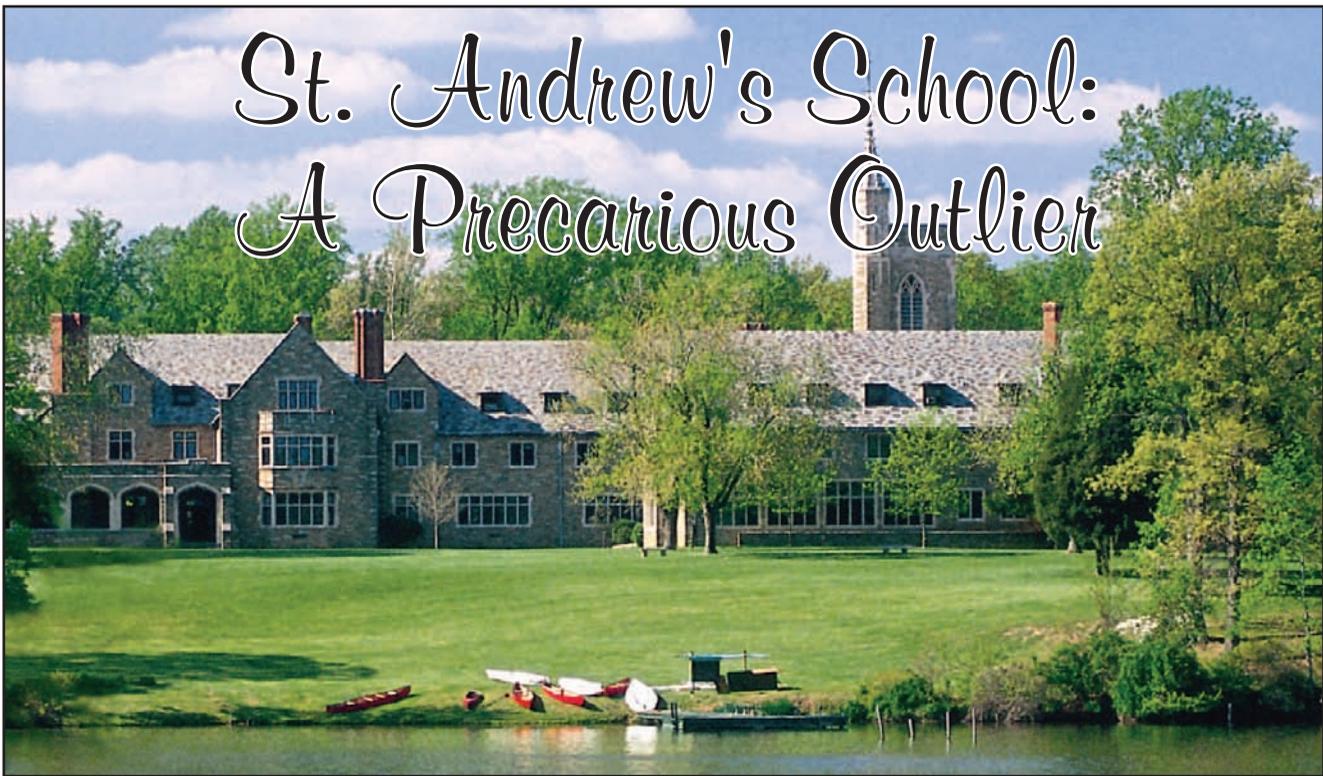


St. Andrew's School: A Precarious Outlier



Environmental Sustainability Initiatives and Programs

**By Carol Child
Correspondent**

St. Andrew's School has long been committed to graduating young men and women with a deep commitment to environmental stewardship. The mission of the Episcopal secondary boarding school states "St. Andrew's is committed to the sustainability and preservation of its land, water and other natural resources. We honor this commitment by what we teach and by how we live in community and harmony with the natural world."

On Noxontown Pond

The 2,200 acre campus on Noxontown Pond and Silver Lake comprises 1,500 acres of productive farmland and 600 forested acres. The balance makes up the campus proper – residential areas, playing fields and other recreational areas and wetlands. St. Andrew's landholdings include both the Noxontown Pond and Silver Lake spillways into the Appoquinimink River. The Middletown campus, a protected wildlife habitat, covers a broad share of the Appoquinimink watershed. The campus is situated on what has become the largest open green space in New Castle County.

"St. Andrew's serves as a model," said Michael McGrath, Delaware Department of Agriculture director of farmlands preservation for the state, "like a table-top model an architect would make. It is a microcosm of the world. It is in itself a little village. The school has to deal with sewage, water; they live there, eat there and they are surrounded by farmland. They have to be self-examining, reflective about suburban agriculture and sustainability."

