

## **BIOGRAPHICAL AND PERSONAL INFORMATION**

Present professional status and address: Eleanor A. Bliss Professor of Biology  
Department of Biology  
Bryn Mawr College  
Bryn Mawr, Pennsylvania 19010  
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## **EDUCATION**

1964-1968 B.A., cum laude, 1969  
Biology, Harvard University

1968-1972 M.S., 1970, Biology, Stanford University  
Ph.D., 1973, Biology, Stanford University (Donald Kennedy)

1972-1973 Postdoctoral Fellow, Johns Hopkins University  
(Marcus Jacobson)

1973-1974 Postdoctoral Fellow, Stanford University  
( K.L. Chow)

## **PROFESSIONAL APPOINTMENTS**

1986-present Professor  
(1988-present, Eleanor A. Bliss Professor)  
[1986-1993, Chair]  
Department of Biology  
Bryn Mawr College

2000-2007 Director, Center for Science in Society, Bryn Mawr College

1985-1986 Research Associate (Associate Professor)  
Department of Anatomy, University of Chicago

1974-1985 Assistant and Associate Professor  
Department of Pharmacological and Physiological  
Sciences, Committees on Developmental Biology and  
Neurobiology, The College, University of Chicago

## OTHER PROFESSIONAL ACTIVITIES

Organizer, The Evolving Systems Project, June 2009 –June 2012

Leadership Fellow, SENCER, summer 2008-present

Associate Editor, Journal of Research Practice, 2004- present

Co-founder/organizer, Serendip web site, 1994-present

Program and institute organizer, Summer Institutes for K-12 Teachers, Bryn Mawr College, 1990 –present

Advisory Council, Professional Development for Geoscience Faculty, 2002-2006

Academic Fellow, Psychoanalytic Center of Philadelphia, 2001-2003

National Advisory Council, Project Kaleidoscope project on regional networks (supported by FIPSE), 2001-2005

Project director , Howard Hughes Medical Institute sponsored program for undergraduate science education, 1993-1997 , 1997-2000

Bryn Mawr College Rosalyn R. Schwartz Teaching Award, "for teaching excellence and campus leadership", 1998

## FELLOWSHIPS AND RESEARCH SUPPORT

6/68 - 6/69	National Science Foundation Graduate Fellow
6/70 - 6/72	National Science Foundation Graduate Fellow
11/72 - 9/74	National Institutes of Health Postdoctoral Fellow
4/76 - 4/79	National Eye Institute Research Grant "Development of connectivity in anuran visual systems"
9/76 - 9/80	Alfred P. Sloan Foundation Research Fellow
9/77 - 9/82	National Eye Institute Research Career Development Award
5/79 - 4/83	National Eye Institute Research Grant "Development of connectivity in anuran visual systems"
8/79 - 3/84	National Science Foundation Research Grant "Development of neuronal connectivity during anuran metamorphosis"
3/84 - 12/86	National Science Foundation Research Grant "Development of neuronal connectivity during anuran metamorphosis"
7/87-11/90	National Institutes of Health Research Grant (AREA) "Brain organization underlying orienting to tactile input"
6/89-present	Whitehall Foundation Research Grant

"Neuronal organization underlying directed movement  
in the frog: developing an approach from the motor side

6/91-present

Neural and Behavioral Systems Group, A TIDE-POOL project  
(private donor, support for research and post-doctoral  
research/teaching fellows)

June 2009 – June 2012

The Evolving Systems Project, supported by the Metanexus  
Foundation

## **TEACHING EXPERIENCE**

### Courses Taught

Introductory Biology  
Neurobiology and Behavior  
Story of Evolution and Evolution of Stories  
Emergence  
Philosophy of Science  
College Seminar  
Senior Seminars in Neurobiology and Behavior and in Biology  
The Brain and Mental Health  
The Brain and Education

### Graduate and postgraduate students

Christopher Comer, Ph.D. 1980, University of Chicago

James Adamson, Ph.D. 1981, M.D. 1983, University of Chicago

Sally Hoskins, Ph.D. 1982, University of Chicago

Sandra Kostyk, Ph.D. 1985, M.D. 1985, University of Chicago

Thomas Masino, Ph.D. 1987, University of Chicago

Paul Patton, Ph.D. 1988, University of Chicago

David Sperry, postdoctoral fellow, 1983-1985, University of Chicago

Despo Louca, M.A. 1992, Bryn Mawr College

Cynthia Smeraski, Ph.D. 1995, Bryn Mawr College

Peter Smallwood postdoctoral research/teaching fellow 1992-1994,, Bryn Mawr College,

