

## Scientists and foreign travel

This is regarding the editorial 'Staying home' by P. Balam. While I agree with many of the points made in this article, I cannot but disagree with some of them.

1. Balam says that the denial of a visa to R. Chidambaram, Chairman AEC by the US, and the possibility that Germany and UK might also similarly deny visas to Indian nuclear scientists 'appears to have sent a shiver down the spines of many, for whom the practice of science necessarily involves extensive traveling abroad'. I believe this statement is rather uncharitable and unnecessarily sarcastic. Even those who do not entertain any ambition of traveling abroad have reacted with abhorrence to the apparent politicization by the US government (and perhaps UK and Germany as well) of conference travel by Indian scientists connected with the nuclear program. One need not believe that 'the practice of science necessarily involves extensive traveling abroad' in order to react negatively to the denial of a visa to Chidambaram.

2. Balam asks: 'Is it really necessary or useful for some scientists to *always* be abroad, (emphasis added) attending one conference after another?' This sentence sounds a little like sour grapes. Surely even if Chidambaram had been permitted to attend the Crystallographers' Conference in the US, it would be stretching things beyond credulity to state that he or other similar senior scientists are 'always abroad, attending one conference after another'.

The above misdirected implied criticism of Chidambaram's attempts to obtain a visa to the US and the reaction to the denial unfortunately distracts the reader's attention (or at any rate, *this* reader's attention) from other relevant issues raised in the editorial. For instance:

- 'How important is foreign travel to the practice of science in India?'
- 'Must important scientists, engaged in critical research in establishment (sic) like defence and atomic energy, have to travel abroad to attend conferences and meetings, to which researchers in academic institutions have little chance of going?'

I shall now state my views on the above points.

There can be no two opinions that, given the smallness of our scientific community (notwithstanding tall claims about the 'third largest pool of manpower' etc.), exposure to the international community at large is an essential ingredient of calibrating one's own work against the world standard, getting inspired by interacting (or even gazing from a distance) with the world leaders in one's field, having an opportunity to discuss research ideas *in the formative stage* (in contrast to journal papers which focus only on *completed work*), and so on. Indian science would not collapse if we were to be prevented from interacting personally with our colleagues, but there would definitely be some effect. From what I have seen, many of our young scientists suffer from a misplaced inferiority complex, because our culture does not encourage outright bragging and exaggeration of one's own achievements as in some foreign countries, especially the US. It takes only very little *face to face* interaction for a good young Indian researcher to see that he/she is as good as the overseas counterpart; but without such interaction the inferiority complex is likely to persist and increase. If *enough persons* go abroad and spread the message that 'we are as good as anyone else', this complex will disappear – it is not necessary for *everyone* to have an overseas trip. One can already see this happening in the software industry. But a 'stay at home' strategy will reinforce this inferiority complex, and prevent Indian science from realizing both its own current worth as well as its true potential.

Rather than advocating greater opportunities for academics, especially young scientists to attend overseas meetings, Balam seems to question the wisdom of government scientists travelling abroad. It may perhaps be true that some senior scientists in the so-called strategic departments have greater access to funds for international conference travel than those in academics. The question is: How is the situation to be equalized? By preventing even government scientists from travelling overseas, or by increasing the opportunities for academics to travel abroad? For fifty

years our country has been mired in poverty and backwardness because successive governments have followed the practice of equalizing wealth by making the rich poorer, and not the other way around. As the noted jurist Nani Palkhiwala has said, we have perfected the technology for keeping India poor. It is rather disappointing to note that Balam seems to be advocating a sort of universal impoverishment of travel opportunities to bring government scientists and academics to the same level. I should have thought that philosophy is discredited by now.

At least part of the difficulties faced by academics attempting to attend foreign conferences can be traced to strange funding policies adopted by various government agencies. As of now, agencies such as DST, CSIR, INSA etc. fund 50% of the air fare. Given that all of these agencies receive their funds from the Consolidated Fund of India, it is difficult to fathom *why* 50%? The only thing achieved by this arcane procedure is that the poor aspirant is sent from pillar to post in search of funds. A 'deadlock situation' where Agency A is waiting for the decision of Agency B and vice versa cannot also be ruled out. Instead, if every agency were to take a decision that it would fund 100% of travel cost, or not at all, then the amount of paper work would be reduced considerably. The standard agency response is: 'But we will be able to send only half as many persons!' Yes – but since the sets of persons being sent by various agencies *would be disjoint, the total number of persons would be unaffected*. It might even increase, since I know that some persons just don't bother to apply because they are put off by the amount of running around they have to do.