In 1928, when founder A. Felix duPont purchased the 360-acre Comegys farm, he purposefully selected a site some distance from urban and suburban life. Then, that site was a comfortable two miles from Middletown and, since he, himself, was a rower, on a body of water suitable for rowing. Noxontown Pond, which Thomas Noxon dammed for his grist mill around 1740, shapes the heart of the campus. Over the years the trustees have expanded the buffer zone to include the present 2,200 acres.

Yet, today, with unsettling property rights trends kicking up, it could happen that, notwithstanding the founders' and trustees' foresight, "Someday Rodney Point [on the campus] might look like a good candidate for open space acquisition via eminent domain," wrote St. Andrew's

alumnus Tim Abbot in a St. Andrew's Magazine Winter 2007 essay. Abbot directs the Litchfield Hills Greenpoint Program with the Trust for Public Land and Housatonic Valley Association. He drove down to Delaware in the spring of 2006 to meet with Headmaster Dr. Daniel T. (Tad) Roach to discuss St. Andrew's sustainability efforts.

Throughout the school's history, St. Andrew's students have done daily farming chores, raked leaves, played football, lacrosse, whiffleball, engaged in rowing competitions on the pond, tended an organic garden, adorned tables in their dining hall with flowers they had grown, picked and dried, engaged in community service, enjoyed mountain camping trips, or simply sat on the T-Dock on the pond and contemplated the ripples in the water glinting rose and gold in the sunset.

In his September 9, 2006 convocation address, Dr. Peter McLean, environmental coordinator and biology and environmental sciences teacher at St. Andrew's, encouraged students to appreciate "what is most significant in our lives; that is, to appreciate what God has granted us – "each other, and a beautiful and remarkable natural world. So continue to sit and contemplate," he said, "perhaps as Esther Hsiao [Chinese teacher] encouraged us to do...to appreciate the silence, to breathe slowly and deeply, to focus inwardly. For in so doing, appreciating yourself begins. For me, it best happens in front of a stream or ocean or fire, or after a long run of hike or from just being outdoors; I find such solace and truth there as nature has such integrity and beauty."

A Precarious Outlier: The Crush of Development

In early 2000, Middletown annexed 200 acres of St. Andrew's landholdings. The town made an end-run around county land-use restrictions through a legal loophole allowing town governments in Delaware to annex adjacent lands at will, Michael McGrath said. Lured by tax revenues, to date the town has annexed 4,000 acres of adjacent farmland.

"Twenty years ago when [my wife and I] first arrived here, this was all an expansive farm, the pond surrounded by forests" said McLean.

Overnight, the impervious surface has spread to the edges of the pastoral campus that served as the setting for the 1989 movie *Dead Poets Society*, rendering it what Headmaster Roach terms a precarious outlier. At the time that movie was filmed, the population of Middletown was around 3,800. By 2020, housing starts are expected to spawn a population of more than 30,000.

Housing rising out of former farmland rushed at St. Andrew's gates, rapping at their door, perched to stay,



Photo by Joy McGrath

SAS students work to clear a gauge on the Noxontown Pond spillway.

its prophetic plume ravenous, gobbling up acres of farmland. Among the apparent predators are The Estates at St. Anne's on The Levels farmland to the west, settling in on what are "ranked by some as one of the five or ten best soils in the world," according to McGrath, who is a nationally recognized leader in farmland preservation. McGrath said that when such soils are gone the soils remaining will be second best and more energy must be expended to produce what we produced before, creating a lose-lose situation.

Environmental Sustainability Initiatives

The crush of development and the ensuing environmental degradation gave rise to a new and acute sense of environmental awareness among St. Andrew's faculty. Their passion for environmental stewardship intensified, St. Andreans expanded their efforts by adopting a suite of sustainability initiatives:

This spring St. Andrew's School faculty and students began a cooperative three-year environmental sustainability project with the University of Delaware involving scientists, faculty and students from both schools. They are using the campus as a living lab. Other partners in this effort include the USDA Natural Resources Conservation Service, the DDA, the Delaware Department of Natural Resources and Environmental Control (DNREC), and the local conservation district.

In the spring of 2005, staff and students began a two-acre organic garden to produce food for St. Andrew's dining hall. Student gardeners at dinner enjoy telling tablemates every detail they know about how to maintain, pick and store some of the food that they are currently eating.