Karen Lee, postdoctoral research/teaching fellow, 1992-94, Bryn Mawr College

Jeff Oristaglio, Ph.D. 2002, Bryn Mawr College

## **SELECTED RECENT INVITED PRESENTATIONS**

- Fourth Annual Springer Forum on Cultural Studies of Science Education, Philadelphia, March 2010
- Discussion of "Dance is Hard to See", Philadelphia, PA, November 2009
- Painted Bride Gallery talk on synesthesia, Philadelphia, PA, May 2009
- Association of Teachers of Mathematics of Philadelphia and Vicinity Fall Conference, Darby, PA, October 2008
- SENCER Washington D.C. Symposium, Washington, D.C., April 2008
- Eighth Olympiad of the Mind, Brain Research: Improviing Global Harmony, Washington, D.C., 2007
- IMSA Great Minds Program, Learning and the Brain, Aurora, Illiinois, 2007
- Advanced International Colloquim on Building the Scientific Mind, Learning in the Perspective of Complex and Long Term Change, Vancouver, 2007
- In-service day, Delaware Valley Friends School, Paoli, Pennsylvania, Science as Exploration/Story Telling and The Brain as a Scientist/Explorer/Story Teller, 2006
- Snake River Association for Neuroscience Annual Meeting, Jackson, Wyoming, "Applied Neurobiology: A Brain Wider than the Sky ... and Why it Matters", 2006
- SENCER Summer Institute, San Jose, California, "Science as Story Telling in Action: The Web, the Brain, and Society", 2005
- Advanced International Colloquim on Building the Scientific Mind, The Hague, "The Emerging Scientific Mind/Brain", 2005
- 25<sup>th</sup> Anniversary Friends Association for Higher Education Conference, Haverford College, "Intellectual Exchange as a Medium for Community Building on the Web and Beyond", 2005
- Psychoanalytic Center of Philadelphia, "Looking to the Brain for Psychotherapeutic Insights and to Psychotherapy for Insights into the Brain", 2005
- Workshop on Implications of the NIH Roadmap for Undergraduate Life Sciences Education, Juniata College, "Science in Society in the 21<sup>st</sup> Century: Interdisciplinarity and Beyond, 2004
- Dialogue on The Changing Roles of Mathematics and Science in Society, Technology, and Society: Ethical Awareness for Tomorrow's Leaders, Illinois Mathematics and Science Academy, Chicago, Illinois, "A Vision of Science (and Science Education) in the 21st Century: Everybody "Getting It Less Wrong" Together", 2003
- Counselling Association of Greater Philadelpha "Understanding the Brain: Implications for Education", 2002
- 11<sup>th</sup> Annual Usability Professional's Association Conference, Orlando, Florida, "The Brain's Images: Co-Constructing Reality and the Self", 2002

#### **PUBLICATIONS (traditional)**

- Grobstein, P. (1973) Extension-sensitivity in the crayfish abdomen. I. Neurons monitoring nerve cord length. J. Comp. Physiol. 84: 331-349.

