## INTERFERENCE FROM MICROS

With reference to Hugh Ford's letter in the March issue, I would confirm strong interference from the Pet 3032 computer on radio and Band I television reception. It is impossible to use a scanner receiver when the Pet is operating.

*J. Bruyndonckx*
*Herentals*
*Belgium*

In March letters Hugh Ford complained about interference from microelectronic devices in toys, trainers and so on. Might I draw his attention to a bigger nuisance, namely television line timebases? The Home Office have seen fit to ignore the interference from television sets, presumably because they feel impotent to deal with such a source. Aren't they (the Home Office) similarly impotent vis-a-vis microelectronic devices? Any shortwave listener would doubtless welcome the compulsory screening of televisions and computers and anything else that oscillates as part of its normal operation.

*L. J. Devaney*
*London W3*

## ETHICS IN ACTION

I have read every issue of *Wireless World* since about 1935, and have subscribed since 1945. Your November editorial coincided with my notice to renew my subscription for 1981. When I consider the number of electronics engineers who died in the course of ensuring that you should have the freedom to write material suggesting that electronics engineers eschew defence research, I grow thoughtful – so thoughtful that I am now cancelling my subscription.

*D. J. Dewhurst*
*Electrical Engineering Department*
*University of Melbourne*
*Australia*

I note that your "Microchips and megadeaths" editorial in the November 1980 issue is still causing comment. Mr J. S. Linfoot (April letters) seems to believe that the defence electronics engineer has only the dole as an option.

My personal experience does not bear this out. I used to be a microwave engineer heavily involved in major military contracts. After years of growing disquiet, I found myself being pressured to work on a project I found totally unacceptable: a military communications system for the South African Arms Bureau. This had slipped through a loophole in the arms embargo. I blew the whistle and resigned. Yes, I did spend six months on the dole; extensive national publicity did not help the job hunting. However, within eighteen months I was designing again, and have been since, but exclusively for peaceful purposes. No doubt my decision cost me money, but it did cause the loophole to be blocked. More to the point, I can now work without fear of the consequences for us all.

I feel that any engineer of use in military technology is likely to find himself to be of equal value to an employer producing equipment of real use to society. The choice exists.

*Jock Hall*
*Braintree*
*Essex*

## AERIALS OF LIFEBOAT SETS

A. K. Tunnah (March letters) asks for information about the performance of low powered ships' lifeboat transceivers during actual distress conditions at sea. I can provide the following examples:

(a) The survivors of the *Schiedijk*, from a lifeboat, in conditions of sleet and snow and rough seas, maintained contact with Tofinoradio (Vancouver Island) from a distance of at least 150 nautical miles on 500kHz using Radio Holland portable equipment.

(b) On the other hand, the radio officer of the Lebanese sheep carrier *Farid Fares*, which sank off the Australian coast in March 1980, wrote: "I attempted to contact other vessels with the life-boat set, but was unsuccessful. The set appeared to load the aerial on 500 kHz and 2182 kHz satisfactorily, but after a short period of time water was all over the insulator . . ."

What might be achieved with the 4 or 5 watts available would seem to depend on the quality of the aerial. As Mr Tunnah mentions, the aerial most commonly provided is only a short telescopic mast or a bit or wire hung on a pole. It seems likely that the *Schiedijk* equipment had a long kite or balloon supported aerial and a well shielded insulator.

It is not only lifeboats that suffer from inadequate aerials. J. J. Boyd (December 1980 letters) had to feed 1.5kW into two 9-metre lengths of wire, the electrical equivalent of trying to pump 10,000 gallons per minute through a ¼-inch leaking pipe. It is absurd that on a supertanker a quarter of a mile long it is "impossible" to hang up a good aerial because "there is no room". Similarly, balloon or kite supported aerials should be provided with *all* lifeboat equipment.

