

C H A P T E R 9

CONCLUSIONS

From the findings reported in the earlier chapters of this study, we draw the following conclusions:

The amount of research work done in the country in all the disciplines and in particular in physics and astronomy/astrophysics has increased manyfold. This is as a result of increased number of research workers (contributed by the increased funding which in turn has resulted in the starting of more research centres). Though outstanding work may be rare, a lot of good work is being done in the country. But only a small percentage of this good work finds its way into journals published in India. As the Indian journals are not receiving the entire output of the scientific results of the country, especially from the active research centres, one is not in a position to grade the level of the subjects by merely examining these journals. To make the situation worse, even the few articles that are received from leading institutions are usually not their better papers. Good work done at-not-so-well-recognised centres also go to "Foreign Journals". ***It is only when immediate priority has to be established (for***

example, in highly competitive and fast moving fields like in the case of High Temperature superconductivity) that the leading scientists in India turn to Indian journals. Hence the Indian journals examined indicate the quality of the work of those who contribute to these journals and thus the journals published from India in the field of Physics and Astronomy "do not" reflect the true quality of research done in those subjects in the country.

By and large the scientists do not have enough confidence in Indian journals. As a result, much of the good work done in the country goes to foreign journals. Many of the scientists subscribe to the view that Indian journals must improve and achieve visibility before they could contribute to them. Unfortunately they appear to forget that this cannot happen unless they (the scientists) get involved with the journal in various ways. The situation prevailing is reminiscent of the proverbial problem of "Chicken and egg" - Unless the journals improve their quality, scientists are not willing to contribute their better papers to Indian journals and Indian journals cannot improve unless they receive a sufficient quantity of good research papers and scientists get involved with the journal.

The trend seen among the scientists to publish in foreign journals is not just today's phenomenon. Raman complained as far back in 1932 about Indian papers going to foreign journals. This investigation confirms that such a practice did prevail even among the renowned scientists of the country during the 1930's. Only after recognition and fame had been achieved for their work, did some scientists publish in Indian journals. But unfortunately, even that does not happen now. Only when there are repeated requests/pressure from Editors personally known to scientists, or when there is a special issue in connection with a special occasion or when there is urgency for establishing priority, articles limp their way to Indian journals.

There is no inner commitment from the scientific community to build up national journal(s). This is because of the existing socio-scientific conditions in the country where peer recognition, awards, rewards depend on the visibility of an individual or his work. So the scientist is pushed into seeking avenues which would help him reach his goal. In their present levels, most of the Indian journals do not provide such channels. Hence, the physicists and astronomers in the country use foreign journals to be visible in their

circles.

To an extent some of the complaints of the scientists regarding the Indian journals appear to be true. Indian journals do not enforce strict norms in terms of refereeing and even in better journals like Prarnana, standards are highly variable. This is because of the philosophy of different editors/referees who, though may be reluctantly, allow papers to be published even if they are not up to the mark as they (editors/referees) do not wish to harm the career of a scientist. This has led to many mediocre articles being published in the journals resulting in "a few good articles published getting buried in a large number of below average or just average articles."

The lack of "theme journals" in the country is a deterrent for the scientist working in frontier areas to publish in Indian journals. However, without a critical number of articles in a particular sub-field being generated in the country, and contributed to the Indian journals, such specialized journals cannot sustain/succeed. Presently this number is sub-critical.

The preprint exchange practice does not exist in

all branches of Physics but is limited to certain branches like Particle Physics and to an extent in Condensed Matter Physics. Physicists working in other fields still depend on the journal for new information.

One of the complaints heard against Indian journals is its delay in publication. But this study has shown that it is not altogether valid. The average time lag in publication of an article from the date of its submission to the date of publication in Indian journals is relatively short and in fact articles in Indian journals get published much faster than those published in prestigious journals from abroad. This is one of the good points of most of the journals investigated in this study.