- Grobstein, P. (1973) Extension-sensitivity in the crayfish abdomen. II. The tonic cord stretch reflex. *J. Comp. Physiol.* 84: 350-359.
- Grobstein, P. (1973) Nervous system length change with change in posture: protective role of the connective tissue sheath. *Brain Research* 58: 223-228.
- Grobstein, P., Chow, K.L., Spear, P.D., and Mathers, L.H. (1973) Development of rabbit visual cortex: late appearance of a class of receptive field types. *Science* 180: 1185-1187.
- Mathers, L.H., Chow, K.L., Spear, P.D., and Grobstein, P. (1974) Ontogenesis of receptive fields in the rabbit visual cortex. *Exp. Brain Research* 19: 20-35.
- Grobstein, P., Chow, K.L., and Fox, P.C. (1974) Deprivation effects on the time course of development of rabbit visual cortex. *Society for Neuroscience abstracts IV*: 239.
- Grobstein, P., Chow, K.L. and Fox, P.C. (1975) Development of receptive fields in rabbit visual cortex: changes in time course due to delayed eye-opening. *Proc. Natl. Acad. Sci.* 72: 1543-1545.
- Grobstein, P. and Chow, K.L. (1975) Receptive field development and individual experience. *Science* 190: 352-358.
- Grobstein, P. and Chow, K.L. (1976) Receptive field organization in the mammalian visual cortex: the role of individual experience in development. In: Studies on the Development of Behavior and the Nervous System, Volume III. (Gottlieb, G., ed.) Academic Press, pp 155-193.
- Grobstein, P. and Comer, C (1976) Differences in development of relative eye position in Xenopus and Rana. *Soc. Neurosci. Abstr.* 2: 195.
- Chow, K.L., Douville, A., Masceti, G., and Grobstein, P. (1977) Receptive field characteristics of neurons in a visual area of the rabbit temporal cortex. *J. Comp. Neurol.* 171: 135-146.
- Grobstein, P. and Comer, C. (1977) Post-metamorphic eye migration in Rana and Xenopus. *Nature* 269: 54-56.
- Grobstein, P. (1977) A view of the innate from experience in visual system development. Abstracts, XVth International Ethological Congress, p 8.
- Comer, C. and Grobstein, P. (1978) Prey acquisition in atectal frogs. *Brain Research* 153: 217-221.
- Grobstein, P., Comer, C., Hollyday, M., and Archer, S. (1978) A crossed isthmotectal projection in Rana pipiens and its involvement in the ipsilateral visuotectal projection. *Brain Research* 156: 117-123.
- Comer, C. and Grobstein, P. (1979) Organization of somatosensory input to the midbrain of the frog. *Soc. Neurosci. Abstr.* 5: 140.
- Grobstein, P., Comer, C., and Kostyk, S. (1980) The potential binocular field and its tectal representation in Rana pipiens. *J. Comp. Neurol.* 190: 175-185.
- Kostyk, S.K. and Grobstein, P. (1980) Visual prey acquisition behavior in the frog: effects of various unilateral lesions. *Soc. Neurosci. Abstr.* 6: 75.
- Hoskins, S. and Grobstein, P. (1980) Distribution of ipsilaterally and contralaterally projecting retinal ganglion cells in Xenopus laevis and its re-establishment following optic nerve section. *Soc. Neurosci. Abstr.* 6: 647.

- Comer, C. and Grobstein, P. (1981) Tactually elicited prey acquisition behavior in the frog, Rana pipiens, and a comparison with visually elicited behavior. *J. Comp. Physiol.* 142: 141-150.
- Comer, C. and Grobstein, P. (1981) Involvement of midbrain structures in tactually and visually elicited prey acquisition behavior in the frog, Rana pipiens. *J. Comp. Physiol.* 142: 151-160.
- Comer, C. and Grobstein, P. (1981) Organization of sensory inputs to the midbrain of the frog, Rana pipiens. *J. Comp. Physiol.* 142: 161-168.
- Crabtree J.W., Chow, K.L., Conlee, J., Ostrach, L.H., and Grobstein, P. (1981) Effects of progressively longer durations of monocular deprivation on development of visuocortical receptive fields in the rabbit. *Neurosci. Lett.* 26: 61-65.
- Hollyday, M. and Grobstein, P. (1981) Of limbs and eyes and neuronal connectivity. In: Studies in Developmental Neurobiology: Essays in Honor of Viktor Hamburger. (Cowan, W.M., ed.), Oxford University Press, pp 188-217.
- Hoskins S. and Grobstein, P. (1981) Development and thyroxine dependence of the ipsilateral retinothalamic projection in Xenopus. *Soc. Neurosci. Abstr.* 7: 289.
- Hoskins, S., Kostyk, S.K., and Grobstein, P. (1982) Orienting behavior of juvenile frogs with both a premetamorphically rotated and a normal eye. *Behavioral Brain Research* 4: 55-62.
- Kostyk, S.K. and Grobstein, P. (1982) Visual orienting deficits in frogs with various unilateral lesions. *Behavioral Brain Research* 6: 379-388.
- Adamson, J.R. and Grobstein, P. (1982) Re-establishment of the ipsilateral oculo-tectal projection after optic nerve crush in the frog: evidence for synaptic remodelling during regeneration. *Soc. Neurosci. Abstr.* 8: 514.
- Hoskins, S.G. and Grobstein, P. (1982) Retinal histogenesis and the development of the ipsilateral retinothalamic projection in Xenopus. *Soc. Neurosci. Abstr.* 8: 513.
- Kostyk, S.K. and Grobstein, P. (1982) Frog prey orienting: evidence for the involvement of an uncrossed tectofugal pathway. *Soc. Neurosci. Abstr.* 8: 292
- Grobstein, P. and Comer, C. (1983) The nucleus isthmi as an intertectal relay for the ipsilateral oculo-tectal projection in the frog, Rana pipiens. *J. Comp. Neurol.* 217: 54-74.
- Sperry, D.G. and Grobstein, P. (1983) Postmetamorphic changes in the lumbar lateral motor column in relation to muscle growth in the toad, Bufo americanus. *J. Comp. Neurol.* 216: 104-114.
- Grobstein, P., Comer, C., and Kostyk, S.K. (1983) Frog prey capture behavior: between sensory maps and directed motor output. In: Advances in Vertebrate Neuroethology. (Ewert, J.-P., Capranica, R.R., and Ingle, D.J., eds.), Plenum, pp 331-347.
- Grobstein, P. (1983) Review of Analysis of Visual Behavior. *Animal Behavior* 31: 621-622.
- Grobstein, P. (1983) Further thoughts on the linkage between tectum and prey capture motor output, Second Workshop of Visuo-motor Coordination in Frog and Toad, Mexico City, 1982 (COINS Technical Report, University of Massachusetts).
- Grobstein, P. and Masino, T. (1983) Nucleus isthmi in the frog: connections with monocular tectum. *Soc. Neurosci. Abstr.* 9: 1166.

