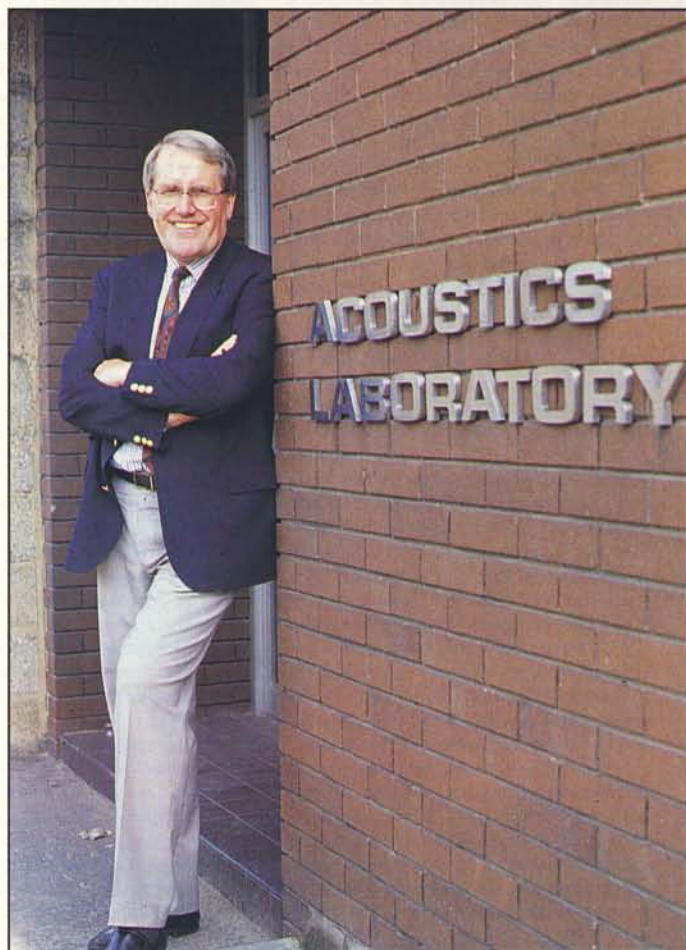




The Kent Engineering and Foundry Nissen hut where KEF Electronics started in 1961.

# speaking for thirty years

On the 2nd of October this year, KEF will be exactly thirty years old. We spoke to Laurie Fincham, Technical Director - a long-standing 'back-room boy' now in the front room - about the background of the company.





**When did KEF start?**

KEF started in 1961, on the 2nd of October to be precise. Raymond Cooke (the founder) came from Wharfedale, where he had been Technical Director. In fact, if you look at Gilbert Briggs' classic book 'Loudspeakers', there is a picture of him magnetising drivers, looking a bit like Alan Blumlein (the inventor of stereo), with his big spectacles and even bigger trousers.

**Why did he start the company?**

At the time Gilbert Briggs had sold Wharfedale to Rank and he felt that the company was not going in the direction that he felt was correct. Raymond always loved music and likes the scientific approach to designing loudspeakers. His aim is to make things work for their own sake and he is a perfectionist. Anyone who has shown him a manual, only to have it rewritten because of a misplaced comma, will agree.

Going back to the Wharfedale days, Raymond had some ideas that he wanted to try out, such as dome tweeters and styrene woofers and so he decided to start the company, with a couple of people who came from Rank. I don't think he was that keen to do it, as he had a young family.

The father of one of the Rank people owned the site that we are still on today. He said to Raymond, "I've got a place in Maidstone where we can start." That was the old Nissen hut. The two thus became directors of the company, until about 1971-72. Prior to this, the Kent Engineering Foundry had been in the partner's family for years, making crop sprayers, combine harvesters and motorised road sweepers.

**So why did Raymond take up the Kent Engineering and Foundry name?**

Very simple. He did have a lot of fancy names for the company, but every time he tried to approach the local bank for finance they would just say "Never heard of it." When he said "KEF" they said "Oh, yes, we've heard of them!". So he just put the word 'Electronics' after the name to make it sound modern. That's how it came about. It's as simple as that. As soon as the backing became available, they started with a couple of tables and a few rolls of tin foil from the local shop and they were off!

