

The University of Chicago held a symposium in honour of S. Chandrasekhar in December 1996. The programme reproduced on the next page is testimony to Chandrasekhar's enormous influence on 20th century physics. We reproduce below the text of the after-dinner remarks made by Kameshwar Wali on that occasion.

— Editors

Subrahmanyam Chandrasekhar

Kameshwar C. Wali

Chandra often remembered his close friend of earlier years, Edward Arthur Milne, and quoted him as saying,

Posterity, in time, will give us all our true measure and assign to each of us our due and humble place; and in the end it is the judgment of posterity that really matters. He really succeeds who preserves according to his lights, unaffected by fortune, good or bad. And it is well to remember there is no correlation between the judgment of posterity and the judgment of contemporaries.

A year after death may not be a true measure of posterity. But this two-day symposium in Chandra's honour certainly marks the beginning of that posterity's assignment to bestow him his due place. To further aid the posterity, I have the honour to announce the publication of two books: the first one, titled *S. Chandrasekhar: The Man Behind the Legend* is a memorial volume containing articles by several of Chandra's students, associates and admirers. It includes many members in this distinguished audience. In these articles, the authors write, not so much about Chandra's scientific triumphs, but more about Chandra as a person, more about his rich and multi-faceted personality. This volume, to be published by World Scientific and Imperial College Press is now being copy edited in Singapore. I expect this to come out in two months' time. The second one, for which I have no good title as yet, will contain a set of Chandra's scientific papers selected from the seven plus one volume collection of selected papers. It will also include some of Chandra's unpublished lectures and articles of non-technical nature. It will be a part of the World Scientific series titled as *Twentieth Century Science* that includes the selected works of Julian Schwinger, Abdus Salam, and others.

For me personally, the years I spent

in working with Chandra and writing his biography were the most enjoyable and creative years in my life. After the completion of the book, although my visits with Chandra became less frequent, our friendship continued to grow and develop. During the summer of 1994, Lalitha and Chandra, my wife and I, spent a week together at the Stratford Shakespeare Festival in Canada. 'Get the best seats for the plays,' Chandra had ordered me. When I had called him a few days before our scheduled meeting in Stratford, he said he was rereading *Othello*, *Hamlet* and *Twelfth Night*, the plays we were going to see. Along with Lalitha, he was also listening to the records. Thus he came fully prepared to enjoy his rare vacation, setting aside his preoccupation with Newton at the time. We all had such good time, seeing a new play every day and taking sight-seeing trips surrounding Stratford. I recall on one of these car trips, Chandra surprised me by asking, 'which moves slower, heat or cold?'. While I was racking my brain, thinking about Boltzman and Maxwell's demon and all that, he said with a twinkle in his eye, 'cold, of course, because you can catch it!'

It was great to see Chandra as a full-time tourist, so light-hearted and impulsive in enjoying himself. Without the slightest hesitation, he bought a large-size painting he liked on the side walk and can any one of you imagine Chandra eating a patty burger without silverware in an open-air restaurant called Anna Banana?

I was not bugging him with questions about his life, his childhood, his days in Madras and Cambridge, his encounters with Eddington and Milne, The Yerkes Observatory and The University of Chicago, or the University of Chicago Press with which he was strongly, almost sentimentally, attached as the editor of the *Astrophysical Journal* for nearly

twenty years. Over the years I had made him tell and retell these stories. Without showing the least annoyance, he had obliged. I consider myself indeed fortunate that I had the opportunity to tell his life.

The last time I talked to him on the phone was during the first week of August 1995, when I received a complimentary copy of Newton's *Principia*. It had just come out in June. Still he regretted that I did not get the copy sooner. I thanked him and congratulated him. We both agreed that the Oxford University Press had done a commendable job in producing the book so elegantly. I said, 'Chandra, this work of yours will go down in history as monumental.' He had his doubts, he said. He had seen one or two critical reviews. But, he accepted my compliment and said, he no longer had the energy or stamina to do hard work. He complained about exhaustion and how he had to be helped back home when he was taking a short walk near his apartment. Those were grueling hot days in Chicago. I reminded him of that and said in a rather harsh tone, 'I forbid you to work hard anymore. You must relax and enjoy.' 'Yes, yes, that is exactly what I am going to do,' he replied. 'Just two short papers to be finished with Valeria Ferrari. I am indeed relaxing... I am reading *Les Miserables*.'

