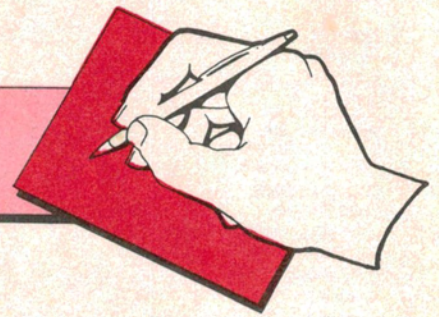


Letters to the Editor



Oh, brother!

I WOULD LIKE to say that your mag has improved much over the last several months. It is brighter and covers news in more detail, besides my sister is doing a great job of the artwork (G'day sis!). I've been buying electronics mags since they were about 2/6d and have seen changes (gawd I'm feeling old) in both semiconductors and circuits. Once audio/radio projects filled the pages and now most projects are based on digital bits. It seems popular projects are drifting away from radio (real radio, winding coils, etc) now that I've switched from micros to shortwave.

Paul B. Jones,
Moora, WA

Origin of 'breadboard'

IN THE ARTICLE by Ian Thomas in the June 1985 edition of *ETI* he mentions that he does not know the meaning of the term breadboard as applied to making up circuits for experimentation.

In the early '30s when I started building radios, all the components were constructed from heavy bakelite and had mounting holes in their bases. Wood screws were used to mount these components onto a wooden baseboard to which the front panel (of thick ebonite) was mounted. A convenient piece of wood for the baseboard was the board which mother used to cut the bread on; it was soft, smooth, and about the right size.

The 'breadboard' was therefore used for the base of all construction efforts in those days. It is indeed a far cry from the "rat's nest" type of prototyping used today, but was needed to take the weight as well as the size of the components available then.

So there you are Mr Thomas, a mystery no longer!

Thanks for an interesting magazine.

Don Smith,
Deniliquin, NSW

Piano tuners

IVAN CRISP'S MICROBEE electronic tuning fork in June's *ETI* is an ingenious application but would-be piano tuners beware!

First, perfect fifths and stretched octaves are totally unacceptable. If there's one interval we need perfectly in tune it's the octave. The others are all deliberate compromises.

Second, tuning the entire keyboard with 'mathematical' accuracy is disastrous because highly tensioned strings just don't behave that way. You can blame physics for

that fact of life. Well-tuned pianos are increasingly 'sharp' to the right of keyboard centre, and increasingly 'flat' to the left.

I strongly advise, with any electronic aid, to just tune all the notes of a middle octave, say A220 to A440, and then tune unison octaves to this reference octave by zero beats. This should be done using single strings (mute the others) and then relating bichords and trichords in turn to the tuned string of each note as necessary.

Otherwise you'll be calling in that less perfect do-it-all-by-ear piano tuner to correct the mess!

John Gale,
Beecroft, NSW

Star Wars perspective

THE APPEARANCE IN the May *ETI* issue of the feature article "The Strategic Defence Initiative" seemed to me to give credence to inaccurate statements.

The author perpetuated the idea that the only possible implementation of SDI is space-based sophisticated laser weapons. However, what is almost never described in the press is the "High Frontier" programme. The cost estimate is \$15 billion, with five to six years for deployment. The technology is relatively simple: orbiting satellites armed with non-nuclear and non-explosive intercept devices — the ICBM is destroyed by high kinetic energy. The missile would be 'torn to pieces'. When it was revealed that Australia was researching the "electromagnetic rail gun", which may have possible use for space defence systems, the immediate government reaction was to run scared from such possible involvement.

The article argues that such a system (laser based or otherwise) could not be "leakproof", and is therefore useless. It claims that if the system is even 99 per cent effective, 140 warheads could get through, and "140 atomic warheads landing on the USA would effectively mean the end of the nation".

But could the arrival of 140 warheads arriving in the US really cause the "whole" destruction of the US? No! If we assume that each warhead is a 1 megaton, then all concrete and stone buildings over an area of 24 miles would be destroyed. The area thus covered by 140 explosions would be 3360 sq m. Let's not say that the destruction of 3360 sq m will be a pleasant thing, but when we consider that the area of the US is over 3,000,000 sq m we discover that approxi-

mately 0.1 per cent of the US would be destroyed. Hardly total destruction!

It is also false to say that "it is always possible for the Soviet Union to build one more rocket than necessary to overload the [defence] system". Dr Robert Jastrow says calculations show defence stations only need to be increased in proportion to the square root of the number of offensive missiles, not in direct proportion.

Surely there is more merit in a defence system that is incapable of killing anyone, than in an offensive Mutually Assured Destruction concept. Thus it seems that anti-defence defeatists ignore off-the-shelf programs for space-based defence and counter with a "star wars" version that will cost "trillions", and "probably won't work". The result is a clouding of the issue, millions spent on study programmes, with the predictable outcome that it is "too expensive or won't work". That is correct — their version won't work. That's why they offered it.

We have been so busy worrying needlessly about either being burnt to a crisp or freezing (the "nuclear winter" myth), that we have rendered ourselves incapable of thinking clearly and acting rationally.

R. J. Long,
Brisbane, Qld

Cable direction

WITH REFERENCE TO the letter of reply by Mr Goldfinch, July *ETI*, on direction sensitive speaker cable, may I make a tongue-in-cheek observation.

If a wire (conductor) is better at passing power one way than another, is it perhaps a new form of semiconductor (diode)? As a diode's non-linearity in an audio path causes distortion, perhaps a solution would be to place two of these cables parallel, but one with its ends reversed (ie, its amplifier end to the speaker end). Would this enable audio ac signals to pass along even better? *ETI* labs, go do your stuff.

Another thought, a microwave circulator exhibits the direction sensitivity to power transfer noticed by Mr Goldfinch — perhaps Telecom and OTC can save millions.

To be fair, however, as super flexible low loss dc power supply cables, they are hard to beat and have been used in the computer and mobile area successfully . . . Without ever worrying about the marked direction of the cables.

Leonard Spyker,
Doubleview, WA