**Did he start manufacturing drive units straight away?**

Yes. The first KEF product was the K-1, a three-way baffle which had the



Left: A new 'Q' Series Range loudspeaker under assembly.

original rectangular B1814 drive unit, which in turn was developed into the B139 bass drive unit. The original unit needed tuning with lead shot to balance it dynamically.

The K-1 was born out of a need to experiment with diaphragm materials, bringing a more scientific approach to loudspeaker design. Raymond was also interested in consistency. Don't forget that in 1958, with the advent of stereo, two loudspeakers were needed instead of one. Ideally they should be as alike as possible. Stereo certainly provided the boost that was needed for small box loudspeakers. After all, most people in those days listened using a large reflex enclosure in the corner of the room. Try fitting a pair of those in!

**So originally you produced kits without boxes? Is that how it all started?**

You have to remember that at the time, there was almost no complete box loudspeaker business. The Celeste did follow pretty soon after. The only real boxed loudspeaker until then was the Acoustic Research AR-1. This was the first infinite baffle loudspeaker that made any sense and it appeared, I guess, in the mid to late fifties. The rest sold speakers without



Above: Inserting the tweeter into a 'Uni-Q' drive unit.

cabinets. The notion of the boxed loudspeaker really didn't come about until the early 60's.

**So the Celeste was the first complete box loudspeaker KEF produced?**

It was our first, launched back in 1962. It frightened everybody by its pricing. It was small, heavy, extremely insensitive and it cost twenty guineas. Everybody sold through wholesalers in those days, who were the arbiters over whether a product was good or bad. They sold everything from hi-fi to kettles and they were horrified by the price of these things, but Raymond stuck to his guns. I think that the Celeste made more of an impact overseas, where the market is less reactionary than the U.K., but



eventually it caught on over here. People began to accept low efficiency in favour of small size.

Where did you go from there?

Our next step was to make a floorstanding version, originally called the Duette. This was a bit expensive to manufacture, so it became the Concord, named after the aircraft. I remember at this time KEF were using the local prison to build some cabinets, in much the same way as JPW do today. There was a really good craftsman there, but he got let out for good behaviour, so we had difficulty getting any decent boxes any more.

By this time, about the time that I joined the company in 1968, KEF were becoming well established and



The Anechoic Chamber and the R103/4 Reference against which production models are checked.

their Concerto, Cresta and Chorale set the company well into the 1970's. These began the successful C-Series, notably the Coda's.

How did Raymond start bringing better science, technology and engineering practices into the loudspeaker world?

He started with the drive units, partly because of his own feelings about the loudspeaker generally and also because of the climate of the time. The mythology of speakers, that it is the ingredients not the chef that matter, is totally erroneous. Everybody back then was into new materials, as they are every so often.

**new**  
**ULTRA-COMPACT**

shape  
in  
sound

**celeste**

Celeste, the first real small hi-fi speaker, has been designed for the enthusiast who lacks the space for a 'large' hi-fi set up. The Celeste is a compact  $\frac{1}{2}$  cu. ft., solidly built in the KEF tradition and superbly finished in solid African hardwood and soft-white grille.

Easily positioned for optimum stereo results, the Celeste is at home on top of your bookcase, window-sill or mantelpiece.

A predominant feature of the Celeste is its very smooth frequency response and wide dispersion which set it apart from all other loudspeakers of comparable size and price. The exceptionally small dimensions naturally entail some loss of low frequency response below the main system resonance but as the response below 85 c/s falls at only 12 dB per octave, correction is readily applied by a medium of bass boost in the preamplifier. The mid-range and high frequency response remains free from breakup resonances due to the very rigid construction of the diaphragms and cabinet. Crossover frequency 1 kc/s.

