

The Acoustical Manufacturing Company was started in London in 1936 by Peter Walker, the present managing director, and moved to Huntingdon on being bombed out in 1941. The company has grown steadily over the years to its present size, with 140 employees in a 30,000 sq.ft. factory producing a product every 2½ minutes.

As a recognised world leader in amplifier and electrostatic loudspeaker design, the company has made a significant contribution to the improvement of sound reproduction in the home, and we are particularly proud to have been granted the Queen's Award for Technological Achievement for 1978.

Before the 1939-45 war there was no hi-fi market as such but a few manufacturers of public address equipment, such as ourselves, tried to achieve a better quality of reproduction than that generally regarded as economically feasible in the cut-throat trading conditions of those days. We also produced occasional monsters for use at home but there was then little market for such equipment.

During the war everything stopped except the enthusiasm of the devoted few and when the end of the war made it possible to resume 'non-essential' production, it was largely with war surplus parts! New designs began to appear arising out of earlier elaborate and sometimes cumbersome equipments such as the one affectionately known in Peter Walker's home as 'the gas stove' (class 'A' and DC coupled no less!) and over the next few years amplifiers like our QA12/P (Quality Amplifier 12 watt with pre-amplifier) designed for lab and studio applications, began to sell for use in the home. By the end of the decade the hi-fi market had begun. The QUAD (Quality Unit Amplifier - Domestic) was the next logical step and it was with this model in 1951 that we introduced the variable high frequency filter which has been a 'must' ever since. We also retained and developed the cathode coupling of the output transformer we had previously used for many years in our P.A. amplifiers which was later taken up in the USA in a rather retrograde form and called 'ultra-linear'.

In 1953 we introduced the Quad II, another 'first', with push-buttons to select inputs and alternative record equalisation characteristics, and shortly after that we began to discontinue all our P.A. and contract work to enable us to concentrate on the QUAD line.

In the 1950's, too, we co-operated with Wharefedale, the loudspeaker manufacturers, in a series of public concerts in London's Royal Festival Hall and other halls in Britain and the USA, in which a live performance was intermingled with recordings of the same performance, using a variety of works and instruments, and these helped considerably to promote a wider appreciation of just how good high quality reproduction could be.

Our Corner Ribbon loudspeaker deserves mention from this period since it used a ribbon high frequency unit in conjunction with a moving coil bass unit, and represented a significant step in loudspeaker development. Many of these are still in use, but this model was discontinued in preparation for the full range electrostatic loudspeaker which was first demonstrated in London to an invited audience of leading audio engineers in 1956, and marketed the following year. This was the result of a long-standing appreciation of the basic advantages of the electrostatic principle and about three years of concentrated non-stop, often day and night research into materials and techniques, all carried out in considerable secrecy at Huntingdon.

Although electrostatics had long been recognised as providing the answer to most of the basic problems of loudspeaker design, the limitations in earlier days to materials such as animal intestines for diaphragms and the problems of handling very high voltages in domestic equipment rendered the whole idea impracticable, and with the introduction of the moving coil speaker electrostatics were largely abandoned.

The advent of the plastics era, however, brought both very thin films for diaphragms and rigid plates of high insulation and it was among such materials and the coatings and treatment necessary to produce the requisite degree of resistance that most of our research work lay.

That this speaker is still in production virtually unchanged 25 years later is a credit to the thought and care invested in the design and development of this product which was truly years ahead of its time, although it is no longer the standard by which all others are judged.

Braun in Germany were the first foreign firm to make the speaker under licence followed by KLH and Acoustech in the USA. The latter's were much larger units than the Quad, being similar to our pre-production model which we found to be too big to sell in any quantity, particularly with stereo then on the horizon.

The stereo version of the Quad control unit, the Quad 22, appeared in 1959, and the multiplex decoder for stereo broadcasts in 1964 while the BBC engineers were still wondering whether all the pioneer spade-work they had done was ever likely to be used in Britain, and the rest of the civilised world (and some rather uncivilised parts) already had regular stereo broadcasts.

