

Resonance — Journal of Science Education. N. Mukunda, Chief Editor. Indian Academy of Sciences, P. B. No. 8005, Bangalore 560 080. 1996.

The advances in science have become intractable and mind boggling in recent times. In India, it is very difficult for a teacher to keep abreast of scientific advances due to a lack of an appropriate journal or magazine. In this context, it is heartening to have *Resonance— Journal of Science Education*, which promises to focus among other things on topics that are difficult to grasp and teach at the undergraduate level. It covers a wide spectrum of sciences. It has an attractive layout with a large marginal space imaginatively used to highlight the important messages. In addition to series, general and feature articles, one finds research news and book reviews dealing with the frontier areas of science. The items in the departments 'Classroom', 'Think it over', and 'Information and announcements' are particularly relevant to the teachers. The character of this journal can be appreciated by a selective reading. A few of these are presented here.

The series on cosmology and geometry are very useful and fascinating with the readers eagerly waiting for the next issue. In both these articles, the authors develop the subject methodically and chronologically emphasizing the evolution of new ideas and concepts. The general article on Fermat's last theorem and the article on prime numbers are very interesting. These are informative both for a beginner and for one looking for recent trends in mathematics.

At present, chemistry is taught to convey only a vast amount of descriptive data. It is here that the series on 'Learning organic chemistry through natural products' and 'Fascinating organic transformations' are very instructive. The feature 'Molecule of the month' describes the chemistry of a novel molecule and surely an eye opener to the state of the art in this area. For example, the discussion on cyclobutadiene in a carcerand, i.e. spheroidal molecular prison is very readable and presented in a simple way. This is an important contribution of the Nobel laureate, Donald J. Cram and co-workers. The series 'Life: com-

plexity and diversity' presents in simple language the exciting facets of biodiversity and will kindle the interest of all the students and teachers of science. The general article 'From matter to life: chemistry?' by the Nobel laureate Jean-Marie Lehn is an inspiring account of his journey into chemistry and it is very appealing to the younger generation. In general, the emphasis in chemistry has so far been mostly on organic chemistry. One hopes that in tune with the current trends of inter-connections in all branches of chemistry, the future issues will dwell upon inorganic, bio-organic and organometallic systems as well. The write-up on the 'Honey bee dance language' is very engrossing and has all the make up of a mystery thriller. Under the feature articles, 'Nature watch' dwells upon the exotic and the unusual aspects of life forms in nature. The themes are very impressive and they are illustrated with attractive photographs as for instance, in the article on bats and their diversity. This section undoubtedly is the most popular part of *Resonance*.

One of the important departments of *Resonance* is the 'Classroom'. Here the teacher gets an opportunity to raise questions encountered in the classroom and having bearings on the syllabus material. For instance, in the classroom, Doppler effect is discussed only in acoustics. Its counterpart in light is not emphasized. In this context, the question pertaining to Doppler effect is relevant for a broader presentation of this subject.

Also, the question on Bose condensation of an ideal Bose gas is intellectually stimulating. The teachers will be eagerly awaiting to see the answers to such questions. This section also provides an opportunity to share with the other members of the teaching community, personal experiences and viewpoints related to the teaching and learning of science. In 'Think it over' one can pose puzzles and paradoxes related to the subjects taught. The problem of the weight of a bird in a cage under different situations is very thought-provoking. It is a good example for highlighting the salient points of Newtonian mechanics, like, Newton's third law, free fall under gravity, hydrodynamic lift and frictional forces.

The section on 'Research news' highlights some significant recent developments in science.

Normally it is difficult to recommend good science books to the library in view of the lack of relevant information on their suitability to teachers and students. In this context review of recent books and reprints of classic books are very helpful.

It is worth mentioning that not all the articles are at the same level of lucidity. Some of them are really difficult to understand. Generally, the presentation of materials under research news is difficult to comprehend. Further, though *Resonance* is termed as a journal of science education, the educational component of the material is generally not found in many of the articles. Only in the presence of such links, one can understand and appreciate fully the subject matter of the articles. By way of a discordant note, one notices some minor irritants in the nature of typos and inadvertent errors. One hopes that the future issues will be free from such blemishes.

We would like to take this opportunity to make a general comment on science education. Invariably, in our schools and colleges excessive emphasis is laid on learning by rote instead of understanding the concepts. Therefore a student who is successful in our examination system does not necessarily possess a grasp of the subject. This calls for a reassessment of our teaching and evaluating procedures. *Resonance* hopefully will act as a catalyst for reformations in science education.

In our view, another journal of this quality and content, does not exist in India. It certainly fills a void in the educational system of our country. Students and teachers stand to gain considerably in the understanding and appreciation of science. The Indian Academy of Sciences has done yeoman service to the community of teachers and students by bringing this out at an easily affordable price. *Resonance* is a valuable reading material to every teacher and is a must in all the college libraries.

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