

letters

A physicist goes dowsing down under

Vincent Reddish has described the results of his experiments on dowsing (May p21). As he is aware, I carried out many earlier experiments on dowsing and I concur with about 90% of his findings. These experiments included the establishment that dowsing is a wave phenomenon by a more direct technique than that used by Reddish. I had already established that aluminium acted as a screen and had located the sensitive receptor region in the spinal column, especially at the base of the skull. I then covered a large area of the floor of one of my laboratories with aluminium foil. It was rendered quite dead to dowsing responses.

I next cut a hole, about one foot in diameter, in the foil. This was clearly detectable with dowsing rods. I placed a large aluminium sheet (2.4 m × 1.2 m) inclined at an angle of 45° above the hole. The phenomenon was projected as a broad horizontal beam. It was obeying optical principles so I then tried a crucial experiment. I placed a strip of aluminium across the centre of the hole transforming it into Young's slits. Fringes were clearly detected in the horizontal beam. The wavelength appeared to be of the order of centimetres but was difficult to establish precisely because of the asymmetry in the on/off responses of the dowsing stimulus.

This triggered another thought. A colleague projected microwaves from a low-power frequency scanner at various parts of my spine whilst I sat holding the rods. The rods responded in a number of ways at specific frequencies but, sadly, the records were lost when I retired.

These experiments did not, of course, show that the dowsing influence is electromagnetic waves. It shares many common features but there are obvious differences. Almost any sharp discontinuity in substance below or above the ground may be detected – even a plastic clothes line. All I can do is to detect discontinuities in the area of search but, although I can do this very accurately, I cannot specify the nature of the materials concerned.

In 1980 Paul Wilde, the director of CSIRO, the Australian research organization, challenged me to locate an object that he had hidden under one of the carpets at his home a few miles from Canberra. I located it exactly and it turned out to be an enormous Royal Society gold medal – to my primitive dowsing sense it could just have been old iron.

Some dowsers claim to be able to differentiate between various materials but I have never acquired the knack. To put the whole subject on a real physical footing we urgently need an inanimate detector.

There are many aspects of physics associated with dowsing which merit serious investigation.

Roger Jennison

Emeritus professor of physical electronics and of radio astronomy, University of Kent, UK

Industrialists are welcome

Jonathan Mounteney's statement that the groups and divisions of the Institute of Physics "reflect utter dominance by academics" (March p25) may be true in some areas but it is most certainly not true of the Optical Group, of which I have been a committee member and chairman. We took a great deal of care to ensure that the group represented everyone's interests. The committee was composed of academics, industrialists, and representatives from public establishments, not necessarily in equal numbers but in sufficient numbers to give each sector a voice.

My predecessor as chairman and I were both industrialists, and my successor was from a government establishment. The current chairman is an academic. This policy of balance was pursued for many years before my time and still seems to be operating very satisfactorily. It may be true that such balance is easier to achieve in optics than in other areas of physics, since much optics today is engineering rather than science. However, I am sure that other groups do strive after it, and in at least some cases do achieve it.

May I suggest that if Mounteney is dissatisfied with the performance of the groups of which he is a member, he should either put his name forward as a candidate for election to the committee, or send them his suggestions for more appropriate activity.

William Swift

Swift Technical Services, Clwyd, Wales

I must take issue with Jonathan Mounteney's assertion that the IOP's admissions policy places hurdles in the way of physicists whose experience is in business rather than academia, and that these hurdles can result in the refusal of full membership despite four or five years reasonable experience.

The requirements for election to the class of Member are the same for applicants from industry, academia or any other employment sector. The Institute's bylaws state that "candidates must have had experience for at least four years in responsible work which demands a knowledge of physics and its applications...including at least one year in employment whilst not registered as a full time student".

I would like to take this opportunity to state categorically that the Institute of Physics welcomes applications from

candidates in business and industry who are applying a knowledge of physics in their work. Indeed, over 40% of the Institute's corporate membership work in this sector. The Admissions Committee appreciate that such physicists may well be working in isolation from other physicists, particularly in small- and medium-sized enterprises, and that this lack of contact with the physics community at large may deter them from applying for membership in the first place. This is why the Institute has set up initiatives such as "Physics in Business" to spread the word that the Institute is not just a body representing physicists in academia.

The designatory letter "GradInstP" are available to all physics graduates immediately. We interpret election to corporate membership as the Institute's affirmation that the holder is able to function acceptably as an independent adviser on physics in their chosen area of work.

Demonstration of this by responsible experience frequently takes much longer than the minimum of four years specified in the bylaws. If CPhys is to be respected in industry, the Institute must insist on maintaining standards whatever the applicant's area of work.

Roland Blackwell

Admissions Committee, Institute of Physics

A new magnetic vocabulary

A further comment on units and quantities in magnetism may be helpful. Crangle and Gibbs (November p31) basically proposed that workers in magnetism should: (1) use the rationalized mks-type equations of the International System of Measurement; (2) use the SI system of units; (3) express the property "magnetic field strength" by a quantity with the units of Tesla (T); and (4) represent this quantity by the symbol B_0 . Their other suggestions follow from these. The first two proposals should be encouraged, and the third is a matter of convention, but the proposed symbol B_0 raises difficulties and is a poor choice. Previous letters have not fully explained why (January p19, February p22, March p23). To do this, some terminology must be established.

When setting up a system of measurement it is necessary to distinguish between *properties* we wish to argue about (which are real and physical), and the formal *quantities* (which are mathematical in nature and a matter of international

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