

Editorial

N Mukunda, Chief Editor

This issue tells you various things about the sun, planets and stars. Meghnad Saha along with Satyendra Nath Bose¹ established theoretical physics in India. Taught by people like J C Bose and P C Ray, they both did work of path-breaking quality and importance. Rajaram Nityananda sketches the physical ideas behind Saha's 1920 ionisation formula. Only after this did the subject of astrophysics really get going, relating properties of the elements as known on the earth to what goes on in stars. Nityananda also gives a short life sketch of Saha to accompany the back-cover portrait. Another routinely quoted Saha result is his 1936 derivation of the Dirac magnetic monopole quantisation condition. This result is inconspicuously tucked away in a discussion about proton and neutron masses. R Ramachandran introduces this classic from a modern vantage point; though much of it is dated, the monopole angular momentum calculation remains important.

J C Bhattacharya, in a historical narrative, tells us how the subject of stellar spectroscopy grew. His story covers so many stalwarts – Newton, Wollaston, Fraunhofer, Kirchhoff, Bunsen, Doppler, Fizeau, and finally Evershed at Kodaikanal! Elements like Cesium and Rubidium were discovered by spectroscopic methods. Sitting on the earth, and bound to it, yet we can 'see' what the stars contain.

Shailesh Shirali describes Newton's original proof of Kepler's First Law of Planetary Motion (the law of ellipses) as given in the Principia, and later reviews a book on Feynman's proof of the same law. These are companion pieces, both accessible to high school students – provided you have pencil and paper and a willingness to work through several 'arcane' properties of ellipses!

Finally, from M D Madhusudan's account of how male and female Tahr behave, you will understand what it means to be a 'grass widow'.



Sitting on the earth, and bound to it, yet we can 'see' what the stars contain.

¹ Featured in *Resonance* February 1996 issue.