

In this issue

S. Chandrasekhar

Subrahmanyan Chandrasekhar was undoubtedly the pre-eminent astrophysicist of his time and one of the shining stars of the twentieth century science. In a special section honouring his memory, we present a series of six articles on the various subjects on which he worked.

Peter P. Eggleton, a stalwart of the Cambridge Astronomical Group and one of the authorities on stellar evolution, writes an illuminating article on 'Chandrasekhar and white dwarfs' (page 781); 'Stellar dynamics and Chandra' (page 784) is written by T. Padmanabhan from the Inter-University Centre for Astronomy and Astrophysics, Pune. Padmanabhan's areas of research include the interface between gravitation theory and quantum mechanics; and physical cosmology. He has authored books in both areas (the former with Jayant V. Narlikar). D. Lynden-Bell, till recently at the Institute of Astronomy at Cambridge, is now at the Queen's University by Belfast. He is a multifaceted astrophysicist with contributions ranging over accretion discs, globular clusters, galaxy dynamics and cosmology. He has brought to all these areas an unusual combination of mathematical sophistication and physical insight and a feel for observation. Concepts like violent relaxation and gravo-thermal catastrophe alternate in his work with phenomena like the early collapse of the galaxy and large-scale streaming motions in the universe. His article (page 789) illustrates 'how my brief period working with Chandrasekhar led to the various interesting aspects of the fluid mechanics of gravitating systems and their relationships to observed phenomena'. The article 'Chandrasekhar's contributions to general relativity' by Abhay Ashtekar (page 800) highlights the seminal con-

tributions made by Chandrasekhar to this field. Ashtekar is in the Centre for Gravitational Physics and Geometry at Pennsylvania State University. He is acknowledged as a leader in the field of quantum gravity. He is distinguished both for his own work and for inspiring his students and collaborators; and for the energy and perception he has brought to gravitation theory world wide. Kameshwar C. Wali, renowned for his remarkable biography of Chandrasekhar - *Chandra*, describes the man in his perceptive piece - 'Chandra remembered' (page 804). The final years of Chandrasekhar's career were occupied by his analysis of Newton's monumental work, a subject reviewed by Jayant Narlikar in his commentary 'Chandra, Newton and the *Principia*' (page 807). This article also reviews Chandrasekhar's last book *Newton's Principia for the Common Reader*. Jayant Narlikar heads IUCAA in Pune. He is well known for his exploration of non-standard cosmologies starting with his collaboration with Fred Hoyle, for almost three decades. He continues to explore the physics of action at a distance and particle creation. His popular writings in both English and Marathi, his text books at different levels, his lucid lectures, his continuing efforts to spread astronomy and astrophysics to the universities are other major contributions to the development of Astronomy in our country.

Current Science is grateful to Jayant Narlikar for agreeing to be the guest editor of the special section to honour the memory of Subrahmanyan Chandrasekhar. Thanks to his efforts, it has been possible to assemble essays by recognized experts on the many contributions of Chandrasekhar.

We also reprint the Nora and Edward Ryerson Lecture delivered by S. Chandrasekhar entitled 'Shake-

peare, Newton and Beethoven or patterns of creativity' (page 810). This lecture was given in 1975 when for the first time Chandrasekhar displayed to the world his scholarship in areas other than his own scientific fields.

We take this opportunity to put on record the enormous support Prof. Chandrasekhar gave to *Current Science*. We recall with gratitude his telephone call asking whether *Current Science* would be interested in publishing the lecture 'Newton and Michelangelo' (*Current Science*, 1994, 67, 497) which he delivered at the Lindau Conference of Nobel Prize winners.