**SPECIFICATION.**

<b>Size:</b>	18" x 10 $\frac{1}{2}$ " x 6 $\frac{1}{2}$ "	
	46 cm. x 27 cm. x 17 cm.	
<b>Weight:</b>	24 lb.	10.9 kg.
<b>Impedance:</b>	15 ohms.	
<b>Max. input:</b>	15 watts r.m.s.	30 watts peak
<b>Price:</b>	£22	Tax free

**Bass unit**  
Rectangular 13" x 9" Tri-ply diaphragm of expanded polystyrene with aluminium skins.

2" dia. voice coil  
Flux density 10,500 oersteds  
Total Flux 137,000 maxwells  
Free air resonance 35 c/s  
Resonance in enclosure 85 c/s

**H.F. unit**  
Spherical dome radiator with moulded Melinex diaphragm

1 $\frac{1}{2}$ " dia. voice coil  
Flux density 15,000 oersteds  
Total Flux 53,500 maxwells

**electronics limited** TOVIL, MAIDSTONE, KENT.  
Telephone: Maidstone 55761      Telegrams: KEF, Maidstone

October, 1962.

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plastic (Melinex and expanded polystyrene) drive units from the outset, however. Most people used paper cones at the time, but the cost of the tooling for manufacturing paper cones was prohibitive. The vacuum forming machine for plastics was considerably cheaper and it was easier to modify cone shapes. This meant that experimentation was far easier, although plastics have their own unique problems. The original vacuum forming machine is still in use today; you can tell that Raymond is a Yorkshireman at heart!

What problems did plastic drivers create?

The material wasn't as consistent as people were led to believe. The plastic is temperature dependent and it wasn't as dead as we would like either, so we had to coat it. But worst of all, it was very heavy. This meant that originally we had the bandwidth, but not the efficiency.

Moving on, you had a connection with the BBC didn't you?

Yes. We have produced a range of monitor designs over the years, as well as collaborating on many projects. One of the most stimulating was the KM-I. This peaked at about 125dB and had 1.6kW of power, a sort of precursor to the Meridian D-

The reality was, when the company became established and successful in the early 1970's, we started to do some real investigation into cone materials. We realised that we didn't have anywhere to go as it was difficult to assess the effect of a cone in isolation without taking the effects of the box into account. This was when we began to get into impulse testing.

Now, it has all turned full circle. As we have been able to test the effects of loudspeaker boxes on drive units, it may be now that the drive units are the weak link. Even now, we still see that the box is little understood, although this may be due to costs of manufacture.

Cost did play a part in KEF's use of



6000, but with more poke. It had some pretty sophisticated devices in it. We were making it partly for the BBC and partly for the U.S. market. This posed something of a dilemma: was it an audiophile's dream or an engineer's workhorse? The requirements for the two are quite different. Because its sound pressure levels were so great, we used to say that it was measured on the Richter scale, instead of in decibels.

We had problems with it because it went loud, but did it well. People expect to hear a certain amount of distortion at high listening levels. Without it, they just keep turning the sound up! Engineers would end up with the loudspeakers at the threshold of pain saying "If it could only go a little louder!" The loudspeaker was so powerful that the tweeter needed a heatsink. It was never a great commercial success, but it taught us a lot about the psychology of how people listen.



Thirty years on - the KEF factory today.



Rather than looking at the £99 market, we are exploring new ideas and technology for the future. These, such as Uni-Q drive units for instance, appear to the outsider to be a radical departure, but for us they are part of a logical progression taking place within the company. KEF has always pursued comprehensive engineering solutions. Way back in the seventies we bought in the most advanced computers of the day to process test information and we are still expanding this facility. Now, however, it is complemented by other computer based design programmes. Our extensive and advanced research has guaranteed us a stable and respected place in the market, which we will continue to build on ●

Far left: KEF manufacture their own drive units. A vacuum forming machine (blue frame) moulds the cone from a plastic sheet. The cones can be seen stacked at left.

Below: Crossovers are tested for response accuracy with automatic computer based system.

Going back to your domestic market, what do you think was the greatest aid to your development, in the boom times of the early 1970's?

In 1969 Resale Price Maintenance was abolished, re-establishing the word 'discount'. This moved some manufacturers away from the wholesalers and into the hands of the smaller specialists. To avoid price wars, we decided to go direct to dealers.

What about KEF today?

For one thing, we never abandoned the sale of drive units. Any company who wants to manufacture loudspeakers can use our drivers: Rogers, Tangent, IMF and Linn do, for example. We have also continued with the Constructor Series. It is rare indeed for us to buy in any drive units.

