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The Planet, 1994, Spring

Richard Law
Western Washington University

Derek Martin
Western Washington University

Huxley College of the Environment, Western Washington University

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Writers:

Josh Barnhill is a Journalism major in his final quarter at Western. He hopes to do an internship with a small newspaper after graduation.

Britney Bartlett-Curley is majoring in Journalism. While she cultivates her skills, she pursues the philosophy that good writing opens minds, open minds accept change, and change is what it takes to save the world.

Barbara Adele Borst is majoring in Environmental Policy and Assessment at Huxley. Though she is a part-time crusader for the environment, she takes time to enjoy it as well.

Robin Lynn Buchan is a Geology major whose special interest is fluvial geomorphology. She sees a clear connection between scientific research and social action.

Greg Heffron recently completed a self-designed major at Fairhaven, focused on creative writing and literature. As you read this, he is most likely out scaling the cliffs of Chuckanut Drive.

Barry Hodges is a fifth-year senior graduating with a degree in Environmental Science and a minor in Russian Language.

Haidee Jezek is a Journalism major who has also written for the Western Front. She plans to join a fire department after graduating, and then become a paramedic.

Joshua Klein currently has no major, but hopes to find one soon. A Fairhaven student, he enjoys grappling with the paradox of creating his own education.

Mark Lehner is majoring in Environmental Policy and Assessment at Huxley, and is pursuing a minor in Native American studies.

Alyson McColl is designing a major combining environmental studies and writing. She is currently splitting her time between the Huxley Hotline and The Planet.

Daniel McLeod is an undergraduate pursuing a self-designed major in Environmental Studies and Photojournalism. He wants to pursue a career in filmmaking in hopes of making the human plight a little more enjoyable.

Darren Nienaber is taking a double major: Environmental Policy and Assessment and Management. He intends to be an environmental consultant and a writer, and to ride his motorcycle around North America.

Rachel Platt is a Journalism major with a creative writing minor and reads too many magazines and newspapers.

Erich Raudebaugh is taking a self-designed major in Technology and Environmental Studies. He plans to go to U.W. for a master’s degree in Architecture.

Angie Suchy is a Journalism major who enjoys mountain biking, hiking and occasionally disco dancing.

Gillian Vik is an Environmental Science major who spends too much time studying stoneflies.

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The Planet, Huxley College
Western Washington University
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Editors:
Richard Law
Derek Martin

Assistant Editors:
Greg Heffron
Darren Nienaber

Photo Editor:
Michael Wewer

Copy Editors:
Josh Barnhill
Kris Huss
Rachel Platt
Sarah Tosdevin

Advisor:
Michael Frome

Marketing:
Corinne Chmela

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I would also like to thank the powers that be who are responsible for the overnight computer lab in the Art Building, the Whatcom Museum of History and Art for allowing us to root around in the old photos again, and the students who bought all those cookies.

Front Cover: Mitch Friedman sitting on top of the Bellingham Herald building overlooking Georgia Pacific.

Contributors:

Archival Frames
The Bagelry
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Bayside Custom Photo
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The Colophon Cafe
Eclipse Bookstore
The Food Co-op
Hemp Textiles International
J&R Stained Glass
W.W.U. Art Department
INTEGRITY

This issue of The Planet marks my end as editor, but I’m not off to the “real world” that graduating students talk about. The Planet is the real world—it looks into the all-too-real environmental problems that plague today’s society.

In the fall, we wrote about the logging of Clayoquot Sound, one of the two remaining areas of temperate old growth in North America large enough to maintain biological diversity. Yet the area is still being logged, and, as you will read in this issue, pulp from Clayoquot’s timber is being purchased by this very university. Winter break I felt deflated, cynical about the fate of these forests, and I decided to center the next issue on the Lummi as a break from purely environmental concerns. I found the Lummi friendly yet wary—a people who have had much of their land, forests, and food sources stripped away. In one hundred years we have logged almost 95% of their forests, and threatened the salmon runs of the Nooksack River that have supported them throughout their history. My cynical mood grew.

But I also found researching environmental issues and communicating them to the public rewarding as well. It is the feeling of taking off the blinders and seeing the world for what it is, and reflecting on who we are. Every week I am barraged by statistics: the world’s population exploding out of control, dozens of species being lost. Hypotheses about the carrying capacity of the earth like “if all the arable land is put into use, how many people can survive?,” do not take into consideration life forms other than the ones we are able to mill, weave, or chew. And yet, through all this, one can hardly miss the beauty and intricacy of this planet on which we live. To research Clayoquot Sound, the staff went there and hiked between cedar trees with twenty-foot wide trunks, and viewed eagles, sea lions, even an owl. Many of the students, even though most were environmental science majors, had never even seen an old growth forest before—not such a shocking fact when you consider that the five percent of remaining old growth is mostly in alpine, bog, or hard to reach areas. The closest they had come to old growth was in the pulp of The Western Front. Just by going there and opening their eyes to the problem, the students got to see first-hand what would be lost by logging. The students felt the importance of their job.

Doing something of importance to the real world is heartening to students weary of the subjectivity of grades and term papers. It’s also addictive. Two-thousand of the fall staff are still working on The Planet this spring, something no other quarterly student publication can boast. And the total staff has more than doubled.

But the budget on the other hand is fixed. The Planet shares a 5’ by 7’ office with The Huxley Hotline, a room only big enough to seat one person at a time. The magazine layout is done in the student computer lab at night because classes take place there during the day. The budget limits us to print only one thousand copies, a number that was snapped up in only two days last quarter. These things we can work with, but it has also been suggested that I cut articles to make The Planet competitive like Klipsun, taking the best eight articles out of more than thirty. But the focus of The Planet is to expose important issues, not just to showcase the “best” student writing. Losing issues is losing the point.

Working on The Planet has given me more respect for environmental groups that work in the field. They ally their words with action. It is not the environmental program at the University of Victoria that is focusing attention on Clayoquot Sound, it is the passive-resistance blockades of The Friends of Clayoquot Sound and Greenpeace. It is not Huxley College working toward the Greater Cascades Ecosystem Park, it is groups like The Greater Ecosystem Alliance and Western Canada Wilderness Committee. I can even relate to Earth First!, for they are unified, committed, and working toward an ecological goal, something that many of us students are not.

One of the reasons we’re not is because advocacy is not popular within academic circles. Even though professors learn and teach about environmental problems, they seem scared to act. Scared for good reason, I believe, because academia frowns on those in its ranks that follow an activist agenda. Diane Fossey was ridiculed by her peers because she tried to prevent poachers from killing the few remaining gorillas that she was studying. An assistant professor at UBC got arrested for protesting at Clayoquot Sound and was suspended. So most professors don’t advocate anything except education.

But The Planet involves us in real issues. Even though we are not involved directly, we can write about and learn from others who are. And by researching and writing, we promote a world that promotes life.

No words have inspired me more. Except perhaps those of bureaucracies who think more of their rules than the planet.

EUGENE R. M.
I have begun to think lately that we in the environmental movement may have things backwards—we focus so much of our energy on trying to protect endangered areas and species from perceived threats that we have begun to buy into an ‘us-versus-them’ mentality that saps the energy and resources of all involved.

But these issues are not really about one group trying to destroy and another group trying to protect, they are about finding an economically viable way to provide adequate employment and product alternatives to replace destructive practices—to adapt attitudes on both sides.

In the local supermarket there are 14 varieties of apples, a dozen brands of paper towels, and no less than 31 kinds of shampoo to choose from. This is the kind of selection that we have become accustomed to; it bespeaks American freedoms and ingenuity, but it is also a hint of disaster.

No logger, chemical company executive or plastics developer dislikes nature or the environment. Clean air and water are just as important to their continued quality of life as they are to a member of Earth First! or a student at Huxley. The difference is that those in industries that compromise the environment are also dependent on those industries for survival. This must be understood and accounted for in the conscience of environmentalism, or the violent and costly split between these two groups will continue to hamper any real environmental change.

What this will mean to all of us is two things: first, the willingness to make micro-level decisions—what kind of apple, paper towel or shampoo to buy—that may, in the short term, be inconvenient for us, a bit more costly. It will mean that we will have to shift our choice of products toward those companies that keep transportation of goods to a minimum, that use post-consumer recyclable materials and that use natural, non-toxic agents in their products. Second, we will have to be willing to adequately provide economically—and this likely means higher taxes for a time—for the transition of environmentally-damaging jobs to environmentally-beneficial ones. It is not enough to offer retraining programs for workers whose family may have been involved in the same occupation for four generations; these jobs must be converted into stable, long-term opportunities in related fields. Additionally, irresistible economic benefits must be offered to companies and workers who are willing to redirect their energies toward conserving what they once used as if it were an inexhaustible resource.

There is much in both American and Western belief that seems to justify wholesale, indiscriminate use of the land; from the Bible comes a command to subdue and use the earth, to increase our population without constraint. From the 19th century comes the myth of a national ‘manifest destiny’ to encompass the continent with American culture and ideals—ideals attuned to convenience. What else, really, have we striven for these many centuries since we began to aspire to technological greatness? It seems, however, palpably more obvious with each passing ecological disaster that we have overlooked the idea that along with dominion over the earth comes the responsibility for caring for it.

Now I admit, the grass today still looks quite green and healthy; I feel no itinerant buildup of heavy metals in my blood, no toxic particulates settling in my lungs, and yet I wonder: might it not in fact take such extremes for the majority of us to begin to realize the scope of our increasing burden on the environment? And, more chilling, once such signs begin to manifest themselves, might it not already be far too late to begin changing our ways?

It should be noted that there are those out there that are beginning to help change things for the better—putting out the recycle containers like clockwork, sipping their tea from reusable mugs, purchasing post-consumer paper, riding the bus, or better, their bike to work or school, yet we cannot stop there, as if atoning for a small part of our personal waste and usage were enough to assuage our souls of responsibility for doing are part on a larger scale.

Radical changes must occur in our expectations of cheap, easily accessible products and services that employ environmentally-costly techniques. Those 14 varieties of apples—along with the rest of the produce section—represent immense draws on the earth’s dwindling freshwater resources, tons of carbon monoxide exhaust as all those goodies are hauled hundreds or thousands of miles, and ozone-burning chloroflourocarbon emissions produced while refrigerating it all on the journey from the temperate fruit and veggie-growing climates.

Beyond this, of course, are the literal millions of industrial inks, dyes, cleansers, oils, varnishes, and other byproducts that we do not see the darker costs of as we leisurely survey the offerings in the consumer Xanadu that is Bellis Fair mall. Multiply this mall by the hundreds, the produce sections by the thousands, the fast-food restaurants by the tens of thousands, and the cars and trucks that make them all possible by the millions and you get one of those incomprehensibly scary numbers that have a tendency to numb us all into inaction at the sheer immensity of the problem. Yet to do nothing is to be the deer caught in the headlights, frozen until technology overcomes us.