A couple of years ago both DST and DBT made a proposal whereby each PI of a grant would be able to attend one international conference during the course of the grant (I am oversimplifying slightly). The Finance Ministry agreed with the proviso that the expense shall be limited to Rs 15,000, which barely covers the cost of a Bangalore–Delhi round trip these days!

Ultimately the real source of the problem is that many in the government still

view foreign travel as a 'jaunt' to be enjoyed by a privileged few. Last year, the *Indian Express* published a statistic to the effect that the number of Joint Secretaries visiting the city of Paris alone during June 1997 was 42. The great

failure of the Indian scientific community, including its leaders, has been in not dispelling this misconception so far as *scientific travel* is concerned. Rather than worrying about which scientists have an easier time of it going abroad compared

to which others, we should all instead tackle this misunderstanding.

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## Animals in research

I was shocked to read the editorial in the August 25 issue of *Current Science*, and learn that a 'Committee for the Purpose of Controlling and Supervising Experiments in Animals' (CPCSEA) headed by Menaka Gandhi has been constituted by the government of India and that the committee has decided to impose drastic curbs on the use of laboratory animals for scientific research by arrogating all powers to decide about animal-based experiments in the country.

Since many of the important points in support of animal experimentation have been made by the editor as well as in the article of Ramalingaswami, I will not repeat them. Besides killing biomedical research in the country, these curbs may give an excuse to unethical drug companies to market untested drugs and other products. The approach to helping the cause of laboratory animals is the three 'R's'—Refinement, Replacement and Reduction. Most animal facilities in the country are very shabby. The staff working in many of these facilities as well as the scientists and technicians involved in animal experimentation are not trained in humane methods of handling, care and experimentation. Lack of environmental control and genetic uniformity results in highly variable results and this in turn leads to the use of more number of animals and the necessity to repeat experiments.

Considerable restraint on needless animal experimentation is indeed needed. This can be achieved by not only educating and training the animal house personnel and scientists, but also the heads of institutions and agencies that give grants. Investment in modernizing animal facilities with suitable environmental controls (regulation of temperature, humidity, air changes, cleanliness) and caging, to ensure that the quality of animals produced and used is good, is necessary.

Many feel that since human beings do not live in controlled and hygienic environment and are genetically diverse, standardized animals are not necessary. This indeed is wrong thinking.

Refinement in animal experimentation, and replacement of animal models by other non-animate models (scope for this is limited) will lead to reduction in the numbers of animals used, the pain and suffering inflicted and increase the reliability of the results obtained. Most veterinary colleges do not have courses pertaining to small laboratory animals, and hence the problem will not be solved by simply insisting that veterinarians should head animal facilities and perform animal experiments. Human resource in this area is badly needed.

I am surprised that some heads of scientific agencies were on this committee which took such decisions. Perhaps they were too shell shocked to make their point. I do hope that those who subscribe to the decisions of that committee are refraining from use of any products which in the past may have involved animal experimentation! But then they would not be living if they did not. The entire scientific community with one voice should prevent these recommendations from becoming law. All science academies should speak up. On the other hand, they should share the concerns of the animal activists and institute robust ethical committees at the level of the institutes for careful scrutiny of the experiments to prevent unnecessary and bad experiments.

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V. Ramalingaswami has rightly pointed out (*Curr. Sci.*, 1998, 75, 344–348) the lacunae in the rules framed by the Committee for the Purpose of Control and Supervision of Experiments on Animals (CPCSEA). Besides the points raised by Ramalingaswami, there are also other rules which are to be given a thought.

Rules 3 and 4 state that animal breeders and establishments should register with the Committee within the given time (3 months for the breeders and 30 days for all the establishments in the country!) else they should not carry breeding and experimentation on animals. The Committee has not stated the time period for which the permission is valid and also whether it has to be renewed later. Does the Committee think that once permission is given, things will remain the same? The animal facilities may be good at the time of inspection, but as time passes, due to lack of interest the facilities may deteriorate but the establishment/breeder will continue to do experiments using animals. The Committee should therefore specify the duration of permission granted and the need to renew the registration.

Rule 5 (a) states that: Application for registration shall be made in the form prescribed in Annexure I. The committee would be empowered to inspect the premises where the experiments are to be conducted, animal housing facilities and other infrastructure for verification of facts mentioned in the application and for deciding the issue of registration.

This means that all the institutions which already have animal housing facilities should apply again for registration along with the new institutions. This rule should apply only to those new institutions/individuals who plan to do experiments. Institutions already with animal facilities would have taken permission from the concerned departments at the time of their establishment and hence