himself or become a chatterbox who talks about everything and knows

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nothing, accepts all and believes in nothing. The arithmetical mean of ten points of view does not provide an eleventh, and certainly not one superior to the ten because it is objective, but rather luxuriant weeds or a sterile waste. The man who cannot make a decision does not count.

On the other hand, wireless can be directed quite consciously from a definite point of view. The principle of choice is: what is for us and what is not? The question of quality, of cultural standard, must occasionally take a second place. Diversity here stands for characterlessness, bias as the natural presupposition of all cultural activity. What does not fit into the policy is either passed over or represented in a negative sense. If the former liberal type of broadcasting is the paradise of those thirsting for information, the latter, to the man for whom cultural guidance is a necessity, gives a peaceful, undisturbed life. For there everything fits in, and contradictions only occur accidentally. The danger that threatens is monotony and boredom. If on the one hand liberals regard polemics and propaganda as unworthy of a high level of intelligent discussion; on the other hand there will be an attempt to cut out 'politics' as much as possible because wireless should not stress contradictions or show hatred, but should offer a universally welcome escape from the ugliness of life; and in this case wireless consciously serves as the

The Spirit of Unity

instrument of political education and training. If liberal broadcasting resembles the Zeuxis statue of Helen which according to old tradition was assembled from the most beautiful features of the most beautiful virgins of Kroton, the other type is a figure from *one* mould, and the only question is whether the audience of listeners recognises in it its ideal or not.

For this 'uniform' wireless can be of two different kinds. It can arise from an authoritative edict or be the spontaneous expression of a unified national culture. In both cases the problems which worry the liberal wireless director play no part: in the first case they are set aside, in the second they do not exist. In the first case the censor automatically suppresses everything that does not fit into the formula, in the second it can afford to be milder, because even the opposition can do little against a stabilised policy. In a flock of sheep the suggestion that the young ones should not be brought alive into the world any more but should be hatched out of eggs would not bring about a revolution; but on the other hand if a formula is made compulsory and has not been born in the blood and become second nature, opposition to it can easily become dangerous. The authoritative form of wireless can, however, in certain circumstances represent the transition to the other, organic kind.

In this 'organic' wireless it will be scarcely necessary to restrict the right of the individual to

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express what he wishes and to listen to what he wishes, and yet there need be no fear that a blind anarchy of opinions will follow. The problem of how the 'antithesis' between the individual and the community can be adjusted is not of such an elementary nature as one likes to believe to-day; it only crops up when there is no real communal life in being. Therefore the problem is not really soluble where such a community does not exist; and without such a community two solutions present themselves: anarchy or suppression. To return to our muttons: among them it is quite unnecessary to introduce standardised clothing since they have all more or less the same skin—and yet the shepherd can exactly distinguish the individual beasts by their characters and habits. If the spiritual-economic basis of life, like the biological, was one natural simple species common to all, the right of free speech would be in no danger. The individual and also his products would not be divergent to the extent of endangering the community, but one would feel in any discussion, however acrimonious, that everything was a twig off the same tree. This does not imply monotony as in the case of an enforced artificial levelling, but represents that basis without which there can be neither understanding nor co-operation. The individual outsider then ceases to be a problem.

In the same way, the question whether 'politics'

Organic Wireless

should be given on the wireless would be meaningless, for then there would be no distinction between politics on the one hand and conversation, entertainment and art on the other. The flight from politics to entertainment is a proof that the politics are bad. If wireless serves a state whose politics are an expression of the wishes and needs of the entire people, one single line of policy, unbreakable at any point, will lead the way from the cabaret number through comedy, verse-readings, lectures on juvenile education, advice on legal matters and the news of the day to a speech by the leading director. There will be no more talk of 'tendencies' and 'propaganda', there will be neither demands nor condemnations, but everything that is said, done and desired will be, involuntarily and imperceptibly, the natural expression of the 'commonwealth' and the consequent trend of life.

Problems such as the balance of individualism and collectivism, of the political and non-political, are insoluble just as long as they can be set. And just as the immoral can only harm those who have no morals, what is dangerous and inimical to the community can only do harm where there is no community.

In such a case wireless can do good in two ways. As it addresses itself to everyone with its uniform programme, and so presupposes an organic community of people, it will at once make this felt where

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no such thing exists. And secondly, it can do a little to bring it about. This holds good to-day, especially in those spheres where there are no deep-rooted prejudices to overcome: for instance, in levelling the taste and education of the different classes of people. In the realms of art and science—as in others, too—there can be no question of everything having to be for everyone, but it is just as obvious that the essential and characteristic art and thought of a period should have grown out of this kind of community of feeling and should have been made accessible to it. This common element forms the province of broadcasting, while it remains the function of other methods of distribution to foster what is peculiar and for the very few. But the division of the community into the culture-bearers and the uncultured is a phenomenon condemned to destruction to-day, since everywhere the cultural heritage seems to be the first possession which people wish made accessible to all. Wireless brings an entirely new element into the multifarious attempts at popular education, because for the first time it is not directed at the uneducated only, to raise them to the level of the educated, but is attempting to draw up a cultural programme equally appropriate for uneducated and educated.

All attempts at preserving this segregation even in wireless, whether it is by making separate transmissions for the élite and for the masses, or by re-

Programme Policy

servicing certain hours in a universal programme for a certain circle of listeners while advising the rest of the licence-holders to turn their sets off, easily lead to the greatest aim being forgotten. Wireless is not well administered if it gives very learned specialities or highly complicated works of art which make the average man despair, or if 'popular' entertainment is so inferior that it turns the stomach of educated people. But the time will come when the mind of the ordinary man will be better trained and thus gradually will become more receptive to things that he could not have grasped before; and the intellectual will find his way back from specialised problems and *l'art pour l'art* to the great fundamental problems, the simple forms, symbols and feelings. But a wireless that from hour to hour wobbles back and forward between high-brow and variety fulfils its mission badly. It does nothing right and puts everyone off.