Famous last words, I said to myself. I am sure, if he were alive, he would be working on Newton and Michelangelo, and writing about a comparison between the motivations of scientists and artists in their creative quests. That is what he would devote himself to do, after disengaging himself from serious scientific work, he had said once.

Reading Chandra's essay on the series paintings of Claude Monet and the Landscape of General Relativity, one cannot fail to see an analogy. In Monet's series paintings, the same scene is depicted over

Black Holes and Relativistic Stars

A Symposium in Honor of S. Chandrasekhar
The University of Chicago

December 13-15, 1996



FRIDAY, DECEMBER 13

6:30 P.M.-8:00 P.M.	Registration	Lobby, Ida Noyes Hall
6:30 P.M.-9:00 P.M.	Welcoming Reception	Library, Ida Noyes Hall

4:30 P.M.-5:30 P.M.

Saul Teukolsky
Cornell University
Black Hole Collisions

SATURDAY, DECEMBER 14

8:00 A.M.-5:00 P.M.	Registration	Lobby, Ida Noyes Hall
8:45 A.M.-9:00 A.M.	Welcoming Remarks Hugo F. Sonnenschein President, University of Chicago	Max Palevsky Cinema, Ida Noyes Hall
9:00 A.M.-12:30 P.M.	First Scientific Session, Chaired by Bernard Schutz	Max Palevsky Cinema, Ida Noyes Hall
9:00 A.M.-10:00 A.M.	Valeria Ferrari University of Rome <i>Gravitational Waves from Stars and Black Holes</i>	
10:00 A.M.-10:30 A.M.	Coffee break	
10:30 A.M.-11:30 A.M.	John Friedman University of Wisconsin, Milwaukee <i>Rotating Relativistic Stars</i>	
11:30 A.M.-12:30 P.M.	Kip Thorne California Institute of Technology <i>What Might LIGO/VIRGO and LISA Tell Us about Black Holes and Other Relativistic Objects?</i>	
12:30 P.M.-2:00 P.M.	Lunch break	
2:00 P.M.-5:30 P.M.	Second Scientific Session Chaired by Andrzej Trautman	Max Palevsky Cinema, Ida Noyes Hall
2:00 P.M.-3:00 P.M.	Martin Rees University of Cambridge <i>Astrophysical Evidence for Black Holes</i>	
3:00 P.M.-4:00 P.M.	Roger Penrose Oxford University <i>Singularities and Cosmic Censorship</i>	
4:00 P.M.-4:30 P.M.	Coffee break	

6:00 P.M.-9:00 P.M.

Reception and Banquet
Remarks following by
Lalitha Chandrasekhar and
Kameshwar Wali

Quadrangle Club

SUNDAY, DECEMBER 15

9:00 A.M.-12:30 P.M.	Third Scientific Session Chaired by Gary Horowitz	Max Palevsky Cinema, Ida Noyes Hall
9:00 A.M.-10:00 A.M.	Werner Israel University of Alberta <i>The Internal Structure of Astrophysical Black Holes</i>	
10:00 A.M.-10:30 A.M.	Coffee break	
10:30 A.M.-11:30 A.M.	Robert Wald University of Chicago <i>Black Hole Thermodynamics</i>	
11:30 A.M.-12:30 P.M.	Rafael Sorkin Syracuse University and ICN-UNAM <i>The Statistical Mechanics of Black Hole Thermodynamics</i>	
12:30 P.M.-2:00 P.M.	Lunch break	
2:00 P.M.-5:30 P.M.	Fourth Scientific Session Chaired by Abhay Ashtekar	Max Palevsky Cinema, Ida Noyes Hall
2:00 P.M.-3:00 P.M.	James Hartle University of California, Santa Barbara <i>Black Hole Evaporation and Generalized Quantum Theory</i>	
3:00 P.M.-4:00 P.M.	Stephen Hawking University of Cambridge <i>The Loss of Information in Black Holes</i>	
4:00 P.M.-4:30 P.M.	Coffee break	
4:30 P.M.-5:30 P.M.	Edward Witten Institute for Advanced Study <i>Quantum and Stringy Geometry</i>	