In 1967 we introduced the first all-transistorised Quad 33-303 units which are still current models. The 'Triples' output circuit of that power amplifier which successfully overcame the problems of thermal tracking in Class B amplifiers, was an original development carried out by the Company and was the subject of articles in Wireless World and similar technical journals overseas. Such articles have also been published from time to time on other original Quad features such as the cathode coupled output transformer and the two lamp tuning indicator for the VHF/FM tuner as well as the electrostatic loudspeaker.

In 1975 we presented a paper to the 50th International Convention of the Audio Engineering Society on a new technique for power amplifier design which we called 'Current Dumping', in which the linearity of the main current carrying transistors (the current dumpers) has no bearing on the overall amplifier performance which is determined solely by a low power, very high quality current controlled amplifier, using 'feed forward current error correction' in conjunction with overall voltage feedback. This makes it possible to produce an amplifier of very high performance without using carefully matched and selected, relatively fragile and expensive output transistors, without problems of crossover biasing and without the need of alignment or adjustment either initially or in the event of fitting replacement components later in the life of the amplifier.

The Quad 405 current dumping amplifier has proved to be outstandingly successful and a best seller in markets as diverse as Japan, Canada and France, as well as the UK.

The Quad 44 control unit introduced in 1979 provides complete flexibility of input facilities by a system of easily replaceable modules, using other modern techniques such as electronic switching instead of an electro-mechanical system and introducing a fresh approach to tone control.

A new Quad electrostatic had been rumoured among the knowledgeable audiophiles for ten years or so, and finally in May 1981, we officially took the wraps off the Quad ESL-63, known affectionately as Fred, the acronym for Full Range Electrostatic Doublet.

The ESL-63 is a full range electrostatic loudspeaker, using two sets of concentric annular electrodes fed via a sequential delay line so that the motion of the diaphragm produces a sound pressure pattern identical to that of a theoretically ideal source.

The advantages of this approach are clearly evident to those who have heard the loudspeaker so that the first year's production was sold out within two months of its introduction.

The Quad FM4 stereo tuner incorporates a microprocessor specially developed with the aid of a government grant. Great attention has been paid to ergonomics so that the FM4 is the simplest tuner on the market to operate, but yet offers audio performance limited solely by the quality of the incoming signal.

About 10% of our output goes to professional as distinct from domestic users and it is gratifying that broadcast and recording studios in many countries throughout the world regard as of professional quality the same equipment that the private customer buys from his specialist Quad hi-fi dealer.

Originally all the hi-fi manufacturers in Britain and the USA were small firms run by one enthusiast of vision with musical and technical ability. In recent years many of these small firms have been taken over, especially in the USA and more recently in Britain, by larger interests from other fields. Whether this is likely to advance the cause of good quality reproduction may be the subject of some discussion, but it is clear that whether it occurs in large firms or small, any such advance will still depend not only on technical ability but on the enthusiasm necessary to restrain the economic urge of sheer business interests to worsen the product to the point where most of the customers do not quite notice.

Our customers do notice, of course, as do design-conscious authorities such as the Design Council who have exhibited our products so frequently, and presented Design Council Awards for the Quad 33-303 and the Quad 405.

After 30 years of exporting, we have come to know many of our overseas agents as personal friends largely because they have to be enthusiasts themselves for high quality reproduction of music if they are to be successful in this specialised field and this helps to build and maintain a close liaison between us.

Exports have always formed a significant proportion of our turnover and at present about sixty-five percent of our production is sold in 65 countries, our major markets being Europe, Canada, USA and Japan. Prospects for further growth in our sales overseas are good.

The present factory has been completely modernised and provides a pleasant working environment for our 140 employees upon whose combined efforts it all depends. We have recently acquired a new 4 acre site and work has now started on the first phase of a new factory to accommodate expansion in the 1980's.