Kostyk, S.K., Reyes, A., Zwanziger, L., and Grobstein, P. (1983) Frog prey orienting: variations with stimulus distance. Soc. Neurosci. Abstr. 9: 1089.

McCrea, R.A. and Grobstein, P. (1983) Anatomical and physiological characteristics of the neurons in the frog tectum receiving optic inputs. Soc. Neurosci. Abstr. 9: 818.

Sperry, D.G. and Grobstein, P. (1983) Regulation of neuron numbers in Xenopus: effects of hormonal manipulation altering size at metamorphosis. Soc. Neurosci. Abstr. 9: 855.

Adamson, J., Burke, J., and Grobstein, P. (1984) Recovery of the ipsilateral oculotectal projection following nerve crush in the frog: evidence that retinal afferents make synapses at abnormal tectal locations. J. Neurosci. 4: 2635-2649.

Hoskins, S.G. and Grobstein, P. (1984) Thyroxine induces the ipsilateral retinothalamic projection in Xenopus laevis. Nature 307: 730-733.

Grobstein, P., Hollyday, M., and Berkowitz, A. (1984) Metamorphic changes in the nucleus isthmi in Rana pipiens. Soc. Neurosci. Abstr. 10: 466.

Masino, T., Kostyk, S.K., and Grobstein, P. (1984) Laterality of tectal efferent projections in Rana pipiens. Soc. Neurosci. Abstr. 10: 60.

Patton, P. and Grobstein, P. (1984) Forebrain involvement in prey orienting in the frog. Soc. Neurosci. Abstr. 10: 61.

Reyes, A. and Grobstein, P. (1984) Frog prey orienting: effects of cerebellectomy. Soc. Neurosci. Abstr. 10: 61.

Sperry, D.G. and Grobstein, P. (1985) Regulation of neuron numbers in Xenopus laevis: effects of hormonal manipulations altering size at metamorphosis. J. Comp. Neurol. 232: 287-298.

Hoskins, S.G. and Grobstein, P. (1985) Development of the ipsilateral retinothalamic projection in the frog Xenopus laevis. I. Retinal distribution of ipsilaterally projecting cells in normal and experimentally manipulated frogs. J. Neurosci. 5: 911-919

Hoskins, S.G. and Grobstein, P. (1985) Development of the ipsilateral retinothalamic projection in the frog Xenopus laevis. II. Ingrowth of optic nerve fibers and production of ipsilaterally projecting ganglion cells. J. Neurosci. 5: 920-929.

Hoskins, S.G. and Grobstein, P. (1985) Development of the ipsilateral retinothalamic projection in the frog Xenopus laevis. III. The role of thyroxine. J. Neurosci. 5: 930-940.

Grobstein, P., Reyes, A., Zwanziger, L., and Kostyk, S.K. (1985) Prey orienting in the frog: accounting for variations in output with stimulus distance. J. Comp. Physiol. 156: 775-785.

Comer, C., Schotland, J., and Grobstein, P. (1985) Short and long term effects of unilateral vestibular lesions on posture and orienting movements in the frog. Soc. Neurosci. Abstr. 11: 289.

Masino, T. and Grobstein, P. (1985) The organization of tectal projections to the ventral midbrain in Rana pipiens. Soc. Neurosci. Abstr. 11: 289.

Grobstein, P. (1986) Review of The Brain Machine. J. Amer. Med. Assoc. 255: 2677-2678.

Grobstein, P. and Masino, T. (1986) Sensorimotor circuitry underlying directed movement in the frog: evidence for an intermediate representation of space in the tectofugal pathways. *Soc. Neurosci. Abstr.* 12: 684.

