Seeing Regeneration Clearly
What kind of person thrives at MDIBL? As we recruit new faculty or interview recent Ph.D.s looking for a postdoctoral position, we’re looking for risk-takers and entrepreneurs, for people who buck convention, who aren’t afraid to tackle scientific problems in completely new ways, and who are comfortable with the absence of boundaries and silos common to large academic institutions.

MDIBL succeeds because this kind of risk-taking and open-mindedness spurs innovation and propels science forward. When I choose the postdocs who work in my lab, I prefer to bring in someone with no background in my particular area. That kind of person brings a fresh approach to the questions we work on and won’t be constrained by conventional thinking and dogmas that define what can and cannot be done.

In this issue of Connections, you’ll meet some of the postdocs and graduate students who have come to MDIBL to conduct research, as well as some of our alumni and our newest assistant professor, Sandra Rieger. All of them will tell you they were excited by what they found when they arrived here, whether that excitement came from discovering how much knowledge can be gleaned from using different model organisms, from experiencing the informal collegiality that promotes the cross-fertilization of ideas, or from realizing, as students, that they themselves could make an important contribution to science and to the growth and evolution of MDIBL.

Risk taking and innovation builds strength. At MDIBL, we’re looking at biological problems in new ways, forging new and unique collaborations, and finding new answers. You can read about how we do this in this issue of Connections.

Kevin Strange, Ph.D.
Professor and Director
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A New Statewide Collaboration to Fight Kidney Disease

For the first time, scientists from all three of Maine’s major biomedical research centers – MDIBL, The Jackson Laboratory, and the Maine Medical Center Research Institute in southern Maine – have entered into a collaboration with Maine Medical Center physicians and patients to tackle a major, worldwide health problem. “reMAINE Healthy,” as the new initiative is known, is hoping to develop new diagnostic tools for chronic kidney disease.

“We’re delighted that MDIBL’s longstanding strengths in comparative biology and kidney research were major drivers in this innovative project,” Kevin Strange, MDIBL Director, said in March as the project was launched. There is currently no way to diagnose chronic kidney disease, which affects twenty-six million adults in the United States alone, before the illness is well advanced.

The reMAINE Healthy partnership began when MDIBL scientists Hermann Haller and Mario Schiffer started working with Ron Korstanje from The Jackson Laboratory to identify genes important in the development of kidney disease. Haller and Schiffer recently developed a new zebrafish model that allows them to see if a given gene affects kidney function. Because gene function can be altered in fish embryos in a matter of weeks as opposed to a year or more in mice, working with zebrafish saves both time and money.

Genes that are found to affect kidney function in zebrafish are then studied further in mice. At the same time, volunteers with chronic kidney disease who are treated at the Maine Medical Center will be tested for those genetic signatures. Finding earlier genetic markers for this devastating disease may enable treatment before serious and irreversible kidney damage occurs.

More Great Science Cafés!

MDIBL will host an expanded series of MDI Science Cafés at the Asticou Inn in Northeast Harbor this coming summer. We’ll have the same great format as last summer, with exceptional speakers giving short presentations and then leading informal discussions about major issues in science today. Grab a drink and join us on Mondays at 5 p.m., beginning June 18!

Science Cafés livened up Bar Harbor this past winter, too. Monthly events at MacKays Public House were a big hit, drawing standing-room-only crowds. The Cafés tackled such topics as evolution, cancer stem cells, and climate change. This summer, speakers will address the changing landscape in science journalism, the pharmaceutical industry, and environmental change, among other subjects. See the schedule on p.13 or at www.mdibl.org/science_cafes.
Ben King Shakes Things Up

“This alien-looking fish just rewrote the book on developmental genetics” was the headline of a popular science blog, io9, after MDIBL scientist Ben King and his co-authors recently published a paper in Science that challenged current scientific thinking. King’s work showed that elasmobranchs, the class of fishes that includes skates and sharks, lack the HoxC cluster, a group of genes that was previously believed to be essential for development of jawed vertebrates.

“Ben’s work shows that there are many surprises to be found by studying a broad variety of organisms,” says MDIBL Director Kevin Strange. “This paper will make scientists take a closer look at something we thought we had already figured out.” King is a biostatistician and part of a regional consortium sponsored by the MDIBL-led INBRE program to sequence and analyze the skate genome in its entirety.

