

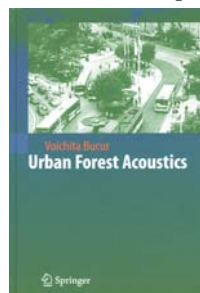
Urban Forest Acoustics

Voichita Bucur

Springer, New York, 2006. \$129.00 (181 pp.). ISBN 3-540-30783-4

If you are interested in a short survey on the effects of trees on sound propagation, then Voichita Bucur's *Urban Forest Acoustics* is for you.

Bucur, a senior scientist at the French National Institute for Agricultural Research in Champenoux, covers in great



detail the scattering of sound by the forest canopy and other foliage. She presents both laboratory and outdoor data, and her book is the first I have seen that has such information in one place. She summarizes

results for a wide variety of trees with and without leaves, especially in summer and winter conditions. The trees she considers include birch, hazel, pine, cypress, eucalyptus, ficus, acacia, and quercus—just to name a few. I was amazed at the details she used in studying the effects of different trees on sound propagation.

The book's title, however, is somewhat misleading because it suggests that the author will broadly cover noise problems in cities. That is, however, not the case. The text, which has nine chapters, including the introduction, contains fewer than 200 pages; its price tag of \$129 is typical for a research book. Six of the chapters can be considered brief reviews of their subjects: noise in urban forests (chapter 2), tree characteristics and acoustic sensors (chapter 3), noise attenuation with plant material (chapter 4), traffic noise abatement (chapter 5), noise abatement in urban and suburban dwellings (chapter 6), and bird and insect noise in urban forests (chapter 7). Chapters 3 and 4 have most of the substantial details and analyses and make up half of the book.

Unfortunately, if readers are interested in studying the effects of ground noise attenuation, such as with solid barriers, they will be shortchanged. Much more material could have been included in those areas. The two chapters on traffic-noise abatement and on noise abatement in urban and suburban dwellings will also leave readers wanting more. I especially would have been happier if additional information had been included on traffic- and dwelling-noise problems in urban areas.

Although Bucur discusses the effects of trees on the propagation of noise, she does not consider other important factors. For example, she omits the propagation of acoustic signals in long narrow streets lined by either multistory structures or skyscrapers, sometimes referred to as "city canyons." The urban forest is composed of not only plants but also buildings that affect the acoustics of the area. The author is evidently addressing problems more germane to European cities than to American ones. Noise pollution in European cities is different from that in American cities. The designs of European cities—for example, the height of buildings, the shapes of old and modern streets, and the traffic noise produced by motor scooters and smaller cars—give those cities a distinctive noise signature.

Chapter 8 is an introduction to acoustics for fire control in forests, and chapter 9 covers the economics of urban-forest acoustics. Both chapters leave one wanting more information; in particular, additional quantitative details would have made chapter 9 much more useful to researchers who want to try to implement some of the author's suggestions.

Urban Forest Acoustics is a good start on the subject, but many of Bucur's discussions are presented either in great detail or no detail at all. Readers who expect to find a lot of information about all of the topics mentioned in the table of contents will be disappointed.

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Simon Newcomb

America's Unofficial Astronomer Royal

Bill Carter and Merri Sue Carter

Mantanzas, St. Augustine, FL, 2006. \$26.95 (213 pp.). ISBN 1-59113-803-5

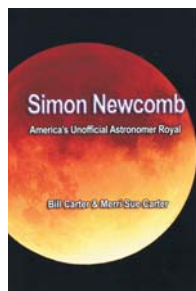
Simon Newcomb (1835–1909) was the most famous and influential astronomer of a century ago. He was a founding member and the first president of both the American Astronomical Society and the American Society for Psychical Research, as well as president of the American Mathematical Society and the American Association for the Advancement of Science. Newcomb's 1882 value of the speed of light was 30 times more accurate than all previous measurements and was only substantially improved in the 1920s by

Albert Michelson.

