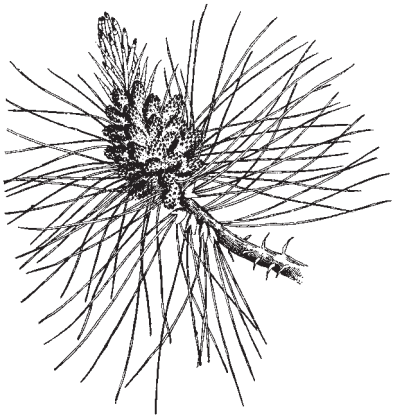
The Merrymeeting News

Fall 2005 VOLUME XV, No. 4

The Newsletter of Friends of Merrymeeting Bay • Box 233 • Richmond Maine 04357



Friends of Merrymeeting Bay

Friends of Merrymeeting Bay is a 501 (c) (3) non-profit organization. Our mission is to preserve, protect and improve the unique ecosystems of the Bay through:

Education

Conservation & Stewardship

Membership Events

Research & Advocacy

Support comes from members' tax-deductible donations and grants.

www.link75.org/mmb/

The Merrymeeting News is published seasonally by Friends of Merrymeeting Bay (FOMB) and is sent to FOMB members and other friends of the Bay.

For information call: Ed Friedman, Chair, at 666-3372.

Fall Bay Day 2005

Bill Milam at the Bay Day watershed tables / Photo: Ed Friedman

With bald eagles soaring overhead and snakes slithering through the high grasses, Friends of Merrymeeting Bay conducted another successful Fall Bay Day (Sept. 27) at the Bowdoinham Wildlife Management Area. Our biannual Bay Days bring local 4th graders and homeschool children out to the shores of the Bay for a day of hands-on education about the ecology, plants and critters that live here. This fall, we enjoyed the company of 4th graders from Longfellow School in Brunswick and Dresden Elementary School, along with 25 children from home-school families.

In this issue of *Merrymeeting News*, we bring you a wonderful perspective on Bay Day from Anne Hammond, a volunteer and self-taught naturalist, who has been leading Bay Day trips since our first Bay Day in 1998. We also say thank you to another long-time volunteer Bill Milam, who is "retiring" from Bay Day.

Thank you very much to all our volunteers: John Ambrose, Jason Bartlett, Jason Blais, Bill Briggs, Dana Cary, David Chipman, Kent Cooper, Sarah Cowperthwaite, Ruth Deike, Paul Dumdey, Steve Eagles, Carlton Gardner, Anne Hammond, Jess Hunter, Fritz Kempner, Judy Lipetz, Kathleen McGee, Bill Milam, Carla Rensenbrink, Debbie Seybold, Jamie Silvestri, Alison Voner, and Jack Witham. Thank you also to Wild Oats Bakery and Café in Brunswick for their generous non-profit discount.

Where Rivers Run Upstream - A Bay Day Perspective

Ten-year olds know how a river forms: gravity pulls water down mountains into small streams which run into rivers that flow into the ocean.

Is there ever a place where rivers run upstream? I want to know. No. No. They all agree: all four groups of students every year for eight years since I've led Bay Day field trips. Even though they live near the estuary. Before TV, when children played on riverbanks, would they have known that rivers *can* run upstream? Today's inside life of video games and popular shows leaves a hole in a child's life. I tell them they can have more fun exploring out here.

Do they like a mystery? Yes, they do. Then what is this? I display a short nosed sturgeon skin with rows of bony scutes. They touch and guess (alligator?) but no one recognizes this anadromous fish that never leaves the Kennebec-Androscoggin waters. Yet this protected species lives on our doorstep.

What else goes on out here? I put a string around a small plot of land and we carefully examine everything inside its boundaries. The goal of our plot survey is for the students to identify the best habitat for plants as measured by the number of species in a given area defined by soil, sun, and water. We trek to fresh water marsh, open field, deep shady forest, and wetland shore. We examine milkweed pods, vetch, hawthorne, wildflowers, and discover edible strawberry and raspberry plants. We put a name to things as a way of beginning to know. Why do these plants live here? Can they live somewhere else if they choose?

Quick children always find other things not on the checklist: a snake, a frog, and this year, a luna moth caterpillar, pale and green, thick as a man's forefinger.

