

CORRESPONDENCE

Doomsday Syndrome

SIR,—John Maddox's address to Section X of the British Association (*Nature*, 233, 15; 1971) shows him giving reasonable voice to the backlash against the "doomsday syndrome". He will find a warm welcome in many quarters for his suggestion that the whole thing has been a "wave of fashion". But there are some dangers in this particular role, and I would like to comment on them, in the light of my experience as the junior minister in the Labour government most concerned with environmental control.

Two phrases in the extract from Mr Maddox's address define his position. Talking about carbon dioxide in the atmosphere and the possible "greenhouse effect", he says: "In reality, nobody can be sure that the effect will be as predicted, and in any case the accumulation of carbon dioxide in the atmosphere is by no means the inexorable process that the doomsday men suggest. Other recent fears . . . are similarly unfounded."

Now to begin with, Mr Maddox implies that because nobody can be sure there will be a greenhouse effect, we ought all to forget about it. It seems to me that the contrary view is more rational, certainly more prudent; that we ought not to forget about it because nobody can be sure there will not be a greenhouse effect.

Nevertheless, Mr Maddox does not assert that the prediction is unfounded. But he does immediately go on to say that other fears are *similarly unfounded*. Into the logical gap between the statement of uncertainty and the statement of certainty a host of special interests will leap. Some of the oil firms are currently engaged in just this bad logic over lead in petrol; their scientific spokesmen are virtually saying that because there are holes in the anti-lead argument, therefore lead does no harm. *Non sequitur*.

When we were assembling the information which enabled Harold Wilson to appoint the new Secretary of State and the Royal Commission on the Environment and the Holdgate Unit, I found this attitude was widely held and powerfully defended by the more hidebound civil servants, both scientific and administrative. It is still *very* well represented in Whitehall, particularly in the more production-oriented sections such as the Ministry of Agriculture, the Department of Trade and Industry, and the former Ministry of Transport.

Another quarter where Mr Maddox's stand will be welcomed is among the

already very powerful and well organized commercial interests whose testing and publication policy, as *Nature* has pointed out editorially before now, often leaves something to be desired.

To be sure the doomsday men and their disciples are overstating their cases; but this does not mean it is time for a general backtrack on the public consciousness and the legal and administrative measures of the last few years. The slogan "guilty until proved innocent" is no doubt a perfectionist one about new substances coming into use. But I would far sooner those in authority had it at the back of their minds than Mr Maddox's "other recent fears are similarly unfounded". It is the sounder slogan not only on ecological grounds, but on economic ones too: the true costs of a product, including certain, probable, and possible social costs, should be known before the product is marketed, so that they can be included in the price.

Yours faithfully,

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Working Europeans

SIR,—While I have full sympathy with the tenor of your editorial (*Nature*, 233, 152; 1971), I should like to suggest that a good deal more could be done through efforts of individual scientists in responsible positions, such as heads of departments or institutes. It is not really necessary to wait patiently till official agencies produce collaboration for us like a rabbit out of a hat. "When," you ask, "will the British Government agree that the Agricultural Research Council . . . should employ scientists from France or the Netherlands?" There is nothing now to stop them employing foreign nationals as research assistants at quite high salaries. In my department we had for some years a Swiss biologist whose salary was paid by the ARC, and we now have an Italian whose salary comes from the SRC. Both of these were on relatively short-term grants lasting only a few years, but we also have a Swiss citizen as a member of an MRC group, with a long term commitment. Again there is nothing to prevent integration at the level of university departments, at least at postgraduate level, where it is probably likely to be most useful. We have operated for the past few years an Anglo-Italian postgraduate course in epigenetics, with lecturing and laboratory

work contributed jointly by our university staff and staff of the Laboratory for Molecular Embryology at Naples. The latter is funded by the Italian Council for Scientific Research, who have shown themselves very willing to meet the expenses of moving their teachers to Edinburgh and accommodating the students in Naples. The expenses on the British side, over and above the normal university contribution, are, it must be admitted, provided not by any governmental agency, but by the Leverhulme Trust. Such funds do, of course, have to be looked for. But they exist, and collaboration, at this perhaps rather minor level, can be what the Americans would call a grass-roots operation.

Finally, is there anything, except timidity, which stands in the way of the suggestion, which I have been urging for some years, that the research councils should appoint, to their main working committee which vets grant applications, one or two non-British European scientists? Some of us who find ourselves faced with steering the projects of our staff through committees of their colleague-rivals would welcome the judgment of respected outside opinion; and Europeans privileged to serve on such committees would gain valuable experience of how the really rather effective British system works.

Yours faithfully,

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Research Associations

SIR,—I wholeheartedly endorse the letter of Mr Jobling (*Nature*, 231, 477; 1971). The problems of research associations are similar in all countries and the same errors are being made in many places. My experience suggests that it is completely wrong to want the RAs to be commercially viable, because the services they render are for the most part of a general character and the earnings following from these are mostly invisible. As a typical example I would single out the laundry and dry-cleaning industries, which comprise almost exclusively small or very small firms. What they need is independent information on new products and machines, relevant abstracts from the literature, control of their technical and commercial operations and statistics. Such services may be vital to a firm and save it from bankruptcy, but in the

opinion of the manager £10 would be a quite sufficient fee.

Moreover, the existence of a sound laundry and dry-cleaning industry backed by appropriate RAs is also essential to the benefit of the consumer. Difficult though it may be to calculate this in hard cash, the benefit may well be immense. There are examples of great countries which could serve as a warning in this respect.

Lastly, in order to communicate efficiently with government services, with other industries and with international organizations, RAs are invaluable.

