

Highlights of Modern Radio



ALTHOUGH 1930 has not brought to the surface many developments that can be ranked as revolutionary, it has certainly produced a far higher standard of radio efficiency than that in force twelve months ago.

There is an all-round improvement, whether one judges by the cost of the simplest type of loudspeaker set, or by the performance of the best receiver money can buy. Present prices are such that no listener need count loudspeaker reception too dear, while the man who can afford it can purchase greater selectivity and higher quality than ever before.

Mass Production.

IN the main these things have been made possible by the use of mass production methods in manufacture, by a fall in the cost of raw materials, including valves, and, as a side issue, a reduction in the scale of patent royalties. At the same time makers have paid more careful attention to the technical details of circuit design.

Finally, the efficiency of the modern valve, particularly of the S.G. and pentode types, has been improved beyond all recognition.

The mains-driven receiver leads the way in all-round performance, principally because of the constant voltage and unrestricted current which can be drawn from the mains, as compared with batteries. Nevertheless, it has a comparatively restricted market, owing to the fact that so many listeners are still outside the areas served by electric supply companies.

The Inductor Dynamic.

IN loudspeakers there are also one or two interesting innovations to record. The magneto-dynamic type of moving-coil speaker, though not exactly a novelty, has been greatly improved in operation and compactness, owing to the enormously powerful cobalt-steel magnets now available. The Farrand Inductor Dynamic instrument, on the other hand, is a distinctly new one, which may be regarded as a compromise between a moving-coil and a moving-iron speaker.

Instead of moving toward and away from the magnet pole-pieces, like an ordinary diaphragm or reed, the armature of the Farrand speaker is arranged to vibrate in a plane parallel with the pole-faces. It is propelled in both directions by magnetic force, and does not depend upon a spring reaction. The quality of reproduction is very similar to that given by a moving-coil, the bass register being well in evidence.

The Stenode Radiostat.

THE electrostatic type of speaker has not yet made its presence felt on the market here to the same extent as in Germany. The necessary biasing voltage is now conveniently drawn from the electric mains, while from the point of view of economy in manufacture it compares very favourably with its older rivals.

Then there is the Stenode Radiostat circuit, of which so much has been heard of late. This new receiver

An Illuminating Article on the Trend of Present-day Radio Design

claims to have achieved a standard of selectivity hitherto considered impossible.

Briefly, it claims to receive programmes separated only by a few hundred cycles in frequency. This, if true, drives a coach and four through the generally accepted theory of side-band modulation, and should make room in the ether for ten times the number of transmitting stations now in operation.

Without being unduly conservative in outlook—for this is a dangerous policy in radio science—such a statement is bound to arouse a certain amount of criticism. The Stenode circuit utilises a superheterodyne receiver to feed the incoming signals through a very narrow "gateway" which is controlled either by means of a piezo-crystal or by a phase-reversing oscillator.

The emerging signals are then passed through a "shaping circuit" to restore their musical balance.

The principle is certainly ingenious in its conception, and deserves to succeed. The proof of the pudding lies, however, in the eating, and one can only wait and see to what extent the Stenode circuit will supersede its other competitors in the field of selectivity.

Curing Fading.

IN connection with the selective reception of distant programmes, one difficulty still to be overcome is that of "fading." Efforts are now being made to eliminate this bugbear by the use of an automatic volume-control device, designed to regulate the degree

of amplification of the first R.F. valve in an inverse sense to the strength of the incoming wave.

A part of the received signal is separately rectified and the rectified current is then used to control the bias on the grid of the first R.F. valve. When the incoming carrier-wave weakens, the negative bias is lessened, so that the valve amplifies more powerfully, to compensate for the falling-off in signal strength.

It may be thought that there is now little scope for further improvement in the thermionic valve. In spite, however, of the high amplification factor and all-round "figure of merit" of the latest types, there are signs that we are only on the threshold of future valve development.

Future of Television.

THE multiple valve in which several stages of amplification are housed in the same bulb is at present being extensively exploited abroad, particularly in Germany. So far, this type of valve has been left severely alone in this country. Sooner or later it must come to the fore, and prove a powerful factor in reducing still further the cost of multi-valve sets.