I see eyes wide with wonder, faces lit with enthusiasm for what they find. I see young stewards who already care about the diverse life forms they encounter. Intriguing mysteries are out here to solve; all we have to do is open the door. That is what Bay Day is all about.

By Anne Hammond

To Bill Milam - Thank You for the Mud!

After 8 years of staffing our watershed tables at Bay Day, steadfast volunteer Bill Milam is finally passing the "mud" bucket. Bill, and Steve Eagles, his partner for the watershed presentation, have made this activity one of the most popular events at Bay Day. They are among a very small handful of folks who have missed one or fewer Bay Days since its inception (Clancy Cummins, Anne Hammond, and Ed Friedman are the others)!

The watershed tables are a simple and clever aid to teaching kids about the Merrymeeting Bay watershed and the interactions between water and land. The tables consist of four rimmed pieces of plywood on legs that can be joined together to form one larger table. A partial outline of the Bay and its tributaries is drawn in black marker on each table. When the tables are joined, a map of the Bay is formed.

After Bill and Steve talk briefly about watersheds and topography, the students are armed with buckets of homemade "mud," and are instructed to put the mud on the tables where land is represented, and leave open the areas that represent water. This is trickier than it sounds -with all the tributaries, rivers, and islands that make up the Bay, it can be hard to figure out what is land and what is water (remember - only the outlines are provided). Students must consult a map to make sure they are on track. When the model of the Bay is completed in mud, Bill and Steve use a watering can to simulate rain falling on the Bay. As the rain falls, washing some of the mud into the waterways, the kids quickly and clearly grasp the basics of erosion, runoff, and other related concepts.

Luckily for the Bay, Bill is not retiring from his volunteer activities with Friends of Merrymeeting Bay. As the long-time coordinator for our water quality monitoring program, Bill worked with Heather Caron this past summer to pilot a fecal coliform testing protocol. Read more about this initiative on pages 5–6.

Thank you Bill for your significant contributions to an important part of Bay Day!! We are fortunate to have Kent Cooper stepping in to partner with Steve Eagles. The new team will carry this favorite Bay Day activity into the future.

By Sarah Wolpow

Supplementing our recent Annual Appeal mailing I would like to pass on the following information for those of our donors who may not be aware of it: When so many emergency donations flow to causes like Hurricane Katrina, other non-profits, like ours often see their donations drop. To minimize this trend Congress has passed the Katrina Emergency Relief Act of 2005 [KETRA]. This bill provides for some direct relief of hurricane victims and also encourages traditional donors to continue giving to other non-profits. Under current tax law, itemized deductions for individuals giving gifts of cash and certain other property have been limited to 50% of your Adjusted Gross Income [AGI]. KETRA has temporarily suspended the 50% limit. Gifts made from August 28-December 31, 2005 to qualified non-profits like FOMB are now deductible up to 100% of your Adjusted Gross Income. KETRA may present you with an unusual opportunity to make an exceptional gift to Friends of Merrymeeting Bay. Thank you.

Ed Friedman, Chair

How Much Land does a Man Need?* (or an Ovenbird?)

Here's how the story goes. Pakhom, a struggling farmer in Russia hears of the wondrous land of the Bakshirs. These remote people live amidst a bounty of fertile land - and they are willing to sell for a small sum, to anyone, the amount of land he (or she, I can't resist adding) can walk around in a day. The Bakshirs tell Pakhom he can start from any point he desires, but he must return to that point by sunset or he forfeits the land as well as his money. If he returns in time, the land he circles belongs to him. Alas, as the last rays of the sun are setting Pakhom is too far away. He hurries; he pushes himself past all limits, and with a final burst of energy reaches the starting point--only to die of exhaustion. And so, in the end, all the land he needs is the land in which to be buried - about 8 x 3 feet. A grisly tale, to be sure, befitting the darkness of the great Russian novelist Tolstoy.

Ovenbirds, on the other hand, have less complex needs than people. Fortunately for them, they have no desire to own their land to be happy. They like to live in the woods, far from predators, with plentiful food. One might think, for example, that a 40-acre parcel would be enough to support a tiny little ovenbird. Normally 40 acres would indeed be plenty. But what if someone put a cozy little house in the middle of the 40 acres? And what if some roads went in around the parcel, separating it from other forest land? Such changes wouldn't bother the squirrels. Nor would the crows and raccoons be disturbed. However, those alterations to the neighborhood might pose some problems for the ovenbird.