Masino, T. and Grobstein, P. (1986) Sensorimotor circuitry underlying directed movement in the frog: organization of tectofugal pathways and likely involvement of the nMLF. *Soc. Neurosci. Abstr.* 12: 684.

Patton, P. and Grobstein, P. (1986) Forebrain modulation of orienting circuitry in the frog: involvement of the striatum. *Soc. Neurosci. Abstr.* 12: 106.

Kostyk, S.K. and Grobstein, P. (1987) Neuronal organization underlying visually elicited prey orienting in the frog. I. Effects of various unilateral lesions. *Neuroscience* 21: 41-55.

Kostyk, S.K. and Grobstein, P. (1987) Neuronal organization underlying visually elicited prey orienting in the frog. II. Anatomical studies on the laterality of central projections. *Neuroscience* 21: 57-82.

Kostyk, S.K. and Grobstein, P. (1987) Neuronal organization underlying visually elicited prey orienting in the frog. III. Evidence for the existence of an uncrossed descending tectofugal projection. *Neuroscience* 21: 83-96.

Grobstein, P. and Chow, K.L. (1987) Visual system development, plasticity. In: Encyclopedia of Neuroscience. (G. Adelman, ed.), Birkhäuser Boston, pp 1294-1297.

Grobstein, P. (1987) The nervous system/behavior interface: levels of organization and levels of approach. Commentary on target article by J.-P. Ewert. *Behav. Brain Sci.* 10: 380-381.

Berkowitz, A. and Grobstein, P. (1987) Frog prey orienting and brain development: neuronal proliferation in ventral tegmentum. *Soc. Neurosci. Abstr.* 13: 252.

Grobstein, P. (1988) On beyond neuronal specificity: problems in going from cells to networks and from networks to behavior. In: Advances in Neural and Behavioral Development, Volume III. (Shinkman, P.G., ed.), Ablex, pp. 1-58.

Grobstein, P. (1988) Between the retinotectal projection and directed movement: topography of a sensorimotor interface. *Brain, Behav. Evol.* 31: 34-48.

Grobstein, P. (1988) From the head to the heart: some thoughts on similarities between brain function and morphogenesis, and on their significance for research methodology and biological theory. *Experientia* 44: 961-971.

Grobstein, P. (1988) Letter to the editor (on the complementarity of research and teaching, and associated problems resulting from current funding mechanisms for academic science). *Science* 241: 639-640.

Grobstein, P. (1988) Brain sciences: some new choices. *Careers and the College Grad* (1989 edition): 118-119.

Grobstein, P., Crowley, K., and Spiro, J. (1988) Neuronal organization for directed movement in the frog: similarities in visual and tactile prey orienting. *Soc. Neurosci. Abstr.* 14: 1236.

Masino, T. and Grobstein, P. (1989) The organization of descending tectofugal pathways underlying orienting in the frog, Rana pipiens. I. Lateralization, parcellation, and an intermediate spatial representation. *Exp. Brain Res.* 75: 227-244.

Masino, T. and Grobstein, P. (1989) The organization of descending tectofugal pathways underlying orienting in the frog, Rana pipiens. II. Evidence for the involvement of a tecto-tegmento-spinal pathway. *Exp. Brain Res.* 75: 245-264.