Ned Ballatori

MDIBL lost an exceptional scientist, teacher, and friend last December when Ned Ballatori, Ph.D., died at the age of 54. In addition to his career as Distinguished Professor of Environmental Medicine at the University of Rochester, Ballatori was an active member of the MDIBL community for more than 25 years. He first came to MDIBL as a postdoctoral fellow with James Boyer in 1984 and joined the Lab’s visiting faculty in 1988.

At MDIBL, using the little skate as a model system, Ballatori’s research led to new insights into toxicology and the transport of molecules across cell membranes. He received the Adolf Windaus Prize from the Falk Foundation in Germany for his discovery, in work begun at MDIBL, of a unique protein involved in the metabolism of cholesterol and other lipids.

Ballatori served as the deputy director of MDIBL’s Center for Membrane Toxicity Studies from 1992 until 2009 and was deeply involved in the Lab’s research training program. For Boyer, now Chair of MDIBL’s Board of Trustees, “Ned was an irreplaceable friend and colleague who for many years played a pivotal role in our work at MDIBL and our training of students here. He was an invaluable source of frank and candid advice to me and to others and did much to advance the lab’s environmental health science programs. He is greatly missed.”

David Seward (see p.13) was a high school student when he first worked with Ballatori at MDIBL. “I met Ned in the summer of 1995 while participating in the Hancock County Scholars program. This initial exposure to academic biological research changed the course of my life. For the next 17 years Ned was my mentor and friend. He was a wonderful individual, and while I will miss him greatly, I will also remember him and strive to emulate his example in my own career.”
It Takes a Lot of Nerve:
Regeneration and Wound Healing

We humans and other mammals have lost the ability that many “simpler” organisms have to re-grow their limbs and organs after injury. But if we’re healthy, we can still recover from cuts and other wounds by growing new skin and repairing underlying tissues. When we have a disease or condition that damages our nerves, however, our wounds heal slowly, if at all.

Sandra Rieger, Ph.D., a new assistant professor in MDIBL’s Davis Center for Regenerative Biology and Medicine, is learning about this interplay between nerve growth and wound healing by studying the zebrafish’s ability to regenerate its fins. She studies three-day-old, transparent zebrafish larvae to define what happens on a molecular level after injury. With her recent discovery that the common chemical hydrogen peroxide plays a critical role in setting the stage for nerve growth and regeneration, Rieger’s work may help us learn how to improve healing for the millions of people with sensory nerve damage, or “peripheral neuropathy.” And her zebrafish model provides a powerful novel tool for discovering new drugs that promote nerve growth.

With peripheral neuropathy, the vast network of nerves that transmits sensory information from our skin and outer limbs to our brains no longer functions effectively. Peripheral neuropathy can result from a variety of causes, including traumatic injuries, infections, chronic kidney disease, autoimmune disorders such as rheumatoid arthritis or lupus, and exposure to toxins such as alcohol. One of the most common causes is diabetes, which has been diagnosed in over 18 million people in the United States alone. Among diabetics, nerve damage and poor healing can result in the amputation of lower limbs. In 2006, over 65,000 lower-limb amputations were performed in diabetics in the U.S.

No Nerves, No Regeneration

It has been known for decades that nerve fibers must be present for regeneration to take place in species that normally regenerate. In one classic experiment, all nerve tissue was removed from a salamander limb. Salamanders are champions of regeneration, but when the de-nervated limb was amputated, no new limb grew back. Chicks, on the other hand, do not normally regenerate limbs. But when neural tube cells, the embryonic precursors of the spinal cord, were added to their wing buds, some regeneration occurred. Similar results were found in opossums, adult frogs, and, to a limited extent, mice.

One part of a nerve cell, or neuron, is particularly critical for healing: the axon. A single axon extends from every nerve cell body, branching out to transmit signals to other neurons. Axon growth is especially critical in skin injuries and, apparently, as a signal for regeneration. When skin is wounded, Rieger says, “It regenerates rapidly. The skin cells crawl on top of the wound, and axons sprout into the wound, growing rampant. Later they die back and recover a normal branching pattern. Even when you have scar tissue, or collagen deposition, nerves grow everywhere around it. It seems as though the skin cells promote axon growth.”

A Key Discovery

Rieger studied the development of brain cells in zebrafish as a graduate student at the Institute of Developmental Genetics at the Helmholtz Center in Munich, Germany. Fascinated by the possibility of using transparent zebrafish larvae to visualize the relationship
between nerves and regeneration, she joined Alvaro Sagasti’s laboratory at the University of California, Los Angeles as a postdoctoral fellow in 2007.

In Sagasti’s lab, Rieger began studying the role of axon growth during regeneration. She could watch axons grow in zebrafish larvae by injecting zebrafish with DNA that labels sensory neurons with green fluorescence protein. Her experiments confirmed that tail fins would not regenerate if their neurons were removed beforehand or if the larvae were genetically manipulated so that axons could not grow at the wound site. These results mimicked what happens with peripheral neuropathy, where skin wounds heal poorly in people with impaired sensory neuron function. Sensory neurons are the nerve cells that send axons out into the skin.

It is. Rieger used a laser to damage an axon in the skin but not the surrounding skin cells in zebrafish larvae. Normally under those circumstances, the axon will not grow. But when she added hydrogen peroxide to the water, it did. In fact, uninjured axons also started growing when hydrogen peroxide was added. “Hydrogen peroxide seems to be the limiting factor for these axons to grow,” Rieger says. She also “knocked out” or disabled the gene that controls hydrogen peroxide production in zebrafish larvae. The knockout larvae did not regenerate their axons when compared to normal larvae.

Moving Ahead to New Cures
Rieger recently moved her laboratory into the new Davis Research Building at MDIBL and is preparing to learn more about the mechanisms that promote axon regeneration.
growth and healing. “Nothing is known about the signaling mechanisms now. I want to find out how hydrogen peroxide promotes axon regeneration and how sensory axons promote fin regeneration.”

Rieger also plans to investigate the link between hydrogen peroxide and axon growth in mammals. A mouse model is being developed in which expression of the enzyme that produces hydrogen peroxide will be knocked out, so that Rieger and her collaborators at The Jackson Laboratory will be able to examine whether its sensory axons regenerate in the absence of the chemical. Research in mammals could eventually lead to an understanding of how the mechanisms she identifies operate under disease conditions.

Indeed, Rieger has developed a zebrafish model that is an excellent screening tool for possible new pharmaceutical treatments to improve wound healing. She uses zebrafish larvae that do not develop peripheral nerve cells and therefore do not regenerate their tail fins. However, Rieger has found that adding certain substances to the larvae’s water stimulates regeneration. Because zebrafish larvae are plentiful and easy to monitor, Rieger can use this model to screen any number of possible compounds to find ones that promote regeneration. When she finds ones that do, she can test them in mice.

As Rieger says, “We don’t expect that a given drug will lead to complete limb regeneration in mammals, that would be too complex. But it might improve wound healing, especially where nerve cells are unhealthy.” Which would be great news for the millions of people with peripheral neuropathy.
“The Lifeblood of a Lab”: Postdocs and Graduate Students at MDIBL

“I’ve probably never been as productive in my Ph.D. research as I was at MDIBL last fall,” says Kris Burkewitz, a graduate student in the pharmacology department at Vanderbilt Medical Center. Burkewitz was halfway through his graduate work when his mentor, Kevin Strange, became director of MDIBL. So he came to Salisbury Cove to finish his thesis work on how cells repair stress-induced protein damage.

“It was really a different experience,” Burkewitz says of being at MDIBL. “There are all kinds of different scientific perspectives there. It really stimulates creativity to be in an environment like that.” As Kevin Strange says, “In a conventional academic institution, there are typically lots of departmental boundaries and silos, which can be very limiting for doing science. We don’t have those limitations at MDIBL.” Burkewitz has completed his thesis research and will receive his Ph.D. from Vanderbilt this spring. He will then join the Harvard School of Public Health as a postdoctoral fellow, or postdoc, in a laboratory that studies aging.

Creativity is also what postdocs and graduate students bring to a laboratory. They tend to be self-motivated, according to Jim Coffman, an associate professor at MDIBL, “so they will often take the initiative to think of new questions and directions that I haven’t thought of myself.” Kevin Strange agrees. “Great postdocs and graduate students are the lifeblood of anyone’s laboratory,” he says. “They generate new ideas and push the research in new directions. The best students and postdocs teach me more than I teach them.”

Sparking New Ideas
Graduate students and postdocs, who generally spend two to four years in a given laboratory developing their own research and launching their careers, are trying to push the boundaries of research and explore new ideas. Strange says, “I want people in my lab who are constantly questioning and thinking critically about the work, coming up with new ideas, and building their careers. I like to bring people into my lab who are new to what we do, who aren’t afraid of risks and are who willing to take a fresh approach.”

With the recruitment of new faculty, the numbers of postdocs and graduate students at MDIBL is growing...
rapidly. But postdocs at MDIBL clearly have a different experience than those at large universities, where they are just one among hundreds. Elaine Lee, who received her Ph.D. from the University of Connecticut in 2009, has been a postdoc at both types of institutions.

A Unique Training Environment
Lee joined Kevin Strange’s lab in 2010 after a one-year postdoc in immunology at Yale. “Yale had a really great support system, because they have between six and seven hundred postdocs,” she said. “But at MDIBL you don’t get lost in that mix. It’s a much better training environment. At Yale, I was never able to do many of the things I’ve done here.”

Lee had several postdoc offers, but says, “There was something about MDIBL when I came to visit that I knew was unique. I liked that it was a growing and changing institution, and the scientific environment is remarkable. That’s what I’ve been saying to people when they come for interviews: You can’t not produce good science here. There just aren’t the outside distractions you find at big universities, and there is a much greater level of interaction and collegiality. It’s really an ideal environment for doing science.”

Distinguished scientists come to MDIBL to conduct research, collaborate with the faculty, and give lectures. The collegial and informal environment at MDIBL makes it much easier for students and postdocs to interact with them. Lee says that at MDIBL, “I’ve had many more opportunities to talk to and interact closely with scientists at all levels of their careers, including leaders in my field. The environment at MDIBL breaks down a lot of barriers to communication and interaction.”

The Lure of Comparative Models
Lee came to MDIBL because she wanted to expand her approach to the scientific problems she is interested in. For her Ph.D., she studied the effect of stress on immune function. By the time she applied to the Strange lab for a postdoc, she says, “I had already worked with yeast and humans, and at Yale I worked with mice. My goal is to use a truly comparative biology approach and exploit different model organisms to answer questions about human health. C. elegans appealed to me because its biology and genes can be experimentally manipulated more easily, quickly, and economically than those of mice.”

Lee studies how organisms respond to various kinds of stress, including dehydration. She is delineating the signals that tell a cell it is experiencing stress and needs to activate the mechanisms that allow it to survive. Those sensors, she has found, are tied to the rate of protein synthesis, and the genes that regulate protein synthesis also play a role in aging. “Stress resistance is clearly related to longevity,” she says.

Comparative biology has also been a draw for the other postdocs and graduate students at MDIBL. “I’m very interested in how animals sense environmental change,” says Hiroaki Miyazaki, who just returned to Japan for a faculty position after a two-year stint as a postdoc in Kevin Strange’s lab. For his doctoral research in Kyoto, Miyazaki studied how salt levels are controlled in cells. At MDIBL, he looked at the problem in greater depth by using C. elegans to understand how a chloride ion channel that moves salt across cell membranes is regulated at the cellular and molecular level.

Miyazaki initially applied to Kevin Strange for a
postdoc position at Vanderbilt. He admits he wasn’t sure about what to expect when he came to MDIBL, but it worked out well. “This is a very special place. It’s great for science, and I can concentrate on my work. It’s also beautiful here and that beauty inspires creativity.” He and his wife discovered there were other Japanese people living nearby and enjoyed Acadia National Park. Days before leaving Maine for his new position, he confessed, “It’s a little bit hard to go back to Japan.”

Some of Miyazaki’s work with chloride channels will be carried on by Toshiki Yamada, another postdoc in the Strange lab from Japan attracted to MDIBL by its expertise with non-mammalian organisms. Yamada is interested in regeneration, which cannot be studied in mammals because of their very limited ability to regenerate lost and damaged tissues.

At MDIBL, Yamada is able to collaborate with Jerod Denton from the Vanderbilt University Medical Center, who also works with Voot Yin and Kevin Strange. Denton taught Yamada how to dissect heart cells in zebrafish, which grow healthy new heart tissue after injury. Because the heart is an electrical organ, he is studying how its electrical signals are modified during regeneration and whether those signals control the regenerative process.

**The Heart of the Matter**

Regeneration also drew Megan Dionne, a fourth-year student in the Graduate School of Biomedical Sciences (GSBS) based at the University of Maine, to MDIBL. Initially at the Maine Medical Center Research Institute (MMCRI) in South Portland, Dionne decided to change her thesis topic after hearing Voot Yin talk about his work on regeneration in zebrafish hearts at the Maine Biological Sciences Symposium held annually at MDIBL. “Hearing his talk,” she recalls, “I became incredibly excited about science again. I thought, this is something really big that he’s working on, and I want to be a part of it. So I took a chance and started my thesis over again, in order to do something that I’m passionate about.”

The GSBS is a unique graduate program in which students train at two or more of the program’s six cooperating research and academic institutions, including the University of Maine, MMCRI, The Jackson Laboratory, and MDIBL. Students can complete their course work through video conferencing, allowing them to start their research at labs spread out across Maine. Chris McCarty began working in Jim Coffman’s lab in 2009. He’s now finishing his Ph.D. thesis research into how the cyclin D gene is regulated during development in sea urchins. The gene, which is also found in humans and other animals, regulates cell division and differentiation, and is commonly mis-expressed in cancers. “Everybody here knows and interacts with each other,” Chris says. “I like that. It really stimulates science and creativity.”

“This is a non-conventional academic setting,” Strange says. “It’s highly collegial, multi-disciplinary, and offers much more of an entrepreneurial and think tank type of environment than large universities and medical centers do. I can’t think of a better place for young scientists who want to make their mark and push the boundaries of science by exploring and taking risks.”
MDIBL Voices

Names:  David Colley, M.D.
        Barbara Colley, M.A.,
        formerly Barbara Burnet

Home:  Branford, Connecticut

Summers at MDIBL:
        David - 1962 and 63
        Barbara - 1963 and 64

Married:  1965
Q: What brought you to MDIBL?

David: I had just graduated from Northwestern with a degree in biology and was about to go to medical school. There was an NSF fellowship for all of $600 with Dr. Edwin Palincsar at MDIBL. One of the graduate students at Northwestern said he couldn’t go and asked if I’d like to. Having spent a couple of summers in Maine as a child, I jumped at the opportunity.

Barbara: I was in the master’s program at the University of Toronto. Dr. Richard Liversage, a visiting scientist at MDIBL, was on the cutting edge way back then. We had been studying regeneration in the salamander at the University of Toronto. Our project that summer at MDIBL was to study the effects of removing the pituitary gland on fin regeneration in fundulus [a small minnow-like fish].

Q: Did you pursue careers in science?

David: I became an interventional radiologist.

Barbara: After I completed my masters in biology, I worked for a year at the Children’s Research Hospital in Cincinnati and then at the VA Research Hospital in Chicago. Later I was a chemistry and biology lab instructor at the University of Connecticut. Biology was always there in my life.

Q: What do you remember most about MDIBL?

David: Climbing Cadillac Mountain and picking blueberries in the rain. And of course, I remember vividly that Lisa Karnofsky hosted a party at her parent’s house. Halfway through, she came up to me and said, “I think Barbara Burnet likes you.”

Barbara: Well, someone came up to me and said, “I think David Colley likes you.” They were matchmakers. Two years ago we returned to Bar Harbor to celebrate our 45th wedding anniversary. We visited MDIBL and it was great to see all the construction activity and many of the familiar names like Karnofsky, Wilde, and others.

Q: Other than bringing you together, did MDIBL leave a stamp on your lives?

David: For me, it was the exposure to people in other areas of academia, in particular Dr. Karnofsky, John Boylan, and Roy Forster. I was fascinated by some of the work that they were doing. I was impressed with the scope of their knowledge and the people they knew — and the people I now know that knew them as colleagues. It continues to impress me.

Barbara: It was just a whole new world. I’d always been interested in animal life, but MDIBL exposed me to something very different. And I realize now what a wonderful place it was for the staff and for the researchers. It was an opportunity to do research on a different model than we did during the year at our home institution. Like the buildings Steve Jobs designed for Apple, MDIBL encouraged casual contact, and it was a good way to foster new ideas.
Alumni News

Thousands of science professionals and students at all levels, from high school through medical school, have come to MDIBL for research fellowships and training programs. Our alumni have contributed to science and other fields in critical ways and help give MDIBL its global reach. Here’s some of the news we’ve received recently.

If you are an alum, we want to hear what you’re up to. Let us know what’s new through the alumni page on www.mdibl.org or via Facebook. Better yet, come visit and deliver your news in person!