Its task is rather to select from existing art what is simple enough to be felt by everyone—which is precisely the quality of great art—and to get down to the root-problems of the cultural life of the period. There is no really essential scientific or philosophic problem whose fundamental features could not be explained to any person with a certain natural intelligence. This, of course, does necessitate a special pedagogic talent, which is not always to be found even among great thinkers. Furthermore, since ar-

Wireless and the Nations

tistic production is regulated to a certain extent by requirement and demand, wireless must stimulate the artist to works which, apart from using the special forms of expression suitable to broadcasting, are in their essence attuned to the vast, polymorphous audience of listeners: it is an executive organ of the state on which it is incumbent to-day to play a Pope Julius or a Lorenzo de' Medici. The artist who nowadays too frequently works in a vacuum, or for a few estheticians and bankers, will find his cultural basis at the same time that he finds a public again.

Wireless should lead from folk-art to the particular forms of individual creative artists, and from the puzzles and difficulties which beset each person in his own life to the great fundamental problems which occupy the philosopher. It must be made clear that all philosophical occupation, even the highest, has grown out of and is the expression of the needs of the practical, active, earthly life of every man, showing in this way that it is not an unnecessary luxury or a pastime but that it is something which everyone, even the listener in his bed-sitting-room, needs as much as food and shelter.

It is not a matter of whether Jean Cocteau, Stefan George or Anton Schönberg are suitable for the wireless or not. It may be that their works must remain caviare to the general; it may be, too, that in a period of higher general culture such works might rightly

Programme Policy

be included in wireless programmes. But it is not a question of individual cases but the general problem of bringing art and philosophy and the people into accord.

Wireless should not attempt to embrace the entire range of the life and interests of all its listeners. Details from the special province of one listener may be and remain incomprehensible to another listener. When in exceptional cases wireless can lend certain professions or individuals invaluable help such as no other means of communication can supply, it is very salutary for the social feeling of the non-participating listener to sacrifice a few minutes of the time of transmission to others—when a mother is called to the bed of her dying child for instance, or when the daily weather report gives a timely warning of storm and frost to farmers and gardeners or informs seamen about the tides. But these are exceptional cases. In general, specialities are for the specialist. Wireless is only one instrument of dissemination among many. Technical journals, congresses, recitals and chamber music concerts given to small circles, books with editions of only a thousand copies, little experimental theatres and exhibitions of twenty pictures in two little rooms, must also carry on alongside wireless, cinema and the press, if culture is not to wither away.

It might be said that it would be best if there were only a single monopoly-transmitter providing for the

Wireless and the Nations

entire needs of the community with its one single programme—whether it is a single state or a group of states. Such a procedure would ensure a most radical uniformity of thought, but would lead to cultural degeneration; not only because in this way the whole business of broadcasting would be confined to the personal taste and style of the directors and their favourite colleagues, but chiefly because the aim is not systematic uniformity but ‘unity in multiplicity’ as they say in esthetics. This multiplicity is represented most happily in wireless by the special character of individual regional transmitters, and seen from this point of view it is only right that at the above-mentioned international conferences the greater countries should resist too great a reduction in the number of their stations. The particular character of a country or of a part of the country, determined by whether it is more mountainous or flat, whether it has a milder or a ruder climate, whether it is more urban or rural, determined also by the language or dialect and the special race or mixture of races of its inhabitants, expresses itself also in the wireless programme. Each individual station knows how to address its listeners in a way that is congenial and comprehensible to them, and all those stations together offer agreeable possibilities of choice for long distance reception. The only problem is to preserve the unity in this multiplicity. This first depends quite natur-

Monopoly Stations

ally on how deeply the country or district is animated by a unanimous spirit, and consequently how far the different heads of stations are adjusted to the same ideology; but in particular there arises for wireless the problem of organisation. Just as in the ideal state individualities are not effaced, yet are subordinated to a central authority, in wireless, too, a monopoly control and unified transmission will be rejected, but a central transmitting station will be employed to emphasise all that the regions have in common, thus bringing about a unity. Here we must have a two-fold organisation: the regional station collects the regional listeners; the central station collects the regional stations. From the point of organisation, this is possible in two different ways. But it must first of all be borne in mind that the place where the broadcast is made on the microphone and the place of transmission need not be identical. The microphone can be connected with the transmitter at any desired distance; the announcer can be in an aeroplane, on the sea, or under the earth: so that—and it is interesting in this connection—a speaker in the studio of the Rome station can give a lecture for the Milan station, or the Milan station can take over a transmission from the Rome station for its own listeners. This is the sort of thing that actually happens every day. There is the possibility (fig. 6) of erecting one single monopoly-transmitter *m*—whose programme

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is shared by the central transmitter Z (which we shall call the Government or united national transmitter) and as many regional stations as are wanted (A, B), which successively give hourly broadcasts. Let x and y be places of reception. If we assume that listener x is situated in the same place as microphone A , he will of course be able to hear the broadcasts of his own region, but only as a single contribution to a unified programme in no way superior to any others. In the second case (fig. 7) there are as many regional transmitters as are desired (m, n), each of which broadcasts its own local programme (A for x and B for y) but is also compelled to take over transmissions from the central station Z and from the other regional stations (besides A , x also hears Z and B ; besides B , y hears Z and A).

In the first case the listener gets a clear notion that 'his' transmissions, that is, those of his region, are not more important than any of the others, just as he as a citizen of the state has no more rights or importance than anyone else. So here the emphasis is laid entirely on the community factor. There is no long-distance broadcast because there is only one transmitter—and so at any particular moment of time there is no possibility of choice. One hears a great deal of what is 'strange' and very little of 'one's own'. The tendency is towards centralisation and uniformity.

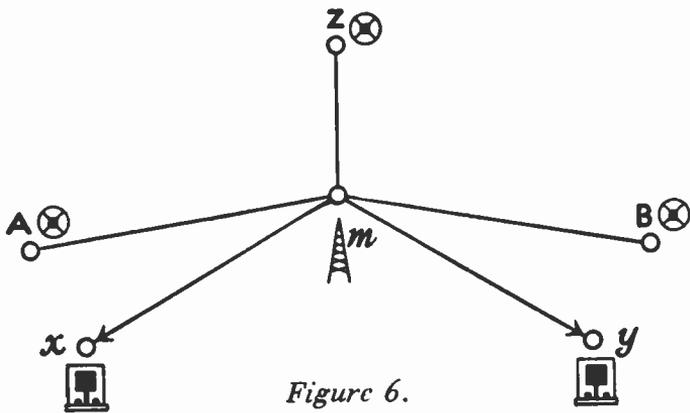


Figure 6.

