FEATURES

Mapping Secrets of a Tiny Predator

Meet bacteriophage T4, a brutal predator and unlikely hero in science's quest to understand and manipulate genes and DNA. Facilitating the introduction are Evergreen faculty members Burt Guttman and Betty Kutter. You may be surprised at what you learn; because they coordinate the mapping of T4's DNA sequence, Kutter and Guttman are privy to the tiniest of details.

DEPARTMENTS

GreenerNews

Evergreen's scientists of tomorrow ... Bill Clinton's handing of the OSHA reins to Joe Dear '77 is called the Northwest's most important political appointment ... Washington Center for Improving the Quality of Undergraduate Education wins national faculty development award ... Student wins national humanitarian award ... Faculty Richard Jones, Steve Milder, Mary Nelson and John Parker remembered ... and more

AlumNews

Newly consolidated data charts alumni career choices ... Super Saturday conversation starters ... Spring Greener Gatherings planned ... Friends of the Evergreen Library seek published writers ... Santa's a Greener ... and more

Letters

A biologist's personal view on what he fears may be a recipe for disaster at the U.S.-Mexico border. Will a mixing of science and politics spoil chances for ecological change?

Commentary

by Hugo Flores '88

EDITOR'S NOTE

IN THIS ISSUE, REVIEW TAKES UP its magnifying glass to examine science. What we discover is that the key to understanding a large issue can actually be quite small. In the case of bacteriophage T4, it's microscopic. Evergreen-based research on phage T4 is helping scientists around the world better understand the intricacies of DNA, as Mike Wark tells us in his story on T4 and faculty members Burt Guttman and Betty Kutter.

However unknown some of the innermost workings of DNA may be, the same can't be said for Seattle's Immunex Corp. Immunex is a giant in the biotechnology field, and, in addition, home to graduates of The Evergreen State College. Writer Jackie Barry '89 tells us how two such graduates came to be where they are and how their Evergreen studies influence what they do.

An entire nation wondered what scientists were doing in the Arizona desert for two years beginning in 1991, and how they came to be enclosed in Biosphere 2. Today, we are beginning to learn what came out of that experiment. Linda Leigh '77 was one of the researchers under glass; writer Karma Gerth has her story.

REVIEW HAS SO MUCH TO REPORT. Unfortunately, there's not the space to cover it all. Readers will have to turn to the New York Times and Glamour to learn more about faculty biologist Nalini Nadkarni. Nadkarni has fascinated media and shocked scientists by finding small tree roots growing in the nearly inaccessible treetop canopies of the Olympic Rainforest and Costa Rica. Just as intriguing is her method of using a modified rope-and-pulley system to swing through the canopies, inviting comparison to another famous jungle figure, Tarzan.

WE'VE LONG STRUGGLED TO UNDERSTAND our world. Ancient scientists danced trying to make rain. Today's experts have learned new steps, the technical and daunting explanation of which can persuade one that science is better left avoided. Not to worry. This edition of Review's writers bypass eurythmics altogether and make the technical understandable.

You may as well know, it was no small task.

On the cover: Faculty member Betty Kutter, director of Evergreen's bacteriophage T4 project.
HIGH TECHNOLOGY IS CHANGING EVERYTHING from how we communicate to how we stay healthy. In fact, futurists believe as many as 80 percent of the jobs that will exist in 20 years have yet to be invented.

One of the sciences under high tech’s umbrella, biotechnology, hasn’t yet produced young billionaires like those who’ve gained celebrity in the field of computer science. However, biotechnology does lay claim to fascinating and unusual heroes, including one that’s less than human.

Bacteriophage T4 is a brutal predator on a microscopic scale, an unlikely hero in the quest to understand and manipulate genes and DNA — the basic building blocks of life.

Bacteriophage T4 is a virus. Although its crowning achievement was helping reveal that DNA is the stuff of heredity, T4 has helped accomplish much more. Indeed, in many ways, today’s biotechnology industry owes its existence to this tiny particle.

The Evergreen State College has become an important center for the study of phage T4. While the leading edge of biotechnology has moved far beyond the parameters of T4 research, examination of the virus still has much to offer the world of science.

The history of T4 threads through the beginnings of molecular biology, early in this century, to the present era of biotechnology. The story of bacteriophage T4, told alongside that of Evergreen’s molecular biology faculty and students, lends fascinating perspective to a field that’s still a mystery to many.
Food isn’t the motivation for bacteriophage T4’s predatory ways. Reproduction is, and the bacterium *Escherichia coli* is its favorite prey. The size of a T4, relative to a single-cell *E. coli* bacterium, compares roughly to the size of a tarantula on a large human. The T4 has several leg-like tail spikes and another similarity to a spider: its deadly sting. For the most part, however, T4 looks more like a space-age tadpole. Its large round head is geometric, cut somewhat like a ruby. At the end of its long tail are those six spider-like tail spikes.

When a phage T4 finds an *E. coli* cell, it grabs the prey with its tail. Once the T4 has a good grip, it forces its tail, like a stinger, through the cell wall. Then it shoots all of its DNA, stored in its head, into the doomed bacterium’s interior. Here’s where things get interesting for scientists.

First, the T4’s DNA shuts down all the cell’s normal functions. But the cell doesn’t die yet. Instead, all of its internal functions are shifted to a new purpose: to make new T4 viruses. In fact, the bacterium becomes a factory that produces, on the average, 200 new T4 viruses in 25 to 30 minutes. Then the cell wall crumbles and a new pack of viruses is unleashed, free to hunt for new victims.