Change in attitudes only happen slowly. Our challenge, our imperative, is to educate ourselves and then others to the hidden long-term costs of our continued abuse of the environment. In addition, the environmental movement must become aware of its blind side that sees protection as a responsive rather than a preemptive act, and then seek to do the unthinkable—ally itself with those it has fought for so long, so both sides can expend their energies toward an end result that benefits all involved.

Finally, we must use our economic and political power to insure that those who wish to lead and provide for us in our crowded future make a sustainably clean and viable environment a priority over a selfishly large variety of products and services.
MITCH FRIEDMAN

MAKING SCIENCE APPROACHABLE:
An Interview with Mitch Friedman

Mitch Friedman graduated from the University of Washington with a degree in Zoology and became active in the environmental movement through his membership in Earth First! He is the founder and executive director of the Greater Ecosystem Alliance, an environmental research and advocacy group based here in Bellingham, and recently edited Cascadia Wild: Protecting an International Ecosystem, his second book about the efforts to expand the North Cascades National Park into the Greater North Cascades Ecosystem Park. This redesigned park would include more lowland regions, as well as areas across the border in British Columbia.

Mitch and I spoke in late April in his office at the Greater Ecosystem Alliance.

The Planet: In the past few years, the environmental movement has been adopted by popular culture in a way that it hadn’t before. How do you see the movement responding to that? Has it changed direction at all?

Mitch Friedman: Well, nobody has any ownership of the environmental movement or any other movement, so it’s made it very easy for a range of interests—from well-meaning citizens with very naive impressions of what it’s going to take to save the world, to corporations with very cynical intentions, green-washing their products etc.—to send out confusing messages about the environment.

The Planet: Have there only been negative effects, then?

Mitch Friedman: No, it’s been a very complicated thing. Certainly there’s been some negatives because to some extent the environmental movement has been co-opted and subject to confusion. But that’s also demonstrative of the democratization of it, the mainstream-ization of it. I think that happens with any movement. When it mainstreams, it becomes more diffused—more moderate, I suppose.

That’s where you get into some of the rhetoric of the opposition when they refer to “environmentalists” versus “radical preservationists.” So here we are, we started a movement to maintain the life-support systems of the planet—some portions of the movement have been co-opted or moderated—and the ideas and people most intrinsic to the movement are labeled as outsiders and rabble-rousers. But I think that’s part of the nature of the game.

What makes it difficult is that environmentalists have a lot of powerful outreach tools and media skills, but nowhere near the resources of the corporations. Moreover, the media doesn’t do a very good job reflecting the complexity of the issues. The media tends to focus on lowest common denominators and actually, in many ways, is part of the problem because the media will just broadcast the mainstream message. And when you’ve got a larger mainstream and more people touting the mainstream thing, it makes it more difficult to get a clear message across.

The Planet: But for your average citizen, it seems the media is their main tool of environmental education. What efforts can you make to change that relation to the media? Or is it too big a beast to wrestle?

Mitch Friedman: It’s a catch-22. People don’t like sound-bites, and people don’t trust people who are quoting in sound-bites—yet it’s only sound-bites that get reported in the media. It degenerates into a game, and I think it’s going to get a lot worse before it gets better. The media is becoming controlled by fewer and fewer, mostly corporate, entities—entities that are tapped into the same destructive agenda that most of the resource corporations are. Moreover, the public seems less demanding of media, or more accepting of the USA Today-style of media. I don’t know. I don’t see a lot of people demanding thicker news.

In some ways, you have to take the opportunities that are out there and make the most of them. That’s why I think a lot of environmental news is captured by drama rather than by facts. That’s how Greenpeace has been successful. But at some point we’re going to have to get beyond that if we’re going to solve problems.

The Planet: So does the Greater Ecosystem Alliance have a clear tactic, then, as far as environmental education goes?

Mitch Friedman: GEA’s approach to environmental education is to try and make the science approachable to the public. As it turns out, the most visionary and large-scale wilderness proposals turn out to be not only supportable, but imperative in light of our best science. Maintaining species, maintaining ecosystems, maintaining evolutionary processes—these all require massive areas. Sustaining forests while extracting timber from them, for instance, turns out to be a very complicated issue.

It comes down to some technical legal arguments, but more
importantly it comes down to politics. Passing better laws or even implementing the laws we have now comes down to getting the public to understand the imperative of sustaining biological diversity and sustaining the earth’s life-support processes.

The Planet: Understanding the science.

Mitch Friedman: Yeah, that these things aren’t just a matter of, you know, if the sun’s shining and there’s a bird chirping in the tree then everything is fine—that we’re tied into a system of life that’s pretty complex. Aldo Leopold said fifty years ago that—how did he put it?—that ecologists are destined to lonely suffering in a world of wounds because most people can’t understand the degradation and can’t perceive the degradation that’s going on.

So, we need to help people understand what holds the planet together.

The Planet: The science does seem fairly complex. How much can you get across to the public with limited media time and limited resources?

Mitch Friedman: Well, if the public were just hearing our science, it would be easy. They wouldn’t have the interest or patience to hear all the details, and we could put out our proposals and line-up our scientists from the universities and the agencies, etc., and say this is what we need to do.

The problem is that the corporations and the industries and the wise-use movement—the anti-environmental groups—have understood that vulnerability and have hired their own scientists. From quacks like Dixie Lee Ray, right down the line to the massive engineering firms in Seattle and Bellingham that used to build the dams and bridges and the roads and now prepare the environmental impact statements for logging and everything else that goes on. They’re well-paid and they present technology while we’re presenting science. And the public gets confused. And the Earth gets trashed.

The Planet: So taking the example for GEA’s proposal for the Greater North Cascades Ecosystem Park, how would you explain the need for that park to the average citizen who doesn’t know about conservation biology, or who maybe doesn’t fully understand biodiversity?

Mitch Friedman: I could go into lengthy diatribes about how there isn’t enough habitat in suitable condition to maintain minimum viable populations of all native vertebrates—not enough to be resilient to natural disturbance processes. But I don’t keep people’s attention that way.

It’s easier to say that wildlife and water cross over borders without regard to nations and agencies. And I could say that, yes, we’ve protected a lot of land in the North Cascades, but it’s all rocks and ice. An ecosystem’s real action is down low, and we need to protect those lower areas.

People seem to understand that, and it confirms what they see with their own eyes. And somehow, despite all of the big-money and sophisticated corporate PR campaigns and anti-environmental organizers, the environmental movement perseveres. I think that’s because people can see with their own eyes what’s going on.

The Planet: Where are you at in the process of working towards the international North Cascades Park?

Mitch Friedman: We’re conducting the scientific research right now that’s needed to develop our proposal. We’ll have a proposal by the end of the year to release to the public and hopefully raise some support for.

The Planet: Any final comments you’d like to make?

Mitch Friedman: Yeah, I think there’s a lot of students and young environmentalists who are aware of the problems in the world and who have some ideas about the changes that societies need to make and individuals need to make, but I contend that it’s not enough to be aware of those things or to be righteous about those things. The world isn’t changing very fast, or anywhere near fast enough. Environmentalists need to find ways of communicating problems and solutions to the public in a way that the public will respond to.

It isn’t enough to hang out with your friends at the coffee shop or to just challenge and confront society. We need to change society. That involves some serious work. There’s plenty of room for people to get involved.

The Planet: How then can people get involved with the Greater Ecosystem Alliance?

Mitch Friedman: Well, there’s always the things like mailing parties and helping out on volunteer projects, stuff like that. And then there are a certain amount of more intensively involved things—internships at different levels. GEA’s not the most accessible group for volunteers because of the focus on more scientific and large, landscape issues that are pretty technical. But there’s all sorts of other groups in town that people should be aware of and involved in, from the Environmental Center, to the local chapter of the Audubon, to Whatcom Watch.

We get a lot of people coming down here, interested in internships and handing in resumes, and they have no volunteer experience. People at Huxley, people in the Biology department—these people, they need to understand that if they want environmental jobs, they’ve got to get out and do some volunteer work.

It isn’t enough to hang out with your friends at the coffee shop or to just challenge and confront society. We need to change society. That involves some serious work.
Bill Dietrich met me at the southwest entrance of The Seattle Times, where he is currently the science writer. He looked 30 years old, rather than his actual 42 years, and was immediately warm and low-key.

Dietrich graduated from Western with a degree in journalism in 1973 and eventually ended up at The Seattle Times in 1982.

We climbed up two flights of stairs to a small conference room. Large windows allowed a view of writers and graphic designers busy behind their computers. Here, Dietrich reminisced about his journey toward fame among environmentalists.

"I started expressing interest in 1973. This is when the government and businesses began cleaning up factory emissions, polluted streams—things that were eyesores. The things that remained were the things you couldn't see, such as auto emissions. The problem became more complex."

With the rapid development of the Pacific Northwest, particularly the areas along the I-5 corridor, Dietrich wrote an article for Pacific Magazine in 1988 on the logging of forest areas along I-5.

"That's when the timber industry was cutting at almost record levels. Then an environmental beat [at The Times] opened up. I was interested, so I took it," Dietrich said.

"Most people thought old growth was a big desert. It was very pretty but it didn't seem productive. If you looked closely though, there were all kinds of animals. They [environmental scientists] used the spotted owl as an indicator species because it was at the top of the food chain, so if it was dying, then the other critters were probably on their last legs too."

After legislation was finally put in place to protect some of the old growth though, the "other critters" were no longer the only ones affected. People connected with the logging industry became concerned over the economic effects of the increasing regulations and the resultant loss of jobs.

Dietrich wrote The Final Forest, a book expressing the views of the people involved in this multi-faceted issue, in 1992. From loggers to ecologists, the book portrayed the humanitarian side of each person. "People were unhappy with how fast the timber was going," Dietrich said.

Dietrich also covered the Exxon Valdez oil spill in 1989. The Times first sent Dietrich to cover the story, followed by several other reporters. When the series on the oil spill was published, Bill and The Times won the Pulitzer Prize in Journalism.

After the oil spill was well publicized, Dietrich and other reporters left for an investigative trip around the world to see how other countries fared with pollution. "Eleven million gallons of oil were spilled. It left a big impression," Dietrich said. "We talked the paper into sending us to see the ruins of Asia up through the Middle East to Europe and to North America. I was struck by how severe the pollution was over there. Rivers were extremely polluted with chemicals and garbage. Taiwan's air felt like tear gas. It was so sharp it would get in your eyes and make them water."

Environmental difficulties did not stop at pollution of air and rivers, however. The world has a net population gain every two days equal to the entire population of Seattle, noted Dietrich. "I'm cognizant of how we've accelerated. It took two million years to reach the one billion mark—now it only takes 16 years to add another billion. Ever since then, I've been wrestling with those issues."

While our ecological policies still have a long way to go regarding preservation, U.S. environmental laws nonetheless prove to be a role model for foreign legislatures, "When we traveled, they wanted to know what exactly we were doing to change things. They've been doing a lot of copying," Dietrich said.