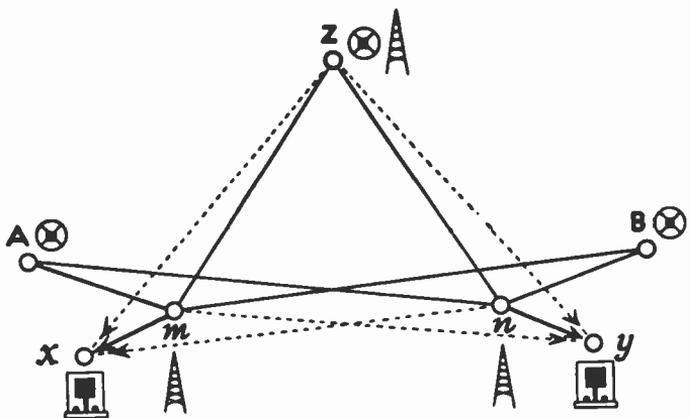


Figure 7.

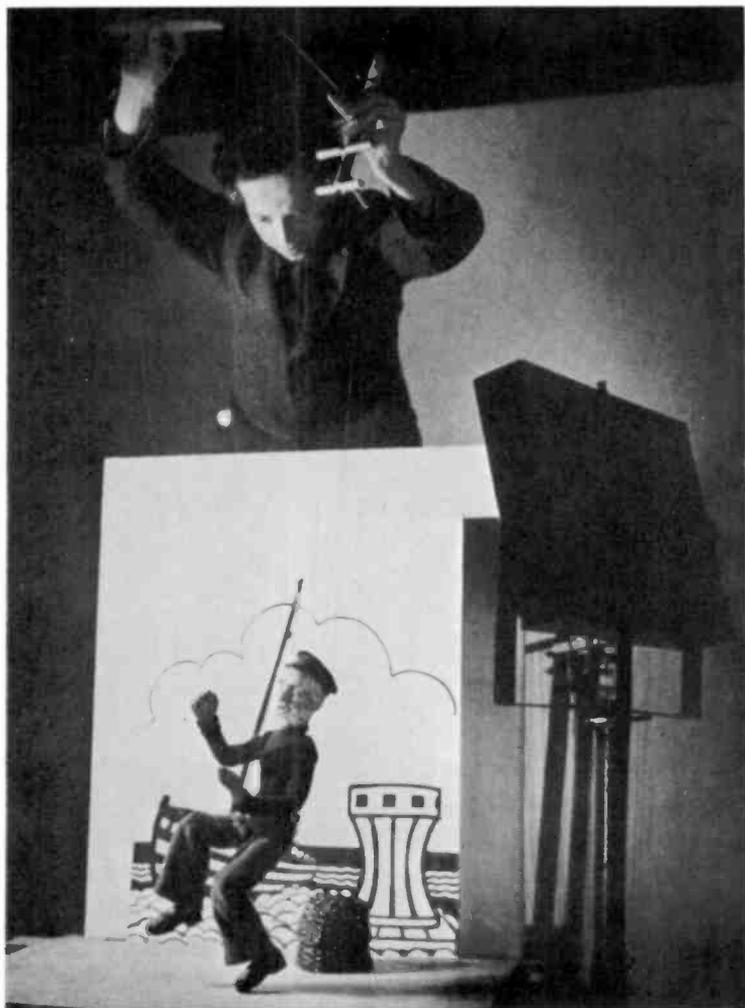


Wireless and the Nations

The second case reflects the principle that even a person living in a real community has his own individual standpoint, and from it understands everything best. The stressing of the kind peculiar to him, just because it is his, is quite natural and implies no contradiction of the community-principle. So in this case the local station occupies the most important position in its own region and the central one yields place to it, even although the central station will always be marked by the character of its transmissions as something special and important. Here, then, the stress shifts to individual diversity, and the possibility of particularism arises. On the other hand, the listener more easily enters into an intimate relation with 'his' transmitter, and in addition he has nearly always the possibility of choosing between different long distance programmes.

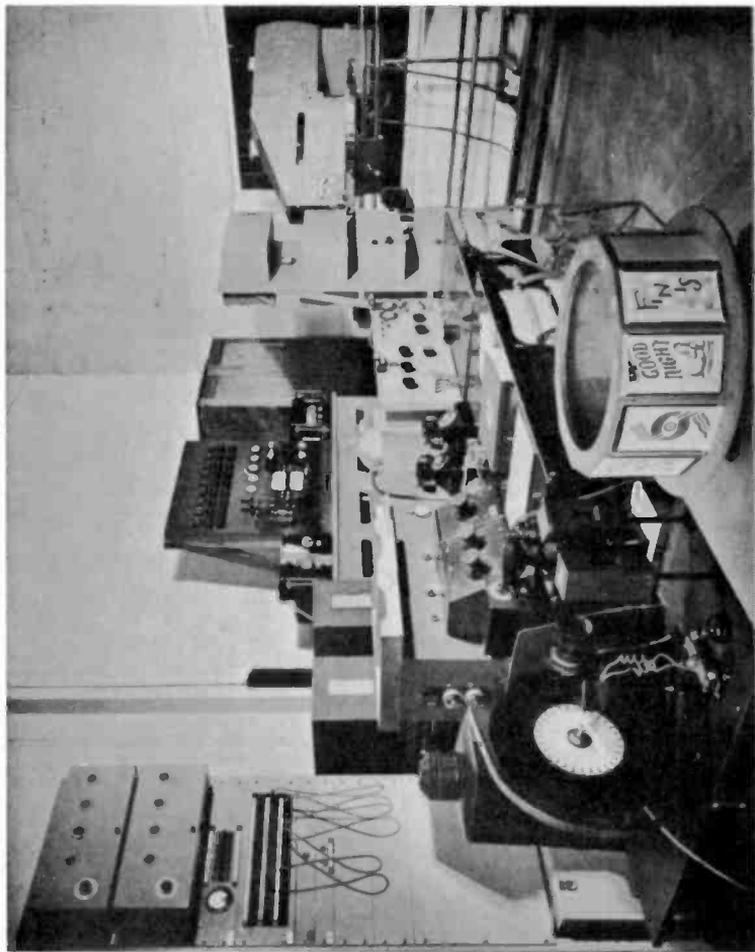
According to the particular structure of the state or union of states one or other form will be indicated. Where the regional differences are inconsiderable, or on the contrary so great that more unity is desirable, the first principle will be chosen. Where they are strongly marked, or should be developed, the second will be employed.

