

## OF NOTE

### Brief Reviews of Resources for Undergraduate Neuroscience Educators

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#### INTRODUCTION

*Of Note* is a new column in *JUNE* that provides educators with quick reviews of resources and ideas that are relevant to undergraduate neuroscience education. Readers wishing to suggest new or favorite resources (books, articles, web sites, journals, meetings, etc.) for future *Of Note* columns are encouraged to submit titles or reviews to the editor at [balom@davidson.edu](mailto:balom@ davidson.edu). Reviews should be a single paragraph in length and can include a specific description of how the reviewer has used the resource with undergraduates.

#### ARTICLES

**Analyzing defects in the *Caenorhabditis elegans* nervous system using organismal and cell biological approaches** by Guziewicz, Vitullo, Simmons, and Kohn (2002) *Cell Biology Education* 1:18-25.

[www.cellbioed.org/articles/vol1no1/article.cfm?articleID=9](http://www.cellbioed.org/articles/vol1no1/article.cfm?articleID=9)

This article describes an undergraduate laboratory exercise wherein students use transgenic nematodes to visualize how nervous system defect affect both worm movement and neuronal morphology.

**Generation of resting membrane potential** by SH Wright (2004) *Advances in Physiology Education* 28:139-142. [advan.physiology.org/cgi/content/abstract/28/4/139](http://advan.physiology.org/cgi/content/abstract/28/4/139)

This short review article, written for advanced undergraduates, explains how ion channels and ionic gradients contribute to the resting membrane potential.

**Postsynaptic potential summation and action potential initiation: Function following form** by *Giuliodori and Zuccolilli* (2004) *Advances in Physiology Education* 28:79-80. [advan.physiology.org/cgi/content/full/28/2/79](http://advan.physiology.org/cgi/content/full/28/2/79)

This short article is written for educators. It suggests ways in which students can be introduced to neuronal structure and function by subdividing neurons into three morphological and functional regions: input zone, integrative zone, and conductive zone.

**Survey of undergraduate research experiences (SURE): First findings** by D Lopatto (2004) *Cell Biology Education* 1:18-25.

[www.cellbioed.org/articles/vol3no4/article.cfm?articleID=131](http://www.cellbioed.org/articles/vol3no4/article.cfm?articleID=131)

This study surveyed undergraduates to determine how research experiences affected educational experiences and attitudes toward science careers. Most students reported benefits as a result of a research experience and planned further, postgraduate education in science.

#### BOOKS

***The Art of Changing the Brain: Enriching the Practice of Teaching by Exploring the Biology of Learning*** by JE Zull (2002) Stylus Publishing.

This book, by a director of a teaching and learning center, explores both neuroscience and the psychology of learning to prompt educators of all disciplines to consider developing more effective teaching strategies.

***Brain and Visual Perception: The Story of a 25-year Collaboration*** by DH Hubel and TN Wiesel (2004) Oxford University Press

This book is a unique documentation of one of the most famous and productive collaborations in visual neuroscience. The book includes autobiographies of both Nobel laureates as well as reprints of their seminal papers. Hubel and Wiesel provide forwards and afterwords on their papers that describe the research process, how the research was received, and updates in the field.

***Phantoms in the Brain: Probing the Mysteries of the Human Mind*** by VS Ramachandran and S Blakeslee (1998) William Morrow & Company.

Since its publication in 1998, I have used this book in a variety of courses, including introductory neuroscience, neurophilosophy, and functional neuroanatomy. Invariably, my students report that this book was one of the most stimulating and interesting books they were assigned. Ramachandran and Blakeslee do a marvelous job of revealing the functioning of the human brain by exploring fascinating examples of neurological diseases. These diseases manifest themselves in an extraordinary array of behaviors such as the phantom limb, blindsight, and Capgras' delusion, to name but a few of the neurological phenomena that are addressed in a collection of twelve thoroughly captivating chapters. The book ends with a provocative chapter on the nature of consciousness that is sure to ignite lots of discussion among your students. Highly recommended reading! (JJ Ramirez, Davidson College)

***Postcards from the Brain Museum: The Improbable Search for Meaning in the Matter of Famous Minds*** by Brian Burrell (2005) Broadway.

This book examines brain collections around the world and discusses the colorful history of how scientists have tried to understand human behavior via the morphology of the brain and the skull.