Newcomb grew up in Wallace, Nova Scotia, and at age 18 hitched a ride on a ship headed for Massachusetts, penniless and with little education. Self-taught, he graduated summa cum laude from Harvard University at age 24, and by 34 he was a member of the National Academy of Sciences. His career was centered at the US Naval Observatory in Washington, DC, where he rose to be the superintendent of the Nautical Almanac Office in 1877 and controlled the largest astronomical organization in the world. Newcomb's lifelong project was to collect all available data on the positions of solar-system bodies and combine them into one grand system of consistent orbits and constants. Back then, such dynamical work represented the bulk of front-line astronomy. Newcomb's comprehensive and definitive system of constants was adopted in 1896 during an international conference in Paris, and his results were the basis for all dynamical astronomy calculations up until the space age.

Bill Carter and Merri Sue Carter, the authors of *Simon Newcomb: America's Unofficial Astronomer Royal*, are a father-daughter team; both are astronomers and geodesists working in areas close to Newcomb's research. They collaborated together on an earlier, similar book, *Latitude: How American Astronomers Solved the Mystery of Variation* (Naval Institute Press, 2002), about Seth Chandler and the wobble of the North Pole. Bill Carter is an adjunct professor in the department of civil and coastal engineering at the University of Florida in Gainesville, and Merri Sue Carter works at the US Naval Observatory in Flagstaff, Arizona. With their combined institutional and research connections, the Carters are sympathetic to Newcomb.

Throughout the book the authors refer to Newcomb as "Simon" and describe episodes from his personal viewpoint. Generally, the first-person narrative does not distract from the enjoyable stories in the book, but it does lead the Carters to conclude the opposite of most other historians' opinion that Newcomb was cold, ruthless, and more feared than liked. The authors' reversal of Newcomb's character is most prominent in the incident in which Newcomb made an abortive attempt to take credit for Asaph Hall's discovery of the two moons of Mars. The authors turn the blame on Hall for having created the incident. They point out that Hall had in-



tentionally gotten rid of his assistant so that he would not have to share the glory of the discovery; they think that Hall was judging Newcomb by his own behavior.

The book is organized around a dozen events in Newcomb's life, leaving gaps that miss many fun anecdotes. For example, readers do not learn that Newcomb was the intentional prototype for Arthur Conan Doyle's arch-villain Professor James Moriarty. They also are not told that Newcomb was the "learn'd astronomer" in Walt Whitman's famous *When I Heard the Learn'd Astronomer*. Nor are they told about how Newcomb restored the reputation of Father Maximilian Hell, S. J., by showing that the astronomer did not fake his observations of the 1769 transit of Venus. And Newcomb is not credited with discovering and explaining the logarithmic distribution of the leading digit in lists of real-life statistics, which came to be known as Benford's law.

Such gaps also leave unanswered in-depth questions and evaluations. One example is the paradox of how Newcomb went from being the most famous astronomer in the world to a name recognized mostly by older astronomers who have an interest in the history of astronomy. My resolution for why Newcomb is now so little known is twofold: First, the dynamical astronomy of old is now solved and out of fashion, so no forum exists for trumpeting its greatest practitioner. Second, Newcomb never had a discovery named after him.

Simon Newcomb is not the definitive biography, but it contains many intriguing stories. It captures well the sweep of astronomy from the Civil War to the early 1900s. The only other biography of Newcomb, Albert E. Moyer's *A Scientist's Voice in American Culture: Simon Newcomb and the Rhetoric of Scientific Method* (U. California Press, 1992), is for scholars interested in the sociology and philosophy of science. Thus the Carters' book fills an important gap in astronomical history. I recommend it to libraries and individuals interested in the history of American astronomy. But maybe the best recommendation is that I had a lot of fun reading the book—and I could not put it down until finished.

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New York, 2006. \$99.00 (390 pp.). ISBN 3-540-34135-8

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