

in between, probably lies a reasonable course of action'. It may be a good idea that instead of taking pride in publishing our work in international journals, probably we can take a solemn oath that we will publish at least half of our yearly publications (including good ones!) in Indian journals. In addition, inviting

periodically leading researchers (from India and abroad) to contribute to a journal would enhance the visibility and credibility of the journal. Otherwise, carrying out special sections on hot topics, following the lines of *Current Science* may be a worthwhile exercise to enhance the impact factor. Unless some drastic

measures are taken, there seems to be 'no' light at the end of the tunnel.

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## C<sup>++</sup> in schools

Recently, a friend asked me if I could help his ward with the C<sup>++</sup> computer programming language. The boy was a student of class 10+2, studying in a school that offered Indian Council of Secondary Education course. A principal of a local school (affiliated to Board of Secondary Education) too wanted me to recommend a teacher for C/C<sup>++</sup>. It was indeed shocking for me to realize that students were being taught a programming language that, in my opinion, was far above their calibre as well as not quite in conformity with their academic background.

What objective could possibly be served by offering such courses at the school level? Are the designers of preuniversity syllabi aware of the prevailing reality in schools and colleges?

When our educational planners introduced computer science courses in schools, they completely ignored the fact that this subject is not as basic as mathematics, physics and other conventional science subjects. A proper understanding of computer science demands an adequate

background knowledge of the basic science subjects. In the name of computer literacy, we cannot introduce courses that are better suited to more mature students. Courses involving C/C<sup>++</sup> are definitely not meant for +2 students. Should we ignore the fact that these form part of the syllabi of MCA and B.Sc/M.Sc courses and there too the students often study these relatively late?

It is therefore debatable whether introducing computer science in schools is at all desirable. The fact that computers are finding a place in our everyday life is in itself not a sufficiently convincing argument. In this connection it must be observed that biotechnology and environmental science are equally useful and relevant but cannot be introduced in schools in the same way as they are introduced in universities.

Even if it be conceded that this subject needs to be taught in schools along with other basic sciences, one question remains to be answered. Is C<sup>++</sup> the right programming language that can help a student to understand the principles of program-

ming languages? Is it not true that the syntax of C<sup>++</sup> cannot be said to be user-friendly and that even expert programmers admit that debugging for errors is much more difficult in C<sup>++</sup>. Moreover, can we expect the students to grasp the concepts of data abstraction, concealment, objects and classes on one hand and pointers, dynamic memory allocation, etc. on the other hand?

Another serious practical problem related to this issue is finding adequately trained teachers for recruiting in schools.

Thus, it is up to the academic community of the country to decide whether the introduction of C/C<sup>++</sup> at the +2 level is an indicator of the wisdom and vision of our top educationists or whether it is a reflection of their intellectual bankruptcy.

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## Facts about plague epidemic, 1994

The letter by P. T. Patel and H. P. Pandya (*Curr. Sci.*, 1998, 75, 415) provides vital new information on one of the major lacunae in the sequence of events that led to the unfortunate episode of outbreak of pneumonic plague in Surat in 1994.

*Yersinia pestis* can be easily grown and identified in any standard microbiology laboratory. Therefore it is quite reasonable to accept that Patel and Pandya had indeed

isolated and characterized *Y. pestis* from the sputum specimens of several persons with pneumonic symptoms, including the very first case admitted to the New Civil Hospital. Moreover, as stated by them this crucial piece of information corroborates with the report of the Technical Advisory Committee (TAC) which mentioned that stored cultures and sputum specimens were indeed available for investigation<sup>1</sup>. Though microbiologists do

not usually store raw specimens, they do often store cultures of isolates according to text book procedures. Thus, Patel and Pandya do have a point about the veracity of the stored sputum samples: it is not difficult to get details on this issue, but it does not seem to me to be very important now. The TAC found the stored cultures to be contaminated and were not pure cultures and it was subculturing of these contaminated cultures which re-

sulted in isolating *Y. pestis*<sup>1</sup>. In addition, the boldness with which the government officials had declared that the cause of the outbreak was plague did suggest that they were privy to information that was not available to the public or even to researchers in the field of microbiology in the country.