- Grobstein, P. (1989) Organization in the sensorimotor interface: a case study with increased resolution. In: Visuomotor Coordination: Amphibians, Comparisons, Models, and Robots (Ewert, J.-P. and Arbib, M.A., eds), Plenum, pp 537-568.
- Grobstein, P. (1989) Diversity and deviance: a biological perspective. Bryn Mawr Alumnae Bulletin, Spring, 1989, pp 4-5.
- Grobstein, P. (1989) The Scientist/Teacher: A Call to Arms. J. College Sci. Teaching, December, p 140ff.
- Grobstein, P. and Staradub, V. (1989) Frog orienting behavior: the descending distance signal. Soc. Neurosci. Abstr. 15: 54.
- Masino, T. and Grobstein, P. (1990) Tectal connectivity in the frog, Rana pipiens: tecto-tegmental projections and a general analysis of topographic organization. J. Comp. Neurol. 291: 103-127.
- Grobstein, P. (1990) Strategies for analyzing complex organization in the nervous system. I. Lesion experiments, the old rediscovered. In: Computational Neuroscience. (Schwartz, E., ed.), MIT Press, pp 19-37.
- Grobstein, P. (1990) Strategies for analyzing complex organization in the nervous system. II. A case study: directed movement and spatial representation in the frog. In: Computational Neuroscience. (Schwartz, E., ed.), MIT Press, pp 242-255.
- Grobstein, P., Meyer, J. and Egnor, R. (1990) Directed movement in the frog: motor equivalence, multi-dimensionality, internal feedback? Soc. Neurosci. Abstr. 16: 117.
- Smeraski, C. and Grobstein, P. (1990) Directed movement in the frog: electrophysiological findings in the ventral midbrain. Soc. Neurosci. Abstr. 16: 117.
- Grobstein, P. (1991) Review of Depth Perception in Frogs and Toads: A Study in Neural Computing. Q. Rev. Biol. 66: 102.
- Grobstein, P. (1991) Genomes to dreams. Bryn Mawr Alumnae Bulletin, Spring, 1991, pp 14-17.
- Grobstein, P. (1991) Directed movement in the frog: a closer look at a central representation of spatial location. In: Visual Structures and Integrated Functions (Research Notes in Neural Computing, Vol., 3) (Arbib, M.A. and Ewert, J.-P., eds), Springer-Verlag, pp 125-138.
- Carr, J.N., Louca, D., and Grobstein, P. (1991) Directed movement in the frog: explorations using back propagation networks. Soc. Neurosci. Abstr. 17:1578.
- Smeraski, C. and Grobstein, P. (1991) Directed movement in the frog: electrophysiological studies of a tecto-tegmental pathway. Soc. Neurosci. Abstr. 17:578.
- Grobstein, P. (1992) Directed movement in the frog: motor choice, spatial representation, free will? In: Neurobiology of Motor Programme Selection: New Approaches to Mechanisms of Behavioral Choice. (Kien, J., McCrohan, C., Winlow, B., eds.), Pergamon Press, pp 250-279.
- Grobstein, P. (1992) Central spatial representations and mapping the sensorimotor interface: how early is early, how late is late, and what difference does it all make anyhow? Commentary on target article by Flanders et al., Behav. Brain Sci. 15: 339-341.
- Grobstein, P. (1993) Information processing styles and strategies: directed movement, neural networks, space, and individuality. Commentary on target articles by Robinson, Stein, and others. Behav., Brain Sci. 15: 750-752.

Grobstein, P., Brodfuehrer, P, and Oristaglio, J. (1993) The free-will problem: motor choice and intrinsic variability in frog and leech. Soc. Neurosci. Abstr. 19: 1617.

Grobstein, P. (1994) Variability in behavior and the nervous system. In: Encyclopedia of Human Behavior, Volume 4 (V.S. Ramachandran, ed.), Academic Press, 447-458.

Grobstein, P. (1994) Review of From Animals to Animats 2. J. Cog. Neurosci., in press.

Patton, P. and Grobstein, P (1998) The effects of telencephalic lesions on visually mediated prey orienting behavior in the frog (*Rana pipiens*). I. The effects of complete removal of one telencephalic lobe, with a comparison to the effects of unilateral tectal lobe lesions. Brain, Behavior, and Evolution 51: 123-143.

Patton, P. and Grobstein, P (1998) The effects of telencephalic lesions on visually mediated prey orienting behavior in the frog (*Rana pipiens*). II. The effect of limited lesions to the telencephalon. Brain, Behavior, and Evolution 51: 144-161.

Grobstein, P., Oristaglio, J, Baum, A., and McCallum, J. (1998) Frog prey orienting behavior: further analysis of a sensorimotor deficit. Soc. Neurosci. Abstr. 24: 187.

Oristaglio, J., Grobstein, P., Biernat, Ni., and Vero, E. (1998) Frog prey orienting behavior: the problem of multiple distance cues. Soc. Neurosci. Abstr. 24: 187.

Grobstein, P. (2002) Who's afraid of Emily Dickinson, or how I learned to stop worrying and love the brain, Newsletter of the Psychoanalytic Center of Philadelphia  
(available at <http://serendip.brynmawr.edu/bb/brainpsychoanal.html>)

Grobstein, P. (2002) The brain's images: co-constructing reality and the self. Abstract in the program of the 11th Annual Usability Professionals' Association (UPA) Conference (Orlando, Florida, July 2002). <http://serendip.brynmawr.edu/bb/reflections/upa/UPApaper.html>

Grobstein, P. (2003) Getting it less wrong, the brain's way: science, pragmatism, and multiplism. IN Interpretation and Its Objects: Studies in the Philosophy of Michael Krausz (A. Ritvoi, ed.), Rodopi, pp 153-166.

