

## Faster than light?

Pappas's letter (April, 1989), p.414) does nothing to clarify the alleged faster-than-light experiment, apart from a trivial point about the transformer. Instead it just adds more to the fog, while failing to refute our criticisms (Letters, March, 1989).

We could spend years going into more and more arcane explanations and refutations, but this would be pointless (the Catt Anomaly saga shows this). The problems for Pappas and Obolensky is straight-forward: I and several others have given explanations for their results in terms of tried and tested physics, so it is up to them to show that none of these explanations are plausible. Occam's Razor places the burden of proof on them, not us.

As an absolute minimum, Pappas and Obolensky must show that the initiating event (the closing of the relay) occurs at their  $t = 0$  (the point at which the oscilloscope traces first start to change), and not several nanoseconds earlier, as the rest of us contend. As their experiment contains no direct record of the relay closing, I don't see how this can be claimed.

Tim Bierman  
Hendon  
London NW4

## Cross-field antenna

I am afraid that the 'unprecedented concept in antenna theory' is simply a wrong concept. Figure 1 showing  $H_p$  and  $H_D$  opposed is incorrect. In fact,  $H_D$  will grow linearly out to the edge of the plates and then fall as  $1/r$  (neglecting edge effects and assuming the dimensions of the plates are much less than  $\lambda$ ). The experiment shown in Fig.3 tests a different situation. The

authors have forgotten the strong field across the gap which results in a field similar to that in the accompanying sketch. Measuring the vertical component of EH along section AA will give a result similar to Fig.5.

Any book on antenna theory which discusses horn antennas will describe the radiation as produced by the distribution of E and H in the aperture. For wire antennas it is useful to use the current element approach. Both approaches are based on Maxwell's equations; it is a question of which approach is most convenient for a particular antenna.

Brian Farrelly  
Kolstibotn  
Landas  
Norway

## Weinstock

What evidence does Mr Burton (Feedback, June, 1989) have to support his statement that GEC is 'the most profitable engineering group in the U.K.'? In fact, its performance is the worst in its sector. What evidence does he have to support his statement that 'many smaller companies taken into the GEC group would have disappeared but for GEC'?

What evidence had he to support his statement that 'GEC... has proved to be a good investment for its shareholders.'? I understood that the major shareholders, concerned at the continuing relative decline of GEC, are seeking to oust Weinstock.

In her book *The Baroque Arsenal*, (Deutsch 1982), Mary Kaldor discusses the effect of dinosaurs like GEC on p.167:

"They absorb expenditure that might otherwise be spent on investment or consumption in civilian

industry. And they absorb skilled people - designers, scientists, engineers - who might otherwise be thinking up the innovations needed to better the future... warped concepts of technical advance trickle down and distort the application of new technologies, further stunting their development..."

Nor is economic decline offset by some definable addition to military power.

The growing cost of the modern weapons system is matched by diminishing effectiveness..."

GEC is the ultimate, effete cost-plus dinosaur. I do not know about Siemens, and so I do not know whether the present merger will enable a larger dinosaur to be, as Kaldor puts it, "...carried along in an autistic momentum whose only limit is the size of the (European) defence budget."

I have been writing about my concern over the state of GEC for nearly a decade, to MPs, the Secretary of State for Defence, the MoD, and others. My efforts culminated in a farcical three-hour meeting in Whitehall, where I confronted four of the senior MoD officials who were assiduously pouring billions of taxpayers' money down the drain.

The MoD is now refusing to tell a Commons Select Committee how many of its staff have left the MoD and followed the slush fund into employment in "defence" contractor companies.

Ivor Catt  
St Albans

Reference. *Wireless World*  
November 1980, p.57.

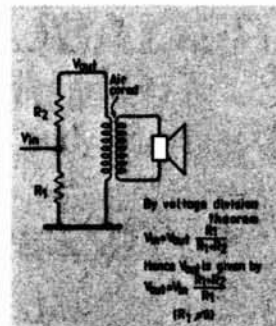
## Audio - the last word

I have read with interest the debate over the past months on the objective and subjective assessment of audio amplifier quality.

My own research over the years has revealed a number of startling facts about the nature of the amplifier, verified by rigorous listening tests.

To quantify the results of these tests, I have developed a number of orthogonal parameters which may be used to compare amplifiers precisely, without bias. These parameters are as follows.

**Karmic impact, K.** This describes the height of spiritual



enlightenment achieved by the listening experience. For a given section of music which, for the purpose of amplifier quantification must be played only on natural acoustic instruments, preferably made of wood, it is dependent only on the amplifier and speaker and associated speaker and mains cables.

**Tonal correction, T.** This normalizes the listening experience for the presence of tonal components. It is well known in acoustics that the subjective impression of sound is strongly affected by the presence of tonal components.

**Visual impression, V.** This normalizes the listening experience for the visual environment, i.e. the room size and decor, the amplifier and speaker size, shape and colour. My listening tests were carried out in a room without windows, painted pink with a blue filtered light. Other colours in the optical spectrum interfere with the listeners' objectivity and came make him/her restless and angry.

These three parameters provide an all-encompassing and scientifically based determination of the performance of any amplifier. An overall figure of merit is  $FOM = K \cdot V \cdot T$ . Listening tests carried out on a wide variety of amplifiers revealed the following facts.

- Any performance is strongly dependent on the frequency of the mains. Furthermore, unregulated power supplies give a more natural sound than regulated supplies.
- Capacitors have no effect on the sound. It is well known that these are perfectly linear.
- Wirewound resistors produce a nasal sound, as opposed to carbon resistors which produce a warm fuzzy sound.
- Large amounts of negative feedback produce large amounts of negative Karma.