This new information raises more questions than it answers. Patel and Pandya say that their department had cultured and reported *Y. pestis*. I have followed the events in great detail<sup>2</sup>. The TAC, the Expert Committee appointed by the Gujarat state government and the WHO International Plague Investigative Team were clear that the then available evidence for pneumonic plague was only presumptive, being clinical and serological; that was not sufficient to confirm the cause as *Y. pestis* infection in the absence of identification by culture<sup>2</sup>. I too had been skeptical about the diagnosis of plague itself, mainly because the microbiologists in Surat apparently had not cultured this organism which is very easy to isolate and characterize. Therefore alternate hypotheses were mooted and one positive outcome was the recognition of melioidosis in India<sup>3</sup>. The Gujarat Committee had pointed out that the only microbio-

logical evidence for *Y. pestis* was presence of bipolar staining organisms in sputum smears. The cause of melioidosis is also bipolar staining.

The negative impact of the lack of timely evidence for plague was that the TAC had to unravel the mystery of the cause of the epidemic and it was their conclusive report of the isolation of *Y. pestis* and the detection of its genetic sequences in necropsy tissues that laid to rest the alternate speculations<sup>1</sup>. If Patel and Pandya had reported their data to any responsible agency, the TAC would not have been burdened with diagnosis but should have paid more attention to the reasons of the sudden appearance of pneumonic plague in a city, which have not yet been satisfactorily explained. The second reason for my earlier skepticism was the missing epidemiological links such as the lack of previously recognized sylvatic focus in the region, the absence of bubonic plague preceding pneumonic plague and the zero incidence of secondary cases. Since the attention of everyone was diverted from investigating the source of *Y. pestis* in a unique and unprecedented, exclusively pneumonic, plague outbreak, to the very diagnosis itself, the timely opportunity to ask this most important

question was lost. At this point in time I do not want to speculate on the source, but it is not easy to explain it as a natural outbreak. It is very important not to lose sight of this issue, since history has a tendency to repeat itself where people do not learn from it.

I am grateful to Patel and Pandya for their old but new information. They must now give more details about their data. What the dates of their laboratory reports were, how many isolates they had confirmed and to whom they had reported are essential to determine if their crucial observations had been suppressed for some reason by someone. They must also clarify why their findings had not found their way in a journal earlier than now. It is never too late for filling gaps in information, for, *Satyamevayathe*.

1. Report of the Technical Advisory Committee on Plague, New Delhi, 1995.
2. John, T. J., *Lancet*, 1995, 346, 765.
3. Cherian, T., Raghupathy, P. and John, T. J., *Lancet*, 345, 259.

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## Unfair to Hardy

A recent article reinterprets the known works on the life of S. Ramanujan without making any independent historical study and suffers from the prejudices of the authors who have made unproven conjectures (*Curr. Sci.*, 1998, 75, 326-327)<sup>1</sup>. Although it is true that British rulers promoted and nurtured only colonized mind, but is it justified to identify ruling and elite class with the entire society? Generally, sweeping statements encompassing the entire society are made, which in reality represent the attitudes of the minority: the elites. Haldane's quote given in ref. 1 also reflects a similar attitude. Leaving aside this, mathematicians have unequivocally recognized Ramanujan as one of the greatest mathematicians; and if G. H. Hardy was instrumental for this in the beginning, resurgence in Ramanujan's work in recent times is also

due to Western scientists. It may be pointed out here, although it is not directly related to the topic under discussion, it is Michael Berry, an English physicist, who is largely responsible for bringing Pancharatnam's phase to prominence.

Returning to the article<sup>1</sup>, I do not understand what the authors mean by the statement 'It was Ramanujan who discovered Hardy'. On the contrary, was it not Ramanujan himself who sought the opinion of the then famed mathematician, G. H. Hardy, on his mathematical work in 1913? Prior to this he had sent his papers to two eminent English mathematicians who had returned the papers without any comment. Thus, Hardy indeed has to be credited for recognizing and 'discovering' 'the natural mathematical genius' of Ramanujan<sup>2</sup>. Regarding the

education of Ramanujan, Snow<sup>2</sup> remarks: 'In an uncharacteristically sloppy moment, Hardy once wrote that if he had been better educated, he would have been less Ramanujan'. Also of interest are the remarks on Formal Education by Selberg<sup>3</sup>. Selberg notes, 'If Hardy had trusted Ramanujan more, they should have inevitably ended with the Redemacher series'.

Western education system seems to stifle original and creative minds and the dilemma faced by educated yet free thinkers need to be understood properly; for example, experiences of Selberg<sup>3</sup>, Hardy's wavering perception regarding education of Ramanujan and remarks of Snow<sup>2</sup>. Moreover, Green did not have any official academic degree and it was quite pertinently observed by Dyson<sup>4</sup>, 'If George Green were living today, since science