

**Beyond the Stars. Our Origins and the Search for Life in the Universe.** Paolo Saraceno. World Scientific Publishing Co. Pte Ltd, 5 Toh Tuck Link, Singapore 596224. 2012. x + 377 pp. Price not mentioned.

There are a number of books dealing with issues of the search for life in the universe, but only a handful of them do justice to the whole range of related problems and concerns. The difficulty lies in the fact that the topic of emergence of life in the universe is intimately connected to many diverse field of studies, and it is impossible to provide even a glimpse of all these facets in the span of a book. Paolo Saraceno's book is a welcome exception to this list. It not only manages to take the reader through the myriad facets of astronomy, planetary physics, geology, biology, chemistry and evolution that have a bearing on the origin and evolution of life, but does so with a simple and clear language without using too many jargons. It is a wonder



The Crab Nebula in Taurus (VLT KUEYEN + FORS2).

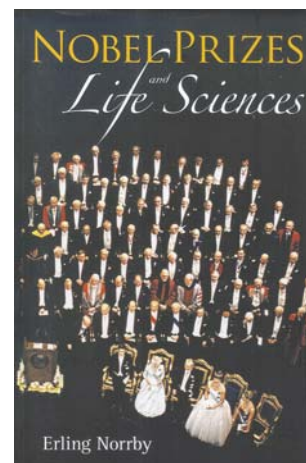
that such a whirlwind of a tour through the universe of planets, stars, elements and life does not end up being chaotic and the author deserves accolades for making it a stimulating experience for the general reader.

In the first three chapters, Saraceno discusses our knowledge of the origin and evolution of the universe, the origin of stars and planetary systems, and the evolution of matter through the cycle of origin and end stage of stars. His account is up-to-date and is not biased towards either theoretical or observational aspects. In the course of these discussions, the author also delves into the issues of religion and science.

After introducing the current ideas of the origin and evolution of life on Earth, he takes up the case of Earth as a habitable planet. It appears that the origin and survival of life is inseparably connected to the planetary properties of the Earth, the surroundings, such as the Moon, the near-Earth objects, comets and even the orbit of the Sun around the galaxy. Life on Earth has evolved through the interconnection of so many astronomical phenomena, apart from geological, biochemical and biological ones, that it is difficult to predict which way it is headed in the future. Saraceno's book makes us aware, once again, of our precious and unique habitat in the universe, and wonder if we are doing enough to ensure its continuation. These topics predictably brings in political issues to the discussion table, and it is to the credit of Saraceno that the discussion is fairly unbiased. However, one must admit that it is difficult to do justice to such a range of issues in a book that also deals with the evolution and origin of life on Earth and elsewhere. Some issues have not been given enough space. For example, while discussing the issues of power generation, the reader does not get to hear much about solar energy, and while the opponents of nuclear power are criticized, the issue of radioactive waste management is glossed over. On the whole, however, Saraceno has written a thought-provoking book, and we also owe it to David Goodstein for a readable translation of the original Italian book.

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**Nobel Prizes and Life Sciences.** Erling Norrby. World Scientific Publishing Co. Pte Ltd, 5 Toh Tuck Link, Singapore 596224. 2010. xv + 317 pp. Price: US\$ 68.00.

Every scientist, living or dead, has a dream about the Nobel Prize. The Nobel Prizes have the reputation of being the ultimate accolade for scientific achievements. For this reason, the choice of selecting an awardee or set of awardees indeed becomes a complicated and difficult task. In this book, Erling Norrby describes the trials and travails for the selection of a Nobel Prize winner.

Norrby is a world authority on viruses. He was professor and Chairman at the Karolinska Institute School of Medicine, Stockholm, Sweden. He has been involved in various ways for more than 20 years in the selection of recipients of Nobel Prize in Physiology or Medicine. He also has responsibilities for Nobel Prizes in Physics and Chemistry. Who but a scientist of the caliber of Norrby, closely connected with the Royal Swedish Academy and intimately associated with the process of selection of Nobel Prizes for several years can provide a better account of the intricacies of this process. Norrby has given orations at many international forums on the topic of Nobel Prize, and the present book also harbours the text of some of these lectures. This volume attempts to review the selection process and the discoveries that have been awarded in the life sciences. It evidently represents a factual narration and compilation of facts. I have only attempted to highlight some of the interesting facts and therefore, quoted extensively from the text without daring to make any significant modifications.



Alfred Nobel at the age of about 30 years (Courtesy of the Nobel Foundation).