But let it be observed of the second case, that it is a good and useful thing if local stations not only effect an exchange of programmes among themselves in the sense that one day the one relays a concert from



Television Programme, 9.6.33: The London Marionette Theatre.

B.B.C. Photograph.



Television Control-Room.
B.B.C. Photograph.

Regional Programmes

the second and next day a third relays a play from the fourth, but also in the sense that every station has to take over the functions of a central station by giving a broadcast relayed to all stations. Such a broadcast not only has its own character and its own special potentialities, but also is consciously directed to everybody, exerting its best forces and so arranging the broadcast that it offers something valuable and interesting to all. From this there ensues a healthy rivalry which is also instructive to the station directors, because in this way the tribute to the spirit of the community does not remain passive by limiting itself to relays of certain outside broadcasts, but becomes active in an occasional contribution towards the education and entertainment of everyone. A characteristic example of this was offered by the 'National Hour' which the German wireless broadcast daily for years to all stations at a certain time, and which was transmitted by a different station every day. In this way the notion of a central transmitter acquires a broader and a better significance which its unfortunate local limitation denies it. And it becomes manifest that what concerns all and what concerns individuals are not isolated questions, but that everyone is at once an individual and a part of the whole. And that everyone contributes to the whole what is his own and his best.

The Psychology of the Listener

*The passive standardised man—Art and science in the home—Self-discipline—Learning how to be rich
—The hermit at the loudspeaker*

While the reader of this book was making himself acquainted with the last pages of the previous chapter, a pleasant baritone voice from the loudspeaker beside him was giving out stock exchange quotations; now there is silence except for slight noises and cracklings, the reader closes the book and gets ready to go out, and suddenly an entirely different voice from the loudspeaker announces that he will now hear Beethoven's 8th Symphony. The reader puts on his coat and cuts off Beethoven's introductory bars in the middle by a pressure of his finger. But the music persists, though more distant and raucous, drifting up the stair from the hall-porter's room. The reader nods to him as he goes past, bangs the front door, but Beethoven follows him down the street, loud and strident from the shoemaker's back room, softly from the second

The Omnipresence of Wireless

floor of a villa, and braying across the market-place from a little café—an acoustic relay race carried on from house to house, everywhere, inescapable.

Busy and idle, rich and poor, young and old, healthy and sick—they all hear the same thing. That is what is great, moving, dangerous and dreadful about our time. This omnipresent music is consistent with the gigantic streets of newly-built blocks in which every home is built on the same plan; it is consistent with the long processions of people who every morning go off to offices and factories, and on Sundays to the country, all dressed exactly the same way, all reading the same paper saying the same things and showing the same pictures; it is consistent with the half-dozen famous faces which smile down from every screen and hoarding in town and country. Everyone is shown the same thing, does the same thing and so everyone becomes the same.

If we read any simple letter written by an ordinary person in the 18th or 19th century it seems like poetry to us, every sentence is so stamped by its individuality and fresh perception. Only poets and servant-girls write like that nowadays; everyone else, as soon as pen touches paper, flies to worn out clichés and turns of expression from newspapers and novels. And even the servant-girl, who has eyes although she perhaps does not read, when she meets her young man in the evening displays a style of be-

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haviour and hairdressing that does not originate from herself but from another walk of life and another country.

If our time seems destined to gather together in a unified popular community and culture people of different class and educational status, it threatens, on the other hand, to create a uniform mode of life, which has nothing of the rich variety of the single form we so admire in nature. More exactly the danger is not so much that all people will conform to the same mode of life, but that this mode is not created by themselves as an expression of their being, but is imposed upon them, which means that the creative power of the individual life, which was just working itself out as a particular form, is stunted. True, homogeneity arises as the expression of similarly-constructed and conditioned living beings, but not as a result of an outwardly applied stamp. If then the above-mentioned phenomena of modern life are good in so far as they restore to men a generally disseminated basis such as animals, plants and primitive men have naturally, they are dangerous, on the other hand, because they threaten to give a definite limit to that life which should serve only as its sustenance.

So even if wireless offers a programme entirely made up of what deserves by its beauty and value to be made accessible to everyone, good can only come

The Standardised Man

of it if the listener does not let one broadcast after another pour out on him quite mechanically, but selects when and to what he shall listen entirely according to his individuality and his state of mind at the time in question. But activity of the mind—like any other activity—arises from necessity; it is the response to the tasks which life sets us; and so it is only natural that in the average man, in whom such necessity no longer exists, this activity should be everywhere inhibited. We know to-day, for example, that any teaching, unless it induces one to examine and so to solve problems by oneself, destroys the thirst for knowledge and propensity to think instead of promoting them. But the man of to-day is given the precise solution of his problems in pretty nearly every aspect of life from political opinion to cookery recipes; the tailor decides the cut of his clothes, the hairdresser the cut of his hair, the manufacturer and the interior decorator his home, the cinema will show him how to conduct a love-scene—is it surprising if his judgment, his taste, his feelings, even if he himself is stunted? As empty as the average letter of to-day is the face of the man who writes it.

To-day, when there is so much talk about influencing and suppressing free thought, one should not forget that this phenomenon of the time is only made possible and perhaps even redeemed by the modern man's incapacity for freedom. The morbid

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weakness which demands support and leadership in everything is decidedly different from voluntary discipline and subordination. We have here before us the spectacle of a humanity that has not yet learnt to master its new means of help and relief—which up till now has been so deprived of its own cultural will that it automatically submits to every interference in its mode of life.

Now one of the most important tasks of the human being is that of dividing up his time. He has to use it according to what is best for his nature and his aims in life. For most people nowadays this only concerns their so-called free time. Here they are not only allowed, they are also *forced* to decide what they will do; whether they will play, walk, sleep, be sociable, drink or read. And even here we find a general tendency to eliminate that choice by drawing up a plan, for example, that once and for all delegates everything, even the joys of love, to their fixed times in the week. Here wireless has sprung up as a new, dangerous tempter, and has conquered all along the line. It makes a set demand on every minute of the day, and even decides the moment of getting up and going to bed. It leaves the listener the free choice when, and—to a certain extent—to what he shall listen, but what is significant is that he does not want it. If you don't need to choose, you don't choose. If you can be passive you lose your activity.

