

Curriculum Vitae

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STEPHEN L. GARDINER

Department of Biology
Bryn Mawr College
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EDUCATIONAL HISTORY:

- 1979 Ph.D. Invertebrate Zoology: University of North Carolina at Chapel Hill
- 1974 M.A. Invertebrate Zoology: University of North Carolina at Chapel Hill
- 1970 B.S. Zoology: University of North Carolina at Chapel Hill

EMPLOYMENT EXPERIENCE:

- 2006 – present Senior Lecturer, Department of Biology, Bryn Mawr College.
- 1993 - 2006 Senior Laboratory Lecturer, Department of Biology, Bryn Mawr College.
- 1984 - 1993 Lecturer and Laboratory Coordinator, Department of Biology, Bryn Mawr College.
- 1982 - 1989 Adjunct Research Associate, Department of Invertebrate Zoology, National Museum of Natural History, Smithsonian Institution.
- 1982 - 1984 Visiting Lecturer, Department of Biology, University of North Carolina at Chapel Hill.
- 1982 - 1983 Research Consultant, Department of Biology, University of North Carolina at Chapel Hill.
- 1981 - 1982 Research Associate, Department of Invertebrate Zoology, National Museum of Natural History, Smithsonian Institution.

POSTDOCTORAL EXPERIENCE:

- 1980 - 1981 National Museum of Natural History, Smithsonian Institution with Dr. Meredith L. Jones. Fine Structural Study of the New Vestimentiferan from the Hydrothermal Vents of the Galapagos Rift Region.
- 1979 - 1980 University of North Carolina at Chapel Hill with Dr. Reinhard M. Rieger. Ultrastructural Studies of Coelomic Epithelia in Larval and Adult Polychaeta.

TEACHING EXPERIENCE:

Courses Taught at Bryn Mawr College:

Biological Oceanography
Evolution
Evolution: Advanced Topics
Integrated Organismal Biology I & II
Introduction to Biology I: Molecules to Cells (Lecture and Laboratory)
Introduction to Biology II: Organisms to Populations (Lecture and Laboratory)
Organismal Biology: Vertebrate Structure
Senior Seminar in Evolutionary Developmental Biology
Senior Seminar in Morphology and Phylogenetic Systematics

Educational Internet Experience

Manage web site for lecture and laboratory components of advanced level courses on Biological Oceanography (Biology 309) and Organismal Biology: Vertebrate Structure (Biology 301), including posting of lecture materials and other pertinent course materials.

Laboratory Manuals:

Gardiner, S. L. 2000-2004. *Introduction to Biology I: Molecules to Cells Laboratory Manual*.

_____. 1999. *Introduction to Biology II: Biology 102 Laboratory Manual*. Bryn Mawr College.

_____. 1999. *Explorations in Biology: Laboratory Manual for Introductory Biology*, Fifth Edition. Bryn Mawr College.

_____. 1993. *Biology: Basic Concepts*, Fourth Edition. Bryn Mawr College.

_____. 1990. *Introductory Biology: Diversity and Vertebrate Anatomy*, Sixth Edition. Bryn Mawr College.

Laboratory Manuals (cont.):

_____. 1989. *Introductory Biology: Cell Biology and Genetics*. Fifth Edition. Bryn Mawr College.

_____, and J. S. DeSaix (eds.) 1984. *Introduction to the Diversity of Organisms*. University of North Carolina.

PROFESSIONAL ORGANIZATIONS:

American Microscopical Society
Biological Society of Washington
Sigma Xi

PROFESSIONAL ACTIVITIES:

Review of proposals for: American Philosophical Society
National Science Foundation Review Panel: Instrumentation
and Laboratory Improvement Program
Smithsonian Institution
National Undersea Research Center
National Science Foundation: Division of Ocean Sciences
West Coast & Polar Regions Undersea Research Center

Review of manuscripts for: Biological Bulletin
Canadian Journal of Zoology
Cell & Tissue Research
Deep Sea Research Part I
Invertebrate Biology
Journal of Morphology
Journal of Natural History
Maine Naturalist
Marine Ecology Progress Series
Microscopy and Research Technique
Palaeogeography, Palaeoclimatology, Palaeoecology
Proceedings of the Biological Society of Washington
Scientia Marina
Transactions of the American Microscopical Society
Zoomorphology

PROFESSIONAL ACTIVITIES (cont.):

2006 - present Editor, Proceedings of the Biological Society of Washington

1997 - 2006	Associate Editor, Proceedings of the Biological Society of Washington
1993 - 2006	Associate Editor, Journal of Morphology
1993 - 2008	Secretary, American Microscopical Society

RESEARCH INTERESTS:

Functional anatomy, development, taxonomy, and phylogenetic relationships of Polychaeta, especially deep-sea polychaetes associated with hydrothermal vent and hydrocarbon seep communities. Polychaete community assemblages of Delaware Bay and surrounding areas.

