

in India, these conditions may exist only at a very few premier institutes like TIFR, IISc, etc. and it is difficult to imagine that a science department of an average university can even hope to possess them to reach the levels acceptable by the high IF journals.

It may also be worth finding out how true measure of quality is IF, or does it, at least partly, also depend on circulation, advertisements and support of high priests of science? Similarly SCI may also be correlated with interactions between persons or groups, which work on similar or closely related problems, and hence refer/review each other's work. If this is the case, then it is implicit that in spite of the fact the global competition is creeping in every walk of life, the problem of a 'level-playing-field' seems to remain for developing countries. Does it suggest that while assessing/measuring science some sort of 'normalization' – with respect to the factors listed above – might not be inappropriate? The use of high IFs – i.e. journals from advanced countries – implies that in 98% cases the peers for judging of 'better (or best) science' exist only in those countries. This seems to be supported by the fact that formulations of the problems at the frontiers or cutting edge, are mostly done in the advanced countries. This could probably mean that over the past 50 years the country has perhaps not been able to develop a reliable, confident and effectively operative inhouse peer review system in most of the scientific disciplines. Could it mean that in the field of scientific research an 'academic independence' has not been attained yet, i.e. even after 50 years of political independence, and there may still exist a deep-seated inferiority or lack of confidence. Or in view of the inherently universal nature of science this might not be a valid question.

It may be argued, in some sense at least, that after the likes of J. C. Bose, P. C. Ray, S. N. Bose, M. N. Saha, S. K. Mitra, C. V. Raman, K. S. Krishnan, G. N. Ramachandran, Birbal Sahni, D. N. Wadia, etc., almost all the following generations (in science) could be regarded 'missing', as opportunity of doing science of 'far-reaching significance' is perhaps 'missed or lost'. Could it be because most of these eminent people were tau-

ght and trained by British teachers and hence received the 'spark' from the long tradition of British science; while the following generations, despite excellent quality and quantity of scientific output in some cases, have not 'sparkled' to that extent?

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1. Balaram, P., *Curr. Sci.*, 2002, **83**, 1297–1298.
 2. Balaram, P., *Curr. Sci.*, 2003, **84**, 255–256.
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U. RAVAL

*National Geophysical Research Institute,
Uppal Road,
Hyderabad 500 007, India*

The editorial 'Requiem for a missing generation' makes compelling and thought-provoking reading¹. Our thoughts on the issues brought up by the article by Bagla² 'Missing generation leaves a hole in the fabric of research'² are equally pained, but have a slightly different flavour.

The offending article collates quotations attributed to several senior colleagues, and draws a provocative conclusion that seems incorrect at best. While a crisis of sorts does seem in the offing, having to do with declining total scientific output from India in comparison with increasing output from say China and several other countries outside the West, to blame a particular generation in the age group 45–55 seems facetious. This group contains several scientists from different fields, whose work is well-known internationally. A serious debate about cross generational excellence will be possible only when meaningful analyses of objective indicators such as the citation index etc., are available. We do hope that such data will be compiled and discussed

openly, with luck even inside India, which has no shortage of fora.

Thinking beyond brain drain, possibly a healthy reality in today's world, the basic issue is one of maintaining student input into science at healthy levels. The information technology boom in India of the early nineties has taken away many of the bright youth, creating a numerical rather than excellence depletion in the age group of ~30–40. This phenomenon has obvious global parallels; one only has to see the nationality profile of graduate schools in the best US universities, where it is difficult to find too many local students. Recent bounce back in science enrolment due to recession in IT is noticeable, but its continuation depends upon reducing the gap with industry level pay packages as well as providing intellectual challenge in a congenial environment. Science has to improve its public image in India, moving away from its current 'poorly paid dull boy' image. Further, inclusive consultation and debate is needed about issues such as (a) societal factors that promote or inhibit scientific excellence and how these have changed in recent times, (b) strategies for effective funding, e.g. focused spending on areas of strength versus developmental spending on areas of weakness, (c) alternate nongovernmental funding paradigms, (d) methods for reinvigorating aging institutions. From this type of process, creative solutions have a chance of emerging. Achieving some of these is the true challenge of the day. Mudslinging of the sort that the *Science* article indulges in, achieves nothing.

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1. Balaram, P., *Curr. Sci.*, 2002, **83**, 1297–1298.
 2. Bagla, P., *Science*, 2002, **298**, 733.
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H. R. KRISHNAMURTHY*
B. SRIRAM SHASTRY

*Department of Physics,
Indian Institute of Science,
Bangalore 560 012, India
e-mail: hrkrish@physics.iisc.ernet.in