Dietrich's ideal is to achieve a balance between development and preservation. "The interesting thing about being a journalist in the Pacific Northwest is that it [our region] developed relatively late and was relatively unpopulated. We have the opportunity to not make all the same mistakes as the earlier [people]."

As he talked about his job, Dietrich explained that many people are reluctant to go to a group that opposes their views. "As a journalist," he pointed out, "part of my job is to go to all groups to get a fair presentation of facts and opinions. Too often those with opposing views don't seem like real people to the other side. Hopefully we're chipping away at that."

In the summer of 1993, Dietrich co-taught a class with Bob Keller at Fairhaven college, exploring the history and issues of the Columbia River.

"We went from the source to its mouth. I had 12 other people see it through their eyes."

His research and interviews with people who live along the river became the subject of a book on the history and
concerns of the Columbia River region, due to be published next spring.

Dietrich said the book "talks about the human history of the river. It describes the physical evolution of the river and traces the process of the development of irrigation along the river. The book also discusses the Indian tribes, the politics to keep their land and the loss of it."

"The book explains what the cost of all this has been as well. It talks about Hanford—there's a story on nuclear waste. It is the biggest public works project in the U.S., and we're still trying to clean up that waste. It's an example of an issue where we're not entirely certain of what to do," Dietrich said.

Despite the atrocities in the past like Hanford, Dietrich has faith in the system to achieve some sort of medium between environmental needs and consumers' desire for material goods.

"I'm basically an optimist. When people have good information and good sources of information, things can improve. "If you focus on the problems all the time, it can get to you. I read a lot on trends of what I'm covering...to maintain perspective. I think, 'What was it like 10 years ago, 20 years ago?' We seem to be so focused on what the latest environmental gossip is—it takes some effort to get beyond that."

Dietrich noted that improvements do occur. "The air is cleaner than when I was in college. Puget Sound is cleaner now. Before, all the old-growth was being cut down except for the National Forest. Now it's not," Dietrich said.

While Dietrich writes articles concerning environmental and science issues, he also philosophizes about the future. According to Dietrich, our society needs to change consumer habits. "You try to sell the environment. But if you want to see change, you shouldn't shop for the stuff. For the majority of people, let's face it: we want to go to the mall. We've got to grapple with that thought."

"I think we can reach a sustainable development. The problem is no one knows how to achieve it. We need an adequate state of well-being for people and environmental protection for centuries to come."

Dietrich speculated that promising technology may help clean the environment, but that responsible social development and technology needs to play a serious role as well. "Our society is kind of gadget happy. Inventing things helps and hurts. "Social development will be the issue in the 21st Century. Other things occupy people's thoughts—choosing between the environment and material goods—to what degree do people value them? I wonder, are people happier now than 50 years ago or one million years ago? Anthropologists don't know," Dietrich said.

While many people recycle, and some companies have begun to change their product and packaging to accommodate our increasingly more environmentally conscious society, Dietrich continues to write articles designed to enlighten the individual to his or her surroundings, to push our awareness further toward the sort of hard, necessary choices we will have to make if our environmental consciousness is to translate into the sort of environmental action needed to make the next century a viable place to live.
BARRY HODGES

KEMANO II: TRADING SALMON FOR POWER

The Fraser River in British Columbia, Canada, is home to the largest remaining salmon run in the world. From headwaters to mouth, this river is 850 miles long, stretching from Eastern British Columbia to roughly the southern border of Vancouver, where it empties into the Strait of Georgia. With the salmon runs of the Columbia River rapidly becoming exhausted, the Fraser River is becoming more and more pertinent to salmon fisheries in the Northwest, and it contributes most of the salmon caught in Washington.

Alcan Aluminum is the largest aluminum corporation in Canada and uses the Nechako River, one of the major Fraser tributaries, to power its aluminum plants. In 1950, Alcan was given land from the B.C. government in an effort to build a strong aluminum industry in Canada, and allowed to manipulate the course of the Nechako River by constructing a dam with a large reservoir to help build an aluminum plant and a power station. This alone was enough to prompt fears of a dwindling salmon fishery on the Fraser. Then, in 1978, Alcan convinced the government to start the Kemano Completion Project (KCP) and began supplying power to B.C. Hydro, whose excess power is sold to the United States. The original reason for the project was to provide power in order to open new aluminum plants, telling the government they were creating jobs, yet Alcan has since reneged on the plants. This has led to a raging battle between the fishing industry and the aluminum and power industry over proper management of the Fraser River.

The dam is an elaborate project that has taken a lot of people and machines to build. A sixteen kilometer hole has literally been drilled through a mountain so that the Nechako River can flow through to the Kemano powerhouse.

When it was discovered that the second Kemano project would endanger salmon runs, opposition to the project quickly grew. The Kemano II project called for a diversion of 84 percent of the Nechako River, which contains approximately one-fifth of the Sockeye salmon runs of the Fraser River. This reduction in flow would raise water temperatures to levels that would jeopardize spawning, threatening the livelihood of many people. The Cheslatta Indians were devastated by the flooding of the first Kemano project and have spent over $200,000 fighting the further destruction of their land and livelihood. "We simply have to raise more money to continue this fight for survival, a fight which is benefiting Canadians and Americans, native and non-native," said Marvin Charlie, Chief of the Cheslatta Nation. "The cost of fighting is high, but the cost of not fighting is higher."

Thirteen groups opposed to the project joined to form the Rivers Defense Coalition in 1991. This coalition, composed of environmental, hunting, union, and sport fishing groups, went to court and successfully halted the project. They are now in the middle of a legal battle with Alcan in an attempt to keep it from completing the project. Hearings have been underway since November and time, money, and bureaucracy have been factors against the coalition. Though the coalition received $100,000 from the B.C. government when the hearings were announced, the trial has gone on longer than expected and the money has already been used up.

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Siddon not bailed Alcan out. Though the Department of Fisheries and Oceans (DFO) had worked for years collecting data on the effects of the Kemano development, Siddon assembled his own team headed by David Strangway, president of the University of British Columbia, to decide the fate of the salmon on the Nechako. Nine biologists, representing the DFO, Alcan, and the Province of B.C. were included on this team. After only four days of exclusive meetings, the committee came up with the Nechako Fisheries Conservation Program, which allowed Alcan to proceed with construction of Kemano II.

This rushed policy making was not without dispute. First, the senior scientists from the DFO working on the issue were excluded from these meetings, thus excluding valuable evidence as well. Second, participants in the meetings were only given a few days to prepare for a decision that would affect the future of the largest salmon run in the world. Third, the low water levels that the DFO claimed would endanger the salmon were the same levels that were agreed to in the settlement. Though the DFO had been prepared for years to take Alcan to court, the Strangway Committee came to a conclusion in four days. This agreement prevented DFO testimony in court, as members of the DFO were part of the group which made the decision.

In the years leading up to the 1987 agreement, it should be noted that there were several key events that led to the assembly of the Strangway Committee and its subsequent decision. Scientists with the DFO took Alcan to court in 1981 with evidence that the Sockeye salmon would be endangered and ordered an environmental impact statement to be issued by Alcan. Upon reviewing the data supplied by Alcan, the DFO found some disputable areas and wrote a counter report. In 1985, Alcan ignored mandated flow regimes, thus forcing the DFO to take it to court again. This time Alcan was going for broke, and argued that by the 1950 agreement, they owned all the water on the Nechako and that if they wanted to release enough water for the fish, it was only out of kindness. This was when the DFO began preparing its call for increased water flows.

It seems that at this time, a split occurred between the managerial and technical staff. "The managerial attitude appeared to be one seeking a negotiated settlement with Alcan," wrote Dr. Don Alderdice, who worked with the DFO for 35 years. "The scientists involved held the view that the basic essential was to ensure the safety of the salmon resources of the Nechako system." Fisheries Minister Siddon, it seems, is responsible for this split. He instructed the director general of the DFO to let the technical staff know that they must comply with his agenda while still adhering to scientific evidence, which, to the staff, seemed a contradiction. This ultimatum basically stated that if they wanted to keep their jobs, the scientists would have to give up what they had been fighting for for so long. This pressure forced some valuable members of the DFO, including Alderdice, to give up their involvement in the issue and reluctantly retire. Siddon then assembled his infamous Strangway team, providing present Fisheries Minister Tobin the basis to allow the Kemano II project to proceed.

The opposition, however, is doing all it can to fight the project. As the court proceedings are becoming more public in Canada, a strategic struggle for public support by both sides is now a key factor in determining the outcome of the hearings. Alcan has launched an advertising campaign through radio and newspaper—even establishing an information hotline for those with questions about the project.

Alcan is legally bound by court agreements to protect Nechako River salmon stocks. At the present moment, approximately fifty percent of the Nechako is being diverted. With the ultimate plan calling for a diversion of 87 percent of the river, the problems of loss of spawning habitat and warming of the river are inevitable. With the government regulations as flexible as they are, the "most sweeping environmental obligations ever imposed on a public or private company in Canada," according to their newspaper ad, could be swept under the rug. "In 1993, over 3,000 Chinook salmon were expected to return to the Nechako, but only 700 did," said Dana Waggen of the Cheslatta tribe.

More than 1,000 people lost their jobs when the project shut down in 1991. If Alcan does get the go-ahead to complete the project, these people would get their jobs back until the project is completed, but then be unemployed again. "There will only be about five jobs at Kemano when the project is completed," says Paul George, "and those will be just making sure the dam runs smoothly." Compare this to the thousands and thousands of people in the fishing industry—fishers, fish packing plant workers, and Indians who depend on salmon runs for food. "It's trading food for electricity," says George.

A 20-year sales agreement between Alcan and B.C. Hydro states that until aluminum markets warrant expansion of smelter facilities in B.C., Alcan will sell Kemano power to B.C. Hydro to help meet the energy needs in the province. Considering that it signed a $600 million contract with B.C. Hydro and is making a substantial amount selling its excess power to the United States, Alcan will not suffer much if aluminum markets don't grow. The Kemano power will, however, save the province an estimated $450 million over other energy options during the 20 years of the agreement.

Alcan has already invested more than $500 million in the Kemano Completion Project. This figure, incidentally, is what Alcan is asking in compensation if the project is not allowed to be completed. In comparing compensation to Alcan with the fishers who would lose their jobs, it would be a bargain to simply pay Alcan for water rather than to pay the thousands of fishers for jobs. But Alcan states that it will have injected more than a billion dollars into B.C.'s economy by the time the project is completed.

