

"UNIVERSE DOWN TO EARTH" by Neil de Grasse Tyson, Columbia University Press, 1994. Price not mentioned. ©

When was the last time you read a popular science book which made you laugh? Or which didn't treat you like a cretin and didn't make absurd, pseudo-scientific statements regarding mysterious connections between modern sciences and dancing masters of various kinds? "Universe Down to Earth" is just such a book which marks a very refreshing change from the mumbo-jumbo popular science books which have flooded the market in recent times. ©

Written by a professional astrophysicist, it seeks to explain the fundamental concepts in physical science to the lay reader. The target audience is the interested "average" person who may not be aware of the latest scientific discovery but is intelligent and curious to learn about it. The book is divided into three parts dealing with the methods of science, some key ideas in the physical sciences and finally some astronomy. ©

One of the stumbling blocks in communicating specialized subjects to non-specialists is the translation of the jargon to ordinary language. In an extremely humorous way, Tyson demystifies astronomical terms and concepts such as syzygy, Roche lobes and analemma. There is also a very clear discussion on the structure of science, scientific theory and the role of experiments. For people suffering from "math phobia", there is a "Sentimental journey to the googolplex" which is a brilliant attempt to give a feeling for very large and small numbers that one encounters in particle physics and astronomy.

The beauty and power of science is partly due to its universality ©and economy. With a few key concepts, one can explain not only everyday phenomenon like apples falling on people's heads but also the occurrence of eclipses and the explosions of supernovae. Making vivid analogies between everyday objects and scientific concepts, the author takes us on a guided tour of some key ideas like energy, electromagnetic radiation, the periodic table and so on. Here we find jokes about McDonald's, digs at Hollywood films and much more. It is creditable that in making these analogies, he does not trivialize the concept but brings it to life with his lucid style. The descriptions are clear, and the analogies informative and entertaining. The connections between everyday experience of the reader and scientific ideas are not only useful for the reader to appreciate the universality of science but also engrave a lasting impression on the reader.

The night time sky with its numerous stars, the regularity of seasons and the motion of the planets are some of the phenomenon which have always fascinated humankind. The last part of the book deals with astronomy and its profound impact on the human civilization. Starting with a very unconventional survey of the constellations we go on to an examination of the "scientific" basis of astrology. Here Tyson is at his acerbic best. He demolishes the claims of astrology as a science and denounces in no uncertain terms the continuing hold it

has on many people. The explanation of eclipses and the retrograde motion of planets as observed from the earth are some of the issues covered in the appropriately titled chapter on "Celestial Windings". Finally, there is an extensive list of books on related topics which can help the interested reader to follow up on her quest for further information.

The book is absolutely delightful and fun to read. It is easy to read style is very welcome. Here is an author who belongs to that rare breed of scientists who not only enjoy doing science but also don't think that communicating with the people at large is a waste of their time. George Gamow and Isaac Asimov were examples of writers who could effortlessly communicate very profound concepts. Tyson is a new entrant to this group and has already written the immensely popular "Merlin's tour of the Universe". One looks forward to more popular science from this young astrophysicist.

December 10, 1994.