Nobel Prize rewards new discovery, the product of exploration beyond the edge of the known into the vast spaces of the unknown and mysterious (Baruch S. Blumberg, Nobel Laureate in Medical Sciences, 1976). It concerns a phenomenon of major importance and its unravelling has a huge impact for the way science is conducted subsequently. To receive a Nobel Prize is an incredible honour that brings an unprecedented respect and recognition from colleagues and perhaps the world at large. In addition to the recognition by the scientific establishments, Nobel laureates acquire a prestige to make authoritative statements even on matters outside their field. What is it that confers on them the unique privilege? Have all the Nobel Prize-winning discoveries really revolutionized our understanding on medicine to the expectations? And have they fulfilled the laudable intention of recognizing discoveries that are 'to the benefit of mankind'? One possibly gets some ideas after reading this book.

Nobel Prize recipients receive a large sum of money, but the absolute value of the prizes has varied markedly. At present it is well in excess of one million US dollars. It should be emphasized, however, that it is not the amount that gives the Prize the prestige. The Prizes are awarded by the Royal Swedish Academy of Sciences, in accordance to the will of Alfred Nobel, drawn up in November 1895. The Prize ceremony is always on Nobel's death day, the 10 December. The world saw one of the largest gatherings of intelligentsia in one and the same place in the 100 year jubilee of the award in 2001, when all previous laureates were invited to Stockholm.

Norby's experience highlights the significant challenges the committee members face in wisely selecting Nobel Prize winners, that the people, including the recipients are largely unaware. Nominees for Nobel Prize in Physiology or Medicine are evaluated at three levels: (i) short notes for relatively weak candidates, (ii) preliminary review of a few pages for stronger candidates, and (iii) exhaustive analysis for the strongest candidate. A preliminary review precedes a detailed analysis. The decision document is a record of the concluding meeting of the Nobel Committee, comprising of the three-member committee with adjunct members chosen annually. It presents a list of the major candidates and comments on their Prize-worthiness. The selection process for Nobel Prize recipients is surrounded by a highly developed secrecy, a pre-requisite to endow the process with a high degree of objectivity and integrity. Lobbying in matters concerning Nobel Prizes, if at all, may have a negative effect. In 1954, there was an exceptional leak about discussions on the Prize in Physiology or Medicine. The time lag between the discovery and awarding the Prize means that the recipients are frequently well advanced in their career. The age of Nobel laureates at the time of receiving the Prize in Physiology or Medicine varied between 32 and 87 years. Paradoxically, there is a drawback for a young scientist because he/she will not receive any further prizes, as no prize can compete with a Nobel Prize, the most glamorous recognition.

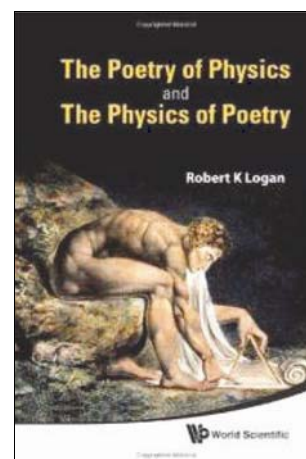
The current volume is presented in eight chapters, ranging from the historical aspects and serendipity in Nobel Prizes to various discoveries grouped into sets of related areas. A large section is devoted to virus diseases, the prions and the like. This bias is understandable since the author, himself is a virologist; besides, a large chunk of Nobel Prizes in Physiology or Medicine has been awarded to the discovery and control of viruses. And many a discovery or Nobel Prize in Chemistry is also closely related to Physiology or Medicine.

The mandate of the Nobel Committee is to try and understand all the advancing frontiers in the fields of biomedical research and related fields of life sciences. One obvious query that comes to the mind is to list out what really are the major components of medicine? Traditionally, medical sciences deals with the

structures and functions of the human body, the diagnosis of medical disorders and injuries, and the treatment of such maladies. Do any of the 'Nobel discoveries' mentioned in the book come close to the level of Andreas Vesalius' 15th century description of human anatomy? At a time when there were no sophisticated, digitalized documentation facilities, Vesalius drew the complete anatomical diagram of man, reconstructed the skeleton from the assembly of bones and accurately redrew the musculature from dissected out corpses. Or are the current discoveries on par with the lucid demonstration of blood circulation by William Harvey? What discovery other than Edward Jenner's introduction of vaccination that ultimately resulted in the eradication of the dreaded small pox from the face of this earth, could have qualified better for the requirement in Nobel's will 'to be of benefit to mankind'. Evidently these discoveries took place much before the establishment of Nobel Prizes, but they remain eternal.

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**The Poetry of Physics and The Physics of Poetry.** Robert K. Logan. World Scientific Publishing Co. Pte Ltd, 5 Toh Tuck Link, Singapore 596224. 2010. viii + 332 pp. Price: £30.00/US\$ 43.00.

When asked to review this book, I had a feeling of déjà vu. Didn't I read this book 30 years ago under the title *Physics*