Status of *Current Science* in dissemination of knowledge

What is the concept of an international journal in the eyes of scientific experts and bureaucrats? Knowledge has no barrier as long as it communicates and serves the purpose for which it is being developed using the creative skills and thinking processes. To give a journal national or international status, purely based on its origin has no meaning and logic when knowledge is being communicated to a global audience. In fact, there is no scope to debate over this matter as there exists a professional and registered body that publishes every year the ranking of various journals published from all over the world.

As of now, *Current Science* (*CS*) stands tall as one of the topmost scientific periodicals in India and also as a very good multidisciplinary journal all over the world while disseminating scientific results and knowledge to the world of scientific community. At least, in terms of Impact Factor, one of the three standardized measures created by the Institute of Scientific Information (ISI), *CS* has proved its worthiness. Besides, *CS* has improved its ranking considerably over the decade scoring much better than other multidisciplinary and specific scientific journals published from India and elsewhere. This unique achievement has been made by a dedicated team of scientists of eminence who have proved their worth by their devotion, discipline and professional ethics. Nevertheless, one member of the editorial board of *CS*, in a recent meeting brought to my attention that *CS* does not merit to be an international journal. He brought to the notice of the audience that *CS* does not have an impact factor (0.600) and it had come down considerably. On the contrary, it is showing an upward trend (0.694) as of now. I recall the article published by Gupta[1] recently in which he has emphasized the need of publishing at least one out of say five research papers in an Indian journal to be able to qualify for an appointment/procurement or entertaining a research proposal for award of funds. How do we expect to improve the quality of a journal when people have apprehensions about our own journals and hear criticisms? Recently Sahni[2] too has raised concern on the existing scenario of Indian science for want of foreign platform or international stamping.

I still feel that new ideas, original research findings and scientific results arising from our country have to be brought out through the medium of *CS* considering its multidisciplinary status. In fact, *CS* should be given preference over others as it quickly disseminates knowledge to the scientific community compared to other journals in the world. Let us be proud that we have a forum like *CS* available in the country where Indian scientists could publish their findings as quickly as possible and ensure its high quality of scientific output. Let us not debate over the issue as to whether it is a national or an international journal so long it remains one of the best journals in the country as rated by *ISI, Journal Citation Reports*. In fact, Impact Factor has moved in recent years from an obscure bibliometric indicator to become the major quantitative measure of the quality of a journal, its research papers, the researchers who wrote those papers, and even the institution they work in. Sheer adjectives 'national' or 'international', as a yardstick for quality assessment, do not have any meaning and status as such, but the ranking of an accredited agency or a registered institute is to be given considerable weightage while assessing the standard of the journal. In fact, I was deeply touched by the reminiscence of Rajendran[3] who wrote about Ramaseshan and his concern about *Current Science* recently.

1. Gupta, Y. K., *Curr. Sci.*, 2004, **86**, 241.
2. Sahni, A., *Curr. Sci.*, 2004, **87**, 851.
3. Rajendran, C. P., *Curr. Sci.*, 2004, **86**, 244.

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Gene pyramiding for disease resistance: A solution or illusion

Breeding for disease resistance is an important activity of all crop improvement programmes. This helps development of varieties, which by virtue of built-in genetic resistance to diseases help protect environment, enhance agricultural productivity and make crop production a profitable venture. More often than not pathogens have a large number of variants that are referred to as biotypes or races and the concerned host, i.e. crop plant has a range of genes conferring resistance to these races. These genes are, generally, present in different genotypes and need to be brought into the commercial variety to make the latter a successful one. Also, most crop plants suffer from a number of diseases specific to the particular agroclimatic condition or cultural condition. Therefore, it follows that to be successful, a commercial variety needs to have all the required resistance genes conferring resistance to all the prevalent races of the diseases affecting the species in a particular zone/cultural condition. This can be achieved by employing suitable breeding procedures like backcross breeding method and using donors for various genes in tandem or by opting for convergent crossing incorporating all the desired genes into the common recipient parent. The methodology is simpler and breeders have effectively used the same in various programmes, leading to the development of varieties,

e.g. HD 2135 (H41-3/3/HD1962/E4870//K65) in wheat that was resistant to all the races of the three wheat rusts. Many such examples are available across crop species.