Grobstein, P. (2003) A Vision of Science (and Science Education) in the 21<sup>st</sup> Century: Everybody "Getting It Less Wrong" Together. Prepared for a talk at the Illinois Mathematics and Science Academy.  
([http://serendip.brynmawr.edu/sci\\_cult/imsa/imsatalk.html](http://serendip.brynmawr.edu/sci_cult/imsa/imsatalk.html))

Grobstein, P. (2005) Making the Unconscious Conscious, and Vice Versa:  
A Bi-directional Bridge Between Neuroscience/Cognitive Science and Psychotherapy?, Cortex 44: 663-668

Grobstein, P. (2005) Revisiting Science in Culture: Science as Story Telling and Story Revising, Journal of Research Practice, Volume 1.1, Article M1.

Dalke, A., Grobstein, P. and McCormack, E. (2006) Why and How to be Interdisciplinary, Academe, May/June.

Dalke, A., Grobstein, P. and McCormack, E. (2006) Exploring Interdisciplinarity: The Significance of Metaphoric and Metonymic Exchange Journal of Research Practice, Volume 2.2, Article M3

Dalke, A., Cassidy, K., Grobstein, P. and Blank, D. (2007) Emergent Pedagogy: Learning to Enjoy the Uncontrollable and Make it Productive, Journal of Educational Change 8(2): 111-130.

Dalke, A. and Grobstein, P. (2007) Story Telling in (At Least) Three Dimensions: An Exploration of Teaching Reading, Writing, and Beyond, Journal of Teaching Writing 23(1): 91-114.

Grobstein, P. (2007) Interdisciplinarity, Transdisciplinarity, and Beyond: The Brain, Story Sharing, and Social Organization. *Journal of Research Practice* 3(2), M21.

Grobstein, P. (2007) From Complexity to Emergence and Beyond: Towards Empirical Non-Foundationalism as a Guide to Inquiry. *Soundings* 90 (1/2: 301-322.

Grobstein, P. (2010) The Brain as a Learner/Inquirer/Creator: Some Implications of Its Organization for Individual and Social Well-Being, submitted.

Grobstein, P. and Lesnick, A. (2011) Life itself: an exploration of the biological and social foundations of education. In preparation, manuscript available.

Grobstein, P. and Olshin B. (2011) Foundationalism, non-foundationalism, cultures, and the brain: beginning an inquiry. In preparation, manuscript available.

## SELECTED SERENDIP PUBLICATIONS

*Serendip (<http://serendip.brynmawr.edu>) is a website which I was involved in establishing in 1994, and which continues to evolve as a "a gathering place for people who suspect that life's instructions are always ambiguous and incomplete ... and hence need to be continually examined and rewritten." It has a world-wide audience averaging more than 40,000 different visitors a week and is extensively linked to for both academic and non-academic purposes, particularly in the areas of neurobiology, cognitive science, science education, and science and culture. As such, it is both a meaningful publication forum and a venue for exploring new forms of publication which bridge between teaching and research and between the academic and the non-academic. It serves as well as a 'playground' to help others develop awareness of the potentials of the web and skills in its use. Selected publications of mine on Serendip, both individual and collaborative, beginning in 2004 are listed below.*

Writing Descartes: I am, and I can think, therefore ... ([http://serendip.brynmawr.edu/sci\\_cult/lesswrong/descartes/](http://serendip.brynmawr.edu/sci_cult/lesswrong/descartes/)), June 2004

The novelist and the neurobiologist: a conversation about story telling (<http://serendip.brynmawr.edu/bb/novelneuro/>), Fall 2005

The art historian and the neurobiologist: a conversation about proprioception, the "I-function", body art, and ... story telling? (<http://serendip.brynmawr.edu/bb/artneuro/>), Fall 2005

Intelligent design and the story of evolution: no need for drawing lines in the sand (<http://serendip.brynmawr.edu/biology/evolution/grobstein.html>), September 2005

Science as storytelling or story telling? A conversation about science education ... and science ([http://serendip.brynmawr.edu/sci\\_cult/scienceis/bickmoregrandygrob.html](http://serendip.brynmawr.edu/sci_cult/scienceis/bickmoregrandygrob.html)), January 2006

The perils and potentials of "I believe ..." (<http://serendip.brynmawr.edu/reflections/pubintell/ibelieve.html>), April 2006

Getting it less wrong, ([http://serendip.brynmawr.edu/sci\\_cult/lesswrong/lesswrong/](http://serendip.brynmawr.edu/sci_cult/lesswrong/lesswrong/)) May 2006

Ant colonies: social organization without a director (<http://serendip.brynmawr.edu/complexity/models/antcolonies/>), August 2006