A verdict will be out soon as to the fate of the Kemano Completion Project. The proponents of the dam are patiently waiting to resume construction, while the opposition is struggling to keep its head above water. I asked Cheslatta Nation member John Hummel what his chances are of keeping Alcan from completing the project. "The prospects are good," he said. If you would like more information on the project, Alcan's hotline is 1-800-94-ALCAN, but is limited to calls inside Canada. If you would like more information on opposing the project or how you can help, please write or call:

The Rivers Defense Coalition
P.O. Box 2781
Smithers, B.C. Canada, V0J 2NO, (604) 847-9693

Cheslatta Kemano II Defense Fund
c/o Cheslatta Nations
P.O. Box 909
Burns Lake, B.C. Canada, V0J 2NO.
ECOFEMINISM AND PAGAN ECOLOGY

"Earth-based spirituality influences ecofeminism by informing its values. This does not mean that every ecofeminist must worship the Goddess...what we are doing...is attempting to shift the values of our culture...shift away from battle as our underlying cultural paradigm toward the cycle of birth, growth, death, and regeneration, to move away from a view of the world as made up of warring opposites toward a view that sees processes unfolding and continuously changing." (Starhawk "Feminist, Earth Based Spirituality and Ecofeminism")

Joanna Powell Colbert is a local woman who offers classes in Goddess Spirituality and contributes articles and artwork to The Beltane Papers. In 1993, she was named Best Pagan Artist by the Wiccan Pagan Press Alliance. I met her in April at the Colophon Cafe, where she explained her feelings and ideas about the connections between the Goddess spirituality movement and ecofeminism.

During her twenties, Ms. Powell Colbert was involved in fundamentalist Christianity. She described having a “feminist awakening” which gave her “a context for understanding that there was a whole philosophy and a whole spiritual path and a whole religion based on linking a female image of God with love for Nature.” She discovered that her most intense spiritual experiences were in nature, and that her experience in the church was as a woman with no power and no place. With the goddess movement and paganism, she says, “From the very beginning, you’re putting together ideas that you can experience ultimate source or ultimate deity as female rather than male, and you’re looking at the idea that God or Goddess is immanent in nature and essentially you can get everything you need just from going outside.

“I think everybody has had that kind of experience with being out in nature and being uplifted or being connected. If you’re in a patriarchal religion like Christianity, you have to make the division that God created nature, and so what you’re really feeling good about is God, the great glory of God. In Goddess worship and paganism it’s a little bit different.

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You’re connected; you see, you feel, and experience the spirituality that is inherent in the plants and in the trees, in the ocean and in the water. And it’s not different than the Goddess. The Goddess is the earth, the Goddess is the water, and there is no split between she who is Creator and she who is the Creation.”

Ms. Powell Colbert believes that this type of experience strongly mandates environmental consciousness.

“Once you have experienced on some spiritual level, or if you’ve decided on an intellectual level that you’re going to honor the earth as the Goddess, you have an experience of really connecting with the earth...or even if you’ve decided that’s how you want to think about life...there is no way that you cannot be involved with the environmental movement. There is no way that you can go and be for the clear cutting of the forest, there’s no way you can feel okay about the practices which have damaged the earth, because the earth is no longer separate. The earth is the Goddess.” She said she felt that both men and women have believed in a patriarchal mindset that claims people have dominion over the earth. These ideas “came directly from the teachings of Judaism and Christianity, that men and women have mastery over the earth, and that’s led to the environmental crisis we have today.

“If you don’t believe that, if you believe that everything is interconnected, that everything is a web, that we don’t have mastery—that instead we are one part, we’re one spot on the circle, then we have a responsibility to take care of the earth, just like the earth takes care of us—then you have to be involved in the environmental movement.” She emphasized her belief that spirituality is a personal matter, and not to be pushed on other people, but also thinks that the more people believe we are interconnected with nature “the more likely it is that we’re going to halt the race that we’re on to destroy the planet.”

Ms. Powell Colbert thinks the Goddess spirituality movement also provides a spiritual basis for both the environmental movement and the women’s movement. “You need to have a place for when you get burned-out doing political work; you have to have a source to go back to. Your religion or your spiritual path is where you go to get renewed and refreshed so you can do one more petition.”

I kept wondering, though, what the connection between women and nature really is. It seems odd to have to ask that question. Of course, women are connected with nature and, of
course, men are too. That’s where biology tells us we’re from, right? But the fact that we have to ask that question shows how strongly this dualism between humans and nature is. Powell Colbert said she thought it was a good question.

“Patriarchal or dominator religions put women into the category that goes with yin and the dark and the earth and female and receptive and passive and those kinds of things. And (on the other side) you’ve got the light and you’ve got God, you’ve got masculine, you’ve got active and aggressive and all those kinds of things. What these (dualistic) thought forms have done, is equate women with nature very, very, clearly. And they’re both bad, they’re both to be dominated, they’re both to be controlled. Women are emotional, and nature goes into these horrible storms and earthquakes and things, and they’re both to be controlled, their powers to be harnessed.”

She also thinks that women’s experience of their bodies is different from men’s. “Our experience of our bodies tends to be closer to the earth than men’s, because of our capacity to bleed and to give birth. Giving birth is a bloody, messy, yucky, wonderful thing. Women experience things directly through our bodies.” Men, however, “can stay in an intellectual place.” So she believes the connection between women and nature is part social conditioning and part biological. “And part spiritual,” she adds, “although people would disagree with me about that.”

Some time ago, I read that when the Puritans first came to America, they thought that Satan dwelled in the wilderness. This was part of the reason they began farming—to dominate the landscape, to get control over Satan. It seems clear they felt that way about women, too, if the witch trials are any example.

But I keep wondering, what does this have to do with the here and now? I watch the biology building on campus being built with MacMillan-Bloedel Lumber; WWU is building a science building out of what could be Clayquot Sound. What does this have to do with women’s issues, with the epidemic of violence against women?

Everything, maybe.
**Rachel C. Platt**

**DEFINING ECOFEMINISM**

The word ecofeminism looked so good the first time I saw it, I wanted to run downtown and have it tattooed on my leg or detailed on the side of my truck. I saw it spread across a small flyer, which read: ECOFEMINISM, roundtable discussion with Sherilyn Wells. Not only did the word strike me, but Wells’ name, also. I had covered her debates with Ward Nelson during her campaign for county councilperson. She had impressed me as such an eloquent speaker with so many great ideas about the environment, I had to attend the roundtable.

Wells inspired me to learn more about ecofeminism that afternoon. She explained how she first thought about connections between environmentalism and feminism during the ‘60s. I found out even more about these connections when my friend Gillian and I spoke with her at the Colophon Cafe. She told us about her experience pinning down this elusive word.

“In a way, it’s sort of terrifying. There you are out in this boundless area with nothing as a guide, but on the other hand you get to be innovative and creative—a semantic pioneer. To me personally, it does represent the coming together of the train of thought in the feminist movement which is rediscovering women’s historical role—the matriarchal societies which used to exist—and the way that they created their societies in harmony with the earth...in conjunction with the grass-roots leadership role that women have played in the environmental movement,” Wells explained.

As Gillian and I delved further into this issue, we noticed other people talking about ecofeminism around Western. Justine Guarda wrote in the Huxley Hotline, “I came to Ecofeminism with relief—relief that I found something concrete that alleviated the frustration I had felt in feminism and environmentalism as separate movements.”

Western’s Women’s Center also had information about it. One handout contained an anonymous quote that has become the most widely recognized definition of ecofeminism: “Women are taught from childhood how to serve the needs of a husband/father, land is cultivated to serve the needs of people, women are treated like sex objects and placed on a pedestal to be admired like Miss America, land is put aside to be admired like Yellowstone.”

Political science professor Debra Salazar also shared her own understanding of ecofeminism with Gillian and me. She explained that if society allows the belief that some elements of our community can and should be dominated, then it becomes easier to expand that domination. In other words, if society allows men to dominate women, it becomes easy to extend that mindset to a domination of nature as well.

That domination, along with our hierarchical government, means that people tend to just do what they’re told. Group decisions aren’t made, or, if people do sit down to discuss an environmental issue, they rarely feel they have the power to implement any changes themselves. For this reason, we need to adopt ecofeminist ideals both here at Western and around the U.S. in order to change this situation. Wells advocates setting up a locally-based decision-making structure. She is convinced that the ecofeminist movement can accomplish the most at the grass-roots level; if we implement the decisions where they are made, feminism, the environment, and humanity in general all benefit.

I asked Dr. Salazar if she thought this kind of grassroots decision-making is really possible, given the size and scope of the problem. “You folks know that the structure of government that we have in this country is set up to make sure that nothing happens fast and that not much happens,” she told us. “It’s set up with the underlying premise that there is conflict, that groups do have different interests, conflicting interests. I suppose you can set up systems with different premises and there are certainly efforts to do that, especially in the environmental movement—to set up local decision-making structure based on common interests.” It’s an uphill battle to be sure, but one in which the ecofeminism movement is gaining an increasing following. Ecofeminist philosophy has done all it can, now it has to be translated into action for it to show viable solutions to the environmental problems we face.

A conversation with my dad concluded my research on ecofeminism. He asked me, “Why not ecohumanism—men and women working together to solve problems?” To me, that is ecofeminism. The name doesn’t mean “women must fix the earth.” It means it’s time for a shift from “masculine” qualities of dominating to “feminine” qualities of nurturing. It’s time to live interdependently with the earth instead of using it as a supply of raw materials. Both men and women can develop care and respect for the earth and all of its inhabitants through ecofeminist principles and actions. Ecohumanism will surely become the term, once “human” comes to connote nurturing and cooperative behaviors, rather than destructive and exploitative ones.

We can and must move away from a patriarchal hierarchy to a parallel web of connections between people, ideas and solutions if the environmental movement is to accomplish its long-range goals, and ecofeminist philosophy puts us in the mindset for this change. “I see a huge grassroots crowd gathering in front of the local governmental building...linking hands and, in united voices, calling for a sustainable path for the future.” This is a perfect day for ecofeminism in Sherilyn Wells’ view. This day must come soon.
Options to Buy: Ecopaper and the Hemp Debate

Don’t bother trying to smoke the hemp used in making paper and other products. Industrial grade hemp won’t get you high, but it can be used to make a quality paper product that outshines paper made from wood pulp.

Though controversial, hemp paper is one of the most efficient alternatives to tree paper. A comparison of the two product papers reveals that hemp paper leaves tree paper production behind in a cloud of smoke.

Hemp plants mature in a three month period, as opposed to the minimum 50 years required for trees. The plant is drought resistant and can grow in any climate except the polar regions. No pesticides are required because the tough outer fiber is virtually insect proof.

As with regular paper, hemp can also be recycled, yet is longer lasting. Additionally, the United States Food and Drug Administration estimates that hemp can produce 4.1 times more paper per acre than trees. This is due to the fact that cellulose, the bonding agent of pulp, is 50 percent higher in hemp plants than in trees. A final, yet important benefit of using hemp instead of wood pulp is that the processing is free of the carcinogenic dioxins traditionally produced during paper manufacture.

But what about the effects of smoking it? The strain of hemp for paper production has very little, if any, intoxicating effects. The level of THC, the intoxicating substance in marijuana, is too low.

