

The insidious stranglehold of the impact factor

Prof P Balaram was puzzled: "why would NAL invite me to deliver the CSIR Foundation Lecture? I'm a simple laboratory scientist doing rather obscure and esoteric work. Perhaps they invited me because I have been the editor of *Current Science* for a decade, or because I've recently taken over as the Director of the Indian Institute of Science".



While it's always nice to print an invitation card listing the IISc Director as the lead speaker, I believe NAL invited Prof Balaram because he's now a widely respected commentator on Indian science and technology, and because he has such a wonderful empathy with words.

Prof Balaram talked about *Measuring and Assessing Science*, and really about this unseemly fascination for the 'impact factor' of journals, institutions of even scientists. By itself, the impact factor is an honest index: for example, the 2003 impact factor is calculated by dividing the 2003 citations to articles published in 2001-2002 by the number of articles published in 2001-2002. The problem arises when we try to (dishonestly) pretend that this simple ratio is the ultimate index of scientific productivity. "How can we use a single number for assessing science? What does this single number mean anyway?", Prof Balaram asked.

These are fair questions; they should really bother everyone. Surprisingly – and to Prof Balaram's great chagrin -- they don't. Instead, the "insidious stranglehold of the impact factor"* throttles and overwhelms everyone ("it engulfs and bewitches!"). Everyone is now concerned about how to 'improve' the impact factor, rather than improve science itself.

How, then, does one assess scientific effort? Prof Balaram suggests that even if impersonal quantitation is to be the preferred mode, we must do better than use the impact factor that can be so easily abused (by self citation, co-citation etc.). For example the 2003 Shanghai academic ranking of world universities (where IISc figures between 250-300), or the 'h-index' very recently proposed by Hirsch: a scientist has index h if h of his papers have at least h citations each. But Prof Balaram makes no effort to hide the fact that he's still in favour of the old-fashioned practice of informed (or prejudiced) personal judgement, "especially if we have a learned body making such judgements".

There is of course a great deal more to savour in a Balaram lecture, for instance his delightful asides that both amuse and bother you: What could the Open Archive Initiative mean to India? ("It may make Indian science and Indian journals more visible, we might finally have the angels on our side"). Why hasn't there been an Indian Nobel Prize after Independence? ("The answer lies in the development and history of Indian science, science now works very differently"). Why did John Macleod get the 1922 Nobel Prize for the discovery of insulin? ("Because he headed the lab that made the discovery ... as IISc's Director, there's still hope for me!"). Should national labs become deemed universities? ("Someone wrote that it will drive the last coffin in India's university system"). Is the IISc Director's chair a hot seat ("The seat still isn't quite hot ... I wonder if the *Current Science* editor's seat isn't hotter ... but it can get hot when the press asks how IISc is going to spend its Rs 100 crores").

Finally, a Balaram lecture isn't just about messages and homilies; it's also a literary gourmet's delight. So there are endearing references and thoughtful quotations as you go along: R K Narayan's romantic 1951 reference to the "faint aroma of gum and calico that hangs about a library", Charles Dodgson's "man is an animal that writes letters" (with the Balaram extension that "scientists are animals who like to publish papers") and, of course, the Mark Twain (or Benjamin Disraeli) quote about "lies, damned lies and statistics" (that will haunt and damn statisticians like me for many generations to come).

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*this expression is borrowed from P Balaram's most recent editorial in *Current Science*