



NEWSLETTER

THE EDMUND NILES HUYCK PRESERVE, INC.
P.O. BOX 188, RENSSELAERVILLE, NY 12147
(518) 797-3440



Scanning electron microscope image of a group of collar cells of the freshwater sponge. The cells' whip-like flagellae (note tangled mass) beat to create the water current which courses through the sponge's body.

SPONGES PROVIDE KEY TO MYSTERY

by Laura Stephenson Carter

Research being conducted on the Huyck Preserve may play a crucial role in unlocking the mysteries of immunology, and could lead to a better understanding of how cells defend themselves . . . against foreign bodies, attacking viruses, and maybe even cancer. And this same research may provide important information on the evolution of tissue structure as well as on the nature of wound healing.

No, the Preserve has not become a medical research center. It is the study of freshwater sponges being carried out by Dr. Frederick Harrison from Western Carolina University that has everyone so excited. Dr. Harrison, a respected authority on freshwater sponges, has, with the help of the scanning electron microscope, made some startling discoveries about sponge cells that could have a major impact on scientific thinking.

The scanning electron microscope, a sophisticated piece of equipment that magnifies objects many thousands of times, has allowed Dr. Harrison to explore winding caverns, alien forms, strange landscapes — the stuff of science fiction movies — deep within the sponge body.

One of the reasons he chose the Huyck Preserve for his research is its proximity to Albany Medical College where the scanning electron microscope is located.

"It's unusual for a field study site to be so close to a major research center," he says.

Working with him on the project the past two summers were Dr. Gordon Kaye and Dr. Nancy Weber Kaye both with Albany Medical College. Dr. Gordon Kaye is Chairman of the Department of Anatomy and professor of anatomy and pathology. His wife, Dr. Nancy Kaye, is a research as-

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WHAT'S IN IT FOR YOU?

"What do I get as a member?" "What does the Preserve do for me?" These were questions posed at the 1985 annual meeting of the Edmund Niles Huyck Preserve this summer.

While the Preserve should and is planning to provide more for its membership, people take for granted what the Preserve is already "doing" for them.

Rensselaerville has remained a charming village partly because the Preserve insulates it from developers who have been grabbing up land all through the Catskills. And the Preserve protects and provides the public water supply, without the support of tax dollars that most other reservoirs get.

The Preserve's trails are maintained so

people can enjoy strolling through the woods, along peaceful streams, and past majestic waterfalls. Trails can even be used by cross country skiers in the winter. Picnic areas are provided. And residents are allowed to swim at a beach supervised by trained lifeguards who also give free swimming lessons to area children.

Other organizations that are constantly asking for money — The Nature Conservancy, The Wilderness Society, The Audubon Society, to name but a few — use membership donations to protect wildlife and nature preserves, but they offer little to donors except perhaps for magazine subscriptions. When you donate to the Preserve, you are not only helping to protect a natural area, its

flora and fauna, but you are supporting something that you can enjoy.

While the Preserve cannot and should not even try to offer the kinds of programs found at places like the State funded Environmental Education Center in Delmar, it does offer a few modest programs, for free to its membership.

The summer nature study classes for children make learning about nature fun, and they instill in them a respect for wildlife and the environment. And where else can parents find three free hours of babysitting a week?

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LAKE PROGRAM

Labor Day brought to a close another golden summer of swimming and picnicking for Rensselaerville residents at Lake Myosotis. While the drought caused most reservoirs in the Northeast to drop to alarmingly low levels, Myosotis stayed substantially full all summer thanks to its large watershed area and to the excellent management of the outflow.

This summer, Kathleen Radler, assisted by the lifeguards and parent volunteers, ran the Red Cross Swim Program which provided free swimming lessons to sixty children from the whole Town of Rensselaerville. Everyone agreed that the instruction was excellent and good progress was made. Lifeguards Shelly Scholz, her parents Jim and Dottie Scholz, and Robin Chichester worked hard to ensure the safety of all swimmers, and their efforts were much appreciated.