Models of mental health: a critique and prospectus ([http://serendip.brynmawr.edu/sci\\_cult/mentalhealth/models/](http://serendip.brynmawr.edu/sci_cult/mentalhealth/models/)), August 2006

The nature of science: the "problem of unconceived alternatives" and its significance ([http://serendip.brynmawr.edu/sci\\_cult/stanford/](http://serendip.brynmawr.edu/sci_cult/stanford/)), September 2006

Brain and education: thinking about new directions ([http://serendip.brynmawr.edu/sci\\_edu/education/brained.html](http://serendip.brynmawr.edu/sci_edu/education/brained.html)), March 2007

Paths to story telling as life: fellow travelling with Richard Rorty, (<http://serendip.brynmawr.edu/exchange/rorty>) July 2007

Evolution/science: inverting the relationship between randomness and meaning (<http://serendip.brynmawr.edu/exchange/node/1954>) January 2008

Reality: deconstruction and reconstruction: Hofstadter's road sign (<http://serendip.brynmawr.edu/exchange/hofstadter/applet>) March 2008

Illusions, ambiguous figures, and impossible figures: informed guessing and beyond  
(<http://serendip.brynmawr.edu/exchange/node/2604>) June 2008

Education: between two cultures (<http://serendip.brynmawr.edu/exchange/node/2610>), June 2008

Making sense of understanding: the three doors of Serendip  
(<http://serendip.brynmawr.edu/exchange/threedoors>) October 2008

Ways of making sense of the world: from primal patterns to deterministic and non-Deterministic emergence  
(<http://serendip.brynmawr.edu/exchange/ca>) December 2008

Evolving systems: the emergence of form, meaning, and esthetics  
(<http://serendip.brynmawr.edu/exchange/evolsys/home>), Summer 2009

The Taoist story teller and culture: do we still need truth, reality, and/or God?  
(<http://serendip.brynmawr.edu/exchange/node/4678>), July 2009

Multiple worlds, multiple interpretations, quantum physics and the brain  
(<http://serendip.brynmawr.edu/exchange/node/4882>), September 2009

Replacing blame with generosity in classrooms, inquiry, culture  
(<http://serendip.brynmawr.edu/exchange/node/5573>), November 2009

Sense of personal identity: whence cometh? where goeth? (<http://serendip.brynmawr.edu/exchange/node/5643>),  
December 2009

From evolving systems to world literature and back again. (<http://serendip.brynmawr.edu/exchange/node/6116>),  
January 2010

Evolving humanity; an abstract and its evolution. (<http://serendip.brynmawr.edu/exchange/grobsteinlesnick>).  
January 2010

On beyond a critical stance. (<http://serendip.brynmawr.edu/exchange/node/6110>), January 2010

World literature and neurobiology. (<http://serendip.brynmawr.edu/exchange/node/6279>), February 2010

Subjectivities and objectivities in classrooms and beyond (<http://serendip.brynmawr.edu/exchange/node/6203>),  
February 2010.

Cultures of ability. (<http://serendip.brynmawr.edu/exchange/node/6267>), February 2010

On beyond an algorithmic universe (<http://serendip.brynmawr.edu/exchange/node/6199>), February 2010

Evolving systems: beyond Gödel and Turing. (<http://serendip.brynmawr.edu/exchange/node/7520>), May 2010

Randomness, the brain, free will, science, "pseudo-science," justice, and demarcation: a conversation.  
(<http://serendip.brynmawr.edu/exchange/evolsys/chance10/cashmore>), June 2010

Evolution as reproduction with variability (<http://serendip.brynmawr.edu/exchange/grobstein/EvoIVariability>), July  
2010

Coordination without a leader (<http://serendip.brynmawr.edu/exchange/grobstein/flocking>), August 2010

Thinking more about depression as “adaptive” (<http://serendip.brynmawr.edu/exchange/grobstein/depression10>),  
August 2010

## **CURRENT RESEARCH**

Beginning 10 years or so ago, I moved from an older identity as a laboratory research neuroscientist to my current one as an “applied neurobiologist.” In this role, I intersect my background and expertise as a neuroscientist and biologist with other disciplines and activities (both academic and non-academic), using each to inform the others. Among the areas in which I am currently active in this way are education, mental health, social organization, complex and emergent systems, and philosophy. I am also exploring the theory and practice of interdisciplinary and transdisciplinary approaches to academic organization and to inquiry generally. In addition, I continue to be an active explorer of the potentials of the web, both as a pedagogical tool and, more generally, as a mechanism to facilitate the kind of exchange of perspectives needed not only to mitigate conflicts among cultures but to help different communities appreciate the benefits of diverse perspectives.