Portland, Oregon based EcoPaper is one of the few commercial suppliers of hemp paper. The paper is 100 percent tree-free. It is composed of 50 percent hemp, 50 percent cereal straw. The straw is a by-product of grain production. EcoPaper uses hydrogen peroxide instead of chlorine for whitening purposes, which breaks down naturally and produces no dioxins. Its shelf life is 20 times greater than wood fiber paper, due to its unusually high content of cellulose.

But the problem with this potential environmentally-friendly resource is that it’s currently illegal to manufacture it in this country. “Lawmakers do not want to fight the war on drugs; they want to see the forest industry flourish,” says Scott Johnson of the National Organization for the Reformation of Marijuana Laws (NORML). Industrial hemp has already been legalized in Australia and England, and Johnson believes that the only way hemp paper will be accepted by mainstream society in the United States is if the laws are changed. NORML has already begun gathering signatures to place Initiative 622, an initiative to allow the growth of industrial hemp in the U.S., on the November ballot. 181,000 signatures are needed to validate the measure, but Scott Johnson doesn’t think this will be a problem. “Ninety percent of the people I confront with this issue are all for it. If the public feels this way, they should come out and say it. Why don’t we just do it?”

Hemp is also used for textiles that are made into clothing. Hemp Textiles International is a Bellinham company run by two brothers, David and Yitzak, which imports 15 different types of hemp fabrics from China, and distributes them across the U.S. and Canada. Yitzak speaks Chinese and spends much of his time there making connections with manufacturers. David is excited about Initiative 622 and told me “Hemp grows fast, it is truly a weed, requires no fertilizer, and can be grown as far north as the Yukon. It can save the timber industry.” About their fabrics he says, “Hemp is the strongest natural fiber for clothing. While cotton clothing wears out, hemp wears in.”

A less controversial and lesser known alternative to wood pulp paper is kenaf. This plant resembles bamboo but is a relative of the cotton family.

Kenaf is similar to hemp in that it grows to maturity in a few months’ time, and also has a tough outer fiber that prevents insect infestation. Some other valuable characteristics of kenaf are that it has less dense fibers than wood, requiring fewer chemicals and less pressure cooking in the paper-making process. This creates less pollution and uses far less energy. There is also no need to use chlorine in the bleaching process since processed kenaf fibers are naturally light in color. Again, this results in a cleaner, dioxin-free process.

The U.S. Department of Agriculture selected kenaf as the best source of fiber for paper-making. One disadvantage though is that kenaf is a tropical plant and can be grown only in the southern states.

The price of kenaf paper is expensive for now, as paper mills are largely located outside southern states. This results in extra shipping costs for the producer and higher retail prices for the consumer. However, a greater demand for kenaf paper would inevitably reduce the price to a level competitive with wood pulp paper.

For the average consumer, however, both hemp and kenaf paper are still difficult to locate or afford. What is available are any number of varieties of ‘recycled’ papers with varying levels of reused material. Package labeling can be misleading to the uninformed consumer, because a “100 percent recycled” label doesn’t necessarily mean what it says—the government hasn’t set strict standards on the definition of “recycled.”

So how do consumers know if their purchases go to support companies that are helping keep trees in the forests? The best way to make informed decisions is a careful reading of the label to see how much of the product is made from pre-consumer material versus post-consumer material.

Pre-consumer material has never actually been “consumed”—it is the in-plant scraps, pulp substitutes and mill converting broke that the mill has left over from the basic virgin pulp-making process which have always been recycled anyway. Post-consumer material has already been used by someone in the form of newspapers, magazines, cardboard, computer paper, etc. This is the stuff that would have ended up in a landfill. The big difference is that post-consumer material keeps trees from being cut down.

Roughly 41 percent of all trees cut in the United States end up rotting in landfills in the form of newsprint, yet less than one percent of all paper produced in this country is made from post-consumer fiber. Considering that making one ton of recycled paper consumes only 60 percent of the energy required to produce a ton of virgin paper, it cannot be a purely economic decision on the part of government and industry to maintain the status quo.

Recycling alone will not entirely resolve the need for virgin materials, but we cannot allow this need to overshadow our concern for the preservation of our remaining forests. Alternative materials such as hemp and kenaf are already proving they can be part of the answer to ecological and economic concerns. What is required now is cooperation and foresight by those who have the economic and political power to make such a combined venture possible.
TEN MILLION POUNDS OF CHLORINE

The first time I became aware of Georgia-Pacific as a threat to public health and safety was in 1987. It was Monday, October 19. I know it was a Monday, because that was the day I taught a ballet class for four-year-olds in downtown Bellingham. We were in the middle of class when the mother of one of the girls burst in the door shouting, "We need to get out of here! There's been a terrible accident!" Before I knew it, I was running out the door with 15 miniature ballerinas in tow. They were scared to death, and so was I.

We managed to get all of the little ones down the stairs and out the door. Cornwall Avenue was full of people not knowing where to go or what to do. It was like everything was in slow motion around us. I asked a man what was going on, and he told me that there had been a chlorine leak at GP, and that the police were evacuating the downtown area. A couple of blocks away, I saw a greenish-yellow cloud wafting towards us. As soon as I saw it, I smelled it too. The smell was strong, like the smell of chlorine in a swimming pool, but 100 times stronger. I felt a stinging in my throat and a few of the little girls began to cough. Most of the mothers arrived soon and whisked their children away, and once they were all gone, I left too. I wondered how something like this could happen.

I found out later that the leak had occurred when a reaction between steel and chlorine generated a heat intense enough to melt through two pipes. The steam built up because of leaking valves and the lack of a steam pressure relief valve while chlorine gas was being transferred from a rail car to GP’s bleach plant at the pulp mill. A potentially deadly mixture of chlorine and ferric chloride, produced as a by-product of the reaction between the chlorine and the iron pipes, seeped out of the bleach plant and drifted on the prevailing winds toward downtown Bellingham.

The leak could have been stopped immediately if someone had closed the valve on the chlorine storage tank, but that didn’t happen. The chlorine leaked for another 30 to 45 minutes. Emergency officials had to decide how to alert people in the downtown area of the leak. Police used the public address system, telling people to get out of the area. Chlorine levels were measured at Bay and Chestnut Streets at one part per million, the upper ‘safe’ limit under federal air pollution guidelines, yet five people were still hospitalized as a result of the accident.

Originally, GP officials estimated that only 10 pounds of chlorine had escaped during the leak. However, an expert who was called in afterwards to assess the leak estimated that 300 to 700 pounds of chlorine had actually escaped—a large enough amount to potentially do a lot more damage.

As I learned more about GP’s chlorine plant operations, one thing that amazed me was the amount of chlorine and other toxic chemicals that it uses and disposes of—literally millions of pounds a year. GP is licensed by the U.S. Environmental Protection Agency to store up to 10 million pounds of pure chlorine, 10 million pounds of sulfuric acid, a million pounds of hydrochloric acid and a million pounds of mercury.

According to Greenpeace, GP releases about 1.3 million pounds of organically-bound chlorine into the bay each year and emits about 31,000 pounds of chloroform annually into the air and water. Chloroform is formed as a result of the pulp bleaching process and has been identified as a source of dioxin, a cancer causing compound. Dioxin can be deadly even in trace amounts, but so far, GP’s Bellingham mill has been rated as “non-detect,” meaning that no dioxin has been found in the mill’s waste.

GP’s Bellingham plant is, however, the largest source of mercury released into Washington’s water and air—a result of their manufacture of chlorine. Environmental concerns about the risks associated with toxic mercury have prevented any new mercury chlorine plant from being built in the United States since 1970; the Bellingham GP plant was built in 1965.

In 1989, Bellingham Bay failed to meet water quality standards set by the EPA. One of the main reasons that the EPA cited was GP’s discharge of heavy metal pollutants into the bay. In 1990, GP’s waste water treatment lagoon was listed by the state Department of Ecology as a hazardous waste site. On a scale of 1 to 5, with 1 carrying the highest cleanup priority, the lagoon received a 2 due to past and present concerns about the amount of mercury that it uses and discards in the chlorine making process.

GP’s plant produces about 50,000 tons of chlorine a year, selling some and keeping the rest to use in the pulp bleaching process. Chlorine is made by passing an electric current through salty water. The chlorine gas is chilled and pressurized into a liquid for safety and easier storage, and it is later revaporized for use in the pulp bleaching process. Besides bleaching paper, chlorine is also used to make plastics, purify water and to manufacture solvents and other chemicals.

Chlorine itself is not explosive or flammable; its danger is in the way that it chemically reacts with other substances. Mixing flammable gases and vapors with chlorine can form highly explosive substances. At concentrations of only one part per million, chlorine gas can cause minor eye and respiratory irritation. The higher the concentration, the worse the effects, and severe exposure can produce chronic respiratory problems. Above 50 parts per million, exposure can lead to unconsciousness and death by suffocation, as the chlorine ions react with the body’s own fluids, producing hydrochloric acid in the victim’s lungs.

The leak in 1987 was not the first problem that GP has had with chlorine, or the last. There have been about twenty major incidents from the time the chlorine plant was built in 1965 to the present. The question I have to ask is: why have these leaks continued to happen? No leak is a minor leak, not when we are considering the safety of the workers in the mill and the people in the community. In all fairness, GP has done a lot to prevent further leaks by providing additional safeguards and improving handling techniques. In the past 20 years, GP’s Bellingham mill has spent an estimated $100 million, just to...
July of 1979, when a leak occurred, an emergency response position was also created to manage the emergency response to keep up with increasingly strict environmental regulations. Still, GP's track record on safety is decidedly mixed—in July of 1979, when a leak occurred, an emergency response team was on duty; however, there was no alarm system at the bleaching plant where chlorine is handled and no emergency breathing devices at the chlorine transfer point. When the worker directing the transfer of rail cars carrying the chlorine made the error that caused the leak, no backup personnel were present. If anything good can be said about the chlorine leaks, it is the fact that GP seems to have learned from their mistakes.

Unfortunately, it took a leak like the one in 1987 to prompt any major changes in the plant's safety precautions and procedures. After that leak, more than $400,000 was spent on a major campaign of safety improvement in hopes of preventing another leak from happening again. An emergency alarm system was installed, as was a complex radio system linking all the departments to each other. A safety task force was created, and a special "chlorine team" was formed to get further training in the event of another leak. A full-time position was also created to manage the emergency response team. Workers spend several days out of the year training with the Bellingham Fire Department, and also receive WISHA training, under the Washington Industrial Safety and Health Act.

Orman Darby, public relations director at GP, said the company was concerned that they had "unnecessarily frightened the community" over the leak in 1987. In public opinion polls, GP has seen improvements over the years in the way the public views GP. "Most industries want to be good neighbors, and a chlorine leak doesn't help," said John Andersen, environmental control director at GP.