As Lake Myosotis is the village drinking water supply, the Albany County Health Department limits the number of swimmers who may use the lake. For that reason, the swimming and picnic areas are provided for the use of only Rensselaerville residents and their guests. But this summer, carloads of people from distant places came to use this village recreation area in unprecedented numbers and the Lake Committee had to ask many to leave. Committee members even took turns doing "guard duty," admitting only cars



Kathleen Radler demonstrates artificial respiration technique to youngsters enrolled in the swimming program. (photo by Corlin Bauhofer).

with Huyck Preserve parking stickers or guest cards. There is a new sign at the entrance to the lake parking lot that clearly states the policies.

Rensselaerville residents are invited each Spring to contribute to the Lake Program so they can receive their lake stickers and guest cards. Although donations of \$25 to \$50 per family have been suggested to help defray the costs of running the program, residents contributing less will still be issued lake stickers.

Expenses associated with running the Lake Program include lifeguard and swim instructor salaries, insurance, equipment and supplies, rental of the outdoor bathrooms, maintenance and repair, lawn mowing, and even garbage collection. This summer these expenses ran close to \$6,000.

Community financial support for the Lake Program topped all previous summers, so users of this lovely lake-side facility can be proud to know that they paid for more than half of its expenses.

Eleanor D. Revill

The Lake Committee for 1985 was chaired by David Bryan and its members included Ellie Revill, Susie Holmes, and Meghan Martin-Smith.

NATURE STUDY

More than two dozen children participated this summer in the Edmund Niles Huyck Preserve's free nature study classes held at the Eldridge Research Center on Tuesday and Thursday mornings.

The weather favored us this year and we were able to enjoy many long nature hikes in the vicinity of Lincoln Pond and Lake Myosotis — areas of exceptional beauty and great biological diversity.

To the children, these hikes were the most fun. They particularly enjoyed seeking and finding little "critters" along the banks of Ten Mile Creek. Tadpoles, salamanders, toads, crayfish, and turtles bore the brunt of this loving attention — passed gently from hand to hand, examined, discussed, and finally released unharmed. Lincoln Pond's resident animals, most notably the Great Blue Herons, woodpeckers, and the muskrats, also provided fascinating entertainment on many occasions.

In addition, the children helped stock and maintain a temporary mini-zoo at the research center, where they could care for and learn about fish, amphibians, reptiles, and mammals. The children also spent class time indoors discussing nature topics and ecology or participating in nature-related arts, crafts, and games.

The 1985 summer nature study program was fun and educational mainly because the children all showed great enthusiasm and curiosity all summer long. They were ever eager to explore and discover nature's ways and its places. They met gently and fondly with wildlife. And they asked lots of good questions.

There isn't much more a nature study teacher could ask of a summer. We enjoyed it thoroughly.

Sharon Curtis and Michael Kallaji

PRESERVE HISTORY

We are trying to compile a history of the Preserve and need your help. Anyone who has stories about the Preserve, its property, the buildings, the people who use it, the research, anything, are urged to write or call:

Laura S. Carter
81 Oakview Terrace
Short Hills, NJ 07078
(201) 564-7697

Information may be included in future articles to appear in this Newsletter and may ultimately be part of a brochure on the history of the Preserve.

Photographs are welcome too. Your stories and photos don't need to be old to be of interest. You may know something we don't and we would be delighted to have you share it with us.

SPONGES *(continued from page 1)*

sistant professor in medicine and assistant professor of anatomy.

Sponges have inhabited the Earth for some 600 million years. They are the most primitive of multi-cellular animals — so primitive that they have no hearts, brains, lungs, or nervous systems. In fact, sponges were thought to be plants until 1765. Confusion as to whether they were really plants or animals continued until 1825, when scientists began to partially understand sponge physiology.

Throughout the world, there are more than 5,000 species of sponges. Some are fragile, tiny animals no larger than a grain of rice. Others branch out for many feet and weigh as much as one hundred pounds. Most sponges are marine — living in the oceans — but there are about 150 freshwater species that are common in ponds, lakes, streams, and rivers.

The sponges Dr. Harrison is studying on the Huyck Preserve go unnoticed by most of us because they look like inconspicuous crusts of dirt on underwater rocks or logs. In fact, sponges are called encrusting animals because of the way they attach themselves to objects and form a sort of crust. Although sponges can be found where there is a continuous flow of water, they tend not to settle in areas subject to severe flooding since rough currents would wash them away. Dr. Harrison collected sponges from the small pond below the Lake Myosotis dam and at the Lincoln Pond spillway.

Look closely at the "crust" and you'll notice that it is peppered with tiny holes or pores.

