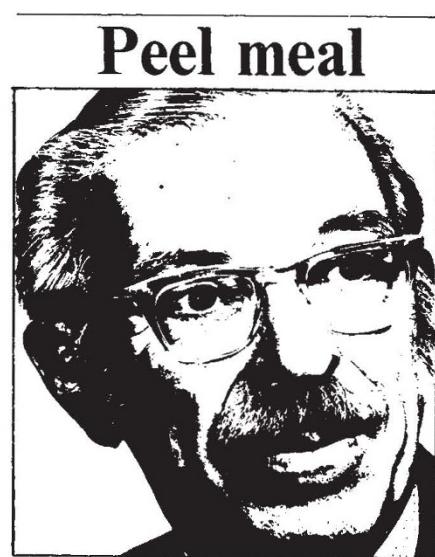


It came to the table accompanied by the limp, succulent bacon and hard toast for which English breakfasts are famous, and it was so delicious that I bought a jar to take back to the States. The label said, "Contains Sugar, Oranges, No Preservatives, No Colouring". Now sugar is, of course, one of the most ancient and universal of food preservatives, and is certainly the one used in largest quantities. The colour of oranges makes them glow like lamps against the dark green leaves in the citrus groves of California. Colourless marmalade without sugar is difficult to imagine. The label was written, of course, to quiet the fears of those who are convinced that they are being harmed by food preservatives and food colouring; that they are hapless victims of malevolent concocters of artificial viands. These fears are even voiced by the Neuberger Report which says "Flavouring agents and other food additives may have harmful effects" (p. 6) . . . "Food additives may be converted into carcinogens" (p. 138). Presumably the authors were talking about nitrites, but generalised accusations are easy to make and difficult to pin down. Rainwater during a thunderstorm contains nitrites, too.

The skin of an orange is its protection against invaders. I have no idea whether orange oil would pass all of the elaborate safety tests that are used for new food additives but I think it is quite unlikely. It contains forty-two



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chemical entities including 12 alcohols, 9 aldehydes, 2 esters, 14 hydrocarbons and 4 ketones. One of the entities is a phenolic compound called tangeretin. When tangeretin was injected subcutaneously into pregnant rats at a level of 10 mg per kilo of body weight, 83% of the offspring were born dead, or died within three days. Foods are tested for toxicity, of course, by feeding rather than by injection, but one can imagine what a hullabaloo would start if a "synthetic" food additive gave such a response. There are hundreds of "natural" components of foods that

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have not been evaluated for toxicity in human subjects, and probably never will be. If we believe the assurances of analytical chemists that traces of a substance are present, we must also learn to accept the findings of toxicology that there are thresholds of toxicity that can be experimentally defined. But we tend to trust Mother Nature, and suspect the organic chemist, so that "synthetics" are examined much more stringently than natural compounds. Our lives are a curious mixture of rejection and acceptance of science, and this shows prominently in attitudes towards food.

Somehow there is a feeling that human beings have developed the ability to cope with injurious substances in common foods by an evolutionary process, but that a "new" chemical is quite likely to be unmanageable. This assumption is unwarranted as a generalisation. The process of alimentation consists of devouring plants and small animals that have always contained numerous "chemicals" that are more or less toxic. These are dealt with by excretion or metabolism unless the amounts ingested become too high for comfort. So, most literally, we may have a "gut feeling" that orange marmalade is a great food; and in this I would include even the less fancy brands to which extra amounts of citric acid and pectin, two normal ingredients of oranges, have been added. □

correspondence

The waiting game

SIR.—I wish to bring to the attention of all university departments the problems of one section of the scientific community: UK postdoctoral fellows currently engaged in research at overseas institutions, which I feel will add to the current discussion of the future structure of the UK university system. Other than the ridiculous practice of setting deadlines for the receipt of applications for university positions which expire before the particular advertisement reaches foreign shores, there is a much more serious problem involving the time frame.

In my own experience university lectureships tenable from October 1975 were advertised in your columns starting in May. Allowing three months for the receipt of applications and testimonials, the short-listing of candidates and finally the acceptance by one candidate, this means that perhaps several

hundred unsuccessful applicants are kept in limbo until August to hear their fate. Amongst these the applicants from overseas are often worse off because, due to visa problems they cannot retain their fellowships indefinitely. Often such candidates will also have applied to universities in other European countries where things are decided more rapidly; this can mean being faced with the decision to accept or reject a firm offer from, say a German laboratory, by the middle of July, or risk everything and wait upon the deliberation of the ponderous UK system.

It is apparent that to ensure that UK university appointments are made from the best pool of candidates available there must be radical changes in the hiring system. Since this would require advance information of budgets and staff needs, government and university cooperation is needed.

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Close relatives

SIR.—Gold (*Nature*, July 10, 1975) has shown how two individuals (a mother and baby) may be differentially aged by a general relativistic effect. However, the method chosen involves the mother going out to collect masses from afar. Since the act of 'going out' cannot be achieved without the mother experiencing an acceleration, then the mother like the baby will also age more slowly than an inertial observer situated at a large distance from the mass shell. Indeed, during her nightly travels it is possible for the mother to age more slowly than the baby.

I therefore question whether it is at all possible for a person to construct such a mass shell without experiencing acceleration.

Yours sincerely,
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