“We’re primarily interested in the genes of the phage that turn off the cell — turn off normal cellular functions — and take over the cell,” explains Burt Guttman, Evergreen faculty molecular biologist. “The complications of gene regulation, turning some genes off and turning others on, has been used as a model system to try to better understand the development of embryos in complex organisms.”

**FOUR YEARS AGO, GUTTMAN and Betty Kutter, Evergreen faculty member and director of the college’s T4 project, were more interested in mapping the entire DNA sequence of the virus. DNA is like a blueprint for building a new virus and directing its functions. Or, in the case of a human, DNA holds the blueprint for building a new girl or boy.**

“Mapping the phage DNA is a big project and there have been people all over the world doing bits and pieces of it. We’ve just been finishing up a lot of it here, especially with our visiting scientists from [former Soviet] Georgia,” say Guttman and Kutter.

Before Tsotne Djavakhishvili, Volodja Eryomin and other former Soviet scientists became part of Evergreen’s lab team, performing research and teaching lab students with support from the National Science Foundation, Kutter and Guttman collaborated with them long over the world doing bits and pieces of it. We’ve just been finishing up a lot of it here, especially with our visiting scientists from [former Soviet] Georgia,” say Guttman and Kutter.**

Before Tsotne Djavakhishvili, Volodja Eryomin and other former Soviet scientists became part of Evergreen’s lab team, performing research and teaching lab students with support from the National Science Foundation, Kutter and Guttman collaborated with them long distance, just as the two continue to communicate with scientists in Seattle, Washington, D.C., Japan, Russia, Lithuania, France and several other countries. With the advent about four years ago E-mail, which can send written messages and texts instantly between computers around the world, members of this scientific community might as well occupy offices down the same hallway.

“The extent of our international collaboration isn’t very common, even at research universities,” notes Kutter. “One of the reasons we do it is because we don’t have many scientists down the hall to go to. For us, the people down the hall are actually in Seattle, or maybe Moscow or Japan.” For 22 years, Evergreen has been communication central for scientists studying phage T4. Whenever someone makes a new discovery, such as identifying the function of a new gene, the scientist will inform Kutter. She and Guttman then put the information on a map, creating a blueprint of the phage DNA. It is this map that has made Evergreen the central resource center for T4 research on the planet.

“It’s natural for us to take on the job of communication because we had already taken on the job of coordinating the putting together of the map,” says Guttman.

Addis Kutter, “What we do is coordinate people’s knowing about what others are doing, by keeping a basic database on their findings. This helps them do their work more effectively and speeds along advances in the research.”

Scientists who study phage T4 are a worldwide, but close-knit community. Over the years, many Evergreen students have become integral parts of this community, enjoying a very in-depth research experience that is uncommon for undergraduate students in American colleges and universities.

“Scientific communities really do operate as communities, especially this one,” says Guttman. “This kind of research started back in the ’40s and ’50s with a very small group of people. As it has grown, and branched out across the world, it has generally maintained that kind of small-community feeling.” Every two years, members of this international T4 community meet face-to-face for one week on Evergreen’s campus for an informal conference hosted by Kutter and Evergreen’s lab scientists and students. They share information and enjoy fresh Northwest salmon. Two books which include editorial contributions by Kutter and Guttman have resulted from the semi-annual conference. Guttman credits Kutter with building Evergreen’s international role in the T4 community. She brought to Evergreen her National Institutes of Health grant that funded the research in 1972, the year both were hired as faculty. Guttman was not initially involved in the research, but joined Kutter’s work a few years after they arrived at Evergreen. Since then, the National Science Foundation has taken over funding for the research.

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"A lot of our central role in phage research has to do with Betty’s personal-activity," Guttman says. "She enjoys being a
catalyst — getting people to cooperate and share their work."

Beyond providing an opportunity for Evergreen students to perform in-depth research on bacteriophage, the laboratory
built with NSF funding is available to students and faculty for pursuing other research projects.

"The phage research is an integral part of my teaching. It enhances my teaching, and adds to my work with students in the
classrooms and labs," says Kutter. "Phage research is fundamentally simple, and
much of the work can be done quickly with a minimum of equipment, so this
makes an ideal system for student work."

VIRUSES DON'T GROW. They are assembled.

In a laboratory in Evergreen's Lab II, Guttman points to the phage T4 map taped to the wall of a large refrigerating machine as he explains each gene by the job it forces its bacterial host to perform: "These genes are in charge of producing the head, then these genes make sure the head gets filled with DNA, then the head gets put on the tail. Finally, these genes, here, are carrying the information for the tail fibers and the tail fibers are put on the virus."

Behind him, the lab is alive with staff member Terry White advising student Julia Tracy.

Scientific studies that grew into molecular biology began back in 1915, when scientists noticed cultures of bacteria in small dishes would suddenly clear as though something had destroyed large quantities of them.

It took a long time for scientists to understand the concept of a virus — what a virus is. It was principally through the work of Max Delbrück, starting in the late 1930s, that an effective process for studying particles as small as phage viruses began to evolve.

"Delbrück was the father of us all," says Guttman. "He was wise enough to realize that biological systems are basically genetic systems, and that to really understand biology, you have to understand the simplest genetic system available." Life doesn't get much simpler than a T4 virus. Roughly half protein, half DNA, the phage isn't even complicated enough to be called an organism. It's just a complex particle that uses other organisms for its reproduction.

