

Indian science circus

SIR — While your comprehensive reports on science in India in the issue of 12 April are true and appropriate, I should like to stress some of the basic problems behind the prevailing confusion afflicting the Indian science scene.

Modern scientific education and research struck roots in India during the early twentieth century and rapidly grew after independence. The first scientists who were patronized by the government had their own individualistic ideas on developing science in India, for which most of the equipment had to be imported. Soon after independence, India suffered a shortage of foreign exchange, which hindered the import of adequate support materials, but the number of scientific institutions nevertheless continued to increase. This odd situation led to a lowering of the standards of scientific activity. However, many students could imbibe bookish knowledge and some of them could easily migrate to other countries where opportunities for work were abundant. Thus, Indian scientists are thriving both at home and abroad, but occasional soul-searching goes on and comparisons between home-based and expatriate Indians are sometimes not well chosen.

It requires a great deal of patience and faith to work in Indian conditions, in which even essential items are perpetually scarce. Time and efficiency are of relatively little importance in our country and hero worship, blind or forced, is part of life. Unfortunately, modern technologies need less hero worship and more efficient practice. However, our policy-makers (heroes) are not deterred from buying or borrowing any latest technology, and camp-followers are easily found among our vast multitudes. Thus, India constitutes a country of tremendous contrasts wherein basic facilities such as power supply, telephone and other communications services are woefully inadequate on the one hand, while on the other, huge installations for research in space and biotechnology are being planned without the least hesitation. Just as the highly rich and the abjectly poor exist side by side, so also do high and low technologies. After all, ancient emperors built great monuments like the Taj Mahal, probably employing a starving labour force, and as if to keep up that tradition, our science administrators in the past few decades have also been able to build a few glamorous edifices in the name of excellence.

Our tolerance is a boon, giving us the willpower to live amidst glaring disparities, but it is a bane to the implementation of contemporary developments. Finally, it is another wonder of the world to watch the mystic religious practices that cost next to

nothing and modern scientific pursuits at exorbitant costs blissfully coexisting in India!

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No thanks to . . .

SIR — So you think that the Royal Society "has broken new and dangerous ground" in the acknowledgements by authors of papers published in the society's journals (*Nature* 26 April, p.762). What is so new? And why so dangerous?

The practice of acknowledging help from others goes back a long way, even in this society's history, so it is certainly not new. If authors are now a little more generous and a little less formal than in the past, why is that so dangerous? The law of libel should remind editors not to allow to be printed the sort of remarks that you fear could be dangerous.

A paper in *Phil. Trans.* (1883) concludes "My best thanks are due to Professor Lankester for some excellent specimens of *Paragorgia*, *Villogorgia* and *Briareus*, and I am also deeply indebted to Professor Mosely who freely placed his numerous preparations at my disposal and whose constant aid and advice have been of invaluable assistance to me." The acknowledgements from *Proc. R. Soc.* (1984) that you quote are in a long and honourable tradition.

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● Lankester's organisms are Alcanarians (sea anemones). The more recent acknowledgement that seemed to break new ground read "This research was not supported by any military organization". — Editor, *Nature* □

Publishing chronology

SIR — We read with interest the piece by John Maddox under the title "Extinctions by catastrophe?" (*Nature* 19 April, p.685). The complex of problems produced by the distribution of preprints and by pre-publication press coverage is certainly something we should all ponder. It is clear that the system is sometimes beneficial and sometimes not and that there are no simple answers.

In condensing a complex chronology, however, one non-trivial item was left out. In August of 1983, we presented a summary of our research on periodic extinction at a widely attended meeting on the "Dynamics of Extinction", held in Flagstaff, Arizona. The oral presentation was accompanied by a printed abstract as part of the official programme for the Flagstaff meeting. The meeting was

attended by several science writers and subsequently *Science* (221, 935; 1983), *Science News* (124, 212; 1983) and several other publications carried accounts of the meetings that included substantial treatment of our extinction analysis. It was mostly from these accounts that physicists, astrophysicists and geologists heard of our work, and this led to many requests for more information and for preprints. We were unable to send preprints until early October when the manuscript was complete and ready for submission to *Proceedings of the National Academy of Sciences*.

In view of the foregoing, we do not think that the situation leading to the publication of the five papers on extinction in the 19 April issue of *Nature* fits the classic description of scientific communication-by-preprint. Notice of the research results (including the Flagstaff abstract) was available to all readers of *Science* and *Science News* and to all participants at the Flagstaff meeting. Preprints were sent out only later and then were largely limited to those requesting them. Of course, no preprints were released to the press.

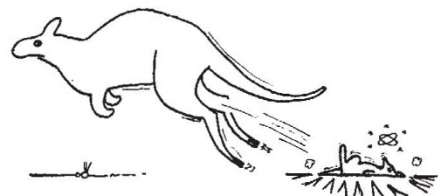
We hope that the publication of this letter will clear up any confusion over this curious incident. DAVID M. RAUP

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Directional pouches

SIR — I was fascinated by the photographs of a gaping thylacine ("Tasmanian tiger") in the series from Jon Darius's *Beyond Vision* (*Nature* 307, 411; 1984). However, among the curious features of the thylacine, the rear-opening pouch is by no means unique. According to Walker's *Mammals of the World* (1964), the posteriorly opening pouch is typical of the bandicoot family Peramelida and, when a



pouch is present, of the family Dasyuridae. The pouch also opens backward in the koala *Phascolarctos*, the wombat *Phascolomis* and the marsupial mole *Notoryctes*.

I presume that in most of the quadrupedal marsupials, as in the thylacine, young in a front-opening pouch might be liable to damage by undergrowth, or in the mole, from the pouch filling with soil. Only in the bipedal macropods would a backward — and hence downward — opening pouch have obvious disadvantages.

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