Selection

So the loudspeaker goes on the whole day, has absolute command over feelings and thoughts, and it is most significant that the listener only exercises his power of will and choice typically when it is a matter of getting out of a demand for mental co-operation which the wireless occasionally makes on him in a broadcast requiring understanding and sensibility.

Wireless must offer a complete programme determined by the common needs of its listening public. It can neither let itself be determined by the taste or level of the individual nor adjust itself to the particular time he makes use of it. It is always there, so that everyone can have it at any time. But this concession to the freedom of choice is actually the cause of further slavery. If broadcasts occupied only a few hours of the day, the listener would for weal or woe have to order the rest of his time himself. But as this is not the case, wireless has absolute mastery and kills all mental initiative. Lectures, talks, music for the home all destroy it. It is significant that the bad habit of turning on the wireless so loudly that the whole neighbourhood can have the advantage of it—for independent people one of the most torturing phenomena of the time—generally meets not with protest but rather with gratitude. We cannot refrain from quoting at this point the words of a man who in all respects was the very

The Psychology of the Listener

opposite of the wireless listener of to-day. Kant in § 53 of his *Critique of Judgement* writes:

'Besides, there attaches to music a certain want of urbanity from the fact that, chiefly from the character of its instruments, it extends its influence farther than is desired (in the neighbourhood), and so as it were obtrudes itself, and does violence to the freedom of others who are not of the musical party. The arts which appeal to the eyes do not do this; for we need only turn our eyes away, if we wish to avoid being impressed. The case of music is almost like that of the delight derived from a smell that diffuses itself widely. The man who pulls his perfumed handkerchief out of his pocket attracts the attention of all round him, even against their will, and he forces them, if they are to breathe at all, to enjoy the scent; hence this habit has gone out of fashion. Those who recommend the singing of hymns as an addition to family prayers have not considered that such noisy devotions (which are generally hypocritical) impose a great burden on their neighbours, who have either to join in the singing or to cease from their mental labours.'¹

Wireless relieves the listener from the necessity of having any 'mental labours'. Instead of an individual with definite preoccupations who, according to his ten-

¹Quoted, with some revision, from J. H. Bernard's translation (London, 1892).

Self-Discipline

dency, seeks certain things and rejects others, assimilates some and secretes others undigested, the wireless listener bobs like a cork on the waves, hears one after another an endless succession of totally unconnected things, and so entirely without a breathing space that he does not manage subsequently to ponder and consider what he has heard. Which suits him just as well.

All this, naturally, is not the fault of wireless but is due to a lack of discipline in the listener. One would think that wireless would have created a sounder relation between man and his artistic activities, instruction and diversions, since it has brought them back from the public halls to which they were banished into the everyday life of the individual to which they originally bore a real relation. Particularly in the realm of music it is always being said that the concert-going of to-day really represents a degeneration because music has lost its natural contact with the work and play, the festivals and leisure of active men. It once got its finest stimulation from this function which had the effect of promoting, facilitating and beautifying it. And this was the case not only with music.

The wireless performance does not stand outside the rest of life as the concert does. One does not need to make a pilgrimage to it, but finds it at home, not only in the sense that the gramophone also

The Psychology of the Listener

permits any kind of music to be performed in one's own house. Wireless transmissions are fixed by time and many broadcasts reckon on this; music broadcast in the morning is quite different from that in the evening, on Sundays it is different from weekdays, on All Souls' it is different from New Year's Eve, and this holds good, too, for non-musical broadcasts. So in a certain general sense it meets the conditions, the needs and the moods of the listener, and this must actually contribute to a natural, real relation between the listener and what he hears, going beyond a mere 'taking notice' and 'enjoyment'. Here surely is one of the finest faculties of wireless; and anyone who knows how to make use of it will often enough find the fitting expression for the particular hour.

On the other hand this connection between the broadcast and the listener's momentary condition is really of a very general and rather artificial nature. It smacks a little of 'pre-established harmony'. In the first place because it can naturally only admit of conditions of life common to all men—like the time of day and public holidays—whereas it must naturally reject any relation which depends more particularly on what the individual is doing and feeling at the moment. But, secondly, because merely listening-in to a particular broadcast on a particular occasion only exceptionally makes such a close contact

The Wireless in the Home

as is envisaged in the stock examples of 'introducing art into life'; using the old working songs for instance, whose rhythm was founded on the regular movements of the work from which it originated. Broadcasts fleeting past from miles away—from a foreign country as it were—can only occasionally emulate such organic unity, as, for instance, when they play music for dancing or gymnastics.

But furthermore, on a day of rejoicing or devotion, what one hears is usually only *one* element of a single unified situation. The sight of the scene of rejoicing of people united in a common mood, increases the impressiveness of what the ear hears, while the relay, intruding on strange surroundings, has something of the disturbing effect of a telephone-call breaking in on a conversation (one of the most characteristic of the distractions that have resulted from man's partial conquest of space). We have said that wireless has forcibly seized and commandeered the listener's day, but we must make one qualification, namely, that in normal conditions the listener is not so completely taken possession of as he would be if the event could make its proper effect. In exceptional cases it does happen, as when a boxing-match or the polling of votes is relayed. Then everyone listens breathlessly, and every distracting side-occupation is forgotten. But since the broadcast must use this power not only *alone* but also even *in oppo-*

The Psychology of the Listener

sition to the listener's surroundings, it usually manages to gain only half the listener's ear, the special psychological need which wireless meets, that of filling up time being satisfied by a superficial listening. The daily life in the home makes all sorts of demands, so the listener never sits 'idly' in front of the loudspeaker, but does all sorts of useful and useless things at the same time. Just as a man feels that he is left helpless in a void as soon as there is no demand made on his ear, so conversely, when he is listening his hands start twitching and his eyes begin looking for the newspaper. The concentration which is enhanced in church or concert-hall by the entire situation must be fought for by the listener *against* his surroundings, and he rarely succeeds in doing this. Wireless is a permanent guest, and such people are notoriously 'made no fuss of': life goes on as if they were not there.

Wireless is always there, and it is cheap. And we are far too much brought up to observe and respect only what is rare and expensive. We are accustomed to good things being dear and to cheap things not being worth much. If a man treats himself to a concert ticket he carefully chooses the programme and artistes and then tries to get as much of his 'money's worth' as possible out of the performance. But if the best musicians in the world perform the most glorious music for him for the price of a box of matches

Value and Price

and that as often as he likes, he would really have to belong to the world of to-morrow if the value of the performance is not going to suffer. Mankind can learn from wireless something that will be of good use to it in the future: the difference between value and price. It must learn how to be rich, that is how to value things even when they are attainable without great trouble and expense.