GRANT SUPPORT:

Growth and Habitat Requirements in Hydrocarbon-Seep Communities. Principal Investigator: Charles R. Fisher, Pennsylvania State University; Co-Principal Investigator: Stephen L. Gardiner. National Undersea Research Center at the University of North Carolina at Wilmington. Dates: June 1993 through December 1994. Amount: \$59,115.

An Ultrastructural Investigation of the Early Development of the Trophosome of *Ridgeia* sp. (Vestimentifera). Biomedical Research Support Grant. National Institutes of Health through Bryn Mawr College. Dates: October 1991 through March 1992. Amount: \$1,800.

Enhancement of Training in Biological Electron Microscopy. National Science Foundation, Grant #8852540. Dates: December 1988 through November 1991. Amount: \$12,406.

Biomedical Research Support Grant. National Institutes of Health through Bryn Mawr College. Dates: October 1988. Amount: \$1,204.

Ultrastructural Study of Endosymbiotic Bacteria in Annelid Worms from Deep-Sea Hydrothermal Vents. Bryn Mawr College. Dates: May 1988 through May 1989. Amount: \$360.

INVITED SEMINARS:

Fine Structure of *Owenia* (Polychaeta) and Comments on Annelid Phylogeny, Department of Invertebrate Zoology, National Museum of Natural History, Smithsonian Institution.

The Development and Structure of the Coelom of *Owenia fusiformis*, Department of Zoology, Clemson University.

INVITED SEMINARS (cont.):

Fine Structural Organization of the Tentacles of *Riftia pachyptila* Jones (Pogonophora): the Vestimentiferan from the 'Rose Garden' Geothermal Vent of the Galapagos Rift, Department of Invertebrate Zoology, National Museum of Natural History, Smithsonian Institution.

Exploring Deep-Sea Spreading Centers: Hydrothermal Ecosystems and the Role of Prokaryotes," Philadelphia College of Pharmacy and Science.

Deep-Sea Hydrothermal Ecosystems and the Role of Prokaryotes, Department of Biology, Widener University.

Vestimentiferans and Prokaryotes: Partners to the End, The American Institute of Biological Sciences, Saint Joseph's University Chapter.

Vestimentiferan Worms and Prokaryotes: Symbiosis in a Deep-Sea Rose Garden, Department of Biology, Bryn Mawr College.

Biology of Deep-Sea Tube Worms from the East Pacific Rise, Department of Biology, University of Pennsylvania.

Giant Tube Worms (Vestimentifera) and Prokaryotes: The Anatomy of an Endosymbiotic Association in the Deep Sea, College of Marine Studies, University of Delaware.

Diversity in the Deep Sea: Hydrothermal Vents and Hydrocarbon Seeps, Department of Biology, Widener University.

The Biology of Deep Sea Hydrothermal Vents, Department of Biology, Ursinus College.

Hydrothermal Vents and Hydrocarbon Seeps: Oases of Diversity in the Deep Sea, Department of Biology, Millersville University.

Biology of Hydrothermal Vent Vestimentiferan Worms, Department of Biology, Bucknell University.

Unique Deep-Sea Environments: Hydrothermal Vents and Hydrocarbon Seeps, Department of Biology, Washington College.

Exotic Communities in the Deep Sea: Lost Cities, Bushes, Clam Acres, and More. College of Marine and Earth Studies, University of Delaware.

POSTERS AND PRESENTATIONS:

New cytological features of *Owenia fusiformis* (Polychaeta) and their significance for annelid phylogeny. Paper presented at meeting of the North Carolina Academy of Science, April 1983.

Ultrastructure of mesoderm and its derivatives in annelids. Poster presented at meeting of Systematic Association, London: On the Origin and Relationships of Lower Invertebrates, September 1983, (Co-presenters: P. R. Smith, J. Lombardi and R. M. Rieger).

Archiannelida. Paper presented for symposium, "Refresher Course on the Lesser Known Invertebrates," American Society of Zoologists, December 1984.

A transient gut in deep-sea larval tube worms (Vestimentifera): A possible mechanism for establishing the endosymbiotic association with prokaryotes. Paper presented for symposium on Organismal Biology, Villanova University, April 1989.

Ultrastructural Characters: New Clues for Polychaete Phylogeny. Paper presented for symposium on Organismal Biology, Villanova University, April 1990.

Preliminary observations on a putative photoreceptor in the mitraria larva of *Owenia fusiformis* and *Myriochele* sp. (Polychaeta). Poster presented at the annual meeting of the American Society of Zoologists, December, 1996.