Some suggestions for possible improvement in the present situation :

The following suggestions are made based on the findings of this investigation and the conclusions drawn by the author. It is hoped that on implementation of these suggestions, the prevailing conditions will improve and make the Indian science journals stronger so that they come closer to international standards.

1. One should consider the important factors which made The Physical Review succeed and try to incorporate the relevant points.
2. The most important step to be taken is for the scientific community to decide to support the Indian journals to a much greater extent than what is being done presently.
3. The standard of the Indian journals to be raised to the level where scientists would voluntarily submit majority of their good papers to the Indian journal
4. To devise methods which would enable a scientist to make his work more visible in the community of his choice.
5. Not to discriminate against the work published in Indian journals because of a pre-conceived notion that work published in Indian journals are bad.

We elaborate on each of the above points. Before that, it is very important to note that as each of the above factors are interrelated, they should be taken up for consideration and implementation simultaneously and not at different times.

1. Factors which helped The Physical Review succeed:

As mentioned in a previous chapter, the factors that helped Physical Review succeed are:

- a. scientific community in the country wholeheartedly supporting the journal

- b. active scientists willing to take a few years off to assist the journal in various editorial activities.
- c. editors and members of editorial board being alert and following the developments in the field
- d. gaining the confidence of the scientific community by making suitable changes in the working of the journal to meet the sudden demands brought upon by a particular situation (like in the case of the High Temperature Superconductivity when The Physical Review had to appoint special refereeing panels etc,)
- e. having an International panel of referees and
- f. ensuring that the publication comes out on time.

2. Support Of the Scientific community:

As mentioned a little earlier, journals cannot continue to maintain a high standard without the active support of the scientists doing **quality** research. Mere lip sympathy of the scientists belonging to such groups or an occasional contribution for a "Special Issue" will not help the journals to sustain. **I**f the scientists who are publishing in foreign journals send at least 50% of the articles they publish in foreign journals to Indian journals, **it would make** quite a difference to Indian journals. **I**t is understandable that scientists have to publish some times in foreign journals for unavoidable reasons. Barring such occasions, **if** a sufficient number

of articles are sent to Indian journals (without separating the good articles for foreign journals and the others to Indian journals), it would help both the scientist and the journal. Following the earlier method of Raman of sending a short version to a foreign journal and the detailed account to an Indian journal with each article referring to the other will certainly make Indian work more visible. It is found in this investigation that 85% of the articles from the seven research institutions studied go to foreign journals. If even half of this large quantity comes to Indian journals, to start with, it would raise the number of good articles published in Indian journals and displace the articles of the average or below average quality presently published. This would automatically raise the standard of the journal. But this decision of the scientists should not come as a charity but as a necessary step to make Indian journals sound.

3. Raising the standard Of the journals:

The first step in this direction is for the journals to gain the confidence of the scientists. This can be achieved only by setting rigorous standards for each of the components in publication of journals. These

include :

- (a) having an active editorial board whose members contribute to the journal in different ways (by way of submission of articles, giving inputs to the editor in selection of referees, being a watchdog for any possible slip occurring in the publication). Presently the editorial boards of the Indian journals are not as active as one would expect them to be.

- (b) having active scientists as editors will certainly enhance the image of the journal. It is no doubt difficult to persuade an active scientist to get involved full time with a journal as Editor. But the community should take the journal publication as a part of the scientific activity and scientists at different levels could work as Editors for a few years at a stretch and resume their research again. Such a practice is seen, as mentioned in an earlier chapter with successful journals like the Physical Review and Physical Review letters.