Wireless as educator! By addressing itself only to the unobserved individual, it does away with all the factors which in a public performance make for respect and interest in cultural values. If, in the middle of a concert, you open a newspaper or start talking or rise and go out, you reveal yourself publicly as being uninterested and ill-mannered. If you are seen at a good concert or an educational lecture, you will get the reputation of being a cultured man. On the other hand, no one can find out whether you tune in to Bach or musical comedies at home, nor whether you listen devoutly until the end or leave off in the middle and do other things. The wireless listener is responsible to himself alone for his relation to what is beautiful and valuable. For this reason wireless can have a strictly disciplinarian effect, and it is for this reason that, in practice, it makes the manners of an audience so hopelessly bad.

One frequently meets with the opinion, especially in circles that have to do with popular education,

The Psychology of the Listener

that the mere presentation of what is worth while in art or philosophy should have an educative effect. But in this way the fact is completely overlooked, firstly, that everything depends on the right attitude being engendered: on creating concentration to a degree such as is otherwise never used except for one's needs or business, and, in the case of a work of art, on creating an understanding of the wonderful gift, on representing, explaining and interpreting it by means of concrete sensuous qualities. The simple, direct presentation of what is good is not generally beneficial but is rather harmful because it leads to a learned discourse being listened to in the same superficial, easily satisfied way as the political opinions of one's bridge partner, and to Beethoven being greeted in the same absently jolly or sentimental way as the *Blue Danube* or the *Last Rose of Summer*. (It must be said that the wireless does much to encourage this attitude by laying a 'classical' cuckoo's egg—with well-meaning pedagogic intent, making use of a fundamentally false method—in a nest of 'light music', without realising that in commonplace surroundings Haydn and Mozart can become quite banal and superficial, even to connoisseurs of music, simply because one listens to light music in a different way.)

Will the rising generation, who daily hear several hours of music with many good things among it, be

Educative Effect

any more musical than the preceding one? Or will not these incessant sounds rather completely destroy the charm by which music draws the attention of the ear to itself, and thus destroy the most important condition for the appreciation of music? It would be extraordinary if a man, whose whole life from the time he was born was so enveloped in musical sounds that he did not notice them any more than the light of the air around him, should still be able to succumb to the magic of a violin or the power of an orchestra. May we not expect the rising generation to be the most unmusical that has ever lived?

Let us consider briefly the passive character of listening-in. That the listener can only listen but not answer, that only the voices at the microphone but not the reactions of the people at the loudspeaker are made audible, is due to the technical character of wireless. But at the same time we must not overlook the fact that it has thus carried to an extreme the passivity which, with the principle of specialisation and division of labour, has divided the productive community more and more definitely into an active and a passive part: from the feast-day when the singing and the music-making was done by the community there evolved the professional musician displaying himself on a platform before a silent and motionless 'audience'; and in place of peoples' assemblies arose the man ruled by the professional poli-

The Psychology of the Listener

tician, merely informed but never listened to, whose voice, too, is lost in the ballot-box where he still records it as a matter of form. The wireless apparatus has only been able to obtain such immense importance because with all its advantages and disadvantages it is so admirably suited to present-day social forms. Wireless is one person speaking without hearing and all the rest listening without being able to speak. One wonders whether the Greeks of classical Athens would have had a use for such an invention!¹

Let us be clear about this: wireless is not a work of the devil but one of the most valuable aids ever placed at the disposal of the individual and society. Moreover even to-day there exist here and there 'ideal' wireless listeners, inasmuch as there is to-day a considerable number of men independent in thought, feeling and action. But what concerns us here is that in order to fulfil as completely as possible the character of a medium of 'reception', broadcasting has participated in a general spiritual development and has carried this, it would seem, to its farthest point.

¹In the Russian film 'The Deserter', directed by Pudovkin, an engineer in charge of a factory whose output had not reached the required standard is called to the microphone by a congress sitting in quite another place to defend himself, not only before the congress, but to listeners all over the country—an example of how, in case of necessity, the technique of broadcasting can be made to serve the most varied purposes.

The Passive Listener

Even though all this results in the unfavourable consequences of which we spoke, nevertheless it has the advantage of anything that carries a spiritual tendency to its final conclusion: before a phenomenon has run its course it cannot be passed over by progress, but the moment it has run its course, it is already passed over. So if wireless in one single sphere—not of course the most important in our life—shows up the grotesque and unbearable consequences of an exaggerated passivity in the masses, it also prepares, in its humble way, the corresponding counter-development which will again encourage the activity and independence of the individual within society. Even to-day we find, alongside utilitarian attempts to reassemble the scattered and dispersed community, others of an opposite nature which urge that collectivism should not become minority rule. This second task as well as the first will devolve on civic and school education, and it will be incumbent on those pedagogic institutions to give wireless its proper place in the life of the individual, to restrict it to the part-function with which, as an instrument of reception, it has to be contented, and by which it can first be made really useful: wireless will then become a means of information and education for the creative man such as no previous generation had at its disposal. If the flood is controlled the earth will be more fertile than before.

The Psychology of the Listener

The art of NOT listening-in, which, as we have seen, is such an important element of the art of listening-in, can hardly be taught by wireless itself. But broadcasts can of course be so arranged as to incite as much as possible individual participation. Instruction in handicrafts and all kinds of hobbies, setting tasks in the sphere of musical composition, community singing and music-making, and teaching languages, are examples in use to-day. These attempts, if they are assisted by a general education with similar aims, will in future have more success than they have to-day.

Here, too, we must speak of the danger of wireless estranging people from life, firstly by making them contented with images instead of the real things in their proper places—this applies specially to television—and secondly because it keeps them from the society of other people with whom they used to have to mix if they wanted to visit a concert, opera, political or sports meeting. On the first point one may well say that the image will only temporarily supplant the reality. Films of foreign countries have increased rather than diminished the love of travelling, and one has only to ask engaged couples or tradespeople to find out whether the telephone has led to people not meeting in the flesh any longer. The film has certainly led to people having a better idea to-day of what to expect and so of going on their travels better

The Art of Not Listening-in

prepared, and the telephone has saved people from meeting when it is unnecessary or more trouble than it is worth. This should also be considered in connection with the second point.