The school has joined the U.S. Green Building Council. Staff and students have taken courses on LEED design (Leadership in Energy and Environmental Design,

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overseen by the USGBC). Through recycling efforts, the school has cut their waste by 80 percent. They have adopted a variety of green practices throughout school facilities. They have added natural gas to the campus infrastructure, run farm equipment and school vans on biodiesel blends, installed a new boiler that can run on natural gas or oil, which could theoretically be a biodiesel blend, and they cut their CO2 emissions by 13 percent in the school year 2005-2006. (Statistics for 2006-2007 were not available at the time of this writing.) The publications staff use recycled paper and disseminate news and updates to parents online, thus saving hundreds of pounds of paper annually

Then there are the small, individual steps that add up: student residential stewards are appointed to oversee the environmental stewardship effort such as recycling, turning off lights and stereos, helping to promote energy saving personal decisions like washing laundry in cold water, taking shorter showers, closing windows in cold weather. St. Andrew's has substantially decreased their use of oil and significantly reduced their energy costs in the face of rising costs globally.

"We are finding ways to integrate environmental sensibilities into class work," said Joy McGrath, St. Andrew's School director of advancement* and organic garden manager, who is also Michael McGrath's daughter. "If we neglected to develop the ways we integrate this amazing campus into our programs, we would not be very good educators," she said in a St. Andrew's Magazine story. Teachers strive to get students outdoors to explore and study the real world outside their textbooks.

"We in environmental science and others are lucky to have these 2,000 plus acres – habitat for bald eagles nesting for seventy years, osprey, fish, and more," said McLean. "The pond is still in decent shape as measured by these wildlife species."

Faculty across disciplines integrate topics of environmental relevance into their courses. For example, academic dean John Austin's Global Studies course "examines the conflict in Darfur from an environmental perspective as well as Jared Diamond's hypothesis that overpopulation and over-farming led to the 1994 genocide in Rwanda," he said in a St. Andrew's Magazine, Winter 2007 story. These types of topics help students use the skills of critical thinking and writing "to make sense of matters of public significance."

"Across the country and the world there is a dawning

recognition that if we as citizens don't take steps on global warming or environmental sustainability," said Roach, "we will bequeath a series of environmental issues that have effects on war, water, food, and more. The message has grown more and more urgent – in schools, organizations, community groups.

"At St. Andrew's, therefore, we are focusing on two things:

"One – Internal perspective: We are teaching the kids that is one of the moral imperatives of the 21st century. The students must engage in deep and abiding thought that they are fighting for the planet. We teach them this from the earliest stages. We are excited about our partnership with the University of Delaware. We decided first we ought to get our own house in order. This way – our own house in order and through U.D. partnership – we can shepherd the resources.

"Two – There is an environmental movement across the country. There are many allies now. In the beginning – like the first Earth Day in 1970 – the environmental movement was small, just a small group. St. Andrew's is finding many partners. St. Andrew's is always looking for ideas, looking for collaboration."

Community Outreach

"We are working with the community to see how they feel about what St. Andrew's is doing," said Joy McGrath.

Appoquinimink River Association president Dan O'Connell, St. Andrew's biology teacher, molecular biologist and lawyer, works to build partnerships between the ARA and comprehensive sustainability efforts at St. Andrew's via public outreach and education. "Pollution of the Appoquinimink watershed doesn't come from pipes; factories; Evil Industries, Incorporated: it comes from those who use the surrounding land," he said.

Sara Wozniak, ARA Executive Director said residents can do many small things to protect the watershed. The steps are broken down on the ARA Web site at www.apporiver.org and in a story in this magazine about Dan O'Connell and the Appoquinimink River Association.

On Earth Day 2006 students volunteered to help the ARA plant water gardens to reduce runoff in the Appoquinimink watershed.

University of Delaware / St. Andrew's Cooperative Three-Year Project

The lead researcher for the University of Delaware / St. Andrew's project is Dr. Tom Sims, U.D. associate dean for academic programs and research and professor of soil and environmental chemistry for the College of Agriculture and Natural Resources. At St. Andrew's the

researchers are breaking down the entities and then building them back up; that is, using a holistic approach, Sims explained: "We have brought together a team of individuals from different disciplines with the express intent of working together to conduct research and demonstration projects that show how the production of food, the protection of soil resources and water quality, the sustaining of wildlife habitats, and the economics of the whole agro-ecosystem can work and continue to work indefinitely. This is the true meaning of a sustainable agro-ecosystem and the goal of our project.