- (c) The panel of referees of the journals should be drawn from among the scientists both within and outside the country. This is very essential to get a fair assessment for the articles submitted especially in the newly emerging areas. In areas where there are not many specialists, editors should not hesitate to have referees from abroad in the panel of referees. Presently physics journals in India have none or a very few referees from outside the country. However JAA, the astronomy journal has a very large number of foreigners on its panel of referees.
- (d) **If** one wants to have **at least** one or two good journals of international **calibre** in the country, then the refereeing policy should be quite rigid. Articles should not be accepted for publication unless they meet the standards laid down by the journal. Considerations like the limited facility available for a scientist at a particular place, the environment in which he is working etc. should have no place. The only criterion

should be the scientific content of the article. Such compassion does not help the journal to maintain a high standard. Some of the Indian referees and journals, do tend to consider points other than scientific content of a paper before rejecting it. This practice should be discontinued at least in the journals (like Pramana and JAA) which are striving to raise their standards.

- (e) Wide visibility of a journal is very important to induce scientists to submit their papers to any particular journal. Visibility can be achieved only by making the standard of articles published in a journal to be on par with those published in journals well received by the community all over the world. If journals consistently publish a fair number of good articles in each issue and have a good marketing system, the visibility will follow over a period of time. Till that happens, a very large number of reprints should be distributed all over the world to make the work known among the community abroad. To do this, financial support should be extended to the scientists.

- (f) The editorial offices of the journals should have sound infra-structure. Modern telecommunication facilities would greatly help in speeding up the matters. Though e-Mail and Facsimile transmission may appear to be extravagant and out of place in our country presently, in reality it does help the scientists, editors of the journals and referees to communicate with each other more efficiently.

The above mentioned factors, if adopted would help to a great extent to raise the standard of the Indian journals.

4. Facility to distribute the reprints and increase the visibility Of the journal:

It is understandable that scientists would like visibility for their work and for international peer recognition. How can this be ensured if publication is done in Indian journal? One suggestion would be that at such time as the journal gets good visibility in the International community, efforts are made to make

the work published in Indian journals reach a wide section of the community outside the country, by circulating in large numbers, articles published in Indian journals among scientists working elsewhere in the world. Since this would involve additional expenditure which Institutions may not be able to provide, some other funding agency like the Department of Science and Technology (DST) should provide funds for this. To start with one or two important journals could be identified for this purpose (like journals which already have a certain standing in the community). Authors of the accepted papers could be asked to suggest a list of scientists who in their (authors) opinion should receive a copy of the reprint. Authors may also be asked to name a few scientists to whom specimen copies of the journal should be sent. The publishers of the journal could then mail the reprint/specimen copy direct to those scientists and DST could meet this expenditure (cost of the reprints and the postage). If this is done, the present problem of poor visibility will be solved to a certain extent. Scientists may feel encouraged to publish in Indian journals when this is done.

5. Discrimination against the work published in Indian Journals:

Efforts should be made to make it known to those in charge of recruiting scientists that an article published in an Indian journal should not be looked down upon just because of its publication in an Indian journal. When questions are asked either in the application forms or at interviews, weightage should be given to the quality of the article and not just the title of the journal. It is not suggested that all Indian journals be given the same weightage. They should be graded and then proper weightage given to the articles published in them.

Indian science today is in a much better position and state of health than earlier. Unfortunately, it is the journals which are suffering. Though Indian scientists look forward to getting elected to the national academies/societies and receiving national honours, they seem to ignore Indian journals. However, Indian scientists have learnt to appreciate from the experience of high temperature superconductivity, that Indian journals do have a value. It is only a question of recognising that this value has a larger domain.

A conscientious effort on all the fronts mentioned above will very likely improve the present situation of Indian journals in physics and astronomy not receiving good portion of the better work done in the country resulting in their not truly reflecting the research done in these subjects in the country. Such an effort is already seen in *Pramana* and it has improved in many respects during the last few months (after July 1990). If these improvements sustain in the coming years and other journals also take similar steps towards improvement, ***there*** is hope ***for the future***.

It is conceivable that some of the conclusions arrived at, and suggestions made in this study are "obvious". Since present findings are based on very recent data and on a systematic study and analysis of the state of the Indian journals in physics and astronomy from many angles, one should take these conclusions seriously, even if they are "self evident".