All this leads up to the following conclusions. RAs should have a stable income from some system of government imposed compulsory fees (such as in France) to finance their normal routine work. Research proper should be financed by individual firms, organizations or governmental departments, on a project basis, and it could best be done in association with a university or a very large institute. Rotation of personnel between research and routine duties would ensure flexibility, feedback and awareness of practical problems.

Yours faithfully,

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Bradford's Law

SIR,—In considering the application of Bradford's Law of Dispersion¹ as a guide to acquisition policy in the research library or information centre it is pleasant to contemplate a bibliophilic Utopia of a complete collection in a library with unlimited space and acquisition funds. Utopias are rarely found, however, and the library *does* have limited resources. Given this restriction, the librarian or acquisitions specialist, in even the largest and most pecunious libraries, must make choices. These choices are rational only to the extent that the library collection maximizes the timely provision of requested documents to the satisfaction of the largest number of users.

In this light, A. Faser's letter² suggesting that a library is derelict in not purchasing a specialized journal of interest to only one user treats the occasional request with the same degree of importance as the on-going demand for the heavily used journals. An inventory policy in a department or food store, part-supply depot, manufacturing concern or library, based on ignoring frequency-of-demand distributions, leads to inefficient allocation of resources. Designers of sewer and flood control systems know they cannot design economic drainpipe and culvert systems of sufficient capacity to handle the runoff

from the one-in-a-thousand chance that rainfall will exceed, say, 6 inches in any 1 h period. And mass merchandisers stock only a few or no items in the extremely low and high size ranges of shoes, hats and all attire in between.

Bradford's Law promulgates that a library can supply *most* of the requests for material with a relatively modest inventory of book and journal titles, geared to the *normal* pattern of demand. This demand pattern is one in which a relatively few items from among all possible items in the inventory satisfy a majority of the actual transactions. Progressively fewer transactions are satisfied from the balance of the inventory, or from further augmentation of the number of titles held. Abiding by the Bradford distribution, then, is an important factor in the library's overall success at demand-fulfilment.

The most efficient way for a library to exploit its collection and maximize utilization of its document file is to share its bibliographic resources with as many patrons as possible. It cannot *reasonably* be expected to serve *every* individual request. Carried to the extreme, if the only requests were one-time requests, there could not be an *economic* central library. The most efficient way of handling such a situation would be for each individual to have his own private collection.

Yours faithfully,

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¹ Fairthorne, A., *J. Doc.*, **25**, 319 (1969).

² Faser, A., *Nature*, **227**, 101 (1970).

Ageing Ova

SIR,—The recent article¹ published in your journal, showing increased chromatid disjunction in mouse eggs which were some time in the oviduct, is the latest in a line of papers all demonstrating that delayed fertilization can result in abnormal development of the embryo. The author points out that this could explain the increased frequency of trisomy among the offspring of older women. It should also be pointed out that the rhythm method of birth control might increase the possibility of fertilization occurring some time after ovulation, and thus also increase the chance of producing a malformed embryo. This is not entirely speculation as Iffy² found that eighteen out of twenty-one cases of abnormal embryonic development could be related to post-17th day ovulation and fertilization, while Cross³ suggested that increased practice of the rhythm method might be responsible for the higher frequencies of

anencephalus and spina bifida among Roman Catholics. The results of this latest paper¹ suggest that a more searching investigation into this possible danger is called for.

Yours faithfully,

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¹ Rodman, T. C., *Nature*, **233**, 191 (1971).

² Iffy, L., *Proc. Roy. Soc. Med.*, **56**, 48 (1963).

³ Cross, R. G., *Brit. Med. J.*, **1**, 660 (1968).

Suckling Etymology

SIR,—Dr Spratling bemoans the misuse of suck and suckle (*Nature*, **233**, 73; 1971). The confusion can be blamed on the medieval yeoman, rather than on *Nature*¹. Suckling, like its German and Dutch parallels Saugling and suigeling (= baby), is a noun with the suffix -ling, as in weanling, yearling, duckling, gosling, and, more recently, ratling. The English yeoman assumed that suckling had the suffix -ing, as in paddling and speckling, and coined a new verb "suckle". He gave no thought to whether it meant anything other than suck. Shakespeare does indeed use suckle in the sense nurse or nourish at the breast. The Authorized Version prefers the older Germanic idiomatic "give suck" (*cf* German saugen geben, Dutch zuigen geven). The *Shorter Oxford English Dictionary* traces the "misuse" of suckler to mean a suckling calf back to 1473, whereas "correct" use to mean an animal that is suckling young dates only from 1850. The difficulty now, and undoubtedly the origin of the modern "error", is that a baby pig still in its mother's tender care can be called either a suckling or a sucking pig. The term piglet is, of course, briefer; the British Society of Animal Production recommends its use for a pig up to about 8 weeks of age, irrespective of time of weaning². I would recommend that the mother be called a nurse-sow or nursing sow. German Ammenkuh, literally "foster-cow", can be approximated to "multiple suckling" without defining whether the cow or calf is suckling.

Equally to be bemoaned is the imprecise use of "feed". Traditional is: The farmer feeds cows. Or the passive: Cows are fed. The meaning is not identical with: Cows eat. The *Shorter Oxford* gives two innovations from 1883 that have since become established. First: Cholera feeds on impurities . . . Bacteriologists might object to the word "eat" but surely for animal nutritionists "Cows eat hay" is far better than "Cows feed on hay". Second: Mangel-wurzel . . . is fed to the cows. . . . This type has become far too common, even being