"We will focus on improved nutrient management practices, the proper use of organic and commercial fertilizers," and filtering runoff, preventing soil erosion, and converting lawns into natural areas planted with native plants that increase biodiversity. "Our outreach activities to the communities and townships near St. Andrew's will be designed to show them how practices we implement at the school can also be adopted in their settings to the overall good of everyone in the watershed," he went on.

"From a social perspective, we hope to show the importance of maintaining agricultural and natural resource areas in our watersheds indefinitely to surrounding sub-



The class works on digging sweet potatoes in the organic garden.

urban and urban communities, in the face of increasing pressure to develop these lands into housing, shopping malls, and other suburban land uses. We emphasize the importance of open spaces such as these not only to the production of agricultural commodities, but to ground water recharge; of wetlands and riparian zones to flood control and filtering of runoff; of forests and buffers free of invasive alien plant species (as opposed to expansive

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monocultures of turf lawns) to sustaining biodiversity in other species such as insects, birds, and wildlife. We hope to show that the economic value of these valuable land resources is more than adequate to justify societal investments in preserving them for future generations.

"Scientifically, we emphasize that agriculture is a complex, increasingly sophisticated science that requires individuals with strong backgrounds in basic sciences, such as biology, chemistry, physics, geology, and ecology, to succeed. Rapid advances are being made in plant and animal molecular biology, soil and environmental science, watershed hydrology, engineering, and resource economics. We argue that greater societal investments are needed into these sciences if agriculture is to continue to sustain its current functions to society and to meet new ones, such as foods with pharmaceutical values and 'bio-energy' crops that contribute to global energy security."

Students from both institutions are excited about the project. "To date, students from St. Andrew's and the University of Delaware have been engaged in all of our projects," said Sims. "They are learning the skills needed to conduct experiments, collect and analyze diverse types of samples, and explain the research outcomes to others." The team is hoping that the students will imagine and implement the same environmental stewardship they are learning when they move on to other locations and issues as adults.

Organic Garden

In the spring of 2005, a group of students and faculty, led by Joy McGrath began a two-acre organic garden. Michael McGrath shepherded the project. It soon became evident that they had underestimated the richness of the soil. There were many weeks over that summer when the entire McGrath family spent hours every day managing the field. The main products of the garden are greens, salads, beets, herbs, cucumbers, squash, tomatoes, peppers and sweet potatoes. During record-setting moisture levels in June and July of 2005, when none of the Delaware and Maryland cucumber crops made it to market due to loss caused by powdery mildew, St. Andrew's organic garden produced 400 pounds of cucumbers from 15 English cucumber plants thanks to the natural fungicides Joy tested – a weak nonfat milk solution and a weak baking soda and canola oil solution.

Each fall and spring, 16 students spend two hours in the afternoon working in the garden. Then the students' meaningful work in the garden is delectably prepared in the school kitchen by SAGE, a team who also work to

bring in as much meat, fruit and vegetables from local farmers as possible.

To complete the energy cycle, all fruit and vegetable waste from the kitchen is delivered to the organic garden's compost heap. Table scraps are taken to the compost tumbler where they are mixed with leaves and other scraps and then taken to the organic garden. They also use manure from campus horses. Instead of 12-13 gallons of trash, they are down to two to three gallons (composed of fruits and vegetables for their organic garden).

While working in the garden students develop leadership qualities by learning about the garden and then teaching other students new to the garden. They feel rewarded to see the lettuce they hand-picked sitting at the salad bar. They come to understand the true reward system of bearing quality fruit from hard work. Students find connections to poetry, history, economics and political economy while working hands-on in the garden.

A Step, A Step, A Step, A Turn, A Throw, A Catch . . .

Adam Gopnik wrote a personal history piece in the May 10, 2004, issue of *The New Yorker*, "Last of the Metrozoids – Lessons in Art and Football", about his good friend Kirk Varnedoe, a St. Andrew's graduate, former Metropolitan Museum of Art chief and thought to be one of the most brilliant and innovative art historians of the 20th century. Varnedoe succumbed in his late fifties to cancer in 2003. In the spring of that year Varnedoe became head coach of the Giant Metrozoids, a football team of eight-year-olds, including Gopnik's son, who practiced in Central Park in a grassy place they called Metrozoid Field. At the same time, Varnedoe was undergoing cancer treatments and preparing his highly-acclaimed Mellon Lectures, which ultimately drew long lines at the National Gallery.

Gopnik said that Varnedoe "had discovered himself playing football, first at his prep school, St. Andrew's in Delaware. ... The appeal of football wasn't that it built character.... It allowed you to make a self," wrote Gopnik.