More training, more drills, more precautions. But is it enough? Since the major leak in 1987, there have been at least five other incidents involving both the chlorine production plant and the pulp bleaching plant. This is fewer, but it is still too many. Unless we can be assured that our community is safe, the best thing may be to explore alternatives to chlorine. GP does produce some chlorine-free pulp, which costs them $60 a ton less to produce, but they say there's just not a market for it, because consumers want a bright white paper that only chlorine can produce. There are two substitutes for chlorine in the pulp bleaching process that do not have the negative or harmful effects that chlorine has: Hydrogen peroxide and ozone are good substitutes because the only byproducts of their processes are oxygen and water.

The answer to all this is not, of course, to banish GP from Bellingham. The mill is a vital part of our local economy, employing some 830 workers, but it is also a threat to the health and safety of our community. The solution seems fairly simple: GP should gradually phase chlorine out. In the meantime, we need more stringent restrictions and increased fines for violations. The $5,000 fine that the state Department of Ecology issued to GP for the leak in 1987 was not nearly high enough. Hopefully, tighter rules and higher fines for penalties will help provide GP with a strong safety record while it is gradually phasing out chlorine production.

Sometimes I wonder if the 15 little girls in my ballet class remember anything about the day the leak occurred in 1987. I would like them to never have to worry about it happening again.

**Major Chlorine Events at GP**

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
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<tbody>
<tr>
<td>August 15, 1975</td>
<td>A fitting that connects a rail car to the plant's piping system fails, causing a several second chlorine leak. Fourteen workers are sent to the hospital.</td>
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<tr>
<td>August 18, 1975</td>
<td>One worker is hospitalized after chlorine gas leaks onto his face while working over a rail car connector.</td>
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<tr>
<td>December 22, 1975</td>
<td>A disconnected wire trips a circuit breaker, shutting down power to the chlorine plant for a few seconds. A small amount of chlorine escapes, sending two workers to the hospital.</td>
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<tr>
<td>January 26, 1976</td>
<td>While new equipment is being installed at the chlorine plant, a worker inhales chlorine and has to be taken to the hospital.</td>
</tr>
<tr>
<td>August 28, 1976</td>
<td>Moisture seeps into a condenser, forming an acid that melts through the pipes, allowing chlorine to escape. A plant operator is treated for inhalation.</td>
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<tr>
<td>July 9, 1979</td>
<td>A newly trained worker mishandles a rail tank car that was being emptied, resulting in a small leak.</td>
</tr>
<tr>
<td>July 14, 1979</td>
<td>An estimated 50 to 100 gallons of chlorine is spilled at the bleach plant after a worker moves the wrong rail car, breaking a line. The chlorine vaporizes and drifts downtown, sending seven workers to the hospital. GP is fined $500 for the two leaks in July, and revises procedures at the bleaching plant as a result of the incidents.</td>
</tr>
<tr>
<td>September, 1980</td>
<td>GP pays a $9,875 fine to the state Department of Ecology for exceeding chlorine discharge limits in March, April, and May 1979.</td>
</tr>
<tr>
<td>October 5, 1980</td>
<td>A compressor overheats at the bleach plant due to a faulty valve. An iron-chlorine fire burns a 4-inch hole in a pipe, allowing chlorine to escape. Although gas odors are detected downtown, no injuries are reported.</td>
</tr>
<tr>
<td>December 1, 1980</td>
<td>A railroad car leaving the plant with a load of chlorine derails, but no chlorine escapes.</td>
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1983: GP's Bellingham plant wins the chlorine industry's top award for safety.

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
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<tbody>
<tr>
<td>August 1, 1983</td>
<td>Chlorine escapes from a scrubbing device due to a mechanical breakdown at the bleach plant.</td>
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<tr>
<td>June 19, 1984</td>
<td>A tank is overfilled at the chlorination plant, allowing about 100 pounds of chlorine gas to escape.</td>
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<tr>
<td>July 2, 1984</td>
<td>A leak in a pipe sprays a chemical on power equipment, causing a power outage at the chlorination plant. Chlorine leaks for four seconds until a backup generator comes on and is able to pump the gas back into a holding tank.</td>
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<tr>
<td>October 19, 1987</td>
<td>A chlorine fire damages heating equipment at the bleach plant, and a 45-minute leak releases 300 to 700 pounds of chlorine into the downtown area. Five people are treated at the hospital for minor injuries. GP is later fined $5,000 for the incident by the state Department of Ecology. After the leak, GP launches a major campaign of safety improvement.</td>
</tr>
<tr>
<td>April 25, 1988</td>
<td>A minor leak occurs when a computer error lets too much chlorine into the pulp bleaching process.</td>
</tr>
<tr>
<td>April 24, 1989</td>
<td>An electrician touches a live wire at the bleach plant, causing a power shut down. The result is a release of about four pounds of chlorine or chlorine dioxide.</td>
</tr>
<tr>
<td>March 15, 1990</td>
<td>A new anti-pollution system at the chlorination production plant releases a small amount of chlorine gas into the air.</td>
</tr>
<tr>
<td>December 1, 1990</td>
<td>A fire in the chlorination heating equipment releases a small amount of chlorine into the plant.</td>
</tr>
<tr>
<td>May 13, 1992</td>
<td>A railroad tanker leaks 50 to 100 pounds of chlorine during a regular maintenance check on the tankers that transport chlorine. A worker is sprayed with chlorine and spends several days in the hospital.</td>
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</table>
In the spring of 1858, only a few dozen people lived in the vicinity of what is now downtown Bellingham, but by summer the number had swelled to more than 5,000. The Fraser River gold rush had attracted people from all over the world, and the town was overflowing, complete—in those days—with saloons, brothels, and inns.

A rapidly growing community needs two things to succeed: ambition and money—and Henry Roeder had both. Probably more than any other person, Henry influenced the shaping of Whatcom’s history—he built the first saw mill (below the current post office) and was also a miner and mine owner, townsite developer, farmer, and civil leader. He did a little of everything.

Another colorful character of early Whatcom history was “Blanket” Bill Jarman. Blanket Bill was a sailor who, along with the rest of the crew, mutinied and ended up walking 122 miles to escape the wrath of the ship’s officers. Instead of winning his freedom, though, Bill ended up being taken prisoner by the Haida Indians, among whom he quickly became a source of conflict since the chief wanted him as a white slave, and the chief’s brother wanted to kill him. Fortunately for Bill, a compromise was soon reached—the chief paid off his brother with beads and trinkets, and Bill was spared.

Blanket Bill went on to live among the Indians for several years. It seems he managed to adapt and fit in well, as evidenced by his marrying two Indian women. Eventually though, in 1848, Governor James Douglas in Victoria negotiated Bill’s release by giving the Indians 32 blankets—a stack equal to Bill’s height. Thereafter, he became known as “Blanket Bill” to whites and “Paseesie” to the Indians—their word for blanket. Blanket Bill was the first white to live in Whatcom County, and he appears intermittently throughout its early history. He lived to be 92 and died in 1912, still preferring to walk from Ferndale to Bellingham—a distance of about 15 miles.

Another significant character in Bellingham’s past was Captain Pickett. Pickett was the leader of 461 poorly armed men who challenged a British force of more than 2,000 over the ownership of San Juan Island—a conflict that became known as the Pig War—over which the United States nearly went to war with Britain in 1859.

In the end, though, the British decided the island was not worth the fight and backed down, and Captain Pickett went on to become General Pickett of the Confederate army in the Civil War. He fought at Gettysburg and was acquainted with Abraham Lincoln, who had known Pickett from before the war and was said to have enjoyed Pickett’s singing and guitar playing.

Pickett’s Bellingham house still stands at 910 Bancroft Street, a mile northwest of downtown Bellingham.

Two other significant figures in early county history were the two first large-scale loggers in Whatcom County—Bloedel and Donovan. These are the same two men whose donated parcel of land still bears their name as Bloedel Donovan Park on the western end of Lake Whatcom.

When they finished logging the readily available land in Whatcom County, Donovan stayed and settled into the large blue house which now sits on the corner of Chestnut and Garden down from Western Washington University, and Bloedel went north into Canada, where his company eventually became one of the world’s largest and most controversial logging companies.

Along with logging, Whatcom County also developed other industries early on. In the early part of the century, the largest cannery in the world, Pacific American Fisheries, was located in present day Bellingham, near Marine Park.
And, as a companion industry of the county's early logging history, the Georgia Pacific paper and pulp mill, which today employs 830 people, has provided a good standard of living for county families.

All of this industry, of course, has its price in terms of environmental quality, a fact not lost on GP and other such businesses in the county, as tougher environmental regulations are passed yearly by state and federal agencies and legislatures.

Orman Darby, GP's public relations officer, sees the present dilemma very clearly. "Look," he told me, "you are the next generation. If you wish Whatcom's future to favor the environment, that's your choice. I respect you, because you are from this area. Decisions about this area's future need to be made by people who live within it and know how it will impact them. Not by far away politicians in Washington D.C. They think it's owls against jobs here. We both know there is more to it than that."

The history of Whatcom County, both good and bad, fascinates me because it helps explain the condition that the county is in today. I grew up in Whatcom County. I played in the coniferous forests and along the cobblestone beaches. The shores contain a wealth of undiscovered beauty and provide some of the finest scuba diving anywhere. The summer provides warm weather and the opportunity to dig in the sand in search of clams. Yet every year it seems increasingly difficult to find suitably sized clams and on warm days the tide flats are now covered with people.

The forests in this part of the county today, although seemingly lush, are young and juvenile, having all been logged or burned down by the three large forest fires of 1868, 1885, and 1894. One hundred years ago, though, this county was blanketed by massive Douglas fir and western red cedar trees. Many were more than 10 feet in diameter and 250 feet tall. These impenetrable stands of trees daunted the first white settlers, since it was an enormous undertaking to clear even small sections of land. Indeed, it even daunted the Indians who relied more on the bountiful rivers, shores, and seas for sustenance and transportation.

Four of my great-grandparents homesteaded about 15 miles north east of here shortly before the turn of the century. I cannot find much information about them in the local history books, but I suspect they were among many of the German farmers who settled in what is now northern Whatcom county. Part of my own family history is intertwined with Whatcom County's history. And when you understand the history of this county, it becomes more important to give respect and dignity to its people and its institutions, even when change, like environmental change, is necessary.
Angie Suchy

WESTERN'S DOUBLE STANDARD

This past fall and winter, as Western students took part in protests, signed petitions, and devoted an issue of this magazine against the clearcutting of Clayoquot Sound, a snag in this environmentally friendly atmosphere appeared. This same campus is renovating a hall, constructing a new biology building and printing the school newspaper using virgin lumber and pulp from Clayoquot Sound.

In order to build the new biology facility and addition to Edens Hall, the university accepts contractors' bids on the projects and, under state rules, must select the least expensive bid. The contractors include in their bids the price of lumber that will be used.