Another interesting possibility lies in the development of the photo-electric cathode, in which the filament battery will be replaced by a source of light. The photo-electric type of valve, fitted with a light-sensitive cathode or grid has, for instance, an obvious application in television.

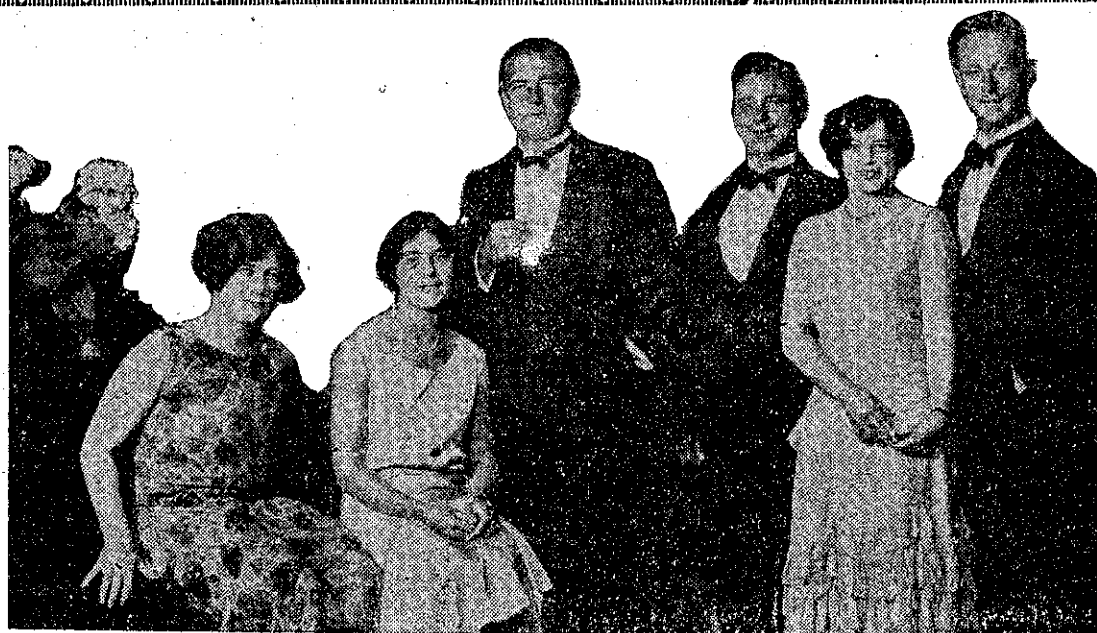
There is also reason to believe that the cathode-ray tube may soon open the way to a new system of television, unhampered by the use of mechanically-moving discs, and capable of producing programmes of real entertainment value.

At the present time experiments are being made, both in this country and abroad, with cathode-ray tubes for transmitting and receiving moving-picture effects by wireless. There is no reason why a cathode-ray tube need cost any more than a mains-driven valve, while the necessary operating voltage can easily be drawn from the domestic mains. In short, the cathode-ray tube opens out new prospects for television.

Beam Radio Progress.

A PART from broadcasting, remarkable progress has been made in the use of ultra-short radio waves, particularly in connection with so-called "beam" systems. It is now possible not only to transmit telegraphic code messages at the rate of 200 words a minute, but simultaneously to use the same beam waves to carry a telephonic message, without any trace of interference between the two systems of communication.

Experiments are also being carried out in connection with the transmission of speech between England and America over a submarine cable. This has always been considered impossible owing to the distortion caused by the relatively enormous capacity of the submerged wire; but developments in the use of new "shaping circuits" (designed to restore the distorted speech to its original form) promise to remove these difficulties and add another direct speech-channel between the old world and the new.—Carden Shields, in "Popular Wireless."



The 2YA Eight O'Clock Revue Party, who broadcast from 2YA on alternate Saturdays. From left to right: Elsie Croft, Rita Kemp, Will Bishop, Will Hancock, Gretta Stark, Ray Kemp. —S. P. Andrew, Photo.