As the size of forested parcels become smaller and smaller, more of the land area turns from being interior forest habitat into something known as "edge habitat." An edge habitat occurs anywhere two habitats come together. Transitions between a field and a forest, or the sides of a road through a wooded area, are two examples. Animals that are adaptable to a large variety of habitats, or that favor forest edge habitat (such as raccoons, crows, and blue jays) can prey on interior forest animals in the edge zone. Fragmentation of land threatens creatures that depend on interior woodland for protection from such things as edge predators, noise, light, and competition. On forested land, although edge regions may penetrate as little as 200 feet into the woods, they become very significant as lot sizes decrease.

It may not be surprising then, to discover that a square, 4-acre parcel of completely forested land, if separated by field or subdivision from other forest, is made up entirely of edge habitat and is unsuitable for use by interior forest dwellers. However, it is quite surprising to realize that a forested 40-acre parcel, with a single, modest house in the middle, shelters only a few acres of interior forestland. Once you subtract out 200 feet around the house, a small lawn, the driveway, and the outer edges of the property, very little woods remain that are more than 200 feet from an edge. Even when such isolated pockets do stand intact, if there are not corridors for wildlife to travel from pocket to pocket, successful breeding becomes more difficult.

Many animals need significant blocks of continuous undeveloped land to grow, reproduce, and thrive. Forty acres is on the small side to support, for example, hare, porcupines, beavers, wood thrush, and many types of small birds such as warblers. The more we understand about the needs of the plants and animals around us, the better we can tailor our land use decisions to protect these creatures - if that is one of our goals.

We will not meet the goal of preserving a wide variety of wildlife habitats and a diversity of species if we zone most of our rural and forest land into 5-acre lots. Ironically, one of the stated purposes of many rural and forest zoning ordinances in Maine communities is to preserve wildlife habitat. Yet, all too frequently these same ordinances provide for minimum lot sizes of 5 acres throughout the rural and forest zones. Such a divided landscape, with cozy houses tucked among the trees, might look like it supports a healthy forest ecosystem (and the squirrels would no doubt agree), but the moose, beavers, and ovenbirds will tell us otherwise.

Of course, our village and town centers cannot be home to moose and beavers. But, if we don't think carefully about how we develop our remaining lands, then these animals may find themselves with nowhere to call home. Along with the growing awareness of how fragmenting land can adversely affect wildlife, is a growing set of tools for helping communities plan for protecting larger swaths of contiguous land. For more information on the effects of habitat fragmentation, and what can be done about it, visit GrowSmart Maine at **www.growsmartmaine.org** and Beginning with Habitat at **http://www.beginningwithhabitat.org/.**

**How Much Land does a Man Need?* is the title of a short story, described in the first paragraph of the above article, written in 1886 by novelist Leo Tolstoy.

By Sarah Wolpow

nothing but moosetrails in the mist
today's fog and wind
trees against sky, i
want to disappear into cloud,
wander my way to sunlight,
follow the moose down
secret trails in the woods
to reach the places where the wolves
rest above the ridges, within us,
where the heart wanders, wild.

by Gary Lawless

What's the Gain?

"I don't see it, but it sounds like we're close," I dutifully reported.

"What's the gain?" Ed yelled at me from the stern of his classic dory skiff.

"Strong two; it's right here somewhere," I replied with muted confidence.

This was typical dialogue between Ed Friedman and me while we engaged in a relentless pursuit of the drifting buoys that provided the basis for FOMB's summer-long project on the circulation characteristics of the Bay.

"What's the gain?" It was a question we had asked each other seemingly countless times. Of course, it was in reference to the numeric dials on the receivers we used to locate the buoys for data interpretation and analysis, but posed in a different manner – in regards to volunteering time with Friends of Merrymeeting Bay – what's the gain?