Once Delbrück's methods were established, scientists in several labs began experimenting with all kinds of phages and E. coli bacteria. But nobody could compare results because each phage used was different. To solve this problem, in 1944 Delbrück arranged a "phage truce," whereby the community of investigators agreed to use only a set of seven phage, numbered T1 through T7. These phage were considered to be "well behaved," because their activity was easy to monitor and control. The scientists also agreed to grow these phage only in E. coli strain B bacteria in nutrient broth at 37 degrees centigrade.

Although all seven chosen strains of bacteriophage have added greatly to the body of research, eventually T4 became the most popular.

Staff member Terry White advises student Julia Tracy.

Viruses don't grow.
They are assembled.

At the outset of his work, Delbrück recruited a small group of colleagues, including S.E. Luria and A.D. Hershey and their students. These two later branched out on their own. In 1952, Hershey and Martha Chase determined that DNA is the stuff of heredity with an experiment that proved phage T4 injects DNA, not protein, into its host cell. One of Luria's students, James Watson, went to England where, in 1953, he and Francis Crick determined that DNA is shaped like a double helix and that its structure explains the most fundamental phenomena of genetics, a discovery that won them the Nobel Prize in 1953. Both Guttman and Kutter came out of this research tradition, studying under the second generation of students who worked with Delbrück and Luria. Now they pass that tradition on to several students a year.

David Scalzo is an Evergreen biology student. To get the extensive lab
experience required to get into the best schools, graduates also vie for jobs at Seattle's Immunex, a leading microbiology corporation, or the Fred Hutchinson Cancer Research Center.

T4 research is a stepping stone for many career paths. "I'm more interested in neurobiology and perception, but everything in science is molecular biology, now," says Scalzo.

Megan Stapleton is a senior who was originally interested in marine biology. Fascinated by molecular biology, she also found herself working in the lab. "It's an area that has eluded people," she says.

Explaining how she does her work can make a non-scientist's head spin. She tells it by mixing a cocktail of primers, some building blocks, stock DNA and a few other things that are needed to start a "polymerase chain reaction," which will give her large amounts of a small fragment of T4 DNA. After mixing it together you put it into an instrument called a thermocycler. She says one of the Georgian scientists, Nino Mzhavia, taught her this method.

"I could have learned to do this without Nino. It took a whole quarter to learn," she says.

Now she mixes a cocktail and completes an experiment in half a day. Each cocktail adds one tiny bit of knowledge to our understanding of the T4 and its DNA.

Darlene Porter is another recent graduate who is applying to graduate schools while working in the lab. "I came to Evergreen because it was inexpensive and I could do what I wanted to do," she says. "I've always known I want to work in the women's health field."

All the students share the thrill of learning to understand the highly complex concepts and language of molecular biology.

"The other day, Terry and I were sitting down and mapping this phlauid," says Scalzo. "She was talking about a new angle she was taking with her research and describing what she wanted to accomplish, and I was amazed I could understand what she was talking about."

The other students laugh. They've had the same experience with Terry White, the scientist who runs the lab, or listening to off-campus lectures, or walking into other labs and talking to researchers.

EVERGREEN'S INTERNATIONAL ROLE CONTINUES to expand as its scientists have accepted a new, central role in T4 research — one that has implications far beyond the parameters of the phage virus. Kutter applied for and received a grant from a special NSF program for computers in the biosciences to develop a database that will log the vast amount of information known about T4. This database will greatly simplify the job of coordinating research. Information will be organized in such a way that scientists can easily draw out whatever information they need, knowing they have tapped into everything that is known about T4 across the world.

"The kinds of methods that can be worked out for coordinating all this information into a database for T4 can be applied to even bigger, more complex projects," says Guttman. "We have now essentially mapped T4's entire DNA sequence, which has involved an immense amount of information. But T4 is a small thing. Much smaller than a human genome. It makes sense to start with something small."

KUTTER IS RACING TO CATCH an airplane for Mexico while being interviewed for this story. There, she will meet with 35 scientists from across the world who are holding the first workshop to discuss the development of an international database for molecular biology research. She will deliver a lecture about Evergreen's new database project.

The timing is ripe, as scientists have begun the arduous task of identifying all the genes on the human DNA. Little is known about the human DNA, but that will gradually change. And database methods developed at Evergreen will most likely be adopted for that project.

Evergreen faculty computer scientist Judy Cashing is contributing to the project, and the NSF's new grant pays for a specialist, Tom Stidham, a 1992 Evergreen graduate, to help develop the database.

THE FUTURE OF MICROBIOLOGY IS bright, fascinating and mysterious. Already, DNA has become an accepted method for identifying parentage. Drugs are being developed that will bolster the human immune system against disease. New strains of plants make stronger crops. Scientists expect to identify genes that cause genetic disease and hope someday to neutralize those genes and their threats. And the implications for building brand new organisms by manipulating genetic material have inspired both hope and fear.

All these advances can trace their roots to the tradition of research built through the study of the bacteriophage. "T4 and E. coli played a central role in the development of our understanding of many fundamental processes," says Guttman. "The history of research with T4 is virtually a history of molecular biology itself."

Mike Wark directs Evergreen's Office of College Relations.

"The phage research is an integral part of my teaching. It enhances my teaching, and adds to my work with students in the classrooms and labs."
Greeners not Immune to Biotech Success

By Jackie Barry ’89

OUR BODIES ARE TEMPLES — shining examples of biological engineering. That is until our immune systems run wild and our white blood cells and platelets go nuts.