## JOURNALS

### ***Cell Biology Education: A Journal of Life Science Education***

American Society for Cell Biology  
www.cellbioed.org

A free, quarterly, on-line journal publishing articles on education in cell biology and the life sciences, including occasional articles on neuroscience education and general science education issues.

### ***Teaching of Psychology***

Society for the Teaching of Psychology  
www.ithaca.edu/beins/top/top.htm#subscriptions

A quarterly print publication available to individuals for \$37/year that includes occasional articles on neuroscience education.

### ***Advances in Physiology Education***

The American Physiological Society  
advan.physiology.org

A free, quarterly, on-line publication focusing on physiology education with occasional articles on neurophysiology pedagogy.

## VIDEO/DVD

### ***Searching for Answers: Families & Brain Disorders***

Society for Neuroscience  
web.sfn.org/Template.cfm?Section=SearchingforAnswers\_FamiliesandBrainDisorders

*Searching for Answers* is a series of four brief (5 min.) video documentaries poignantly illustrating the clinical symptoms of a patient with Parkinson's, Alzheimer's, ALS, or Huntington's disease. With minimal narration, the words of the patient and/or family provide a first-hand glimpse into life with these neurodegenerative diseases and brief comments by leading researchers are interspersed. These videos provide snapshots that can serve as powerful introductions that will help students associate a human face with each disease. These video snapshots are available via the SfN's web site and on DVD, by request.

### ***The Forgetting: A Portrait of Alzheimer's*** (PBS)

www.pbs.org/theforgetting

*The Forgetting* is a gripping PBS documentary that follows clinicians, basic researchers, patients, and families who are confronting Alzheimer's disease at various stages. The accompanying website provides many sources for further information. Readers of the book *Decoding Darkness* by Tanzi and Parson (previously reviewed *JUNE* 1(2):R12-13) will particularly appreciate meeting the Noonan family as they face the early onset form of Alzheimer's and interact with genetic researchers.

### ***A Change of Character*** (Fanlight Productions)

www.fanlight.com/catalog/films/413\_acoc.shtml

In this 30-minute documentary, viewers meet Truett Allen, his family, and his physicians (including the notable Drs. Oliver Sacks and Elkhonon Goldberg). Frontal lobe

damage affected specific aspects of Mr. Allen's personality, transforming a motivated and successful businessman into an emotional and distractible man. Brain scans and cognitive tests are explained throughout this case study of frontal lobe syndrome.

## WEB

### ***The Brain in the News***

Dana Foundation  
www.dana.org/books/press/brainnews/

This free monthly newsletter reprints articles from major US newspapers. Newsletters are available on the web and print subscriptions are available by request from the Dana Foundation. Instructors interested in illustrating how science is reported in the public press will find that this newsletter provides a concentrated source of articles on many areas of neuroscience.

### ***Brain Briefings***

Society for Neuroscience  
web.sfn.org/content/Publications/BrainBriefings/index.html

These regularly released two-page, illustrated newsletters for a general audience of policy makers each describe how basic neuroscience research relates to clinical applications. The list of topics covers a wide spectrum of neuroscience research. Undergraduates may find *Brain Briefings* a helpful starting point for identifying a paper topic. In addition, I found *Brain Briefings* to be an excellent model for students to emulate. I assigned my advanced seminar students to transform the results of a journal article we had discussed in an advanced seminar course into a *Brain Briefing*. The exercise helped students expand their writing and illustration skills while they considered how to communicate neuroscience research to a broader audience. (B. Lom, Davidson College)

### ***Gray Matters***

Dana Foundation  
www.dana.org/books/radiotv

This radio series produces one-hour public radio programs on a wide range of topics in neuroscience such as plasticity, circadian rhythms, and neuroethics. Interviews with noted researchers are used in conjunction with narration and sound effects. Both streaming audio and transcript versions are freely available.

## WORKSHOP

### ***Undergraduate Neuroscience Education: Leadership, Laboratories, and a Curriculum for the 21st Century*** Project Kaleidoscope and Faculty for Undergraduate Neuroscience

www.pkal.org/template2.cfm?c\_id=1514

This is the fourth workshop cosponsored by PKAL and FUN. It will be held July 15-17 at Macalester College.