Well, as FOMB's intern during the summer of 2005 I gained valuable experience in the dynamics of a non-profit environmental advocacy organization. I attended controversial work sessions at the State House before the Natural Resource Committee concerning the health of Maine's rivers. I unearthed part of Bowdoinham's historic past in several archaeological excavations near the Abagadasset River. I met important people like Ruth Deike, a lovable senior who is devoted to caring for her pets, teaching the wonders of geology, and keeping us safe from industry-induced radioactivity; and Mearle Leask, a part-time eel fisher who perhaps knows more about the ins-and-outs of the Bay than anyone I have ever met. I was offered extraordinary views of the mid-coast region when I flew in an (alarmingly small) airplane piloted by Ed. In addition, I received college credit for these educational opportunities and, occasionally, I even got to read Edward Abbey and fly-fish for stripers in my backyard.

My internship with FOMB was both easy and enjoyable simply because I knew that everything I did for the organization, all the time I put in, was a fundamental way of giving back to the very place in which I had grown up so happily. Until a few years ago, I had been a lifelong resident of Bowdoinham who lived only yards from the shores of Merrymeeting Bay. How could anyone lucky enough to have been raised in such a place not be left with feelings of respect and admiration for the larger natural world? Certainly, I possessed a desire to protect and improve the environment before I entered into the ranks of FOMB, but by volunteering I was actually enabled to apply my enthusiasm to specific purposes and prove myself effective.

Simon deploying buoys for current study. / Photo: Ed Friedman

I am grateful to Ed Friedman and the Board for accepting my offer to intern. Without a doubt, Ed is a keystone to the vitality of FOMB and his devotion to the cause is unparalleled. I must mention the way he treated me this summer, that is, as an equal. Ed never forgot to introduce me to the various people we encountered on our endless cooperative journeys towards getting something done. And what I was most fond of, besides his sense of humor and approval of The Allman Brothers Band, was that it seemed as if the decisions he made when I was present, decisions over which he obviously had ultimate authority, were reached with my input in mind. I wasn't just an intern; rather, I was an important player in the task at hand.

Thank you Ed, and thank you Friends of Merrymeeting Bay for "all the gain" throughout a summer I will always look back on with great pleasure.

By Simon Beirne

Every stump is sacred.
Every stump a saint.
Every silted river a church to which
the pilgrim salmon return.
Every breath of wind a love song.
We worship in wetlands,
bow to the fern, the rock,
the holy salamander,
the blood of sweet water,
the body of moss.

by Gary Lawless

Merrymeeting Bay Volunteer Water Quality Monitoring Program: An Update

Background

Once a month, from April to October, volunteers all across the Bay put on their waders and collect water samples as part of our Volunteer Water Quality Monitoring Program. These volunteers attend a training session each spring where they learn the correct methods for determining pH, turbidity and dissolved oxygen, as well as for collecting water and air temperatures, tidal information and general information about the state of their sampling site.

The data collected by volunteers provide an important source of information about the ever-changing health of Merrymeeting Bay. Friends of Merrymeeting Bay's annual data collection supplements data collected by the Maine Department of Environmental Protection, who operate on a five year sampling regime, one year for each major watershed in Maine (Saco, Androscoggin, Kennebec, Penobscot and St. John). The sampling efforts of volunteers have not gone unnoticed; in fact it was water quality data collected by Friends of Merrymeeting Bay that supported our successful reclassification proposal of the Kennebec River in 2003.

Rivers are given classification ratings based on their water quality. Due to years of pollution from industrial and municipal sources the Kennebec River had a rating of C. However, with the decline of pollution from paper mills and the removal of Edwards Dam, significant water quality improvements have occurred. The regular collection of water samples by Friends of Merrymeeting Bay volunteers documented the water quality improvements. Specifically, dissolved oxygen data showed concentrations in the range of a Class B river--making a compelling case for reclassification. Reclassification is an important tool to protect a river because once a river is given a higher classification rating, it becomes illegal for it to backslide to a lower water quality. In other words, a higher classification means more stringent pollution limits govern future discharges into the river.