Persons experiencing this unfortunate condition — and there are more than you might think — will feel the helping hand of a biotechnologist. Evergreen claims at least three alumni working in biotechnology, both at Immunex Corp., based in Seattle. Dozens more work at biotech firms around the country.

Interested parties claim that biotech is the one major industry in which the United States is the undisputed world leader; profits from worldwide trade would flow into our country and make us rich again.

Now a research associate/analytical biochemist studying glycoproteins, Hoch looked toward Immunex as a possible employer because the word on the street was that Immunex was a place where a practicing scientist could help people and enjoy their work. She says Immunex produces immune-based therapies that are predominantly cancer-related — substances that occur naturally in the body but get out of whack because of disease or treatment of disease. While Hoch can’t discuss specific products on which she’s currently working, she says the basic concept of some products is that they “mop up” substances that our bodies produce that cause maladies such as rheumatoid arthritis, where the body begins producing substances that attack the joints.

BECKMANN BEGAN HER EVERGREEN EXPERIENCE as an education major. A decision to join her roommate in “Foundations of Natural Science” began shaping the path that would eventually lead to Immunex. After working as an emergency medical technician and a food chemist, Beckmann ended up as a researcher at a University of Washington lab. An admonishment to stay in her place, that a “technician was just a pair of hands,” by a supervisor at the lab, led Beckmann to take on graduate school and post-doctoral work.

She found that a lot of her associates in grad school couldn’t see the breadth of their experiences. Because of the interdisciplinary academic structure at Evergreen, “I knew how to go to a different disciplines together,” she says. At the same time, Evergreen allowed her to focus on a single discipline, much like graduate school curriculum would. “I worked on the electron microscope for hours and hours without anyone bothering me,” she remembers.

Now a staff scientist at Immunex, where she’s worked for almost six years, Beckmann oversees research projects that usually involve cloning and characterization of the receptors in our immune systems. She’s also helping Immunex “pave a new way” in neurobiology.

HOCHE CAME TO EVERGREEN not knowing or thinking she would end up working for a corporate biotech giant and loving it. After studying developmental biology as part of Evergreen’s human development core program, she began to relive a high school passion. “I’d forgotten how fascinated I was in science.”

But Hoch feared her lack of math skills would keep her from succeeding in this field. Program counselor Janet Ott convinced her that Evergreen programs and facilities would help her get up to speed — and they did. Or also informed her about a National Science Foundation program that provided research fellowships for undergraduates to do scientific research. Hoch got one of the fellowships, and the next year, a scholarship. The NSF program of study at the University of Florida, where she worked with a team to research and produce papers about the biochemistry of developing egg cells in small vertebrate fishes and the proteins in fish egg yolks.

SEEHALE CONSIDERED HERSELF to be a pre-med student for her first two and one-half years at Evergreen. She studied the “basic science thing,” including “Matter and Motion” and “Molecules to Organism.” She also performed biomedical research in Clyde Barlow’s lab. She thinks the interdisciplinary programs she studied were directly related to her ability to get a job at Immunex. Now a laboratory information management specialist who helps monitor the Immunex facility and make sure its data falls within a specified range, Seehale was ideally suited to perform this function since most science majors don’t study computer data analysis.

“The fact that the [Evergreen Computer Applications Lab even exists is amazing to me,” she says, noting she wouldn’t have gotten the opportunity to work on computers as a science major at most other schools. She calls the Evergreen way “groundbreaking in a lot of ways.”

Jackie Barry works for Evergreen’s College Relations and Development offices. She is a former newspaper editor who writes for Washington post and education organizations.
A Biospherian Speaks of Life Under a Glass Sky

By Karma Gerth

FOUR WOMEN AND FOUR MEN were sealed into a glass-and-steel structure called Biosphere 2 in 1991. For two intense years these researchers lived in and studied a closed environment containing seven ecological systems covering a little more than three acres near Oracle, Arizona.

The mission of the project, according to Space Biospheres Ventures, the company which funded it, was to learn about and develop environmental technologies for use on Earth and in outer space. The $150 million test tube, as some journalists called the project, attracted a great deal of attention and criticism from scientists around the world. Today, half a year from the research team's release from Biosphere 2, what is known of its findings?

According to Lynn Ratener of Biosphere publications and archives, researchers are completing assessments of the project and publishing their results in trade journals. Biospherians Abigail Alling and Mark Nelson have written the book "Life Under Glass: The Inside Story of Biosphere 2," published by Biosphere Press. Food Systems Manager Sally Silverstone has written "Feasting In: From the Field to the Kitchen in Biosphere 2," also published by Biosphere.

"Everyone has their own story," explains Linda Leigh '77, project terrestrial ecosystems manager. Readers may very well expect a book from her in the future, she adds, after she finishes compiling information on Biosphere 2 plant growth and reproduction.

As terrestrial ecosystems manager, Leigh put her botanical and restoration skills to work by organizing the acquisition, documentation, storage and propagation of more than 2,000 candidate plant species for Biosphere 2's terrestrial biomes. Biomes included a rain forest, savannah and desert. Leigh says each biome was patterned after its Earth counterpart, and that the selection process involved picking species from the world that would give her team the succession ecology it wanted.

IT WAS NOT EASY, REPORTS LEIGH, for the team to live with the world watching. Scientists criticized the project, tourists gawked and rumors flew. Leigh separates such controversy into groups and "good scientific critique," and defends Biosphere 2 as a laboratory uniquely equipped to study global change.