Of some interest would be the tributes C. V. Raman paid to Chandrasekhar, published in *Current Science* (1943, 12, 313). In *Astronomy in India III*, Raman wrote:

Though not actually 'made in India', the work of S. Chandrasekhar, now Professor of Astrophysics at Chicago University, has a claim to notice in an article on astronomical research in India, if only as an indication of what could be accomplished in this country under favourable conditions. It would require an entire number of *Current Science* and not a paragraph or two to sketch the many fields of astronomical and astrophysical research traversed by Chandrasekhar and the results obtained by him during the last fifteen years. The *Monthly Notices of the Royal Astronomical Society* during the years Chandrasekhar was at Cambridge, and the last ten volumes of the *Astrophysical Journal* since he went to the United States bear witness to his energy, the strength and range of his scientific interests and his powers of investigation and exposition. His two treatises on *Stellar Structure and Dynamics of Stellar Systems* published by the Chicago University Press make his work in the respective fields conveniently accessible to specialist and non-specialist alike. A memoir on *Stochastic Problems in Physics and Astronomy*, which appeared as the January 1943 issue of the *Reviews of Modern Physics*,

Articles by S. Chandrasekhar in *Current Science*

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| 1. Pursuit of science: Its motivations | 1985, 454, 161 |
| 2. Presentation of the bust of Srinivasa Ramanujan | 1990, 59, 1316 |
| 3. In remembrance of Basilis Xanthopoulos and the foreword to volume 6 of the selected papers | 1991, 61, 601 |
| 4. Science and scientific attitudes | 1992, 62, 601 |
| 5. On reading Newton's <i>Principia</i> at age past eighty | 1994, 67, 495 |
| 6. Newton and Michelangelo | 1994, 67, 497 |
| 7. On Ramanujan's bust | 1995, 69, 557 |

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| 1. Felicitation on the award of the Nobel Prize
G. Srinivasan | 1983, 52, 104 |
| 2. Chandrasekhar, scientist extraordinary
S. Ramaseshan | 1991, 61, 5 |
| 3. Tracking the legend of Chandra (Review of
<i>Chandra - A biography of S. Chandrasekhar</i>)
G. Srinivasan | 1991, 61, 50 |
| 4. Man of uncompromising standards
S. Ramaseshan | 1994, 67, 487 |
| 5. Confronting the final limit
John Horgan | 1994, 67, 500 |
| 6. Subrahmanyan Chandrasekhar
Rajaram Nityananda (an obituary) | 1995, 69, 554 |
| 7. A profile of Chandra
G. Srinivasan | 1996, 70, 95 |
| 8. S. Chandrasekhar: A personal portrait
Abhay Ashtekar | 1996, 70, 102 |
| 9. S. Chandrasekhar and C. V. Raman - some letters
S. Ramaseshan | 1996, 70, 104 |

established links between the problems of stellar astronomy and those arising in colloid chemistry, and is a very remarkable effort in scientific synthesis.

When Chandrasekhar was elected a Fellow of the Royal Society, the last paragraph of the article announcing the election (*Current Science*, 1944, 13, 66) says:

Chandrasekhar is one of that small rare group of men who combine a profound

grasp of physical theory and principles, an unrivalled grasp of methods of mathematical analysis and a deep and abiding interest in the phenomena presented to us by nature in the fields of physics and astronomy. The names of Newton, Laplace and Einstein spring to the mind when we contemplate the history of astronomical science and the debt to men who have exhibited this combination of qualities. In the achievements of Chandrasekhar during the past

fifteen years, we have at least a promise of a career which should place him in the front rank of the world's great astronomers. The cordial good wishes of all our readers will go out to encourage him in his future activities and to wish him and the talented young lady who shares his home at Yerkes observatory an uninterrupted welfare and happiness.

Finally, a copy of a letter from Raman to Chandrasekhar (*Current Science*, 1996, 70, 104):

9th December 1961

My dear Chandrasekhar,

A few days ago I received from Oxford University Press a presentation copy of your treatise on 'Hydrodynamics and Hydromagnetic Stability...'. The magnificent way in which it has been printed, illustrated and got up is beyond all praise. The beautiful photographs and drawings interspersed throughout the volume would attract many readers who might otherwise have been put off by the rigors of the mathematical analysis. You have rescued from oblivion the work of many investigators in this field which might otherwise have remained buried in the learned periodicals. They have reason to be grateful to you for surveying their results and presenting them along with your own thoughts and contributions. It is remarkable how many different fields of study the book illuminates and is likely to illuminate during the years to come.

I am grateful to you for the presentation.

Yours affectionately
C. V. Raman

S. Ramaseshan