*John Wiseman*
*London E3*

## TWINS PARADOX OF RELATIVITY

I was surprised to discover that *Wireless World* had, without giving me prior notice, published an article by the late Professor Herbert Dingle "The twins' paradox of relativity" (October 1980 issue) in which my name is frequently mentioned. I do not think it was wise to publish the article: Professor Dingle died in 1978 and cannot defend himself if the controversy which he aroused is started up again.

Professor Dingle's article asserts that there has been a general lack of published debate on his critique of Special Relativity, and goes on to describe this as a "scandal". From the article it would appear that, at least by implication, Professor Dingle believes me to be party to this "scandal", as I did not publish my replies to his criticisms in 1977. Sir, too much has already been published on the Dingle question, and the time is long past to call a halt to this whole business. I was the last, and one of the least distinguished, of a 20-year long succession of physicists who answered, in public or in private, Professor Dingle's questions about Special Relativity. These scientists did not convince him of his errors and, not surprisingly, neither did I. In the panel accompanying his article, Professor Dingle is described as an expert on relativity. My first, succinct answer to his question was couched in terms intelligible to any physics undergraduate, yet he dismissed it as "technical jargon". I then expended a lot of time, effort, and paper in explaining my answer in non-technical terms. I was unable to establish the ground on which Professor Dingle rejected my explanation. Before corresponding with him, I carefully read Professor Dingle's book and examined all the published literature on this point. Despite complaints about the debate being stifled, very many papers have been published. I emerged from our correspondence with a much deeper understanding of Special Relativity, and an unshakable conviction that Professor Dingle's criticisms are wholly without foundation.

Apart from the personal benefit of my deepened understanding, our correspondence discovered nothing new or original on the question. We were as far from agreement at the end as we had been at the beginning. It therefore seemed futile to me then to publish another tract on a subject which had been well-ventilated in the literature. I am still of that opinion. Most academic journals have for some years rightly viewed the matter as settled and regarded more discussion of it as a waste of paper.

Professor Dingle was a distinguished historian of science. He started to question relativity after he had re-read Einstein's first paper on the subject. Although I do not have German enough to verify this myself, it may be that there is an error or ambiguity in one of the examples Einstein gave in the paper (comparing clocks at the north pole and the equator). Instead of regarding this, if it be true, as an interesting insight into how Einstein himself had not fully thought out the implications of relativity at that time, Professor Dingle chose to regard that paper as a canonical definition of the theory and used it as the spearhead of his attack. As the discoverer of a possible mistake by Einstein, Professor Dingle might have written an illuminating chapter on the history of science; as Einstein's dogged, but mistaken, critic, he has written himself into that history.

His struggle against the scientific establishment lasted over 20 years. By his energy and persistence, he tempted many scientific heavyweights to step outside their narrow fields of expertise and commit themselves to print in simple everyday terms. Some were wise enough to resist this temptation and, like Nobel prize-winner Max Born, couch their answers in technical terms whose meanings were precise and well-defined. Some of those who did venture an answer in layman's terms tripped themselves up on the imprecision and ambiguity of everyday words. In the face of a critic who scrutinised every word as a theologian does the Bible some scientists showed themselves to be very poor writers, and Professor Dingle triumphantly attributed the obscurities of their explanations to the contradiction he claimed to see in the theory. Where then can one turn to for a definitive statement of the theory? Not to the original papers – for as we have already seen these are the first published thoughts on the subject, and second thoughts may change the author's mind; or can we look to the textbooks – for some of these are well-written and some badly, they are all written for different readerships and their function is to teach, not to define. This lack of a simple verbal expression of the theory is not fatal as it might seem, for science is not theology; scientists criticise theories by performing experiments, not by examining texts as if they were Scripture.

In my case, the language of relativity is geometry, not English or German. There is a double irony here, for Professor Dingle's own critique is formulated in everyday terms and he has himself tripped up on the imprecision of our normal vocabulary. Professor Dingle was quick to point out verbal errors by his opponents, yet his criticism of relativity is itself founded on a confusion of language. Perhaps the whole issue

of how a scientific theory can be properly expressed might form an interesting research topic for some future historian or philosopher of science.

