

vours in interpretation and understanding, and seek to construct a new theory, or we contrive to protect the old theory. The adoption of the latter course may appear to be questionable if we would claim commitment to the scientific method, and might seem to imply some alternative concern as our motivation. The pursuit of this suggestion could prove of interest elsewhere, but for the present let us take note of a remark reported recently in the press, of Professor David Bohm: "But the question is whether physicists will regard explanation as important at all. The trend in physics at the moment is to discount concepts and only to take seriously what you can compute with equations".²

Now let us make a conjecture of our own. If astronomers employing refined techniques of measurement should acquire evidence which supported the contrary to the second postulate, i.e. that each emitting body is fixed in its individual medium of energy dispersion; if this should be brought about, or perhaps some other observations be made to the same effect, are we then to accept that a certain section of the scientific community would disdain from taking the reports seriously?

Could not J. Kennaugh and, indeed, many others, suffer from misconceptions not only of relativity theory, but of the expectations we have of physicists? These people receive considerable encouragement in material terms for their somewhat exotic and extravagant activities; but should inquiry into relativity theory be encouraged, as well? Could we hope to see the debate developing further in these pages, perhaps? The open-minded policy of the editorship would appear to be, indeed, encouraging.

Colin Francis
Farnborough,
Hampshire.

References

1. "Zur Elektrodynamik bewegter Körper", A. Einstein, translation from Ann.d.Phys 17, 891-921 (1905), in "The Principle of Relativity", Dover Publications Inc., New York 1952.
2. "Why Einstein was wrong about light", Danah Zohar, *The Sunday Times*, London, 20 March 1983.

GRAVITATIONAL WAVES

Beginning with the publication in *Wireless World* (Oct. 1978) of Dr L. Essen's "Relativity and Time Signals", I had been following closely the lively discussion regarding the validity of certain postulates of Einstein's theory of relativity (the twin paradox, etc.) and other such important topics which you kindly had given space in your magazine. I, as well as many other of your readers, appreciate the fact that though *Wireless World* is essentially a technical publication it, nevertheless, is giving room - when other doors are seemingly closed - to writers of differing views particularly when the subject of discussion is fundamental theory. This is an excellent example for not separating practice from theory and thus involving technologists with current problems even if related indirectly to their fields.

Equally I congratulate you on the new series of articles by Dr W. A. Scott Murray dealing with the various problems of modern physics and the hidden contradictions seriously undermining its seemingly imposing outer structure. Certainly, this is the way to let the layman feel that all is not not the word of God and therefore lead him to question rather than

to accept blindly as a word of faith, all the stuff pumped into his mind since early school days.

However, the real reason I am writing you concerns an article related to our discussion that had appeared in *Scientific American* (The Gravitational Waves from an Orbiting Pulsar, Oct. 1981) which should be of special interest if its conclusions are accepted to be true. In this article, the writers claim to have proved beyond doubts: the "existence of gravitational waves" and of settling the question of "relativity of time" or the "twin paradox" as it is known in popular relativity parlance. For over a period of six years they had been measuring the decaying orbits of the binary pulsar PSR 1913+16 and found the accumulated shift in the time of periastron passage amounts to be about 0.04 second a year. According to their argument (and relativity), the source of energy for gravitational radiation belongs to orbital motion. And if this loss of energy is very large, such as is the case with this pulsar system, then it leads to a measurable decrease in orbital period which they had successfully detected.

After further explanation of "time dilation" and how it was proved by experiments involving atomic clocks flown by jets, they conclude that this orbital decay is caused by gravitational radiation and not due to possible collisions with stellar gas or other matter such as is the case with an artificial earth satellite orbit decaying mainly because of collisions with molecules in the upper atmosphere. Also there is no mention of the fact that part of the decay can be caused by loss of mass by the pulsar due to ordinary conversion of mass into radiant energy or the mass lost through the agency of the mysterious and very strong radiowave pulses from the pulsar. The authors finally hint that other workers are trying to detect these very weak radiations in the laboratory when suitable equipment become available. Surely many await the results of these experiments as the factors mentioned above would then be ruled out.

I appreciate possible comments from Dr Essen or from other interested readers regarding this new development as I am personally still not in total sympathy with all the claims of Einstein's theory of relativity. Such responses may indeed be reassuring if only to keep the door open - which has been so, thanks to WW! M. Zaman Akil
Safat, State of Kuwait
17th April 1983.

RED SHIFT

Nicholas Kirk's letter on the "Red Shift" (*WW* February 83) questioning whether it might not result from simple loss of energy rather than expanding universe is very interesting.

Had it not been for the semi-religious appealing idea that all things must have started from a single point, would all that effort have gone into the "expanding universe"? One can almost suggest starting a research which has as its starting point the assumption that light loses frequency in proportion to the distance it covers. And by a well-known amount too!

G. Kubba
Putney

Mr N. K. Kirk echoes exactly my own queries in his letter (*Wireless World* February) but for different reasons.

My first point is of general principle. We are told that there is no such thing as perpetual

motion. Whenever there is relative motion between two things which have interaction between them (for example photons in gravitational fields) then energy is given up, which frequently manifests itself as loss of velocity.

My second point is connected with the experimental evidence to support Einstein's theory that light is refracted by very strong gravitational forces. The refraction of photons passing very close to the surface of the sun shows that photons are affected by gravity.

Can anyone conclusively demonstrate that the velocity of photons, as they pass through the gravitational fields of inter-galactic space more or less continuously for many millions of years is absolutely and utterly unaffected by so doing, because this is an essential requirement for the receding universe theory if it is to be based on observed spectral red shift.

On the other hand, if the velocity is reduced by some finite amount during its enormous journey, it would produce an apparent spectral red shift.

J. Snowden
Managing Director
Rediffusion Service (Singapore)

SENSITIVE?

I have come upon one or two cases of people who have acute sensitivity to electricity and to electrical devices, such as television sets, computers, radios, electric lights, etc. I would be very interested to hear from any readers who experience this effect, or who find even the presence of electricity disturbing. I wish to make a study of this condition and any reports that readers send me will be treated with complete confidentiality.

Michael Shallis
Department for External Studies
University of Oxford

CABLE AT MILTON KEYNES

Speaking as a user of the Milton Keynes cable tv system for the past two years, I have found the reliability of the system leaving a lot to be desired, since the system has failed on average once every two or three weeks. If it should fail after 6.00p.m., then it would remain out of service till next day, and even when it was working the quality was well below broadcast standard - as measured using Marconi tv a.t.e. For all this, every user contributes £12 p.a. towards its up-keep - the argument being that you get a better picture from the cable than "off air"; in reality this is not true. Although Milton Keynes is in a fringe area, it is still possible to get a better picture from a modest loft-mounted Yagi.

In addition to the overall poor picture quality, the system also radiates very badly into the 2m amateur band: most of this radiation comes from poorly screened distribution amplifiers.

It is to be hoped that the Milton Keynes system does not set a precedent for future systems and that others learn by its flaws.

Fibre optics would be the obvious answer to some of the problems, but the more complex a system gets, the more likely it is to fail, so all in all I intend to stick to my little Yagi in the loft (which cost me £5.50), to save myself £12 p.a. and still have a better picture.

Tim Forrester
Milton Keynes
Bucks