Thus, after the contract is awarded, the technicalities of where the contractor chooses to purchase materials are, in the words of Western's Physical Plant Manager Pete Harris, "out of our hands." Nonetheless, Harris expressed his concern about the origin of the lumber used by Western's hired contractor, Seattle-based Baugh Construction Company. "Ideally, Western would like to have a voice in order to approve or disapprove of specific decisions the contractor is making."

Harris said. "Unfortunately, we are basically told what the contractor or architect is investing in."

In this case, Baugh Construction chose to purchase its lumber from Femdale Building Supplies, which in turn gets part of its lumber from MacMillan-Bloedel of Clayoquot Sound; infamy.

In January of this year, students from Western, Evergreen and the University of Washington held a protest at the Port of Tacoma MacMillan-Bloedel Materials Distribution Center to protest the logging of Clayoquot Sound.

Jake Jagoff, Native Forest Network Representative, encouraged the crowd to "put the pressure on Mac-Blo in the States, in Europe, and in Japan, where they sell all this wood."

Yet, this pressure seems to be ineffectual when it comes to employing companies to work on projects on Western's campus.

The frustration in this "out of our hands" situation is escalating. Twenty-three percent of Clayoquot Sound's ancient rainforests are already clear-cut, and if logging is not stopped, another 52 percent of the ancient forest will be logged.

The Friends of Clayoquot Sound, an organization working to protect the sound, presented a slideshow at Western while touring the West Coast to promote a boycott of Mac-Blo forest products. At this gathering, 50 people put their names on a "Bellingham for Clayoquot" list, forming an active local team to lead the opposition to the clear-cut. In addition, approximately 400 student signatures opposing the clearcutting of Clayoquot Sound were gathered in one day.

According to Greenpeace B.C., numerous corporations have agreed to boycott Mac-Blo, including Kimberly-Clark Inc., Scott Paper U.K., and six large paper-buyers in Germany. Yet Western is unable or unwilling to support this boycott.

"It's irresponsible of the school based on the social and environmental implications of what they're paying for," said Susan Sarratt, a biology major at Huxley. "If they're in a position to hire, they're in a position to enforce the use of preferred building materials."

Mac-Blo pulp is also used by WWU's campus newspaper The Western Front, which is printed at The Lynden Tribune on 60 percent new fiber—29 percent of which is from Mac-Blo's Port Alberni Mill, i.e. Clayoquot Sound. Coincidentally, a letter was written to The Western Front with 400 signatures protesting the use of the pulp. The letter was published, yet with no reference to the 400 signatures. Front editor Guy Bergstrom continues to insist that the paper is printed on recycled material—he just doesn't say how much recycled material.

Yet the Western Front does have the power to participate in the boycott of Mac-Blo, if it were so inclined. The Lynden Tribune allows each buyer to set the percentage of recycled paper used for each job, allowing plenty of room for the Front to negotiate. Due to the fact that there are few recycle mills nearby, the costs would be slightly higher than average, but according to Ecoprint Northwest, a Bellingham Printing Company, the cost of printing on 100 percent recycled paper "on a scale of a few thousand [copies] shouldn't differ in large amount."

Marc Evens of Greenpeace-Los Angeles told The Friends of Clayoquot Sound, "It's ludicrous that 1,700-year-old trees are being cut down for phone books and newspapers when environmentally sound alternatives exist."

Harris agrees, "Even if larger percentages of recycled materials cost more, we [Western] generally choose to opt for these materials. As a university, we set the theme for recycling and are a model for community organizations."

By knowingly using products from Mac-Blo, Western is directly contributing to the clearcutting of 74 out of every 100 trees logged in Clayoquot Sound, as well as presenting a negative image to the community and student body.

By knowing using products from Mac-Blo, Western is directly contributing to the clearcutting of 74 out of every 100 trees logged in Clayoquot Sound, as well as presenting a negative image to the community and student body.

Modern technology pays a significant part in influencing how the recycling business is advancing, as does economic support for sustainable practices. Ironically, more advanced technology is being used for lumber processing than for recycling mills, and state money tends to make its way to the lowest bidder, however irresponsible.

Western is an accessible campus in terms of facilities readily available for recycling use, yet even our copy machines on campus, under contract with Xerox Co., don't...
allow recycled paper in the machines because they claim that the paper’s abrasive texture may cause the machines to jam.

Still, the big problem lies in the use of off-campus resources, namely old-growth Clayoquot lumber. Through its contractor, Western’s support of Mac-Blo discredits the effort of Western students and faculty in transforming the campus into an environmentally-friendly one.

Students and faculty members should have the opportunity for input on the construction of the buildings, rather than finding out about “behind the scenes” decisions only when the lumber for building flashes the unfavorable Mac-Blo label. Students are investing millions of dollars in Western every year; expenditures the school makes should reflect the students’ interests. As Pete Harris says, as an influential university, Western’s choices pave the way for innovations on other campuses and in the community. Allowing old-growth from one of the last intact temperate rainforests on earth to filter onto campus stigmatizes our university as hypocritical, especially in light of the growing reputation of our Environmental Studies program.

As exhibited by student petitions and involvement in protests, opposition to the lumber and pulp on campus is great. If students are willing to go to such lengths, Western should respond and initiate policies concerning the use of old-growth on campus.

As for the projects already underway, namely the Edens Hall renovation and the biology building, Western has an obligation to at least pursue a renegotiation with the contractor(s), instead of merely maintaining its status quo policy of knowingly doing nothing about this controversial issue.

Four hundred signatures gathered in one day is not something to be ignored. By stopping the penetration of Mac-Blo pulp and lumber on campus, Western would be acting as the true role model the school seeks to present itself as.
What can anyone do to really make a difference that doesn't cost money or cause burnout or eat resources, and that's spontaneous and fun and natural? One Huxley student's vision has provided real solutions to some of our most pervasive social and environmental problems by bringing together college students, public school teachers, environmental organizations, local agencies, and most importantly, youth from all grade levels. The L.E.A.D. (Learning, Environment, Action, Discovery!) Project was created in 1993 by Rachel Vaughn, now a senior in Environmental Education. How did it all start?

Rachel says, "I think about when I was in high school. I seemed reasonably happy, I got good grades, but I felt ignored by my teachers. A lot of the time I felt disillusioned and depressed. I guess it's important here to remember that my teachers did pay attention to me, I was one of the "best and brightest" and I still felt isolated by my education. Throughout most of my early high school years, I really cared a lot about the environment. I had just moved to the Pacific Northwest, and I thought this place was so beautiful. Then, in my junior year, I just got fed up with hearing about everything that was wrong with the environment. We talked about the greenhouse effect, deforestation, endangered species, and all that in my classes, but none of my teachers ever even hinted that there was anything we could do about it. I just started to not care anymore. It was the worst feeling."

Ask any group of eighth graders if they find their classes interesting—chances are they'll just tell you that school is boring. What does "boring" mean? "Boring" means information that is irrelevant to the driving needs of kids for identity, acceptance, security, autonomy, and personal power. By shutting kids out of the adult world and out of adults' lives, we give them the message that they themselves are irrelevant, unimportant, valued for obedience rather than creativity or skill, and judged primarily for their ability to sit still, stay quiet, and spit out the right answer when asked. "Boring" means being ignored, whether it's the gifted child who is held back and told to stay with the rest of the class, or it's the slower child who is denied enough individual attention to keep up. "Boring" means spending most of your time in a classroom with one adult and 29 other kids, while your parent(s) are busy at work, and knowing that no other adults have any time to waste on you.

Just like kids, our environment needs more of our attention too. Kids need good role models and university students need opportunities to explore leadership and action outside of the sheltered world of the campus. Kids need activities that teach them how to make a secure place for themselves in the complex and tenuous network of our society, and our urban ecosystems need the energy and imaginative idealism of youth. Every one of us needs to strengthen our ties to the earth and to each other. The L.E.A.D. project combines environmental education with action through the concept of service learning. L.E.A.D. also seeks to bring kids out of their classrooms and give
them a chance to show that they can make a real and necessary contribution to their community and their environment.

Rachel continues, "While still a junior in high school, I met a teacher and another student who had just attended a conference on service learning, and they were pumped to start a service club at Gig Harbor High School. I got involved with the planning, and W.A.Y.S. (World Awareness Youth Service) was formed. After that, my education began to matter to me. My senior year was incredible—I worked with other students to start a recycling program at the school, adopted a family at Christmas, worked with homeless youth at a local shelter, started letter writing through Amnesty International, and collected food for a local food bank weekly. W.A.Y.S. completely changed my perceptions of the world and altered the direction of my life, but I still didn't fully realize the impact of W.A.Y.S. until I came to Western in the fall. Three weeks into my freshman year I began to feel isolated, unnecessary, and depressed again. At that time, I was asked to speak at Sehome High School about service learning at my high school in Gig Harbor. I spoke about W.A.Y.S., and its impact on my education, and I realized I was suffering from service withdrawal. That's right, you heard it, I admit it right here that I was and am addicted to community service. So, after the meeting I talked with the vice-principal and she suggested that I channel some of that energy into helping the students at Sehome, and that's how LINK was born. Out of LINK came L.E.A.D."

Basically, the L.E.A.D. project works like this: the staff spends hours and hours on the phone and in meetings with local environmental organizations and agencies. They also roam around the city looking at vacant lots that could be planted with native vegetation to provide habitat for urban wildlife, drainage ditches that could be restored into salmon streams, and abandoned properties that could be transformed into functioning wetlands. In short, they try to line up as many potentially workable restoration projects, information resources, and other useful contacts as possible. Then, WWU student volunteers are matched up with interested high school teachers who want to do environmental service-learning with their classes.

The staff, volunteers, teachers, and often the kids themselves, work together to set-up a project and get the kids out of the classroom and into the environment they will inherit.

Erik Anderson, a junior with an interest in environmental education describes his work as a L.E.A.D. volunteer at Bellingham Co-operative School, "The hardest part was getting all the names. Now that I know their names, it's easier to keep their attention. They're neat kids, they're about eight to 12 years old. The school is right near Connelly Creek, so we do most of our service work there. We've done Streamwalks, planted trees, done water quality testing, and picked up trash. Once I got to be Sammy the Salmon (part of a Marine Heritage Center interpretive program on salmon)!

"I know now what being a teacher would be like, what I would need to work on. It's a challenge to explain things like D.O. and pH to the kids on their level. Sometimes it's frustrating. But Carolyn (Carolyn Mulder, environmental ed. teacher at Bellingham Co-op) always encourages me to speak up, even asks for my input—it's nice to have her confidence. It's fun to watch her teach. The kids respect her and she has infinite patience—something I could definitely use more of.

"When I look back on the good days in the quarter, usually those were days I worked with L.E.A.D.. I really missed the kids over spring break. I work at the Co-op School on Monday and Wednesday mornings and on those days I'm motivated. Even if I went out the night before, I jump right up out of bed in the morning and ride the four or five miles down to the school."