Professor Dingle did not succeed in conquering the citadels of science. The measure of his failure was the length of his struggle. For what happened to all the bright research students who were young in the 1950s when Professor Dingle first published his criticism of relativity? Some are now Nobel prizewinners, but the prize which they won is recognition of many years of painstaking labour – albeit illuminated by occasional flashes of inspiration – in the patient obscurity of a specialised field of physics; no-one of this high calibre was attracted by the thought that, if a physicist demolished Einstein's relativity, his name would overnight become a household word. The scientific establishment of the 1950s might have had a vested interest in opposing change, but the younger generation then did not. Other ideas have been overthrown in the last 20 years, but relativity remains. Yet what credit, what fame, would have accrued to the physicist who dethroned Einstein! That no young student over the last 20 years has seen the chance to make his name by developing Professor Dingle's ideas is eloquent testimony to the erroneousness of these ideas.

In the commentary which accompanies Professor Dingle's article, Professor McCausland poses the questions "Why not discuss relativity?" and "Why is criticism of relativity so resented?". I have deliberately chosen in this letter *not* to discuss relativity but to treat this whole business as an episode of historical interest. The Special Theory of Relativity is as well established as the theory that the earth goes round the sun. Both theories have consequences that are contrary to commonsense: for example it is a matter of elementary observation that the earth is flat and stationary and that the sun moves round the earth – it requires many precise experimental measurements and a sophisticated theoretical apparatus to arrive at the opposite (and correct) conclusion. Professor Dingle's criticism was not as crude as this example, it merited some attention: it has received too much.

No journal would be accused of suppressing criticism if it ignored a paper asserting the earth was flat, there is no scandal in refusing to publish papers on the geocentric theory of the universe; in the same way, there is no scandal in refusing to discuss further Professor Dingle's critique of relativity.

Criticism of relativity is not resented, only the vain repetition of an empty argument is irksome. Like every other scientific statement, relativity (both special and general) is at the mercy of future experience. Sooner or later an experiment will crop up whose result will be incompatible with relativity and a new theory will be devised to replace it, just as Einstein's theory replaced Galileo's. And just as there was a long struggle against Einstein's relativity, a struggle in which Professor Dingle was the last protagonist, so the scientific establishment of the future will fight against relativity's successor. If the academic journals of the future display to the new theory, when it arrives, the tolerance they have shown to Professor Dingle, the scientific establishment of the future will lose that fight.

Too much has been written on this matter already. Please, let it rest.

*Thomas D. B. Wilkie*
*International Atomic Energy Agency*
*Vienna, Austria*

The above letter, and those of other readers who have responded to Professor Dingle's article, will be dealt with in a composite reply by Professor McCausland in the next issue. – Ed.

## AUDIO KITS

As a manufacturer of hi-fi kits I feel I must comment on the points raised by Mr M. J. Evans (November letters) and Mr M. G. Taylor (March letters) questioning the value and worthiness of these kits.

I would agree with Mr Evans that, generally speaking, hi-fi kits should be avoided. Some kits that I have come across seem doomed to failure – the basic design being unsound. Many kits advertised in electronics magazines arise in the following way. An enthusiastic constructor 'designs' a circuit configuration, and produces one-off, at most a few off, to test the design. The next step is that a component supplier will then be offering kits of the published design, with commonly available parts. The problems arise in many areas. One needs to produce a fairly large batch to be sure that h.f. instability will not occur with a set of 'worst case' components. Next, a change of manufacturer of semiconductors for instance (even of the same transistor number) can give similar problems. It is worth remembering that 'bulk' transistors contain dead or u/s devices – and I don't know how the amateur constructor is expected to locate them. Lastly, having built the kit the constructor often has the suspicion that it may not be 100% perfect – but without good test gear he does not know.

Suppliers of non-assembled p.c.b. kits have very little obligation in law to give any sort of back up service should a kit of parts be non-functional. Suppliers often take the attitude that 'correctly built' the kits always work – the logic thus extends to point that all repairs must be paid for, sometimes referring the customer to an independent firm specialising in repair work.

