

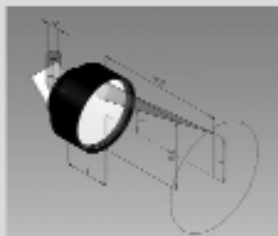


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any innovative or insightful discussions of conventional topics. Rather, virtually every topic is presented in the familiar manner of several other conventional textbooks. The figures are inadequate and often redundant. For example, I cannot understand why one needs figures 6.1 or 8.3—nothing is conveyed by them that cannot be stated simply in the text. Omitting some of the figures would have given more space for the author to discuss concepts in greater detail. Altogether, I found *Advanced Astrophysics* to be rather disappointing, especially since several other excellent textbooks deal with the same subject.

Although a fair number of good treatises on theoretical astrophysics exist, there are very few good textbooks on observational astronomy for graduate instruction. One notable exception for several years was the second, revised edition of *Observational Astrophysics* (Springer-Verlag, 1988) by Pierre Léna, François Lebrun, and François Mignard. But students can certainly do with many more textbooks at that level. Bradt's *Astronomy Methods* is a brilliant addition to the pedagogy. It is timely, focused, well written, and at the appropriate level, which makes it an invaluable contribution to the field.

I found several features of the book particularly attractive. First, it is eminently student oriented and suitable for self-study. Each chapter begins with a brief summary in a box explaining what the student can expect to learn, and each chapter concludes with several problems that have been compiled with care. The discussions are kept at an elementary level throughout, and the illustrations are well done and adequately supplement the discussion. In addition to covering the conventional topics one expects in such a book, the author devotes three final chapters to neutrino astrophysics, cosmic-ray physics, and aspects of gravitational-wave observatories.

Bradt provides very insightful coverage of conventional topics. For example, the absorption and scattering of photons in different contexts are illustrated nicely with appropriate diagrams, and issues that are usually confusing to a beginner are clarified with care. I also found that the author actually made the subject of celestial motions and timekeeping quite interesting, a task I thought was virtually impossible! The theoretical descriptions are adequate but are necessarily kept to a minimum. I would have been happier to see a little more theory sprinkled throughout the book or presented in the form of additional prob-

lems, but I gather from the preface that a more theoretical volume is under preparation by the author.

In summary, *Astronomy Methods* will be useful to all students of astronomy and astrophysics, irrespective of whether they intend to specialize in observational astronomy. The material can be adapted easily for various related courses, which makes the book even more valuable.

**T. Padmanabhan**

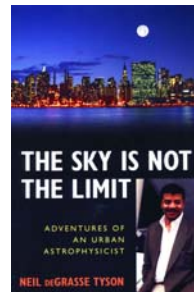
Inter-University Centre for Astronomy  
and Astrophysics  
Pune, India

## The Sky Is Not the Limit: Adventures of an Urban Astrophysicist

Neil deGrasse Tyson  
*Prometheus Books, Amherst,  
NY, 2004 [2000, reissued].  
\$18.00 paper (203 pp.).  
ISBN 1-59102-188-X*

The trouble with most scientific memoirs is that they are often composed late in the author's life. By the time an active scientist finds enough leisure time to publicly muse about the meaning of it all, he or she is usually a gray eminence and so accomplished that a younger reader is apt to be dazzled by a lifetime of achievements—and perhaps even discouraged into thinking that a life of science is only for those few endowed with overwhelming genius. Admittedly, one can profit from the voice of experience, but it's also refreshing to hear from someone closer to the beginning of the game, someone who can talk about present times as well as the good old days, and whose insights come not from the perspective of a lifetime but from a more immediate point of view.

Fresh introspection is part of what makes Neil deGrasse Tyson's *The Sky Is Not the Limit: Adventures of an Urban Astrophysicist* a pleasure to read. The book, a small collection of personal essays, was originally published in 2000 by Doubleday, but much has happened since then for Tyson, who revised and expanded the text and included new photographs. To be sure, his curriculum vitae is impressive: Bronx High School of Science graduate, Harvard University undergraduate, Columbia University graduate, Princeton University postdoc, and current director of New York City's Hayden Plane-



tarium—a powerful position at the nexus between astronomical research and public science education. He writes a regular column for *Natural History* magazine; has served on several US presidential commissions; recently hosted the television NOVA miniseries *Origins*, which aired on PBS in the fall of 2004; and, with Donald Goldsmith, coauthored the program's companion book, *Origins: Fourteen Billion Years of Cosmic Evolution* (W. W. Norton, 2004).

Tyson's story should strike a responsive chord with anyone interested in science. His parents were educators, and he spent his formative years as a middle-class kid in New York City. He caught the science bug early and was one of the many young people who frequented weekly astronomy classes at the Hayden Planetarium. He was a college wrestler and had a pretty smooth academic career right through his postdoctoral work. In one chapter of his book, he eloquently conveys his entrancement with science and the excitement he experienced in Chile while studying the Milky Way, a standard undertaking for most observational astronomers. Other chapters deal with exciting ideas in modern astronomy and some of Tyson's later adventures as a public figure interacting with the academic world. From his writing, one can see that the author is not just urban but also urbane: thoughtful, cosmopolitan, witty, and insightful.

Among the things that distinguish Tyson from so many others is his unique perspective as one of only a handful of black astrophysicists in the US. Although that circumstance doesn't figure heavily in his essays, Tyson does recount a number of anecdotes that must be achingly familiar to anyone of color in our country: He recalls being stopped by police for no particular reason and having strangers at parties or in shops talk to him as if he were a child, a boor, or a criminal. In spite of that, the author writes, "I have retained enough confidence in myself to treat these encounters as the entertaining side shows that they are."

Above all, Tyson sees himself as an educator, and if there is one overarching theme in his essays, it is that what really matters is the life of the mind and the sharing of the excitement of astrophysics with upcoming generations. *The Sky Is Not the Limit* expresses this theme well. I recommend the book to all who, whatever their date of birth, want to learn about what it means to do science in this day and age.

**Larry Marshall**  
Gettysburg College  
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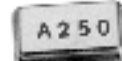
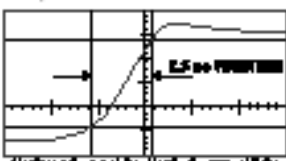


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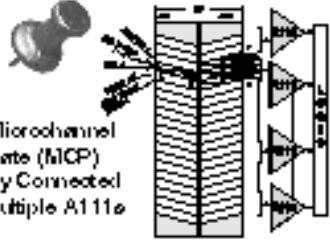
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