A new field in plant breeding is emerging that aims at pyramiding resistant genes leading to development of genetic stocks which then, the advocates of the field claim, can be used in the breeding programmes. Such programmes are highly cost-intensive *vis-à-vis* the usefulness of what they deliver. These pyramiding programmes make use of either gene-specific race inoculums or molecular marker to carry out the phenotyping work in the segregating population leading to the development of true breeding genotypes possessing the desired resistance to two or more races of a particular disease and sometime even to multiple diseases. The real lacuna of the programme however is felt when somebody wants to use such donors. Understandably, the breeder will be saved from using multiple donors, but will still have to use all these tools for phenotyping work, viz. either gene-specific race inoculums or molecular markers to select the desired segregants in his breeding programmes again requiring to spend huge sums of money. It is this duplicity of efforts and expenditure, which limits the practical utility of the gene pyramiding work. Even this is also highly likely that whatever genes we are pyramiding might even lose their usefulness by the time they are pyramided and subsequently by the time they are used by the crop breeders, each of these two steps takes at least six to seven crop seasons to accomplish. Moreover, pyramiding work undertaken by non-breeders is likely to develop agronomically inferior donors, further complicating the whole issue. On the contrary, crop breeders in the past have employed backcross breeding to introgress one and even more resistant genes successfully leading to the development of usable cultivars which are in farmers fields, e.g. Amar (C306*/7TR380-14*7/3 AG14), HW2045 (HD2402*5//SUNSTAR*6/C80-1, Sonali (TH6/TF//6*SKA), NI 5439 (REPM 80/3*NP 710) are few such wheat varieties. Thus, pyramiding relevant resistant genes in an agronomically superior genotype offers real solutions, whereas developing just genetic stocks will only require duplicating these efforts again for developing commercial varieties. It is therefore imperative to debate the usefulness of such exercises as we call pyramiding, as the users of the donors having pyramided genes will again have to repeat the efforts and expenditure. Instead, breeders can effectively use the individual donors.

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Biology, Medicine and Society: A new think tank

Progress in the biological and medical sciences has been rapid, pressed forward by the explosion in technology, in particular in genetics and genomics. These developments must be accompanied, supported, and put into perspective by parallel deliberation in the arenas of religion, psychology, psychoanalysis, history, philosophy and politics ('Politics' is not meant here in the sense of politicking, but rather as an elaboration of a vision of society and the world).

The dialogue between the hard sciences and the social sciences is a difficult one. Attitudes, sensibilities and vocabulary differ. This dialogue, freed from all hegemonic temptation on both sides, is nevertheless essential if it is our ambition to draw up a new ethics and epistemology of biology that is truly adapted to our era. I believe that this enterprise responds to the expectations of many (most particularly students, whether they be in the biomedical sciences or the social sciences), and I find they are indispensable to revitalizing scientific thinking that personally I see falling into a state of total decay.

This scientific thought seems to me to be mainly weakened by scientific taboos, the 'gurutizing of science' and the proliferation of irrational thinking.

Taboos: all subjects relating more or less to a biological vision of human nature are a priori heretic. Certain taboos have perverted and biased the scientific approach and, in a new 'clerical treason' (Benda), have resulted in salvaging ideologies whose good intentions are not much of an excuse. Science has a duty to remain objective and neutral. 'Only truth is revolutionary' (Gramsci). A modern ethics/epistemology of biology will be born only if it can be founded on a science liberated of every taboo.

Gurutizing of science: many of our colleagues have succumbed to the 'guru' syndrome. Awarded with some title to glory in a very specialized domain, they proclaim themselves omniscient and pronounce oracles to decision-makers who are too easily misled by the aura of the learned scientist on subjects ranging from global warming to reproductive cloning, and the equality/inequality of man. It is urgent that we return to truly rigorous scientific thinking, that we establish strict hierarchies between what has been solidly (but never definitively) established and the speculative. The credibility of science depends on it.

Proliferation of irrational thinking: Scientific thinking is in decline, and science is in the throes of considerable mistrust from the public, who lend a receptive ear to a wide variety of demagogues. We must undoubtedly banish excessive scientism, smelling sweetly of the 19th century (the belief that science was capable of resolving all of society's problems and that only rational thinking was the source of true knowledge). However, when it is a matter of problems falling within the domain of science (GMOs, global warming, the biological component of human nature), obscurantism, superstition and the irrational should be combatted by revitalized scientific thinking.

The 'Biology, Medicine and Society' (BMS) think-tank will be a place for multidisciplinary dialogue, hosting not only specialists (biologists, physicians, psychoanalysts, ethnologists, philosophers, people of letters and religion, historians, politicians, etc.), but it will also be a place for high school and university students, nonspecialist citizens, etc. We intend to make it