

## Assaults on Indian creativity and technology

Excerpts<sup>1</sup> from the book *Trojan Horse: The Ultimate Challenge to Western Industry* by B. G. James made interesting reading. While James' book discusses the threat of erosion of the West's industrial competitiveness as a result of Japan's domination of world industry, the situation in India is fraught with similar danger. Assembly from imported kits, described variously as screwdriver technology, 'completely knock-down'/'semi-knock-down' culture, etc. (unwanted additions to our vocabulary made in the eighties!) is a well-known phenomenon. The public do not seem overly concerned since, at long last, two-in-one's, colour TVs, VCRs, washing machines, etc. of fairly good quality are freely available in the Indian market.

Satisfaction of the public's appetite for consumer goods is one side of the story, the only tolerable side, one might add. The other side fills one with deep concern, for, apart from the avoidable drain on foreign exchange, there is also the havoc played on indigenous capability. To cite a typical example, for years Bharat Electronics Limited (BEL) used to supply quartz crystals to our radio and TV industry for use as oscillators. But, with the advent of imported kits, indigenous manufacturers are unwilling to buy BEL crystals. They simply say: 'Why should we? We get quartz oscillators as part of our kit.' In a terse commentary<sup>2</sup> on kits, P. S. Deodhar, former chairman of the Electronics Commission, says: 'Indian industry in electronics especially in consumer electronics and now even in professional electronics is all kit-oriented, thanks to the Government of India's policy of the so-called phased manufacturing programme (PMP) which has not succeeded. It has been a big hoax. What I found was that the Japanese and Koreans were exploiting our industry by selling kits . . . under various rules and loopholes specifically left behind by the government . . . smaller companies who could not really play this kit business were suffering.'

Assault on Indian technological competence is not limited to the flooding of kits. There are other forms, peculiar to this country. Some time ago a sophisticated antenna, costing millions of rupees, was needed for our satellite

communication system. Hearing that an order was to be placed for this item. Govind Swarup of TIFR made efforts to steer the deal to Indian industry. Swarup should know a thing or two about antennas, having built the well-known radio telescope at Ooty and being now engaged in the design and construction of an even bigger telescope, the GMRT, to be located near Pune. He rightly argued that considerable expertise on antennas is available in the country, not only with his own group but with many other centres like the Raman Research Institute (which has built a sophisticated millimetre-wave telescope), and engineers of the LRDE (a DRDO laboratory) who have regularly been supplying sophisticated radar systems to our armed services. Let it also not be forgotten that, over two decades ago, the late S. N. Seshadri of BARC built (with inspiration from Vikram Sarabhai) a control system for the Arvi earth station to performance levels better than those specified, even though he had never built an antenna-control system before. The SITE program, the INSAT earth stations and a host of other similar projects have all been using antennas built by Indian engineers and Indian industry. But suddenly, all this was being overlooked. The import lobby argued that there would be cost overruns if the project were to be executed in India. Swarup countered by offering to build the antenna within the stipulated budget. But the import lobby would not give up and finally managed to swing the deal in favour of Japan on grounds of time schedule. The irony is that several months were lost in blocking Swarup, and he could well have delivered the antenna by the time it was to finally arrive from Japan, had he been given the green signal in the first place. It is unfortunate that Indian industry and engineers received little or no support from our public and the press. On the contrary, *The Hindu* once carried a letter from an NRI, questioning the credibility of Indian engineers!

That this is not an isolated incident becomes evident from the battle royal going on at present in respect of communications technology. A few years ago, an effort was launched to develop indigenous capability in communications

technology, and C-DoT was identified as the nodal agency for this technology thrust. There has always been some opposition to this venture, and lately it has become quite vociferous. The opponents are both local and foreign. A recent issue of *The Economic Times* said<sup>3</sup>: 'Government's decision to evaluate afresh the indigenous switch developed by C-DoT has given fresh hope to the multinationals to recapture the Indian telecom market. World-known companies, including CIT-Alcatel, Ericssons, Nippon Electronics Corporation and AT&T, are vying with one another to make presentations about their technological capability to the new Government. . . . The plea the import lobby activists are making is that the indigenous switch will take time to come up. According high priority to communications, the Government does not want to experiment and lose time . . . C-DoT's technology has been evaluated twice before. The last panel has submitted its report in April 1989 and concluded that though there have been slight slippages due to software problems, the technology was sound and would serve the telecom needs of the country.'

The same newspaper reported<sup>4</sup> an interview with the communications minister, who observed: 'We want to achieve technological self-reliance. At the same time, . . . wherever upgradation of technology is required, or where we do not have it already, we would not hesitate to import the technology. We will have to import technology in certain areas but our overall perspective remains self-reliance.'