The sponge body is punctuated with tiny holes through which water enters the internal canal system. Collar cells (choanocytes) line the canal walls and their whip-like flagellae beat to create the water current which courses through the sponge body (see photograph).

This water brings with it nourishment — scrumptious bacteria and other microscopic delights. The collar cells help to sift out the food particles and what cannot be digested gets ejected. Cells wandering around on the inside of the sponge engulf the food, in much the same way an amoeba does.

Sponges are called filter feeders because they filter food out of the water that flows through their bodies. Because they feed on bacteria, they do a good job of cleaning an aquatic environment. Researchers have found that sponges could turn over the water in a small pond once every seven days. But if you're wondering whether sponges might be an inexpensive alternative to filtering your drinking water, forget it unless you like water that tastes fishy and garlicky at the same time.

The life cycle of the sponge is an interesting one as it can reproduce both sexually and asexually. Sperm leave the male sponge via water currents and are carried into female sponges where eggs are waiting to be fertilized. The fertilized eggs first develop into embryos, then into larvae which "swim" out of the adult and attach themselves to a substrate where they develop into adults.

The adult freshwater sponges can't live through the winter — they disintegrate and die — so they use a method of asexual reproduction to ensure the continuation of the species. In the fall, they produce a large number of tiny orange colored beads called gemmules. These gemmules can withstand freezing and drying and, carrying the species through the winter, "hatch" in the Spring, releasing cells that will develop into an adult sponge.

Dr. Harrison's research has focused on these reproductive processes. In particular, he has been studying how "nurse cells" feed the growing eggs in the sponge, as well as the little understood

process of gemmule formation. This past summer, Harrison and his colleagues were able to complete the initial scanning electron microscope study of the freshwater sponge gemmule coat. The process of creating the gemmule coat is a highly programmed sequence of events that he feels will be a valuable vehicle for biomedical research.

Dr. Harrison was also studying a population of migratory cells on the outer surface of the sponge, a presence reported only once before but in a different species. He found that these amoeboid cells move along the sponge surface gobbling up debris that would otherwise clog the animal's canal system. This summer, he discovered that these cells were also depositing fibers upon "foreign" objects such as pollen grains or protozoans. In evolution, this represents a primitive "immune-type" response to foreign materials.

Harrison's other findings having to do with the structure of the dermal membrane of the sponge indicate that this outer layer may be more complex than was once thought. It was believed sponges lacked what is called a basement membrane — a layer of tissue found in higher organisms. But Harrison has found with the scanning electron microscope that sponges may indeed have this basement membrane. If he's right, these findings would provide important information about the evolution of tissue structure in the animal kingdom.

Dr. Harrison got "hooked" on sponges as an undergraduate at the University of South Carolina, after learning about Dr. H. V. Wilson's work. In 1907, Dr. Wilson made the exciting discovery that when a sponge was separated into its individual cells (this was done by forcing it through silk mesh), it would reconstruct itself if left overnight in sea water. And then he found that if red and yellow sponge cells were mixed together and treated in the same way, by morning, they would have sorted themselves out and formed one red and one yellow sponge.

The way the sponge cells were able to interact and recognize themselves suggested the evolutionary emergence of a cellular defense mechanism. Dr. Wilson's research thus marked the beginning of immunology.

In the sixties, while the young Harrison was working towards his masters and Ph.D., researchers managed to isolate a factor which seemed to be necessary for the aggregation of sponge cells. More recently, a simple mechanism has been identified which seems to be involved in the recombination process. And although the same simple mechanism may not account for cell-cell recognition in higher animals, it may at least help researchers begin to understand the more complex mechanisms in higher animals, including man.

While Dr. Harrison's research focuses primarily on sponges, at its core is a greater understanding of the human body's immunological potential. The Preserve, by helping to finance this and other research, continues to play an important role in the world of scientific discovery that enriches all our lives.

Dr. Harrison's research on the freshwater sponges *Eunapius fragilis* and *Ephydatia fluviatilis*, was supported by grants from the Edmund Niles Huyck Preserve in 1984 and 1985.

1985 FINANCIAL SUMMARY

Running a 2,000 acre nature preserve and biological field station with an operating budget of less than \$100,000 is no easy task. The job entails protecting the watershed of a public water supply, maintaining trails for public enjoyment, supporting a scientific research program as well as providing recreational and educational opportunities for the public.

