

ELECTRIC CHARGE FROM A RADIO WAVE

In his letter (January 1984) Peter Hesketh gives a step by step method of changing Professor Jennison's apparatus to produce an ideal waveguide bent into a circle. I agree with him that no apparatus in principle necessary for this to be a wave in such a guide, and so far, his assumptions are completely justified. However, I do not see how he can use this idealised equipment, even in his imagination, to support Professor Jennison's contention.

Is it not true that the velocity in space of a guided electromagnetic wave is independent of the motion of the conductors that do the guiding? In other words, even in principle we cannot drive a waveguide backward so that the wave it carries is arrested in space.

Now this objection does not apply to the discrete component machine described in the article. The waves associated with such a machine are not electromagnetic waves in space, but as I said in my earlier letter, more like the waves we find on a polyphase machine. As such they have a velocity relative to the hardware of the machine. Perhaps Mr Hesketh has raised unwittingly a more serious objection to Professor Jennison's demonstration than at first occurred to me. We cannot use a machine that generates waves having a velocity which can be vectorially combined with the velocity of the machine to explain phenomenon where the waves have a velocity that is independent of the machine velocity.

Perhaps in what I say I am mistaken. I would certainly like to see Professor Jennison's defence of his apparatus.

Chris Parton
Department of Electrical & Electronic Engineering
Bell College of Technology
Hamilton

ENERGY SAVING

Mr Cummins states that he uses no supplementary heating and implies that for this reason he does not need thermostats in individual rooms.

I of course applaud his basic design approach but should be

very interested to know how in practice it copes it copes with three unavoidable sources of supplementary heat: (a) solar radiation, (b) people and (c) their reading lights and televisions. I find that the first alone, here in the temperate South at any rate, can entirely obviate the need for heat from the radiators in South-facing rooms even on cold days, and in specifying my central heating installation I considered room thermostats to be essential in South-facing rooms and highly desirable in other rooms whose occupancy was liable to vary much during heating hours.

Ian Leslie
London N 10

PROBLEMS IN SPECIAL RELATIVITY

I am sorry that Professor McCausland found my simple arithmetic derivation somewhat obscure. Had he persevered he would have discovered that C.F. Coleman was quite right. Dingle was, and McCausland is still, confused over the distinction between simultaneity and synchronicity, as the latter's comments on Coleman's letter now make clear.

McCausland states, correctly, that Einstein's procedure for synchronizing clocks was based upon the out and return journey of a light beam between clocks A and B. McCausland, (not Einstein) then adds, 'If the reading on B at the moment of reflection is halfway between the readings of A at emission and return of the flash, the clocks are synchronised'. Not true, as my worked example shows. This requirement actually means that clocks A and B both reach time, say 1200h simultaneously. He has tried to smuggle in simultaneity under the guise of synchronicity and it cannot be done. This is the advantage of a worked example — it uncovers the verbal ambiguities.

Let me spell it out. There is no observational procedure which will enable clock B to show the same time simultaneously with A that does not involve a vicious circle in the procedure. I challenge McCausland, or anybody, to produce one. McCausland's error is fundamental and the remainder of his argument now fails.

Statements involving the expression 'real effect' need clarifying. If I observed a physical phenomenon using the best instruments, the best scientific procedures, and after repeated measurements arrived at a result, I should be somewhat surprised if somebody said that my results were only an observational effect and that the real effect was something different. I should conclude that the someday either knew something that I did not, or was indulging in metaphysics. In either case I should ask for observational evidence.

J.C. Laine
Lymington
Hants

POWER OSCILLATOR

In the 1970 September and October issues of *Wireless World* you were good enough to publish details of my new 13 Watt sine wave oscillator, which resulted in some adverse comments from Thomas Roddam, one being about the cores used. In order to cut down on the number of cores used it was decided to try using a pair of E cores (Mullard FX1818) with the emitter and collector coils on the outer limbs. This arrangement works very well in practice as well as being much cheaper. The phase shift coil was also made using a pair of E cores (Mullard FX1652) The final design resulted in a unit 4in long by 1½ in wide and ¾ in thick, weighing 4 ounces. The oscillator in this form was used to drive a 13 Watt fluorescent 21 inch tube. A large number of these were used to provide lighting in a factory during the power cuts of the early 70s. A car ignition unit was also built and tested in a Fiat car on a tour of Europe. I still have the original unit and demonstrate it to those who show interest.

The oscillator was invented in 1959 to provide the bias and erase for a small high quality tape recorder for use in the news gathering business. The circuit was given the final patent in 1962 and also patented in Germany, Japan and America. I am the sole inventor of the oscillator as can be verified by the Patents Office. I must admit to being puzzled by the lack of interest and discussion about the oscillator which is quite a breakthrough in sine wave power oscillators. The

fact that the transistor does not need a heat sink and will continue to operate in temperatures up to 1200C I thought would have aroused some interest, particularly as the current falls with an increasing temperature. Also it can survive short circuit of the output indefinitely if capacitively coupled to the load, there being no current flow when oscillation ceases.

I am enclosing photographs of the fluorescent lighting unit and the ignition unit to show the coil assembly used for the emitter and collector coils.

H.L. Armer
Alvaston
Derby

THE MIND-FORG'D MANACLES

I'm pleased to see you quoting from Blake in your April editorial. Perhaps I could answer with another quotation:

Now I a fourfold vision see,
And a fourfold vision is given to me;
'Tis fourfold in my supreme delight
And threefold in soft Beulah's night
And twofold Always. May God us keep
From Single vision and
Newton's sleep!

The single vision which Blake so feared corresponds exactly to what you call the 'technicization of society' Many people outside of technology have noted the acceleration of this process but, lacking inside knowledge, have been unable to challenge it at its base. Their impotence has resulted in a blind despair of technology, a sort of a modern-day Luddism, whose danger is that it could lead to the formation of a dual society: technocratic and desperate on the one hand, anarchic and desperate on the other.

It is left up to engineers and technologists themselves to awake from Newton's sleep and, taking control of the process, direct it back towards the humanization of technology. The 'characteristic mode of thinking and feeling that determines the way machines and systems are designed, used and interact with people' must be consciously recognised and modified if there is to be a human future.

Tim Williams
Tunbridge Wells
Kent