The pre-assembled p.c.b. type of kit gives the customer the assurance that this major item of the kit is fully tested and carries a guarantee to the minimum of that required by law in the 'Sale of Goods' act, if not more so by many manufacturers.

To conclude I would agree with Mr Taylor that the constructor should have basic knowledge of electronics and should choose and *build* with care.

*B. E. Powell*
*Crimson Elektrik*
*Leicester*

## ENERGY FROM SPACE?

I enjoyed reading M. G. Wellard's "Appreciation of James Clerk-Maxwell" (March issue) with his penetrating analysis of modern theoretical physics. The criticisms he makes in a general way were clearly in Vallée's mind when he developed his uniform field theory referred to in my earlier article (October 1978 issue). Vallée starts with a model of space and, in view of the obvious presence of various forms of electromagnetic waves, he makes the assumption that all the energy in space, including gravitational energy, is in an electromagnetic form. Realising too that the mathematical equation relating to the waves are continuous and that the superposition of waves would eventually lead to infinite values of the field, he postulates that there is an upper limit of field at which the properties of space alter so as to prevent any further increase.

With these two assumptions added to Maxell's theory he develops a comprehensive unified field theory which furnishes the results generally accepted from other theories but without their contradictions, and also contains many new features, such as physical models for the photon, electron, fundamental particles, the origin of cosmic rays, and the dual nature of light. However, the most important prediction, which could have a profound effect on our future, is the possibility of reconstructing β radioactive elements without using the energy they liberate on disintegration but by absorbing energy directly from the electromagnetic gravitational medium.

There has long been some evidence that energy could be obtained from space. In 1927, Wolfgang Pauli observed the apparent violation of the law of the conservation of energy in the case of β-emissions. In 1931, Niels Bohr stated that the concept of energy appeared to be inapplicable to sub-atomic phenomena and that in the sun and the stars energy appeared to be provided from nothing. The energy unbalance in the case of β-emissions was attributed to the presence of a new particle – the neutrino; but attaching a name to the phenomenon does not help to explain it.

The ultimate test of a theory is its ability to explain existing experimental results and to predict new ones which are capable of experimental confirmation.

According to Vallée the first experimental evidence was provided by the production of β-radiation of six million electron volts in the torus of the "Tokamak" nuclear fusion equipment at the Kurchatov Institute. Similar results were obtained in a specific experiment made with a Tokamak torus at the Department of Plasma Physics, C.E.N., in 1974.

Then what he believes to be the most startling confirmation is provided by the explosion of the French atomic bomb at Mururoa on 25th July, 1979. Its effects, including the emission of an enormously intense electromagnetic wave, were quite different from those of any previous explosion.[1]

Vallée had hoped that his idea might lead to the development of a safe, cheap and universally available source of energy which could provide mankind with a hope for the future. His work was discouraged but there is now the suggestion that it has been developed in secret to provide a new weapon of destruction. It is to be hoped that we have some scientists who are sufficiently open-minded to study Vallée's theory and its possible application to the peaceful production of energy.

*L. Essen*
*Great Bookham*
*Surrey*

### Reference

1. R. L. Vallée. *Synergetique* (Bulletin of the S.E.P.E.D.) No. 28, Jan./Feb. 1981.

## PAYING FOR GOODS

Perhaps the "large public utility" which Mixer was referring to in Sidebands of February 1981 was British Telecom. I met recently the same situation as the engineer he mentioned, in being unable to persuade a supplier to send the goods until payment had been received and being unable to get the Post Office to part with the cash until I had signed for receipt of the goods.

The first time I took the risk myself and signed in advance, but then I asked the clerical person if there was a better way. He explained that I only had to ask the supplier for a proforma invoice and payment would then be made immediately.

I tried it and it worked. Where there's a will there's a way.

*Brian Castle, G4DYF*
*British Telecom*
*London WC1*