For instance, she says, Biosphere 2 offered the opportunity to study the immediate effects of humans on the environment. "You dig a hole and you're disrupting the atmosphere. You're putting more carbon dioxide into it," she says. "The same thing happens on Earth, [the air is] just so diluted that we don't realize it."

While attending Evergreen, Leigh studied botany and field ecology with what faculty member Oscar Soule calls a very professional approach. Soule believes Leigh's field work in Alaska as a student prepared her for living in Biosphere 2 by exposing her to harsh, remote working conditions.

As accomplished biologist, Leigh received the Washington State University Outstanding Undergraduate Researcher Award in 1992 and was named a National Science Foundation Graduate Fellow. Leigh's work with the team has led to the publication of over 60 scientific papers and book chapters on subjects ranging from seed germination to ecosystem management.

"Evergreen is a top institution," says Leigh. "To go there, an undergraduate student has to be very driven and dedicated. Once she has that support, it is extremely rewarding."

Karma Gerth is a fifth-year student and future field ecologist and National Humanitarian Award recipient. She transferred to Evergreen from Centralia College last summer, received the award in recognition of her extensive background working with at-risk teens, including creating a program called Smart Kids that involves school-age parents in becoming literacy advocates, developing leadership skills and reading to children in Head Start programs.

The Humanitarian Award includes a $1,500 grant for the Smart Kids program. This year, Newport developed a program to help kids explore self-representation through visual arts. Her latest project: looking for ways to build a new teen center in Olympia.
Prestigious National Honor Goes to Evergreen

Evergreen's Washington Center for Improving the Quality of Undergraduate Education won a highly coveted Theodore M. Hesburgh Award on February 21. The awards recognize innovative faculty development programs that enhance undergraduate learning. In their second year, the awards are already prized by colleges and universities across the nation.

Even President Clinton wrote a personal note to Evergreen President Jane Jervis recognizing the college's achievement. Five of 13 winners so far have been Washington state schools — impressive when you consider institutions in all 50 states are eligible.

"Already the Hesburgh awards have garnered incredible prestige among institutions across the country," says Barbara Smith, director of the Washington Center. "People are looking for validation that the quality of their faculty development programs and their commitment to teaching are exceptional."

The Washington Center heads a consortium of 44 Washington public and private, two- and four-year institutions, by coordinating teaching exchanges and providing guidance for the development of innovative methods of teaching, especially through coordinated studies.

Public Service Linked to Academic Programs

More than 200 Evergreen students are performing community-service projects tied to what they're learning in academic programs this year.

Another program will perform service projects in communities along the entire length of the Nisqually River. Made possible with grant funding through the federal Commission on National and Community Service, part-time faculty were integrated into three programs to help students develop project skills and meet community needs. A Department of Education grant was used for a related approach that involves students of several programs. Even fund-granting agencies have suffered from federal cuts, it's hoped these programs will continue next year.

Freshman Tradition

Evergreen's incoming freshmen continue to distinguish themselves from their peers nationally by exhibiting an extremely high value for learning and a strong social conscience.

Of the vast majority of Evergreen freshmen who responded to the survey, nearly one-third plan to earn a doctoral degree and nearly half want to influence political structures. Only 2 percent of freshmen nationally want a doctorate, and just over 20 percent want to influence political change. Whereas 76 percent of the nation's freshmen say they're attending college to "make more money," only 27 percent of Evergreen's freshmen ranked cash as the key.

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In Memory of Four Faculty

During this academic year, Evergreen bid farewell to four faculty, each one of whom made tremendous contributions to teaching and learning.

Richard Jones, 68, died January 29. He was one of 18 founding faculty hired in 1970 to develop Evergreen's curriculum, published "Experiment at Evergreen" in 1981, and is considered by his colleagues to be among the most important people in the college's history.

Mary Nelson, 64, who joined Evergreen's faculty in 1972, died October 9. A member of the Colville tribe, she was an accomplished painter whose interdisciplinary teaching also encompassed poetry, social services, mythology and Native American studies.

John Parker, 59, died November 28. Under his leadership, the college established the highly successful Master in Teaching program. He was later instrumental in writing a grant that won major funding for the MIT program from the PEW Charitable Trusts.

Steve Milder, 40, died of a heart attack January 7, cutting short a brilliant career in teaching and research. Nominated by his students for the Burlington Northern Faculty Achievement Award in 1991, the year he joined the faculty, he was praised for making chemistry fun to study.
Newly Consolidated Data
Charts Alumni Career Choices
Have you ever wondered what your classmates are doing in the real world? Now you can find out. Career placement data for Evergreen graduates was consolidated for the first time in a preliminary report released early this fall.

Prior to the project to consolidate this information, alumni career data was available from several sources on campus, including the Career Development Center, Alumni Office and Harris Report, done in 1991, when an alumni directory was created. Now, a clearer picture of what alumni are doing once they leave The Evergreen State College.

Career placement information for 10,751 individuals is included in the report. By using placement categories from the Directory of Occupational Titles, standardized by the Federal Bureau of Labor Statistics, accurate national comparisons can be made and better long-term tracking can be done.

The "professional, technical and managerial" category headed the list with more than 73 percent of Evergreen's graduates clustering in this group. Within this occupational category, "life sciences," at almost 13 percent, "education," with nearly 11 percent, and "managers and officials," at about 11 percent, dominated the group.