The Data (2003-2005)

Our sampling program has expanded since the Kennebec reclassification; we have sampling sites up and down the Kennebec and Androscoggin Rivers from Lines Island below the Chops to Norridgewock on the Kennebec and from the Bay to Greene on the Androscoggin. Data from the past three years (2003-2005) were compiled and divided according to the location of the sampling sites; the Kennebec River, the Androscoggin River and the minor tributaries and Bay region. Seasonal trends were examined with specific interest in the pH, turbidity and dissolved oxygen. Each of these measures is explained below.

pH

pH is a measure of the acidity in water. The logarithmic pH scale ranges from 0-14. Healthy rivers in Maine have a pH between 6.5 and 8.5. The three-year average pH in each of our sampling areas is 6.7, 6.94, and 6.76 in the Androscoggin, Kennebec, and tributaries & Bay regions, respectively. pH at all the sampling sites is in a healthy range, with only a few isolated peaks or dips over the three-year period, the pH in the Bay is also very stable showing little change with the seasons.

Turbidity

Turbidity is a measure of the cloudiness in water. Turbidity can be caused by soil erosion, waste discharge, nutrient loading, urban runoff, bottom feeders like carp that stir up sediments, and algal growth. Suspended solids in turbid water can clog fish gills, and prevent egg and larval development making turbidity an important indicator of the health of the Bay. The turbidity along the Androscoggin and Kennebec are consistently low with respective three-year averages of 4.43 JTU (Jackson Turbidity Units) and 5.91 JTU. Due to the heavy precipitation we received this past fall turbidity spikes were recorded in the Kennebec. October 2005 turbidity levels at sites from Abagadasset Point to Hallowell went from their normal range of 0-10 JTU range to that of 20-30 JTU.

The smaller tributaries flowing into the Bay such as the Cathance and Eastern River (at downstream locations) have much higher turbidity than any other sites sampled along the Bay. Graphed levels [see graphs on our web site in the *cybrary* section] show higher turbidity readings at the Bowdoinham Boat Launch, the Eastern River at the Route 27 Bridge and the Abagadasset River at the Route 24 Bridge. The reason for the higher turbidity in the tributaries is unknown, though possible causes include disturbance from carp and/or from a combination of soil erosion and human impact.

Dissolved Oxygen

Dissolved oxygen measures the amount of gaseous oxygen (O2) dissolved in the water. Oxygen gets into water mainly by diffusion from the surrounding air, and as a by-product of photosynthesis. The amount of dissolved oxygen in a system is indicative of its ability to support aquatic life. Dissolved oxygen all along the Bay follows a strong seasonal pattern where oxygen levels are lowest during the hot summer months and higher during spring and fall. The seasonal changes occur because cold water has a higher capacity to hold dissolved oxygen than warm water, and because lower flow rates in the summer means less water mixing with the air and a decrease in dissolved oxygen in the water.

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Water Quality Monitoring

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Fecal Coliform

Coliform bacteria are naturally occurring bacteria in water and soil; however one type of coliform bacteria, *Escherichia coli (E.coli)*, is an indicator of fecal contamination. Fecal contamination in a water source can be caused by nearby wildlife, an overload to a wastewater treatment plant, or excessive runoff from non point sources. Fecal coliform are associated with gastro intestinal disorders and are a health hazard at certain levels of contamination. In fact, *E. coli* contamination is the most common reason for closing of shellfishharvesting areas.

Fecal coliform is the second criteria on which Maine river classifications are based (dissolved oxygen being the other). Therefore, in the spring of 2005 FOMB began a pilot program for sampling fecal coliform bacteria at five locations around the Bay--both monthly and after rain events. Maine law requires that a class B River not exceed a geometric average fecal level of 64 bacteria per 100 milliliters (ml) of water and an instantaneous level of 236 per 100 ml of water during the summer months.

For the summer months, fecal coliform levels in the Bay ranged from 0-740 per 100 ml during the monthly baseline sampling and 0-340 per 100 ml during rain events. We saw no evidence this summer of changes in fecal coliform counts due to increased precipitation. The geometric average for the Bay from May- August 2005 was 15.66 fecal coliform per 100 ml, which falls within the class B requirements. The instantaneous coliform levels for Class B requirements were exceeded four times during the summer, all in the Androscoggin River, which has a C classification.

During a large precipitation event in October fecal coliform counts in the Bay reached the highest levels of the season with an average of 1790 bacteria per 100 ml. Given the amount of precipitation that fell in such a short amount of time these numbers do not seem unusual.

