***Dan MacIsaac*, Column Editor**
Physics Department, SUNY-Buffalo State College,
Buffalo, NY 14222; macisadl@buffalostate.edu

WebSights features reviews of select sites presenting physics teaching strategies, as well as shorter announcements of sites of interest to physics teachers. All sites are copyrighted by the authors. This column is available as a clickable web page at http://PhysicsEd.BuffaloState.Edu/pubs/WebSights. If you have successfully used a site to teach physics that you feel is outstanding and appropriate for *WebSights*, please email me the URL and describe how you use it to teach. The person submitting the best site monthly will receive a T-shirt.

Several HS Physics Teaching Website Collections

• ***Dolores Gende's HS Physics Teaching Collection:*** http://dgende.homestead.com/. This extensive collection of URLs maintained by master physics teacher Dolores Gende of Dallas includes sections devoted to AP Physics B, College Prep Physics, Honors Physics, Physics Projects, Physics Web Quests (Physics Quests), and more. Her AP physics resources are particularly valuable for both other AP physics teachers and students, including a teachers' planning guide, over 90 AP-B and C lessons, exam and textbook information, an index of AP free response questions categorized by topic and year, and more. Gende's more than 20 Physics WebQuests have been reported as student favorite activities by several New York physics teachers. Another notable resource is her collection of HS physics teachers' homepages from around the United States.

An interesting resource identified in this collection is the set of 55 AP Physics B online presentation lessons by the Monterey Institute for Technology and Education, part of an extensive collection of other AP course lessons and materials. These did not run well on my Macintosh computer or an elderly WinTel PC, but are also recommended by others and appeared intriguing: http://www.archive.org/details/ap_physics_b.

Contributed by Juliann Klafehn, Hilton Central HS Physics, JKLAFEHN@hilton.k12.ny.us, whose own HS physics teaching collection is found at http://tinyurl.com/ndhkr

Larry Cartwright (retired HS physics teacher) of Charlotte, MI, also maintains a more eclectic collection of personal physics web pages of frequent posters on the Phys-L and the Physhare electronic mailing lists at http://cablespeed.com/~exit60/phyweb.html. These pages are not limited to U.S. HS physics teachers, but include many such researchers and aficionados around the world, along with pages by retired and active physics faculty.

DOI: 10.1119/1.2195412

• ***American Nuclear Society* ReActions Newsletter *for Teachers:*** http://www.ans.org/pi/teachers/reactions. A set of pdf newsletters; the latest (March) edition contains a schedule of forthcoming workshops on nuclear science for teachers. All newsletter issues have activities and sites for teachers; my favorite is the June 2001 issue with the best instructions for making homemade cloud chambers I'm aware of (click on "show me the tips" in the pdf file).

Contributed by the column editor

DOI: 10.1119/1.2195413

• ***Optical Illusions and Visual Phenomena*** by Michael Bach, Department of Ophthalmology, University of Freiburg, Germany: http://www.michaelbach.de/ot. An extensive collection of visual/perceptual phenomena with explanations, including animations and applets.

Contributed by Joris Engelen of Bergen, Netherlands enge@planet.nl

DOI: 10.1119/1.2195414

• ***Lessons in Electric Circuits*** by Tony Kuphadt: http://www.ibiblio.org/obp/electricCircuits. A fairly complete series of free online (copyleft) textbooks on the subject of introductory electricity and electronics. Also see the authors' freely redistributed (creative commons license) Socratic Electronics site linked from this one, which is a collection of programmed instruction modules (Keller Plan to some) as pdf files together with instructions on conducting discourse for teaching introductory electronics.

Contributed by William (Buzz) Delinger, Department of Physics and Astronomy, Northern Arizona University, Flagstaff, AZ; william.delinger@NAU.EDU

DOI: 10.1119/1.2195415

John L. Hubisz, Column Editor
Department of Physics, North Carolina State University
Raleigh, NC 27695-8202; hubisz@unity.ncsu.edu

The Story of a Question:

Sky in a Bottle, by Peter Pesic, published by The MIT Press, Cambridge, MA (2005), 262 pp., $24.95

The seemingly simple question "Why is the sky blue?" is the central theme of Peter Pesic's latest book. In addition to providing a very complete answer, he traces the history of the quest to solve this puzzle. This intriguing tale spans two millennia, and the cast of characters includes some of the greatest minds in science.

An interesting aspect of this story is how the mystery about the sky's color evolved over time. After briefly discussing why the color of the sky might not have been an important concern for the ancients, Pesic traces the likely origin of the question to *On Color* by Aristotle (or perhaps one of his students). After Newton discovered that sunlight contains a spectrum of colors, the question became "Why isn't the sky some color other than blue?" Once it was learned that objects with a size smaller than visible wavelengths scatter more light with shorter wavelengths, two questions that remained were, "Why isn't the sky violet?" and "Can the blue sky be explained by scattering from the air itself?" Pesic also addresses a related question known as Olber's paradox that arose in the 16th century: "Why is the night sky dark?"

The emphasis is on the questions rather than the personalities involved. However, the book includes interesting biographical information about many of the characters in addition to describing their scientific contributions. Pesic also places the mystery of the sky's color in its broader context by discussing how it was represented by artists and writers at various times.

An engaging course for non-science students could be organized around the quest to explain why the sky is blue. A historical approach that discusses discarded theories and missteps along with moments of great insight might give students a realistic picture of how science advances. The major topics of optics would come up naturally along the way. Pesic points out that, "As the debate unfolded, the story of the blue sky became ever more intertwined with the larger question of the nature of light." There is also an important link between the atomic nature of matter and the color of the sky, so observations of the sky can be used to approximate Avogadro's number. Quantum mechanics appears in the story because the Sun is approximately a blackbody.

Eleven experiments that can be done at home are described in an appendix. The title of the book refers to the efforts by several scientists to produce the blue of the sky in the laboratory. The appendix includes detailed instructions for repeating a few of those experiments. Suggestions and references for additional experiments are given in the endnotes, including a couple that were recently published elsewhere by Pesic. For a class, it would be easy to supplement the experiments mentioned in the book with activities to familiarize students with phenomena such as refraction and polarization.

Pesic has managed to make *Sky in a Bottle* scholarly, yet approachable. The explanations in the main text are conceptual, but by no means simplistic. Equations and many technical details are relegated to the endnotes. There are also extensive notes that will allow the curious reader to explore each topic further. This well-written little book should have broad appeal.

Reviewed by:

Alan J. DeWeerd
University of Redlands
Redlands, CA 92373
alan_deweerd@redlands.edu
DOI: 10.1119/1.2195416

MicroReviews by the Book Review Editor

Quantoons: Metaphysical Illustrations, by Tomas Bunk, with Physical Explanations by Arthur Eisenkraft and Larry D. Kirkpatrick, published by NSTA Press, Arlington, VA (2006), viii+243 pp., $26.95 glossy paper. (available from AAPT's online store)

Over 50 contest problems from "Quantum" of the brain-teaser type, with accompanying quirky illustrations by "Mad" contributor Bunk and detailed explanations and mathematical solutions by problem-solver Physics Olympiad coaches Eisenkraft & Kirkpatrick. DOI: 10.1119/1.2195417