Not far behind, the category "students" showed approximately 9 percent, indicating that a significant percentage of Evergreen bachelor's degree holders go on to graduate school. As for the smallest occupational group, only one alumna was reported with the job description "lodge-lagoon finder," a bona fide DOT occupational title. This grad, in fact, was doing research on unchartered wetlands.

"These results make perfect sense," says Wendy Freeman, director of Evergreen's Career Development Center. "Liberal arts graduates can be expected to go into professional, technical and managerial fields. However, expanded narrative data maintained in the Career Development Center shows something not revealed in the statistical analysis — in significant numbers and in substantial ways, Evergreen graduates are involved in their communities."

Many exciting uses for this consolidated data exist, including career networking and mentoring possibilities. Additionally, this information can be used in career and academic advising to help students and alumni who are gathering information about various career fields, seeking to contact people for employment leads, making graduate-school choices or hoping to travel or study abroad. The data can also be used to document student success.

Finally, with alumni career-placement information now residing in one location at Evergreen, more detailed analysis could be done to examine trends for use as a long-range planning tool.

Spokane Greeneres Join Costantino at Gathering
Several alumni from the Spokane area joined Evergreen Vice President of Student Affairs Art Costantino for a casual in Fredericksen Student Union. In a room overlooking the city lights in the heart of downtown Spokane, Evergreen graduates shared stories of campus days and current activities.

Gretchen Borek '73, was the local contact for this Alumni Association-sponsored gathering.

Spokane alumni are encouraged to contact the Alumni Office at (206) 866-6000, Ext. 6551, or tescalam@elwha.evergreen.edu with ideas for future programs, gatherings or activities.

Friends of Library Seek Names of Published Evergreen Writers
Friends of the Evergreen Library board members Randy Sillson '77 and Marge Young are collecting names of published faculty, staff, students and alumni for a listing to be printed by Friends.

If you have been published, contact Sillson at (206) 866-6000, Ext. 6551, or tescalam@elwha.evergreen.edu with ideas for future programs, gatherings or activities.

Santa's Greener
Newsweek magazine identified Santa Claus as an Evergreen in its March 7 issue — amazing news for this small, Northwest college.

Halfway through an article about a controversial sexual-conduct code at Antioch College in Ohio, the author describes the geographic then political location of Antioch, saying it's to the left of the University of California at Berkeley. Oh, read and "even the george outpost known as Evergreen State College."

Then, parentheses included, "Question: How do you know Santa Claus went to Evergreen? Answer: He has long hair and a beard, he always wears the same clothes and he only works one day a year." ReView is thrilled to have another extremely famous celebrity counted among Evergreen's own, even if recently published rationale is somewhat confused. Of course Santa is an Evergreener; the evidence is overwhelming:

Santa is a dedicated volunteer.

He's more interested in positive social change than making a lot of money.

He easily accomplishes tasks nobody thought could be done.

He thinks globally.

He embraces diversity, recognizing the value of Rudolph's differences and moving him to the head of the sleigh.

He has excellent communication skills.

Rumor has it Santa wears an Evergreen alumni T-shirt under his red suit each year. However, the elves make all his gifts by hand, so if you want an alumni shirt, you'll have to order one.

Summer Camp for Pre-college Thespians
If your kid is a budding theater star or playwright in seventh through 12th grade, send him or her to Evergreen this summer for the first Page to Stage residential camp, August 14-26.

Students write, produce and perform in a play, working with a cadre of theater professionals who specialize in writing, stage and costume design, choreography, make up, acting and more. The cost is $600. Call (206) 866-6000, Ext. 6192, for details.

On the Eve of Super Saturday
Les Purce and Classical Guitarist Louis Valentino Johnson
Good Company, Great Music!
Friday, June 3, 8 p.m.
Recital Hall
Tickets $10
At The Evergreen State College Bookstore or at the Door.
All Proceeds Benefit the Evergreen Piano Fund. For Information call 866-6833.

AlumNotes

Class of 1972
Mark Wohlgemuth, Anchorage, AK, is a business planner for Pepsi Cola of Alaska and has been a C.P.A. since 1976. He is a founding member and past president of the Alaska Botanical Garden, and is now its treasurer.

Class of 1973
Barbara Pashov, Olympia, died one year ago of complications from multiple sclerosis. Partlow received a master's degree in special education from Portland State University. She held positions as director of the Holly Ridge Center Inc. Bremerton, WA, where she found jobs for persons with developmental disabilities, and was a unit director at Ranier School, Buckley, WA. "She will be remembered for her keen intelligence and lively wit," writes her sister, Nancy Partlow '88, "and her commitment to helping the developmentally disabled. She was a wonderful example of the kind of person Evergreen should be proud to call an alumnus. Memorials may be made to the Multiple Sclerosis Society.

Class of 1974
Rod McLean, San Rafael, CA, is president of Able Force, which was founded to raise disability awareness. Twenty years ago, McLean was expected to spend his life in a wheelchair after suffering a stroke. However, after extensive rehabilitation, he is more than 90 percent recovered.

Mariel Plaeger-Brockway, Shelton, WA, is a family practice doctor with Group Health in Olympia. She and her husband, Roy Plaeger-Brockway '81, who is a healthcare analyst for Washington state, have two children, Dylan and Colin.

Class of 1975
Carol E.O. Mason, Centralia, WA, and her husband, Ralph Mason '78, spent six years in Garkida, Nigeria, setting up a vocational school for Brethren adults.