and over again under different natural illuminations and seasonal variations. The valley, the trees and the fields, the haystacks are the same. Superficially, they may appear boring and repetitive. However, the different paintings radiate totally different aesthetic content. In a similar fashion, the seemingly same equations and solutions in Chandra's hands describe vastly different physics. In concluding that essay, Chandra says he does not know if there has been any scientist who could have said what Monet said on one occasion

'I would like to paint the way a bird sings.'

But we do know a scientist who spoke like a poet on one occasion:

The pursuit of science has often been compared to the scaling of mountains, high and not so high. But who amongst us can hope, even in imagination, to

scale the Everest and reach its summit when the sky is blue and the air is still, and in the stillness of the air survey the entire Himalayan range in the dazzling white of the snow stretching to infinity? None of us can hope for a comparable vision of nature and of the universe around us. But there is nothing mean or lowly in standing in the valley below and awaiting the sun to rise over Kanchanjunga.

This and many other passages with parables and quotes from modern, and ancient literature, Chandra, to use the current politically popular phrase, built a bridge, narrowed the gap between the so-called two cultures.

Scores of obituaries, hundreds of reviews and letters have lavished praise on Chandra, the extraordinary scientist, scholar, man of letters, humane, rationalist, one whose life stands out for its singular dedication to the pursuit of

science, and for practising its precepts and living up to its values to the closest possible limit in one's life. Posterity will certainly bear all this in mind and will accord Chandra his due place.

An ancient sage in India was once asked by his disciples, what happens to a man after his death? Is there an answer to those who do not believe in simplistic answers, such as heaven and hell, the cycle of birth, death and rebirth, karma, and so on, the sage is supposed to have said

स्व कार्येषु प्रतिष्ठन्ति स्व काले कालातीने च ।

They stand *outside time* by their deeds as they did while they were living.

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WADIA INSTITUTE OF HIMALAYAN GEOLOGY

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VISITING SCIENTISTS SCHEME

Aimed at promoting national and international cooperation in research and training in Earth Sciences disciplines, Wadia Institute of Himalayan Geology has launched a scheme of Visiting Fellowships. The scheme offers opportunities for taking up studies related to Himalayan geology and geophysics to be carried out at the Institute in collaboration with the Institute scientist(s). The tenure of stay under the scheme shall be for 2 to 3 months, extendable to a maximum of one year in exceptional cases. Four persons shall be invited in a financial year (April-March), of whom at least two shall be below the age of 45 years. In addition to a monthly honorarium (variable from Rs 3000 to Rs 6000, depending upon qualifications and experience) and, as far as possible, a single room accommodation, suitable funds shall be made available for field work, if any, related to the proposed research work. An Indian Visiting Scientist will be entitled to TA and DA as per his/her entitlement from parental place of work and back. In the case of a foreign Visiting Scientist, TA and DA will be paid from international airport/seaport of landing in India to the Institute and back to international airport/seaport.

Applications on the prescribed application form are invited under the scheme for the year 1996-97 from researchers from academic institutions of higher learning, R&D laboratories and scientific organizations in India and abroad. The applications must reach Director, Wadia Institute of Himalayan Geology, Dehra Dun latest by **30 November 1997**. For application forms and terms and conditions governing the scheme (available free of cost) write to the Registrar, WIHG, Dehra Dun. For any query, contact Dr M. I. Bhat, Programme Incharge.