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.

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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.

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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.

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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.

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