In order to ensure the waters of the Bay are healthy enough for fishing and swimming, continued sampling for fecal coliform on a regular basis with strict adherence to quality control measures is crucial. The upgrade to the Kennebec River is a huge step towards ensuring cleaner water!

Many thanks to our cadre of nearly 20 dedicated volunteer monitors, and to Bill Milam for coordinating our testing program.

By Heather Caron

Editor's note: Thanks are also due to the author, Heather Caron, who worked with Bill Milam to establish our pilot testing program for fecal coliform.

Merrymeeting Bay Eagle Breeding Summary: 2005

2005 was a very poor season for eagle productivity in Maine. Awful spring weather was likely influential in this. The Merrymeeting Bay area eagles actually did better than the statewide average. Several pairs (notably the older ones like Swan Island & Little Swan Island) have troubling patterns of changing from highly productive nests to predictable failures. That could be a symptom of old age ... or possibly due to gradual, low-level chronic exposure to and bioaccumulation of contaminants.

Richmond: Kennebec R.:
active nest / 2 fledglings

Dresden: Courthouse Pt.:
inactive nest / non-breeding pair

Dresden: Eastern R.:
active nest / 2 fledglings

Perkins Twp.: Little Swan Isl.:
active / 0 fledglings

Perkins Twp.: Swan Isl.:
active nest / 0 fledglings (egg burial)

Bowdoinham: Abby' Pt.:
active nest / 2 fledglings

Bowdoinham: Bald Head:
inactive / 0 fledglings

Bowdoinham: Brick Island:
active/ 1 fledgling/ possibly alternate nest for Bald Head pair

Woolwich: Thorne Isl.:
inactive nest / non-breeding pair

Woolwich: Day's Ferry:
active nest / 0 fledglings

Topsham: Pleasant Pt.:
active nest / 2 fledglings

Topsham: Freyer Isl.:
active nest / 2 fledglings

Topsham: Androscoggin:
inactive/[deteriorating]/unoccupied

Topsham: Stony Island:
active/ 1 fledgling

Hallowell: In Town:
active/ 0 fledglings

Sidney: Nehumkeag Island:
active nest/ 0 fledglings

Charlie Todd,
Maine Department of
Inland Fisheries and Wildlife

There's still time to purchase a beautiful 2006 Merrymeeting Bay Photography and Tide Calendar

Features:

- Stunning images by 9 area photographers
- Daily tide predictions for the mid-coast region (give one to a boater!)
- Locally designed and produced
- Printed on TCF (totally chlorine-free) paper
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How to order: Contact Sarah Wolpow at 721-0941 (fomb@gwi.net) or visit our website to download an order form or find a list of local outlets (**www.link75.org/mmb/fomb/fomb.html**).

Friends of Merrymeeting Bay, P.O.Box 233, Richmond, Maine 04357

MEMBERSHIP LEVELS

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☐ $250 Striped Bass ☐ $500 Wild Salmon ☐ $1,000+Sturgeon

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Town /State/Zip

Phone Email

☐ $7.00 enclosed for a copy of Conservation Options: A Guide for Maine Landowners. ($5 for the book, $2 for postage)

☐ Renewal ☐ New Member ☐ Please send me information about volunteer opportunities

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Coming up in Merrymeeting

Historic Merrymeeting Park: 1898-1908
Wednesday, December 14 @ 7 PM
Chris Gutscher
Bowdoinham Town Office Building, Bowdoinham

ANNUAL MEETING
Wednesday, January 11

5:30 Annual Potluck
Please bring a dish to share. Help make this a low-waste (or no waste) event by also bringing a cup, plate, and silverware! (We'll have spares if you forget.) Open to the public. Bring a friend!

6:15 Annual Business Meeting

7:00 Presentation: Arnold's March to Quebec
Steve Clark, Arnold Expedition Historical Society
Cram Alumni House, Bowdoin College, 83 Federal St., Brunswick

Legislating for the Common Good: The Courage of your Convictions
Wednesday, February 8th @ 7 PM
Kathleen McGee, Doug Clopp & Rob Brown. Maine Citizen Leadership Fund
Beam Classroom, Visual Arts Center, Bowdoin College, Brunswick