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CORRESPONDENCE

Biology teaching and habitat destruction

The two articles by S. B. Chaphekar and by R. J. Ranjit Daniels (*Curr. Sci.*, 1991, **60**, 624 and 630) draw our attention to a serious depletion of natural resources and the consequent breakdown of ecological balance due to a desired and well-intentioned academic activity. The growing use of live specimens for biology teaching at various levels is resulting in large-scale capture/killing of rare as well as not-so-rare species. Considering the seriousness of long-term effects of such activities, a recent circular from the Government of India in fact emphasized cutting down the use of live specimens in classrooms and even completely stopping dissection of frogs etc. in biology classes at school level. However, is total abolition of classroom dissections of animals and of preparation of herbaria the only or the best solution?

To be relevant, the teaching of biology definitely requires handling and dissection of some model species. Without this first-hand experience of dissection and/or experimentation with real animal/plant species, students' comprehension of the subject remains theoretical and often superficial. Computer simulations or other audio-visual aids can only partially replace the requirement of real animals and plants for teaching. Thus a blanket ban on all such practical classes (at school or higher levels) is short-sighted from academic point of view. However, the indiscriminate killing of animals or uprooting of plants just for the sake of completion of formalities of curriculum must be curbed. Rationalization of classroom use of animals and plants can significantly reduce the current wasteful situation. Remodelling of curricula (to avoid unnecessary emphasis on 'classical' topics) and a progressive outlook on the part of the teaching community involved in biology programmes are essential for this rationalization.

To prevent vandalization of natural habitats further, we must develop a chain of scientifically managed farms (commercial or otherwise) for rearing the commonly used laboratory animals (frog, guinea pigs, rats, mice, etc.) and to supply to academic institutions at reasonable rates. This would ensure that the natural habitats are not unnecessarily and indiscriminately disturbed by 'animal suppliers' who do not care or are ignorant about ecology. It would also generate employment for young people trained in biological sciences. Similarly small botanical gardens should be encouraged in the vicinity of schools and colleges where the students can study a variety of plants in near-natural habitat and may also get samples for preparation of herbaria etc. Finally the teachers as well as the taught must develop a more global awareness about environment and ecology.

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'Strategic' metals

P. Rama Rao's article on materials research at the Defence Metallurgical Research Laboratory (*Curr. Sci.*, 1991, **60**, 295) is very informative. The community of metallurgists and materials technologists in the country are not only proud of Rama Rao's achievements but also appreciative of the work being done, particularly at DMRL, in different areas of materials research and development.

At the same time, I was surprised to read the statement 'Reactive metal extraction represents a gap area in the indigenous metallurgical R&D scenario' in the 'Introduction'. It is not clear what Rama Rao had in his mind in making such a statement. The essentiality of development of technology of reactive and rare metals, such as uranium, uranium oxide, zirconium and its alloys, beryllium, niobium, tantalum, plutonium, thorium and titanium, needed for the country's nuclear and other important programmes was recognized as early as the early fifties. In the Department of Atomic Energy (DAE), we are producing some of these materials in substantial quantities, thanks to the pioneering leadership provided by the late Dr Brahm Prakash. It is also a fact that initial development and pilot-scale production of titanium was carried out first at the Bhaba Atomic Research Centre and later at the Nuclear Fuel Complex of DAE on the basis of which DMRL set up a demonstration plant.

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Omissions

The special issue 'Remote sensing for national development' (*Curr. Sci.*, 1991, **61**, 113–300) is well organized and nicely timed with the operationalization of IRS-1B. Remote sensing has become a long way since the ISRO document 'Remote sensing in India' was brought out in 1985. However, I feel that remote sensing applications in atmosphere and oceans, completely left out, should have been included. Ground-based remote sensing has also not been covered. These are important and are being pursued in academic institutions.

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