Class of 1976
Richard Manning Ricks, Washington, D.C., passed away at his home in October surrounded by family and friends. He was the husband of J.E. McNeil, devoted father of Russell Ricks-McNeil and a dedicated criminal trial attorney. Memorial contributions may be made in his name to a foundation he started with his wife, which provides financial assistance to people needing drug treatment. The Grain of Mustard Seed, 4614 Wisconsin Ave. N.W., Washington, D.C., 20016.

Class of 1977
Lynn Marie Sorenson (nee Lynch), Kirkland, WA, is assistant nurse manager of the medicine clinic at the University of Washington Medical Center in Seattle. She has two sons: Patrick, 9, and Kellen, 4.

Ed Spatz, San Jose, CA, is in business selling FiberOptic signs.

Barbara Turner, Big Sky, MT, and her family are in their third year of living in Big Sky, where she and her husband, Scott, opened a second Moose Rack Books store in June 1993. They have two lively, loving daughters: Lily, 8, and Emma, 4.

Theresa Louise Wright, Portland, OR, is a clinical law faculty member at Lewis and Clark College. She was elected executive vice president to the board of the National Lawyers Guild for 1993-95.

Class of 1978
Beverly Brown, Akron, OH, received a master's degree in biology at the University of Akron and is working on a doctoral degree in aquatic ecology at Kent State University. Barbara Lyon Al-Haffar, New Canaan, CT, spent the last 10 years in New York City and Bahrain, in the Persian Gulf. She is now in New Canaan with her husband, and son, Zak. Al-Haffar is a free-lance writer specializing in business communications and multimedia.
Joy Dybeck, Olympia, is a financial consultant for Smith Barney Shearson. He and his wife, Liz, married in January.

Ingrid Bauer Fabianison, Haverford, PA, is enrolled at the Bryn Mawr College graduate school of social work, where she is working on her master's degree.

Peter Goldstone, Peres-Guirac, France, is teaching English and Spanish, and started a French-language immersion program. He would love visits by former Greens.

Goldstone is married and has two children.

Rhyma Halpern, San Diego, is associate station manager and director of programming and production at UCSD-TV Channel. Who has been making documentaries for over 15 years, is also a fellow in the Kellogg National Fellowship Program, a leadership development initiative. She is married to Greg Durbin, a professor and independent filmmaker.

Lynda Hunt, Vancouver, WA, is working in support enforcement for the Department of Social and Health Services.

Charles Patullo, Burlington, VT, is a consultant to Vermont Gas Systems for an international students in English at South Puget Sound Community College.

Teresa Jennings, Olympia, was named Washington state director, Center for Health Services Division of the state Health Department.

Sajela "Joysong" Mosokwite Ramsey, Falls Church, VA, married in January. She writes, of the last six years, Erik Ramsey. She's interested in starting a network for East Coast Greeners in the consulting business.

Seattle, is a former ASH resident.

Rachel Burke, Seattle, works for Microsoft as a program coordinator, is now KEY's student program coordinator, is now KEY's student Director of Fair Budget Action Campaign.

Jennifer Oatman, Tacoma, is the new executive director of the Washington state Labor Council. Much of the information for AlumNotes is forwarded to Japan.

Many of the information for AlumNotes is forwarded to Japan.
ABOUT LAST ISSUE

Reform at the K-12 Level

A construction-paper school bus carrying letters to the editor arrived after the students of South Bay (Lacey, WA). Elementary School teachers Linda Wilson and Holly Graham saw the November 22 edition of ReView. The issue touched on the work of Wilson, a 1993 graduate of Evergreen’s Master in Teaching program, and Graham, a 1992 MFT graduate. For the essay, we collected student drawings and took photographs of the second-graders in frenzied action. We received so many fine pieces of art, in fact, that we asked to have them displayed in the Student Produced Art Zone in the Evergreen College Activities Building.

It should be pointed out, in all fairness, that letters referencing either may not actually have been meant for writer David Over, who tends to dress on the shabbily side. Rather, they seem better suited for sassy Steve Davis, our photographer.

Thank you for the picture, Mr. Over. You are a nice person. I like you.

I like your tie and I like your business clothes and thank you for taking our pictures.

YOUR FRIEND, JUSTIN

I have never met you. I think you’re nice. You like me.

YOUR FRIEND, BEN

I have you for the picture. Mr. Over. You are a nice person. I like you.

FROM, T.J.

I like your tie and I like your business clothes and thank you for taking our pictures.

YOUR FRIEND, JUSTIN

I have never met you. I think you’re nice. You sound friendly.

YOUR FRIEND, BEN

I hope you can visit us again. I like you very much. I liked it when you took our picture and put them in the book.

YOUR FRIEND, HEATHER

Thank you for coming to our classroom to take pictures of our moose puppets. I was very happy when I heard that you put our pictures in the showcase.

SINCERELY, JAILEH

Teacher-Turned-Publisher
Steve Charak

To the Editor:

I really enjoyed the article in the November 22 issue about Steve Charak’s magazine, Young Voices. I’d really like to subscribe; could you please send me the address?

BECKY HARTMAN
HARTMAN FAMILY DAYCARE
MONTROSE, CO

We can. For Becky and readers with a similar desire, here’s the address: Young Voices, P.O. Box 2751, Olympia, WA 98507.

To the Editor:

Thank you for covering my efforts to publish children’s writing through Young Voices magazine and my writing workshops for young people. One amplification and one update:

First, the contributions of my wife, Nancy Patterson ’57, cannot be overstated. She has always asked the right business questions at the right time, and steered me toward the most useful business-management systems.

