race sporting activities.

● Would-be visitors to these countries often say they go to see and hear things for themselves. Indeed, I have often been asked to provide introductions to black opponents of South Africa's regime who could provide visitors with their side of the story. I reply that most genuine opponents have already been silenced one way or another and I would certainly not put at risk those who had escaped the net of repression by encouraging them to speak out to inquisitive strangers. I have known many doctors and scientists who have visited South Africa in the past ten years; most return to this country with new arguments and convictions, if not fully in favour of apartheid, at least condoning or "understanding" it, now that they've "seen the problem" for themselves (or been indoctrinated by their proselytising hosts?). Some come back encouraged by a few whispered sentiments of distaste for the regime, mistakenly to believe that there still exists in that country a substantial courageous body of doctors or scientists who oppose apartheid and are doing something actively about it. Not one of my colleagues has met a black person socially, and none has spoken out against the regime while he was there ("How could I say anything when they were my hosts?").

Clearly, one could carry such convictions to absurd lengths. Some degree of repression exists in most countries; minority groups often appear to be singled out and treated badly. Where one draws the line is a matter for individual decision. What I'm saying is simply that if one feels strongly enough about a situation in a particular country, there are good arguments in favour of staying away—and of making one's reasons known.

R. HOFFENBERG

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Sauce bearnaise

SIR,—Perram, Nicolau and Perram recently described a method for reversing what they called coagulation of *sauce béarnaise* by addition of extra vinegar (*Nature* **270**, 572–573; 1977). They stated that other authors recommend discontinuation of the 'experiment' of producing *sauce béarnaise* when coagulation occurs.

Amateur, non-mathematical cooks, such as myself, know that two kinds of deviation from homogeneity can occur during the preparation of *sauce béarnaise* and similar sauces such as *sauce hollandaise* (see Elizabeth David's book, *Summer Cooking*, first published by Penguin in 1955). The colloidal suspension can separate into its components, no doubt due to the forces

described by Perram *et al.* I have found, however, that sauce which has failed in this way can be made homogeneous quite simply by the addition of a few drops of warm water with steady stirring. This has the advantage of maintaining the delicate flavour balance, which would be disturbed by the unnecessary addition of extra vinegar. The second deviation from homogeneity occurs when the temperature of the sauce rises too high: the egg yolk becomes coagulated—as Elizabeth David notes—and the sauce becomes grainy in texture. This process cannot be reversed by the addition of acetic acid and it is to this event which culinary authors are referring when they recommend discontinuation of the 'experiment'.

ROY JOHNSON

Cambridge, UK

SIR,—We welcomed the long overdue treatise by Perram *et al.* on the stability of the colloidal suspension colloquially known as *sauce bearnaise*. However, as the authors claim primacy in reporting their successful attempt to resurrect this sauce by employing the theory of the stability of lyophobic colloids, we feel compelled to mention a previous notation in this field—Child, J., Bertholle, L. & Beck, S. *Mastering the Art of French Cooking* (Knopf, New York, 1966). The use of *lemon juice* here substitutes for acetic acid.

G. STEARNS

R. WEININGER

New Haven, Connecticut

SIR,—A professional biologist (and amateur cook) is amazed that Perram, Nicolau and Perram could by consideration of the theory of stability of lyophobic colloids deduce that lumpy *sauce béarnaise* could be made smooth by the addition of acetic acid and confirm it in practice. The biologist would not call the lumpiness coagulation, which to him is an irreversible reaction (Chambers Dictionary of Science and Technology) though the chemist may. The biologist would also control his experiment by addition of acetic acid solution without the acetic acid, i.e. water. This, reducing ionic strength, the practical cook has done with equal success for decades, though this 'know-how' is seldom described in manuals of gastronomy.

Furthermore, the first step in preparation of *sauce béarnaise* is a drastic 'reduction' by heat. Does not this remove most, if not all, of the original volatile acetic acid molecules before the addition of the fats? If so, the charge on the fat droplets must be provided not by acetic acid molecules, as postulated, but by less volatile acids

of the herbs and vinegar—impurities to the chemist but quintessential factors to the gourmet and variable damn-nuances to the cook.

J. F. LOUIT

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SIR,—Perram *et al.* are to be congratulated on their attempt to define the underlying physico-chemical principles of the unstable system known as *sauce béarnaise*, and in particular on their published observation that addition of vinegar (acetic acid) will resurrect the sauce.

However, I must point out that my wife has adopted this practice for some years now on the very rare occasions when the sauce has coagulated. No doubt, other good cooks have done the same: cooks, however, unlike scientists, usually prefer to keep their knowhow secret rather than divulge it.

T. S. TWEEDIE

Chester, UK

Calculating the fine structure constant

SIR,—I would like to cite two references *Physics Today*, **24**, 8, 17 (1971) and **24**, 11, 9 (1971), in which reports have been published of attempts to calculate empirically the fine structure constant, whose experimental value in physics is 137.03602.

In these papers, the authors have attempted to calculate the value of the constant with pure members and π . The results are all very complex, and none are in exact agreement with the experiment.

I would like to propose a much simpler solution whose value is in exact agreement with the experiment.

$$137.0360157 = [137^2 + \pi^2]^{1/2}$$

Since this expression is very simple, it must be the true solution.

THOMAS J. BURGER

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Bright minds not wasted

SIR,—Your editorial (24 November, page 287) on the dearth of scientific appointments was immodest, probably unintentionally. "How do we get ourselves out of this bind, ensuring that bright minds are not wasted?", is the sentence that offends. I for one do not feel that my students will be necessarily accepting second-best if they do not become professional scientists.

The tenor of the article was antagonistic to the idea of the best minds going into other fields. Is it not this attitude which has made it necessary to force such a change for the good of the larger community?

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