Ultrastructural observations of an unusual sensory structure in the cerebral ganglion of *Owenia fusiformis* and *Myriochele* sp. (Polychaeta: Oweniidae). Poster presented at the 9th International Polychaete Conference, July, 2007.

Acquisition, Curation and Digitization of a collection of Delaware estuary benthic invertebrates from over fifty years ago. Poster presented at the Delaware Estuary Science & Environmental Summit, January 2009.

PUBLICATIONS:

BOOKS:

Harrison, F. W., and S. L. **Gardiner** (eds.) (1992) *Microscopic Anatomy of Invertebrates, Vol. 7, Annelida*. New York: Wiley-Liss.

BOOK CHAPTERS:

Gardiner, S. L. (1992) External anatomy. In F. W. Harrison and S. L. Gardiner (eds.): *Microscopic Anatomy of Invertebrates, Vol. 7, Annelida*. New York: Wiley-Liss, pp.11-17. [F. W. Harrison, Treatise Editor]

BOOK CHAPTERS (cont.):

Gardiner, S. L. (1992) General organization, integument, musculature, coelom and vascular system. In F. W. Harrison and S. L. Gardiner (eds.): *Microscopic Anatomy of Invertebrates, Vol. 7, Annelida*. New York: Wiley-Liss, pp. 19-52. [F. W. Harrison, Treatise Editor]

Gardiner, S. L., and M. L. Jones (1993) Vestimentifera. In F. W. Harrison and M. E. Rice (eds.): *Microscopic Anatomy of Invertebrates, Vol. 12, Onychophora, Chilopoda and Lesser Protostomata*. New York: Wiley-Liss, pp. 371-460. [F. W. Harrison, Treatise Editor]

JOURNAL ARTICLES:

Gardiner, S. L. 1976. Errant polychaete annelids from North Carolina. *J. Elisha Mitchell Sci. Soc.* 91:77-220.

Gardiner, S. L. 1978. Fine structure of the ciliated epidermis on the tentacles of *Owenia fusiformis* (Polychaeta: Oweniidae). *Zoomorphologie* 91:37-48.

Gardiner, S. L., and W. H. Wilson Jr. 1979. New records of polychaete annelids from North Carolina with the description of a new species of *Sphaerosyllis* (Syllidae). *J. Elisha Mitchell Sci. Soc.* 93:159-172.

Gardiner, S. L., and R. M. Rieger. 1980. Rudimentary cilia in muscle cells of annelids and echinoderms. *Cell Tiss. Res.* 213:247-252.

Cavanaugh, C. M., **S. L. Gardiner**, M. L. Jones, H. W. Jannasch, and J. B. Waterbury. 1981. Prokaryotic cells in the hydrothermal vent tube worm *Riftia pachyptila* Jones: possible chemoautotrophic symbionts. *Science* 213:340-342.

Hope, W. D., and **S. L. Gardiner**. 1982. Fine structure of a proprioceptor in the body wall of the marine nematode *Deontostoma californicum* Steiner and Albin, 1933 (Enoplida: Leptosomatidae). *Cell Tiss. Res.* 225:1-10.

Gardiner, S. L., and M. L. Jones. 1985. Ultrastructure of spermiogenesis in the vestimentiferan tube worm *Riftia pachyptila* (Pogonophora: Obturata). *Trans. Amer. Microsc. Soc.* 104:19-44.

Jones, M. L. and **S. L. Gardiner**. 1985. Light and scanning electron microscopic study of spermatogenesis in the vestimentiferan tube worm *Riftia pachyptila* (Pogonophora: Obturata). *Trans. Amer. Microsc. Soc.* 104:1-18.

Jones, M. L., **S. L. Gardiner**, M. E. Petersen, and W. Sterrer. 1986. Phylum Annelida (Segmented worms). In W. Sterrer (ed.): *Marine Fauna and Flora of Bermuda*. New York: John Wiley & Sons, pp. 232-258.

JOURNAL ARTICLES (cont.):

Smith, P. R., E. E. Ruppert and **S. L. Gardiner**. 1987. A deuterostome-like nephridium in the mitraria larva of *Owenia fusiformis* (Polychaeta, Annelida). Biol. Bull. 172:315-323.

Gardiner, S. L. 1988. Respiratory and feeding appendages. In W. Westheide and C. O. Hermans (eds.): *The Ultrastructure of Polychaeta*. New York: Gustav Fischer Verlag, pp. 37-43. [P. Ax (ed.): *Microfauna Marina*, Vol. 4.]

Jones, M. L., and **S. L. Gardiner**. 1988. Evidence for a transient digestive tract in Vestimentifera. Proc. Bio. Soc. Wash. 101:423-433.