Wireless programmes, as we have said above, should give what is important for everyone. But what is meant for all must not on that account be always taken as a communal experience. In many cases the individual can absorb it more conveniently and in a more undistracted and concentrated way if he is alone. This holds good, for example, for music, of which a far purer enjoyment is possible when one sits alone at home at the loudspeaker than in a concert-hall where one is too easily distracted by everything that strikes one as agreeable or disagreeable about the performers, the hall and the people sitting round about. If wireless keeps the listener from meeting his fellow-men, it does so only in cases where such meetings were dictated by practical necessity rather than by social enjoyment, and where the need for company did not arise. But when that need arises, then the wireless is left at home, or the crowd assembles round the loudspeaker.

For even in this case wireless has a detrimental effect only if—with the onesidedness of its character, which is not to be condemned as negative in itself—it promotes a harmful tendency already existing. It is not the tools we must blame, but the workman.

Television

Not an independent mode of expression—Broadcasting will become documentary—The use of film—Producers and officials—Television-reportage

Television will make short shrift of the special new means of expression and representation that broadcasting has given us. For up till now it has in common with wireless only the character of a medium of dissemination, for the specialities of the wireless mode of expression, as we have seen, do not depend on its subjugation of space and time, but on the presentation of the aural without the visual; theoretically they can be employed not only in broadcasting but also on gramophone records and, to a certain extent, on a darkened theatre stage or on a film-strip without a picture. But they are impossible in television.

We will not indulge here in prophesying whether and how much and how long blind broadcasting will be able to go on developing alongside television, but we will rather speak of what television is likely to

Esthetic Poverty

bring us. With the coming of the picture, broadcasting loses its peculiarity as a new medium of expression and becomes purely a medium of dissemination. It will be able to transmit films for us, and then film esthetics will apply to its presentations; it will give us theatre pieces and then the dramaturgy of the theatre will apply to it; and, by giving both, it will make even more distinct the impure mixture of the two forms of art in the talking films of to-day. The divorce between theatre and film which to-day depends largely on such external facts as that, in the one case, it is a matter of an actual flesh-and-blood performance and in the other of a merely projected representation, and that both sorts of performance are given in different buildings, will either vanish before the screen of the television apparatus, or will have to be founded on more essential and inner differences. The television apparatus will also be a lecturer's desk, a concert platform and a pulpit, and will be differentiated from these, not in the method of presentation but only in the method of dissemination.

So from the esthetic point of view we look forward to television without much interest. The most important alteration that it will bring seems to us to lie in the fact that blind broadcasting, built upon word and music—that is on an abstract and non-figurative medium—is above all directed towards

Television

thought and feeling; while television, with the dominance of the visual factor, which it will be sure to cultivate, will prefer facts to ideas and the individual to the general, will offer the spectacle rather than its psychological content, will be more the means of instruction than the instruction itself. Television will not only portray the world as the film does—and its pictures will be coloured and perhaps three-dimensional, too—but it will make this portrayal all the more fascinating because instead of seeing the mere records we shall be able to participate in distant events at the moment of their happening. With television the documentary potentiality of wireless will increase enormously. The purely aural world, as we have already said, is relatively poor in documentary qualities. Without the mediation of a speaker—however ‘picturesque’ the words—the picture of an event as ‘transmitted’ to us by wireless is very often so poor as to be incomprehensible. If, for instance, from the sound of marching feet, snatches of brass bands, the murmur of a crowd and the shouting of voices the picture of a huge mob rises before us winding in a festive torchlight procession through the dark streets of a big city, and we feel all this as immediately as if we were there ourselves, it says more for our imagination than for the richness of the aural image which has come to us through the loudspeaker. Our ear is above

A Means of Transmission

all the tool of our understanding, of the brain, the receiver of what is already formed. Seeing, however, is perceiving, experiencing and assembling sensory raw material.

With television wireless becomes documentary. Only when it is catering for the eye does it let us participate clearly in what is going on in the great world around us. We can see in the principal square of the neighbouring town people streaming by on their way to a meeting, we can hear the ruler of the neighbouring state speaking, we can see the boxers on the other side of the sea fighting for the world's championship, we can see English dance-bands, Italian coloraturas, German intellectuals, the rumbling crash of railway trains in collision, the masks of carnival, from an aeroplane we can see snow-mountains between clouds, from the windows of a submarine deep-sea fishes, we can see the machines of the aeroplane factory, and the expeditionary ships warring with Polar ice. We can see the sun over Vesuvius and the next second the night-lights of New York. The detour via the descriptive word, the barrier of the foreign language, vanishes: the great world itself lives its life in our room.

So television as a means of spiritual intercourse, proves to be a relative of the car and the aeroplane. It is merely a means of transmission, containing no such elements of a new mode of presenting reality

Television

as the film and non-pictorial wireless, but like the machines of locomotion that the last century gave us, it alters our relation to reality itself, teaches us to know it better, and lets us sense the multiplicity of what is happening everywhere at one moment. We recognise the point at which we stand as only one among many, and become more modest and less egocentric.

Television implies a new and enormous conquest by our senses of space and time, and enriches the world of our senses to the most extraordinary extent. Admittedly it is at the same time a new instrument for the cult of actuality which—arising from joyful pride in the invention of photography, the gramophone, the film and the wireless—is so characteristic of the mental outlook of to-day. It is certainly true that to-day we can hardly calculate how much more concrete, comprehensive, direct and to a certain extent correct the modern man's picture of the world is than that of his forebears. And yet—let us not forget that to the furtherance of actuality corresponds a retrogression of the spoken and written word, and also of thought. The more convenient our modes of perception become, the more firmly fixed is the dangerous illusion that seeing is knowledge. In bygone times, was not the impossibility of transporting the spectacle, and so of transmitting it directly to one's neighbour and the resultant urge to

Documentary Character

communication and speech-development, the chief factor in the education of the human mind? If you want to describe, you must abstract the general from the particular, formulate concepts, compare and consider. But where the finger merely points, the mouth is dumb, the pen falls from the hand, the mind is stunted.