Teaching environmental service learning well requires a lot of creativity and commitment. L.E.A.D. volunteers wear many hats throughout the course of their projects: environmental specialist, trip leader, science tutor, field laborer, curriculum researcher, and restoration project coordinator. Teachers are well aware of the need to bridge the gap between information and action but are usually overloaded with responsibilities that come with the crowded classes and inadequate resources that have come to be accepted as the norm in most of today's schools. With the cooperation of many dedicated, knowledgeable, and thoroughly awesome teachers, L.E.A.D. volunteers have led their classes in fish habitat enhancement, wetlands restoration, replacement of exotic vegetation with native plants, water quality testing, and community education/interpretation activities.

And it's rarely easy—scheduling can be a nightmare. There's never enough time or money or people available when you need help, and on any given project Murphy's law generally prevails—whatever can go wrong will. Kids often don't respond immediately to our well-intentioned efforts the way we want them to—this is not the place for instant gratification. Maybe the hardest part is having to make that inevitable choice between spending your time studying harder, spending quality time with friends and loved ones, or working on that volunteer project. But even with these difficulties, joining L.E.A.D. still has many more rewards than drawbacks.

In addition to the classroom and service work, the L.E.A.D. project also offers a seminar in which volunteers meet for two hours a week to allow them a chance to talk to each other and to share information about service-learning, environmental issues, working with kids, and whatever else is going on with their projects. This quarter, the L.E.A.D. volunteers decided to devote their seminar time to a series of open panel discussions about environmental issues they wanted to learn more about. Local representatives of various concerned groups were invited to speak. The subjects have included native salmon conservation and tribal/international treaties, environmental justice and racism, transportation alternatives, and an examination of our lifestyle choices. The more we learn about the issues, the more apparent it becomes that environmental and social issues are inextricably linked—working to solve one while ignoring the other is a wasted effort.

Rachel concludes, "We do not need to control students to keep them from carrying guns, assaulting each other, and spreading graffiti all over our cities. Even though it may sound simplistic, we just need to help them care again. The isolation I felt as a student is now being felt by our communities. We will have to redefine 'community' if we want to survive the next century, and one great way to do this is through service learning. If we let kids actively participate in problem solving and problem prevention, the results may surprise us all."

The Planet 22
CANYON LAKE CREEK OLD-GROWTH: An Unattractive Deal

At first glance, the ancient forests straddling the unnamed ridge-tops high above Canyon Lake bear a physical resemblance to a bad haircut—and a bowl-cut is not the most attractive method of forestry practices.

The shaven sides are the recent clear-cuts and the thick growth on top is what's been left alone to grow wild, the ancient forests. For a more local example, look to the east from Bellingham for the tiny exposed patch of forest atop Galbraith or Lookout mountain—known by mountain bikers as "the mohawk." If the Citifor Corporation gets their way, the forested mountains above Canyon Lake will look more like a crew-cut.

The Trillium Corporation is the principal landowner of these old-growth forests, holding approximately 410 acres of ancient forests in the Canyon Lake Creek Watershed. The remaining 370 acres are owned primarily by the State Department of Natural Resources (DNR). Because neither of these stands is on federal land, they are not subject to the pending Clinton Forest Plan, or to the spotted owl management plan, and hence enjoy almost no degree of protection.

In 1992, Trillium received most of this high elevation old-growth (322 acres) in a land swap with the DNR. In exchange, the state received some acreage in the Lake Whatcom watershed and on Chuckanut Mountain, a deal promoted by Whatcom County and heralded by governor Mike Lowry. Trillium then sold some of the timber rights on their lands to the Citifor Corporation. Last fall, Citifor clearcut a 45 acre parcel from one of the oldest forests in the Pacific Northwest.

Citifor has applications pending with the State Department of Natural Resources (DNR) to harvest another 126 acres of this already remnant old-growth the summer of this year. This action would further dissect the last sizable stand of old-growth forest either privately or state-owned in all of Whatcom County. The wording in the Forest Practices Application (cutting permit) signed by both Trillium and Citifor, reveals the intended purpose for the timber. "The harvest will focus on exportable quality old-growth cedar and mature silver firs."

A Trillium-sponsored study compiled by U.W. forestry ecologist James Agee and respected biologist Martin Vaughn, considered the Canyon Lake Creek old-growth to be "one of the largest intact stands of its age. Most of the Canyon Lake Creek old-growth parcel is a stand twice as old as the DNR's 400-year estimation."

Eight miles east of Deming and 10 miles northwest of Mt. Baker, above the confluence of the north and middle forks of the Nooksack River, a steep gravel logging road winds its way up nearly 2,000 feet in elevation, until large ditches halt advance by car. On the right is Canyon Lake, littered with the gray, weathered trunks of fallen trees. My eyes follow the steep slopes to the snow line. The ridgetop islands of old-growth stand out in clear contrast to the ocean of young seedlings.

The view from deep inside the forest is entirely more pleasing; it is quiet, oblivious to the controversy over its fate. Dark green moss drapes from scraggly branches, and the forest floor resembles a patchwork quilt of many subtle colors. The scattered remains of the winter's snow will linger here in large drifts until early summer, protected from the sun by the shadows of the ancient trees. At the base of many of these trees, small islands of bare soil provide winter refuge for wildlife. This forest is home to ancient alaska yellow cedars, a subalpine cousin of the western red cedar, flourishing here at the southern-most end of its range. Standing among these immigrants from the north, are huge mountain hemlock and silver fir, some three to four feet in diameter, an amazing size for trees at this elevation. If these trees could speak, they would tell stories of long hard winters, devastating storms, and natural epidemics—all born patiently, survived.

And beyond even the endurance of these trees, the age of these forests itself is remarkable. It would be easy to underestimate the age of this forest, since the size of the trees can be deceptively small. One researcher found the cross section of a 160-year-old pacific silver fir to be only three inches in diameter, a testament to the slow growing season at 4,500 feet.

In fact, according to the Agee report, these stands are some of the oldest forests in the entire Pacific Northwest. A few trees are estimated to be nearly a thousand years old. The
old-growth forest surrounding the more well-known Arlecho Creek are in near infancy when compared to these natural pillars of time.

At this elevation the harsh environment does not favor regrowing trees, at least not in any human generational conception of time. For centuries, the forests battled for an existence against wind, snow, and cold temperatures. The bare patches of ground, on adjacent sites cut over 10 years ago, are evidence that regeneration is unlikely. Given the steepness in slope and the shallowness of the soils, any forest practice activities on these sites will likely be the last ones ever performed, certainly the last ones in our lifetime.

Steve Walker, Canyon Lake Creek old-growth conservation advocate, pointed out to me that in the nearby Mount Baker Snoqualmie National Forest, the Forest Service has abandoned harvest activities in upper elevations. They have found that the minimal regeneration potential for trees poses too great a risk to other resources like fish and wildlife. It would appear prudent for the DNR to take a similar position here.

So far, little biological information has been collected on what animals live in these forests. However, while doing research, Huxley graduate student Tom Gaines observed bald eagles in the area, as well as band-tail pigeons, pileated woodpeckers, ruffed-skinned newts, and a great horned owl.

Trillium’s report on the Canyon Creek area stated that it was unlikely, due to the composition of the forest, that the area would be inhabited by marbled murrelets. However, local consulting biologist, Ann Eissinger, pointed out that murrelets have been documented in similar forests at the same elevation. The Trillium document did however speculate that an individual spotted owl could reside in the site.

I asked Ann why we should make such a fuss about these old-growth forests when a similar forest is located only a few miles away in the National Forest? “I have a problem with cutting these forests when we don’t know what’s there. If you remove all the habitat you will lose the entire genetic pool of old-growth species—everything from plants to invertebrates. What is the economic benefit vs. the ecological loss over time?”

Huxley professor Arlene Doyle agrees. “These remnants provide critical stepping stones which allow populations to disperse across the landscape over time in order to maintain genetic variability.”

Canyon Lake Creek feeds into the Middle Fork of the Nooksack, spawning grounds for the endangered wild Chinook salmon and other salmon species. Because of this, the Lummi Nation is concerned with the possible impacts to the overall quality of water in the basin in relation to the fate of these forests.

The Lummi may also have cultural interests in the area around Canyon Lake Creek. Any forest practice having to do with old-growth is culturally sensitive to native groups, as the sites where Native Americans can go to perform certain traditional spiritual practices are extremely limited. The ongoing logging of old-growth areas is the equivalent to burning all the churches in Bellingham except one, leaving the entire community only one place to worship.

The Lummi have not yet become involved in the ensuing controversy, as they are currently tied up in the battle to save the ancient forests of Arlecho Creek from further destruction. Yet the support of local Indian Nations, combined with that of local environmental organizations like the North Cascades Audobon, may be crucial in any long-term fight.

These groups have cooperated effectively in their quest to preserve Arlecho Creek. The possible involvement of these groups in the Canyon Creek area was among some of the issues raised in a recent community action meeting held at the Koma Kulshan Alliance center to stress community awareness and explore channels of action.

Another key player in this old-growth debate is the State Department of Natural Resources. The DNR is responsible for the regulation of private forest lands. The department also owns similar ancient forest on the ridges above Racehorse Creek, adjacent to Trillium’s parcel, and has aggressively cut ancient forests in similar areas as recently as 1991. The DNR’s holdings in the area constitute a good portion of the old-growth remaining in the agency’s possessions statewide. Hence the title bestowed upon them by environmentalists—the “Department of Nothing Remaining.”

The DNR itself has no plans to harvest their holdings at this time, but they do have the power to significantly alter Trillium’s proposals.

According to spokesman Tim Raschko, Trillium has not yet decided what management practices to take regarding the remainder of their holdings in and beyond Canyon Lake Creek. Therefore, maintains Steve Walker, now is the time to encourage Trillium, Citifor, and the DNR to pursue preservation opportunities for these forests, and to hold off any further logging until these efforts have been given the opportunity to succeed.

If you would like to learn more about the fight to save these forests, contact Steve Walker at 738-2418, or Andy Ross at 647-0428. Also, feel free to contact Trillium, Citifor, and the DNR and let them know what you think as well.
When Trillium owner and president David Syre signed a document known as Stewardship Principles on Oct. 30, 1993, he committed his company to infinitely sustainable production of wood products from 625,000 acres in southern Chile. About a quarter million acres are commercial-quality lenga and coihue forests, both members of the beech family. Baseline and ongoing environmental studies and monitoring are in the package the Bellingham-based timber and development company said it agreed to.

What, at first glance, appears to be a victory for everybody, may in fact turn out that way. But Huxley professor John Miles notes that only time will tell—important questions still remain over Trillium’s definition of “sustainable” forestry, as well as the long-term viability of Trillium.

“[My first reaction was] ‘It sounds great,’ but how are we to know?” Miles said. “When I first read about the land steward arrangement I said good—it’s a way that would hold them to an accounting if it’s carried through.”

Trillium’s effort in Chile is a textbook example of progressive marketing strategy. