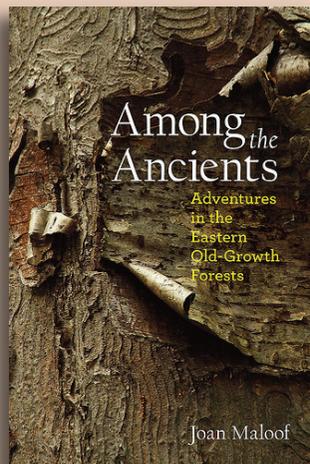


Literature and the Young Adult Reader

By Ernie Bond
Associate Professor,
Teacher Education Department

Bond, Carnegie Foundation's 2007 Maryland Teacher Educator of the Year, has long been an advocate for connecting to students and is a well-respected reviewer for tradebook offerings of new, young adult literature (YAL). Linking these two passions, Bond has written a delightful and contemporary new text for YAL courses. Bond's own wide reading and uncanny ability to recognize what middle school students will and should read plays out in rich text sets and authentic classroom features designed to help teachers captivate both motivated and reluctant readers. This YAL text provides a fresh and exciting experience for pre-service and in-service teachers as it leads them to the newest and best offerings of literature available for adolescents today.

Pearson, 2011

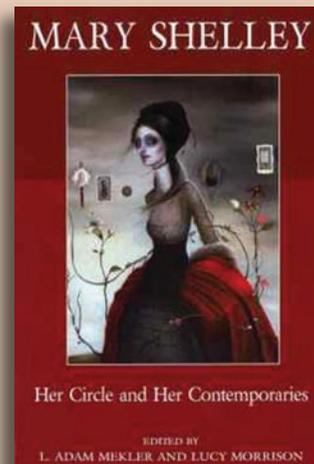


Among the Ancients: Adventures in the Eastern Old-Growth Forests

By Joan Maloof
Professor, Biology Department

Most residents of the eastern United States never get to see an old-growth forest. They think perhaps these forests are too far away, or they don't know how to find them. Maloof's *Among the Ancients* remedies this. In her intelligent, lyrical book, Maloof takes readers to 26 forests – one in each state east of the Mississippi River and all open to the public. She tells readers how to get there and what they will find when they arrive. On this journey – from giant hemlock groves in Pennsylvania to a lonely stand of pines in Wisconsin – readers come face to face, perhaps for the first time, with old growth: the forests with the largest trees and the richest diversity of life. They camp with Maloof under "the Big Tree" in Alabama and paddle to the magnificent Patriarch in Delaware; they dodge poisonwood sap in Florida's Lignumvitae Key and tangle with a bat in the Michigan wilderness. They also see the forests from the human perspective: who had the dream, who drew the line, who said "no" to the loggers. And they learn about the vital link between old-growth forests and our own survival. An immensely readable natural-history primer, *Among the Ancients* is also an adventure story and an impassioned plea to preserve and support the few untouched stretches of forest that remain.

Ruka Press, 2011



Mary Shelley: Her Circle and Her Contemporaries

Co-authored and edited by Lucy Morrison
Professor, English Department

This collection of essays expands critical consideration of Mary Shelley's placement within the age we call "Romantic," wherein her texts converse with those of her family, her circle and her contemporaries. Several essays address particularly how her texts interact with those of her husband Percy Bysshe Shelley, revealing new depth and breadth to their literary partnership. Others investigate interdisciplinary perspectives, such as her pieces in *The Liberal* or the ways in which the figure of Scheherazade haunts her works, while several essays also consider Mary Shelley's textual relationships with contemporaries such as Thomas Moore and John Polidori. Still others tackle topics such as geopolitical relationships and the growth of opera as an art form, considering Mary Shelley's commentary upon such contemporary issues, while William Godwin's textual relationship with his daughter is further investigated. This collection suggests Mary Shelley's texts merit further investigation not only for what they reveal about their author and her oeuvre, but for the ways in which they illuminate our understanding of the contexts in which they were composed.

Cambridge Scholars Publishing, 2010

The Promise of Plant Probiotics

Plant/Microbe Interaction May Yield Significant Agricultural Benefits

By Mark Holland, Ph.D.

Professor and Biological Sciences Department Chair

There's a lot of talk these days in the media about probiotics. Television ads for yogurt and other products containing lactic acid bacteria and *Bifidobacterium* have made these microbes into celebrities. While there aren't any hard and fast criteria at this point that define probiotics, the Food and Agriculture Organization (FAO) and World Health Organization (WHO) have developed an operational definition for them: Probiotics are: "Live microorganisms which when administered in adequate amounts confer a health benefit on the host." It should come as no surprise that we humans aren't the only organisms that benefit from relationships with the right kind of bacteria. My lab studies what might be called the probiotics of plants.

Methylobacterium is a genus of bacteria (also called PPFM bacteria) that seems to be associated ubiquitously with plants. These bacteria are found in relatively large numbers on all kinds of plants and in seeds. Given the amount of plant biomass on Earth, they must be among the most abundant organisms on the planet. If you eat lunch today at the salad bar, you will no doubt consume some of them. Go swimming in lake water or digging in your vegetable garden and you likely will be inoculated with them yourself. We first learned of these bacteria some 20 years ago and soon thereafter began experimenting to discover what role, if any, they play in the lives of the plants they live with.

One of the first things we discovered was that some of the metabolic activities of the bacteria are pronounced enough that they can fool you into thinking that the plant is responsible for them. This suggested to us that the PPFMs might be used in a kind of genetic engineering strategy. That is, engineering the bacteria to produce a desirable enzyme or other useful metabolite could allow us to alter the metabolism of a plant simply by inoculating the plant with the engineered PPFM. This is a much simpler and quicker method of changing plant metabolism than conventional plant breeding or plant genetic engineering. The U.S. Patent Office agreed with us and awarded a patent



to our procedure in 1993.

As a follow up to this work, we decided to find out how plants operate in the absence of a normal PPFM population. We soon showed that seeds cured of their PPFMs no longer germinate well or develop normally, but re-inoculating the cured seeds with a population of the bacteria restores germination and growth. The surprising conclusion to this story is that sometimes poorly stored or aged seeds fail to germinate because their bacteria have died, not because they are themselves dead. This discovery led to another patent application – and a second award.

Over the years, additional patents have followed. Two of these relate to increases in crop yield obtained when PPFMs are applied to the leaves of plants during the growing season. Another patent deals with improvements in the nutritional quality of plants brought about by inoculation with elite strains of the bacteria that overproduce useful amino acids or vitamins. Still another relates a strategy for manipulating male fertility in plants and suggests a practical method for applying this to the production of F1 hybrid seed in some of our most important grain crops. We even have a patented strain of virus, a so-called bacteriophage, that effectively removes PPFM bacteria from plants. To date, our research has resulted in seven awarded patents and a handful of provisional patents with additional intellectual property disclosures in the pipeline. Some of these awards are shared with colleagues from other universities and with undergraduate student inventors who have worked in my lab.

All of this technology has been licensed to the CST Technology Group, LLC. of Port

Washington, NY. They have been testing the PPFMs under a variety of field conditions and on a number of different crops from soybean to microalgae, both here in the United States and internationally. Last year, they began commercial distribution of the bacteria. It is our hope that these probiotic technologies for plants, which began in a small way at SU, will someday help to feed the growing population of our world.

Even after years of research, we still can't claim to know everything about the relationship between PPFM bacteria and plants. Nor have we probably tapped out the potential applications of the bacteria in agriculture. At present, there are two undergraduates and three graduate students working in the lab on various aspects of the PPFM story; there are days when it seems this project is just beginning – not 20 years in the works.

Any discussion of current goings on in my lab would be incomplete without including a pitch for the Biological Sciences Department's new master's program in applied biology. While our investigation of plant probiotics includes many basic research questions, there is also an emphasis on the application of our findings to the solution of real-life problems. This is what applied biology is about, and our graduate program shares this goal. Students in the M.S. program are trained to think in terms of practical skills acquired, problem solving and the business of technology development. The activities of my lab fit right into this model. For more information about the M.S. in applied biology, visit the Biological Sciences Department Web site at www.salisbury.edu/biology.