This point of view should not be overlooked at a moment when the wireless licence-holder is preparing to shift over from listening to looking. For the man who can think, draw conclusions and discern, television will be most stimulating. But the man who cannot do those things will be engrossed by the screen without its getting him anywhere—and we are thinking particularly of the characteristic television transmissions, the direct relays of actual scenes which will pass through the sifting and regulating functions of the mind to a much lesser extent even than the newsreels of to-day.

We must also consider that culture has made life much less perceptual. Our world of to-day is a bad actor: it shows its gaily-coloured surface, but what constitutes its real nature it does not show directly either to eye or ear. The nature of the situation of the world to-day, of the world-crisis, of the corporative function of a modern state, cannot be directly determined from their material expression as can the character of a man from his face. What is the use of

Television

watching the symptoms if you are not a doctor? If you want to understand the present day you must talk to people, talk to industrialists and read the memoirs of diplomats. So if the television screen wants not only to show us the world but also to make it comprehensible, then let it give us as well as picture, sound and word, the voice of an unseen commentator on the lines perhaps of a radio-drama dialogue such as blind broadcasting invented—let it give us a voice that can speak of the general when we see a picture of the particular, and of causes while we are observing effects.

Television is a medium of dissemination. It has social repercussions since it makes the object viewed independent of the place of its origin, and renders it superfluous for spectators to flock to the 'original'; it also has economic repercussions since it replaces other mediums of dissemination. For there is no doubt that television will constitute a rival to the cinema and the theatre. We know from wireless that although on the one hand it rouses an interest in music and thus gives a certain stimulus to concert-going and record-buying, yet on the other hand it replaces concerts and gramophones and so is bad for them. Theatre, opera, revue, film and stadium will for the first time really feel the rivalry of broadcasting as soon as the listener can look. Television will let itself be deprived of the transmitting of films,

Documentary Character

theatre productions, operas and horse-races just as little as, in its smaller domain, broadcasting has done up to now.

With special reference to the film, I have already at the end of my book on the film brought up the question of whether perhaps television might tighten up the production of film plays. Will it be worth while to produce a film for half-a-dozen performances on a few transmitters? Would it not be economically more expedient to limit it to theatrical productions in the studio? Artistically the production of films is justified by the photographic moving picture leading to forms of expression attainable in no other way. But for the industrial film-producer the film-strip is not so much an artistic as a reduplicative means which allows him, after one shooting, to produce an entertaining story in different places at the same or at different times, as often as he likes. But if a new technical means makes it possible for the production to be given to all or a great many people simultaneously and directly at the moment of its making, will not the recording apparatus then become superfluous and the popular wireless theatre be the given form of production?

Not even an optimist would assert that the public adheres to the film as an artistic form of expression because it is devoted to the charms of montage and the mobile-shot. It is true that the film has two

Television

characteristics that people love it specially for, which also have esthetic value and which the theatre can hardly replace. In the film the 'change of scene' is made very easy, without any trouble the action shifts and springs from place to place, over years and lands and seas, and in this way has endless variety; and, furthermore, the whole world lies open to the film for properties: in eighty minutes the spectator travels round the world with Douglas Fairbanks and sees no painted scenery but always the real thing. The film as showman satisfies the crowd's lust for spectacle, and even the artist particularly values this epic and naturalistic element. But in the last few years industrial film-productions have more and more dispensed with out-of-door shots and have tried to bring the actuality into the studio with the aid of trick photography. It is possible that television will make a similar use of the film picture so as to give its stage productions in the studio as varied and realistic backgrounds as possible, such as the public likes in films. There is no doubt that out of this would come neither film nor theatre but a sort of mixture of both, a form which esthetically would be more open to criticism than the talkies of to-day, but this would actually be no particular handicap.

If film producers, however, were to move into broadcasting studios, it might lead to an interesting collision of opposing forces. It is notorious that the

Production

film, although a social problem of enormous significance, has hitherto come under the influence of the State in an almost entirely negative sense. From an insignificant private enterprise of a few, the film has developed so gradually into an important element of public life that the State has never found the proper occasion to lay hands on it. Film production, directed by capable entrepreneurs of the lowest level of taste and culture, has even to its best productions never lost a flavour of the demi-monde, of drawing-room passion and public-house philosophy. Wireless, on the other hand, in accordance with the different character of its technique, proved from the day of its birth to be so obviously a monopoly instrument concerning the whole of the community that in most countries it immediately came under the direct influence of the State. For this reason and because there was no competition that could have lured the public away with vulgar effects, wireless programmes were from the very first made up, not so much from the point of view of profit as of quality and popular education. In practice this was often not very evident, but a casual comparison between cinema and wireless programme will show at once (at least in most countries) the difference of the level: in each case the root psychology is different: if the mixture of good and bad characteristic of both mediums came about in the film because, in an

Television

industry founded entirely on popular taste, occasional concessions had to be made to 'highbrows', in wireless, on the other hand, 'variety programmes' were a concession to listeners protesting against symphonies and improving lectures. Wireless, realm of the ear and not the eye, realm of the word, of poetry, of learning and of music, was from the outset a field for teachers, educators and *littérateurs*; and as a State institute it was run, not by business men but by officials—frequently by bureaucrats.

But if television is to bring about a marriage between wireless and film, then domestic scenes will be unavoidable: for the cult of knowledge will jostle with the cult of spectacle, the word with the picture, art with entertainment, the educator with the ballet-girl, the official with the producer. The outcome of the struggle is uncertain, but in any case it was unavoidable and long overdue, and it will also prove most instructive.

Finally let me say a word about the new form of visual reportage, which is obtained by direct relays from the actual scene by means of the television apparatus. The placing of the apparatus, the choice of the shot, distance, angle and the moving of the camera will at the time of taking already determine the final form of the presentation. It will no longer be possible, as it is with films, to select the best strips subsequently from the material, cut them to the

Reportage

right length, and make a suitable montage. Even if not one apparatus but several placed at different points and distances are used, so that a producer at the controls can alternately send over one or the other during the transmission—a procedure that will also hold good for the arrangements in the transmission-room—the form will remain an improvisation with all its charms but also with all its pitfalls. It will depend on the skill, presence of mind and experience of the directing reporter to what degree the raw material of the pictures is combined into a good and effective form, but it will never be possible to show simultaneously what happened successively, for example, nor to show scenes with any departure from the actual time sequence or omission of a space of time; and no virtuosity will compensate for the fundamental, conscientious work of selection and montage that is possible on the celluloid.

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