Salaries, maintenance of the Preserve's eight buildings, equipment, grounds, and trails, insurance, utilities, administrative expenses, and the lake program make up a large portion of the operating budget and ran about \$75,000 in 1985. The science and education programs which include grants to scientists and graduate students conducting research at the Preserve, free nature study classes for children, weekly nature walks, as well as an annual science symposium for the general public, cost about \$17,500.

In addition to its operating expenses, the Preserve spent about \$21,000 in capital improvements in 1985. Roughly half of this

went towards the completion of the Eldridge Research Center, including finishing and furnishing the interior of the building as well as completing work begun in 1984 on the installation of wells and a septic system. The balance was used for other building and property improvements, equipment acquisition, and as part of the down-payment on the purchase of the Beisler property, a vital piece of the Ten-Mile Creed watershed.

About eighty percent of the money to fund the Preserve comes from the Edmund Niles Huyck Foundation, established in 1961 after the death of Mrs. E. N. Huyck. The rest comes from membership donations private gifts, and earned income.

The Preserve income in 1985 will be about \$120,000, \$90,000 of that coming from the Foundation. The Preserve hopes to raise at least \$8,000 through membership and lake donations, and earn \$5,000 through rent, \$2,500 from interest and dividends, and \$3,500 from the sale of maple syrup and t-shirts. In addition, pro-

ceeds from equipment and certain property sold will be about \$11,000 and was allocated for capital improvements.

Since the annual Foundation grant has not enabled the Preserve to keep pace with rising costs, the Preserve has had to cut spending, divest itself of unnecessary properties that were a drain on its finances, and find new ways to raise money. Two funds have been established to help provide for the Preserve's financial future. One is the Katharine Huyck Elmore Fund, created two years ago to commemorate Mrs. Elmore's eightieth birthday, and the other is the General Fund set up using proceeds from the sale of the Grevatt House, property the Preserve no longer needed nor could afford to maintain. Both funds are being handled by a reputable investment firm in New York City. While the funds are modest in size now, it is hoped that they will continue to grow not only by being wisely invested, but through contributions from the Preserve membership.

Laura S. Carter, Treasurer

1985 Recipients Huyck Preserve Grants

- Bauhofer, Corlin R., M.S. (State Univ. at Albany)
A floristic study of the macro-fungi of the E. N. Huyck Preserve
- Beatty, Susan. Ph.D. (Cornell University, 1981).
The role of competition in determining plant species composition of treefall mounds: does it exist?
- Daniels, Robert., Ph.D. (Univ. of Calif., Davis, 1980)
Anatomy of an invader: Response of established crayfish populations to the presence of a neo confamilial.
- Harrison, Frederick, Ph.D. (Univ. of S. Carolina, 1969)
Cytological studies of the freshwater sponge. *Eunapius fragilis*.
- Martyniuk, John, Ph.D. (SUNY Binghamton, 1983)
The effect of web-site physiogomy on web sizes of the filmy dome spider, *Prolinyphia marginata*.
- Sholes, Owen W. Ph.D. (Cornell Univ., 1982)
Growth & reproduction of *Aster divaricatus* (White wood aster) in the presence and absence of herbivores.
- Thomson, James, D., Ph.D. (Univ. of Wisconsin, 1978)
Harder, Lawrence, Ph.D. (Univ. of Toronto, 1983)
Cruzan, Mitch, M.A. (Calif. State Univ. 1983)
Pollination, selfing and sexual allocation in *Erythronium americanum*. (Trout-Lily, Adder's Tongue).
- ONGOING RESEARCH WITH OUTSIDE FUNDING:**
- Herbers, Joan. Ph.D. (Northwestern University, 1978) Queen Numbers in North American Ants.
- Tobiessen, Peter. Ph.D. (Duke University, 1970). Inhibition of Mycorrhizae of Hardwood Seedlings Growing in Pine Plantations.
- Wilcox, R. Stimson. Ph.D. (University of Michigan) 1969. Alternative Territory Strategies in a Water Strider.