Cinda Scott, NSF Research Experience for Undergraduates (REU) Fellow ’98, graduated from Middlebury College and received a Ph.D. in 2009 from the University of Miami’s Rosenstiel School of Marine and Atmospheric Science. She is now at the New York City College of Technology (City Tech), where she focuses on broadening and strengthening student, especially minority student, participation in science, technology, engineering, and mathematics.

“The connections I made with the doctors and professors working at MDIBL were invaluable and set me on the course for completing my Ph.D.” Scott says. “I am very proud to say that I was once an REU student at MDIBL, and I encourage my current students to look into research opportunities like those offered at MDIBL. In my work, I find that many students have the desire to learn, but are too often discouraged or lack confidence to know that they can succeed in the sciences. MDIBL was especially important for me because it validated, outside of my undergraduate institution, that I could do research and be successful in science.”

Susan Letcher, Hancock County Scholar ’94 and REU Fellow ’96, is an assistant professor of environmental studies at Purchase College in New York. She is a terrestrial ecologist and environmental scientist whose research centers on tropical forests in Costa Rica and other parts of the world.

After graduating from Carleton College in 2000, Letcher and her sister hiked the Appalachian Trail and wrote a pair of books about the experience. She earned her Ph.D. in ecology at the University of Connecticut in 2008. “My experience at MDIBL as a Hancock County Scholar and an REU student was instrumental in setting me on this path,” she says.
Dave “Bebo” Seward, Hancock County Scholar ’95 and ’96, REU Fellow ’97, is graduating from the University of Colorado Medical School this May and will begin his residency in pathology at the University of Michigan in Ann Arbor in July. Originally from Gouldsboro, Maine, Seward received his Ph.D. in molecular biology in 2010, also from the University of Colorado. His research involved the effects on chromatin, or the structure within cells where DNA is stored and regulated, by a histone tail modification in a region of genes that is active in organisms from yeast to humans. Histones are the protein foundation on which chromatin is built. David L. Bentley, Ph.D., was his thesis advisor.

Innocent Ndzana, INBRE Fellow at MDIBL’07 and at The Jackson Laboratory ’05, is now a medical student at the University of New England College of Osteopathic Medicine in Biddeford, Maine. He graduated from the University of Maine at Machias in 2008. According to Innocent, his summer internships were instrumental in his being hired as a research assistant in the craniofacial sciences department at the University of Connecticut Health Center before he applied to medical school.

“In a non-research related note,” Ndzana reports, “Kathryn Sawyer and I were married in August of 2008. Kate and I met while we were both summer interns at the Jackson Lab. She is currently in her first year of family medicine residency at the Maine Medical Center in Portland, Maine. After our residencies, we are planning on settling in Maine to practice medicine.”

Summer 2012
MDI Science Cafés at the Asticou Inn

At MDIBL, we believe science is best when it’s shared. Science Cafés are fun, relaxed events where scientists present their ideas in everyday language and expect plenty of questions, discussion, and debate. Refreshments included!

All summer Cafés are on Mondays and begin at 5:00 p.m.

June 18 Miriam Goodman, Ph.D., Stanford School of Medicine
Focus: Neuroscience and our sensations

Focus: The future of science journalism

July 16 To be announced

July 30 Hermann Haller, M.D., Hannover (Germany) Medical School Adjunct Faculty, MDIBL
Focus: “reMAINE Healthy”: Finding new ways to detect kidney disease

August 13 Ken Weg, former vice-chairman, Bristol-Myers, Squibb
Focus: The research pipeline to new cures

August 27 John Colbourne, Ph.D., Center for Genomics and Bioinformatics, Indiana University; Adjunct Faculty, MDIBL
Focus: Adapting to environmental change

September 10 To be announced

For the latest information, visit www.mdibl.org/science_cafes.
As George Dorr, founder of Acadia National Park, proclaimed in 1916,

“…what a splendid and useful thing it would be if we could provide here, in a spot so full of biologic interest and unsolved biologic problems . . . a home, however simple, for men of science to work on a fresh field of life.”

George Dorr’s vision became a reality. The same natural richness that drew artists and rusticators to the Island also attracted scientists to its shores and mountains. The MDI Bio Lab is a model for how inspiration from nature can propel science to new heights. Join MDIBL’s Star Point Society in celebrating Dorr’s great foresight on July 27.