

# Editorial

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*C S Yogananda, Associate Editor*

The score so far is impressive: starting with RSR in 1963 a total of twenty-two rockets (SLVs, VSLVs, GSLVs, ASLVs), a dozen research satellites (beginning with Aryabhata in 1975), sixteen satellites in the INSAT series and another ten in the IRS series! For a space programme which started in 1963 with the launch of Rohini from Thumba this is an extraordinary achievement indeed. Extraordinary indeed is the vision of the man who conceived of this programme especially at a time when space research was considered esoteric and certainly not for a developing nation. *Resonance* pays its tribute to Vikram Ambalal Sarabhai (1919-71) for his pioneering efforts which culminated in the establishment of the Indian Space Research Organisation (ISRO) in 1969 and the Department of Space (DOS) in 1972. It is interesting to see how much of the programme outlined by Sarabhai in his radio talk in 1966 (see p. 89) has already been realised.



We are happy to offer a brief personal account of Sarabhai's life by Mrinalini Sarabhai. An account of his science is provided by U R Rao, one of Sarabhai's close associates since 1952 and one who led the Indian space programme after Sarabhai. Another close associate, student, and currently Chairman, ISRO, K Kasturirangan gives a glimpse of Sarabhai as a leader of men. One of the main purposes of space research in India is to study and make an inventory of our natural resources. This purpose has been very well served by the Indian Remote-Sensing Satellites (IRS). Rangnath R Navalgund, Director, National Remote Sensing Agency, Hyderabad, gives a lucid account of the subject of remote sensing. We are delighted that we could offer our readers a wonderful poster featuring some of the best pictures, taken from a height of more than 800 kms, provided by INSAT and IRS satellites. We are grateful to ISRO for permission to

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reproduce the pictures and to S Krishnamurthy (P & PR, ISRO), P G Diwakar and D Gowrisankar (Regional Remote Sensing Service Centre, Bangalore) for their help and support in producing the poster. Happily for us in *Resonance*, DOS is headquartered in Bangalore and we got their full cooperation – suggestions for articles, locating people to write them, photographs, etc. We would particularly like to thank K Kasturirangan, Chairman, ISRO and currently President of our Academy for his enthusiastic cooperation in bringing out this issue.

The success of our space programme so far also serves us with a reminder of the problems facing Indian science presently which were referred to earlier in this column where we touched upon the problem of rigid compartmentalisation of science courses in our colleges. Another major drawback which has resulted in our failure to inspire good and talented students to pursue science is that research and teaching have been divorced from each other with the establishment of many elite institutions completely devoted to research where no undergraduate/post graduate courses are offered. One happy exception to this trend is the Indian Statistical Institute which produces excellent research output and at the same time very bright young statisticians and mathematicians. Georg Abel, father of the great mathematician N H Abel (1801-27), had remarked, “... even if one permits ever so much for the advanced schools and all wisdom could be taught there, it benefits us little if not spread to the lower classes by means of improved schools. Otherwise the higher school is like the rainbow: it delights by its colours but contributes nothing to the fertility of the earth” (quoted by O Ore in *Niels Henrik Abel – Mathematician Extraordinary*).

For those who have started stargazing recently the months of December–April provide an excellent sky for observation. If you have not started, now is the best time to make a beginning.