WHAT'S IN IT FOR YOU? (continued from page 1)

The Sunday afternoon Huyck Hikes, led by a different naturalist or scientist each week during the summer, has enabled nature enthusiasts to learn more than how to identify birds and plants. They have learned about why forests need uprooted trees, how to

The Preserve administers modest grants and provides housing and laboratory support to scientists doing field research at the Preserve. Many scientists who are now prominent in their fields got their starts here. Dr. Eugene Odum, sometimes referred to as the "Father of Ecology," began his career in the 1930's as the Preserve's first resident biologist. Dr. Donald Griffin discovered in the Lincoln Pond Barn, in 1938, that bats navigate by echolocation. This discovery led to the development of sonar used for submarine navigation. And through the years, countless others who have come to the Preserve as graduate and even undergraduate students, have gone on to make important contributions in their fields.

To help people understand and appreciate the scientific research being conducted on the Preserve, the annual science symposium was begun three years ago. Researchers enthusiastically described their projects — in plain English — to members of the community. And, after the formal session, people could chat informally with the scientists during a wine and cheese party or, as in the case this past summer, at a picnic lunch up at Lincoln Pond.

The Preserve recognizes the need to provide more for its membership and plans to develop an interpretive nature trail, as well as better trail guides, and brochures on the vegetation, wildlife, geology, and even history of the Preserve lands. And programs are needed to help the public understand the benefits to be derived from nature in its undeveloped state.

The Preserve is in the process of hiring a Resident manager who will not only manage the Preserve's 2,000 acres and administer the scientific program, but will also be responsible for developing better programs. The Resident Manager will also work toward improving the relationship between the Preserve and the community and between the Preserve and its membership. People may come to better appreciate the Preserve's role in nature preservation, and watershed protection, once they begin to understand the environment and their impact on it.

Your membership donations help to support a unique preserve that in addition to being there for your personal enjoyment, plays an important role in preparing us, our children, and the next generation of scientists and environmentalists for the future.

T-Shirt and Sweat Shirt Order Form

Please indicate number wanted in appropriate space(s)

Child	T - SHIRTS			SWEATSHIRTS	
	Yellow	Teal Blue	Green	Powd. Blue	Burgundy
XS (2-4)	_____	_____	n.a.	n.a.	n.a.
S (6-8)	_____	_____	n.a.	_____	n.a.
M (10-12)	_____	_____	n.a.	_____	n.a.
L (14-16)	_____	_____	n.a.	_____	n.a.

Adult					
S (34-36)	_____	_____	_____	_____	_____
M (38-40)	_____	_____	_____	_____	_____
L (42-44)	_____	_____	_____	_____	_____
XL (46-48)	_____	_____	_____	_____	_____

Prices	Preserve Office	
	Pick-Up	UPS Shipped
T-Shirt		
Child	\$ 8.50	\$ 9.50
Adult	9.50	10.50
Sweat-Shirt		
Child	12.00	13.50
Adult	13.00	14.50

Ship To:
Name _____
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Please enclose check for _____
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Rensselaerville, NY 12147

MAPLE SYRUP

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	Preserve Office	
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pint	\$ 6	\$ 9.50
quart	\$ 8	\$12.00
½ gallon	\$13	\$18.00
gallon	\$23	\$29.00

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Rensselaerville Falls

collect mushrooms while watching out for the poisonous types, the nesting and feeding habits of birds, the life cycle of freshwater sponges, the invasion of a new species of crayfish, the geology of the Preserve, and other things too numerous to mention.

And let's not forget the Preserve's role as a biological field station. Biological field stations provide a setting for teaching and research, for short and long-term ecological and behavioral study, and they are often a last enclave of nature preserved in a region of nature "humanized." And, students who learn to discover in nature develop a fondness for nature and a strong personal commitment to the preservation of nature.

THE EDMUND NILES HUYCK PRESERVE, INC.

P.O. Box 188

Rensselaerville, New York 12147

Membership Dues

Junior (17 yrs. or younger)	\$5.00	\$ _____
Active	\$10.00	\$ _____
Supporting	\$25.00	\$ _____
Contributing	\$50.00	\$ _____
Sustaining	\$100.00	\$ _____
Patron	\$1000.00	\$ _____

Name: _____

Address: _____

Please make all checks payable to The E.N. Huyck Preserve, Inc., and mail to the above address. Tax deductible: Annual report is on file and available through the N.Y.S. Department of State, Charities Registration section, or the Preserve.

Thank you.

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