Referring to the committee recently set up to review C-DoT, *The Hindu* said: ' . . . the officials [of C-DoT] said while it was laudable to review the efforts, was it not justified to review similarly the foreign collaboration agreements entered into for the manufacturers of push-button telephones, EPABX, VLSI, small earth stations, etc., which are yet to make an impact even four years after the tie-up and payment already made in foreign exchange for the technology transfer? . . . sources said a review of manufacture of push-button telephones based on three shortlisted foreign technologies, Siemens of West Germany, Ericssons of Sweden, and

Face of Italy, showed a miserable state of affairs. . . . Similar 'success' stories dot the Indian telecom scene, like the collaboration ITI entered into with Equatorial Satcom of the US for, the manufacture of small earth stations.' *The Hindu* observed later<sup>6</sup>: 'One of the most important elements of any foreign collaboration relates to the phased manufacturing programme (PMP), which indicates the progress of indigenization and transfer of technology. The issue [in the case of the ITI-Equatorial Satcom agreement], therefore, was whether the original PMP had been adhered to by ITI since the formation of the joint venture in 1986.'

As yet another instance of stifling local effort, one could turn the spotlight on submarines. A few years ago, much fuss was created about the submarine deal with West Germany but the focus was entirely on the alleged kickbacks. While kickbacks are no doubt a very serious matter, there was practically no discussion about why we should, in the first place, buy submarines from abroad. After all, this country makes all kinds of steels. It trains electrical, mechanical and electronics engineers and even naval architects, all of whom could

presumably be organized into a suitable design team. The country has factories that produce everything from batteries to turbines and communication equipment. We have shipyards and, finally, also the money. And yet an order worth billions of rupees is placed abroad, involving not only a drain on our foreign exchange but the export of our jobs as well.

It is ironic that even after forty years of independent existence, we have not been able to overcome the triple argument involving quality, price and time schedule always trumped up by the import lobby (with, alas, much success). As far as quality is concerned, it is a painful fact that the quality of most indigenous products leaves much to be desired. It is also a sad commentary on a country that, a few centuries ago, produced the Taj Mahal, an eternal symbol of perfection.

It is a mystery why, though endowed with so many resources, we are doing so badly while Japan, which has no iron, no coal, no oil and no minerals, is thriving so well. Satyen Bose also wondered about the same problem while delivering the K. S. Krishnan memorial lecture many years ago, and

he concluded his address by observing:

It is a perpetual challenge to the Indian genius as to how, even though the country is endowed with such natural resources, even though the country has had such a brilliant history, it continues to be third rate. Well, Gentlemen, I stop here with these questions asked to our young men.

While Bose left behind a poser, Raman provided the answer in a stirring address he once delivered to young students. He said:

What we lack is perhaps courage, what we lack is perhaps a driving force which takes one anywhere. We have, I think, developed an inferiority complex. I think what is needed in India today is a destruction of that defeatist spirit.

The diagnosis was made decades ago, but the cure is yet to follow!

1. *Curr. Sci.*, 1989, 58, 1063.
2. *Computers and Communications*, December 1989.
3. *The Economic Times*, 6 January 1990.
4. *The Economic Times*, 10 January 1990.
5. *The Hindu*, 12 January 1990.
6. *The Hindu*, 18 January 1990.

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## DST questionnaire responses

### *Comments from some more respondents*

Journals are important components of scientific research. Due to exorbitant cost and unusual delay in receipt of the journals from abroad, research work suffers. Whatever way it is done both the cost and delay in receipt should be reduced very significantly.

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1. It will be advisable to publish the major foreign journals of science in India provided the same publication schedule as in the parent country can be strictly maintained, they are no more expensive than in the parent country and are available in Indian currency, and those who still wish to import them are allowed to do so.
2. To begin with it will be appropriate to try out only a few popular or semi-

research journals like *Scientific American*, *Nature* and *Science*.

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1. Science and good scientific journals are international. Indian edition of any journal makes sense only if it can be produced more economically, without any delay, and for a sufficiently large number of interested readers. These conditions just cannot be satisfied in India.
2. The informatics revolution can reach our scientists/engineers only through telematics. The use of electronic media in an organized and centralized way is the answer for providing access to scientific journals for all libraries.
3. Popular and trade journals (S&T)

are vital media for propagating scientific culture in a country. The more indigenous these are, the more effective they will be. We must take pride in producing such journals ourselves. Imported books, journals, equipment, ideas, . . . have already done major damage to the minds of our young students.

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Allowing Indian editions of good foreign journals will be helpful in the following ways also.

1. Small and remote institutions will also be able to subscribe to international literature within their financial resources.
2. Publication of journals has become a profession to some since grants are manageable through various agencies. Naturally many useless journals have come into existence. Competition generated by Indian editions will reduce the number of such spurious journals and will also help the existing good and