Jones, M. L., and **S. L. Gardiner**. 1989. On the early development of the vestimentiferan tube worm *Ridgeia* sp. and observations on the nervous system and the trophosome of *Ridgeia* sp. and *Riftia pachyptila*. Biol. Bull. 177:254-276.

Gardiner, S. L., M. L. Jones, and J. J. Anders. 1991. Scanning electron microscopical observations of fibrillar structures in the trophosome of *Riftia pachyptila* Jones (Vestimentifera: Axonobranchia). Trans. Amer. Microsc. Soc. 110(1):47-52.

Gardiner, S. L., and M. L. Jones. 1994. On the significance of larval and juvenile morphology for suggesting phylogenetic relationships of the Vestimentifera. In R. E. Emlet and E. E. Ruppert (eds.): *Evolutionary Morphology of Marine Invertebrate Larvae and Juveniles*. Amer. Zool. 34: 513-522.

Gardiner, S. L., E. McMullin and C. R. Fisher. 2001. *Seepiophila jonesi*, a new genus and species of vestimentiferan tube worm (Annelida: Pogonophora) from hydrocarbon seep communities in the Gulf of Mexico. Proc. Bio. Soc. Wash. 114:694-707.

Gardiner, S. L., and S. Hourdez. 2003. On the occurrence of the vestimentiferan tube worm *Lamellibrachia luymesii* van der Land and Nørrevang, 1975 (Annelida: Pogonophora) in hydrocarbon seep communities in the Gulf of Mexico. Proc. Biol. Soc. Wash. 116:380-394.

Southward, E. C., A. Schulze, and **S. L. Gardiner**. 2005. Pogonophora: form and function. Hydrobiologia 535/536:227-251.

ABSTRACTS: (*undergraduate student)

Gardiner, S. L., and M. L. Jones. 1983. Fine structure of the branchial tentacles of the vestimentiferan tube worm *Riftia pachyptila* Jones (Pogonophora). Amer. Zool. 23:904.

ABSTRACTS: (*undergraduate student)

Rieger, R. M., **S. L. Gardiner**, M. E. Fransen, and J. Lombardi. 1983. Coelomic lining in echinoderm tube feet and in Annelida. Amer. Zool. 23:931.

- Gardiner, S. L.**, M. L. Peters,* and M. L. Jones. 1990. Functional role of supportive glial cells in the tentacular processes of the tube worm *Riftia pachyptila*. *Amer. Zool.* 30:660.
- Gardiner, S. L.**, S. R. James, and M. L. Jones. 1991. On the transient digestive system and trophosome of juveniles of *Ridgeia* sp. (Vestimentifera). *Amer. Zool.* 31:156.
- Gardiner, S. L.**, S. E. Shrader,* and M. L. Jones. 1992. Preliminary observations on oogenesis in the tube worm *Riftia pachyptila* (Vestimentifera). *Amer. Zool.* 32:124A.
- Gardiner, S. L.**, and M. L. Jones. 1993. On the significance of larval and juvenile morphology for suggesting phylogenetic relationships of the Vestimentifera. *Amer. Zool.* 33:136A.
- Harrison, F. W., **S. L. Gardiner**, K. Ruetzler, and C. R. Fisher. 1994. On the occurrence of endosymbiotic bacteria in a new species of sponge from hydrocarbon seep communities in the Gulf of Mexico. *Trans. Amer. Microsc. Soc.* 113: 419-420.
- Harrison, F. W., **Gardiner, S. L.**, K. Ruetzler, and C. R. Fisher. 1995. On the occurrence of endosymbiotic bacteria in an undescribed species of sponge from hydrocarbon seep communities in the Gulf of Mexico. *Bull. Assoc. Southeast. Biol.* 42:105.
- Gardiner, S. L.**, B. F. Dickey,* and M. L. Schwartz.* 1995. On the mitraria larva of *Myriochele* and *Owenia* (Polychaeta: Oweniidae): Contrasts and similarities of certain morphological features and their possible phylogenetic significance. *Amer. Zool.* 35:114A.
- Gardiner, S. L.**, M. L. Schwartz,* and B. F. Dickey.* 1996. Preliminary observations on a putative photoreceptor in the mitraria larva of *Owenia fusiformis* and *Myriochele* sp. (Polychaeta). *Amer. Zool.* 36:109A.
- Gardiner, S. L.**, A. K. Dewan,* M. L. Schwartz*, J. Cannon,* and B. F. Dickey.* 2007. Ultrastructural observations of an unusual sensory structure in the cerebral ganglion of *Owenia fusiformis* and *Myriochele* sp. (Polychaeta: Oweniidae). *Proceedings of the 9th International Polychaete Conference*, p. 130.