Second, I have finally been persuaded to turn Young Voices into a not-for-profit corporation. This will make Young Voices eligible for foundation grants. I am waiting through the IRS 501(c)(3) form, which is about as big as “War and Peace,” though only half as much fun.

STEVEN CHARAK ’81
OLYMPIA

Poetic License

To the Editor:

Last year a friend mailed me a very strange clipping: a notice in the ReView saying that I was a history professor at Dartmouth, that Annelise Orleck ’79 was a math professor there, and that we happened to live in the same town.

It’s 1994, it’s blazing hot, I don’t feel like working and it seems, in all, a good time to set the matter straight. Putting aside the more interesting mystery of who would tell you that I was a history professor — and why — here are the remarkable facts:

I’m a journalist living in the wilds of Vermont after leaving the world of tabloid journalism in New York City. Annelise is indeed a Dartmouth professor, but she teaches modern American history, not calculus. We’ve been living here for about four years, after living in Brooklyn for four years before that.

Here’s some ancient history: After leaving Evergreen, I moved to San Francisco, worked as a free-lance journalist, came east to attend journalism school at Columbia University, and landed a job at New York Newsday. Annelise got master’s and doctoral degrees at New York University and taught at Princeton. We met at an Evergreen reunion (convenient but true) and ran away to the country in 1990, along with her geriatric cat, Cassidy, who also used to live in Olympia (see of Harvey’s Pet Store). I write for The New York Times Magazine, Vogue and pretty much anybody who’ll have me. Annelise just finished her first book (on women labor organizers) and is working on her second (on radical mother-activists). We live in a sunny farmhouse on 16 acres of meadows and woodlands and riverfront, and are blissfully happy. So that’s about it. Not as intriguing as the double-professors story, but it’s the truth.

ALEXIS JETTER ’81
TRENTON, VT

You should have seen what we connected for you before we settled on the double-professors story. Would that all updates came to us in writing, like yours.

Take Note

Address correspondence to:
Letters to the Editor, The Evergreen ReView, Office of College Relations, The Evergreen State College, Olympia, WA 98505. Address E-mail to over@ebwa.evergreen.edu. ReView reserves the right to edit correspondence for publication.

Poetic License

A Biologist Looks at the Polluted Environment Dividing the United States and México, and Finds Reason for Hope. But Will Political Coercion Create Unbalanced Access to Science and Technology, Ensuring Business as Usual at the Border?

One Greener’s View

The Evergreen Review

Raw Sewage and Frying Oil

By Hugo Flores ’88

I GREW UP NEAR A VERY POOR COLONIA, or, in English, a neighborhood. Its streets were not paved, few homes had sewer service and houses on its steep hillsides lacked drinking water. Small, brown children played along its streets, some half-clothed in T-shirts that barely covered their swollen stomachs.

There was a smell in the air of the colonia that never went away. It was a combination of raw sewage and frying oil. This scent has become image, 2,000 miles long, for me: I see the U.S.-México border. Two nations, two cultures meet abruptly at this line, both sides sharply dissimilar. Writer Carlos Fuentes describes the world this way: Creating one is the abundance of poverty; creating the other is the poverty of abundance. The border, our border, is being polluted by both abundance and poverty.

The growing economic integration of both countries has produced binaural agreements to clean up the shared rivers, landscape and air of the border. These days present opportunity for developed and developing worlds to work in cooperation with one another, with honesty and respect. This might very well be achieved — if access to the science and technology needed by both countries to complete the task is equitable. For instance, will the United States allow Mexican scientists access to and training for new technologies? Will this information-and-technology transfer occur at a fair price?

Political and economic coercion will only produce unfair access and spoil chances for a successful partnership.

THERE IS HOPE THAT EVENTS IN CHIAPAS, México, will induce political reform and that the Clinton-Gore administration’s commitment to helping solve the problem of pollution at the border is genuine. Yet, a cynical Mexican saying laments, “Poor México! So far from heaven and too close to the United States.” We can prove it wrong.

Hugo Flores was born and raised in Cuzamacua, México. He lives today in Olympia, where he is near completion of his studies toward a master’s degree in environmental studies at Evergreen. He works for the Salishan tribe as a timber, fish and wildlife biologist.
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Evergreen logo sweatshirts and T-shirts
Show the world you’re a Greener with a distinctive Evergreen alumni sweatshirt or tee (long- or short-sleeved T-shirts).
High quality, 100% cotton T-shirts and high-cotton content sweatshirts (95% cotton), are available with the memorable Evergreen logo specially modified to show your alumni status. See order form for color choices.

Ceramic mugs
Suitable for everything from cappuccino to clam nectar, two styles are available. The Evergreen-logo version is green with the logo etched into the mug. Also available, the alumni geoduck design appears in full color on a white mug. Mugs are dishwasher safe, microwave safe.

Geoduck T-shirt
A cool shirt for warm summer days, this 100% cotton, short-sleeved T-shirt features a special geoduck design created by an alum. “Natural” (off white) shirt with five-color, screened geoduck design.

Cotton canvas baseball cap
What Greener is complete without a hat to top off the look? Canvas baseball cap has the Evergreen logo embroidered in green. Off white with green bill.

Car license plate holder
“Alumni” on top and “The Evergreen State College” on bottom. Yin and yang for the automotive set.

Window decal
New design – green lettering on clear sticker.

Order now. Proceeds from the sale of these items support alumni programming and your Alumni Association.

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