

## Sound    Reproduction

**T**HIS issue of *Wireless World* is devoted largely to the subject of sound reproduction—an expression which we use to cover all artificial methods of reproducing, reinforcing or recording natural sounds. Extra pages have been devoted to articles on various aspects of the subject; unfortunately, it is impossible to deal with all of them. Of all the offshoots of radio, sound reproduction is probably the largest and most diverse. In some directions it has broken away almost entirely from the radio (and, going back farther, wire telephony) techniques on which it is so largely based, but in many respects the relationship is still close.

Among the many branches of electricity, electro-acoustics is unique in that it has attracted a large band of fervent devotees. The reasons for this are not far to seek: as a contributor points out elsewhere in this issue, the quest for perfect reproduction amounts to chasing the unattainable, and so offers a constant stimulus to human instincts. Again, art enters into it quite as much as science; that, perhaps, is why professionals in other branches become amateurs in the "audio" field, in which they find pleasurable relaxation. Here amateurism is seen at its best. Interest in the subject was never at a higher pitch than at the present time; according to correspondents in the U.S.A., the same applies in that country, where "hi-fi" tends almost to displace television.

Though there are no spectacular developments to record in sound reproduction progress is steady, but room for improvement still remains. The amplifier has perhaps approached nearest to perfection, and is now produced commercially in forms giving a degree of fidelity that would have been thought unattainable (or even unnecessary) a few years ago. This is a subject in which *Wireless World* has long concerned itself, and for many years we have regularly published designs of high-quality units. The "Williamson" amplifier, since the design was first printed, has achieved world-wide popularity. There is hardly a country in which a version adapted to local needs is not in use.

If the amplifier may at present be regarded as the

strongest link in the chain of faithful reproduction, the loudspeaker is the weakest. Obviously the problems to be solved are most difficult, but there has been progress during the past twenty years or so—progress that would be regarded as phenomenal in a less rapidly developing art than our own. The loudspeaker is to some extent a war casualty; it has no special application to warfare, and so comparatively little work was done on it between 1939 and 1945. Since then, much effort has been devoted to its improvement, but the field is one in which there is still much scope for new ideas.

As many of our contributors have pointed out, the general public (as opposed to the growing band of enthusiasts) is not highly critical of reproduction quality. We find it hard to believe, however, that large sections of the public are really satisfied, and it should be easy enough to show them the pleasures they are missing. Unfortunately, however, under present conditions of broadcast distribution, it is only the favoured few who receive a signal capable of being well reproduced. This, as we have said, can only be put right by e.h.f. broadcasting, but, when that comes, the links between studios and transmitters must also be overhauled.

High fidelity, as it is called, is only part of the story. There is also high intelligibility, of greater importance for "public address" purposes and the like. A good deal of data on this subject is already available, but much remains to be done. For public address in places with a high prevailing noise level a more refined approach than mere brute force is needed. It would be fantastic to suggest a "synthetic sound" technique, akin to that demonstrated by Rudolf Pfenniger in 1933, but it is certain that highly artificial characteristics in speech reproduction can effect an improvement. And, apart from public address, we think investigation of synthetic sound production might well continue. In fact, that technique is actually employed with some effect in the Telekinema at the South Bank Exhibition. Though it may be amusing rather than epoch-making, as we said in 1933, the technique may yet provide a useful tool in the world of entertainment.