Their first day out in Metrozoid Field, Varnedoe coached the boys by first having them practice a correct stance, over and over until they got it, then they ran, finally they scrimmaged. Weeks later he taught them a step and then another step and another, followed by a pass and had them walk through it, slowly, slowly, until they knew it. Then he gradually increased the pace, until "the play took on a courtly quality, like a seventeenth-century dance," wrote Gopnik, until, finally, they could run it. Rather than have the boys haul off and run scrimmages, Varnedoe broke down the movements and then

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built them back up, a string of steps comprising a whole play. They learned not only a play, but a counter-play. It was a conversation, a dialog. The boys had fun and they had achieved a lot in a short time. "Mysterious things weren't so mysterious if you broke them down." Gopnik wrote. Varnedoe's approach to art was the same – simply showing the work of art in the context of the setting and times in which it was created: a brush stroke answering another brush stroke, a conversation, a dialog, until the competed work emerged.

Joy McGrath attended Varnedoe's Mellon Lectures.

In her May 30, 2004, St. Andrew's chapel commencement address Joy spoke to the students about the importance of critical thinking referencing Gopnik's account of Varnedoe's critical mind.

"His brilliance was that he understood that transformation was accomplished in a series of tiny moves," Joy said, "the choreography between paint and a painter, each stroke a move in an argument, which ultimately would form a coherent whole.

"It is the same story of the football play – Kirk teaching a slow step-by-step rehearsing of each of the play's components, strung together. Kirk told them, 'You break it down, and then you build it back up. The hardest play you learn is just steps put together.'

"The process of critiquing, questioning, arguing, that you have learned in these classrooms is not only a way of thinking," she went on to say. "It is also a way of living.

"As a nation, consider the enormous mess we have gotten ourselves into because of these kinds of trained, mechanical reactions. Reacting, rather than questioning, breaking it down and building it back up is what led us into the war in Iraq. Why did we not criticize the decision of the Pentagon to throw democratic values out the window and padlock the offices of an Iraqi newspaper, no matter what they were printing? We accept attempts to airbrush the conversation out of the painting ... calming the clamor of dissenting voices.

"This process discards breaking down in favor of building up and building up and building up.

"But what we have learned is that the momentum can kill us."

"Your conception of the world as a dialog is the only view that will enable you to do anything great: to see beauty, or make a play, or create peace."

"What your fellow St. Andrew Kirk Varnedoe understood is that the greatest football play in history – though an act of

passion – is only the actions and reactions of the players on the field: a step, a step, a step, a turn, a throw, a catch.

McLean is working with students on Al Gore's advice to Congressional lawmakers given March 21, 2007. "What St. Andrew's is doing in conjunction with his ultimate message is hopeful," McLean said. "We have a little time, but we've got to get after it. I'm right there with him – now is the opportunity. I think it was Jim Hansen of NASA who said we still have ten years. It snowballs."

James E. Hansen, director of the NASA Goddard Institute of Space Studies, wrote in an article for The New York Review of Books, July 13, 2006, titled "The Threat to the Planet":

"Delays in the Kyoto approach where world emissions would slowly decrease early in this century, especially the U.S. refusal to participate in the Kyoto Protocol, and the rapid growth in the use of dirty technologies have resulted in an increase of 2 percent per year in global CO2 emissions during the past ten years.

"We have at most ten years – not ten years to decide upon action, but ten years to alter fundamentally the trajectory of global greenhouse emissions. Our previous decade of inaction has made the task more difficult, since emissions in the developing world are accelerating."

"These students are going to have to live that reality – live, make decisions about conservation – not just book learning. Their generation's not doing so would do a whole society a disservice," Joy McGrath said.

"Every year in the spring," said McLean, "a little early in the horseshoe crab season, we take a group of kids down to Lewes and observe the horseshoe crabs. It's pretty amazing – these four-million-year-old creatures are still around, but I think their numbers of dwindling.

"We should get outside – sailing, biking, hiking, canoeing, getting outdoors and having fun – having a garden or planting – that kind of experience," he said.

"We're one of many schools. We don't have all the answers," Roach said. "We're looking for partners and collaboration – in the schools, the community. In ten years we will have an interesting and exciting plan in place to help St. Andrew's and the world that will be ongoing in the future."

"Small, individual acts add up to things of tremendous importance in nature," Joy McGrath said. "It's a chain reaction. That's how the ecosystem works."

****Joy McGrath, a St. Andrew's School and Harvard University graduate, moved on from St. Andrew's at the end of the 2006-2007 school year to become director of development at Yale College in New Haven.***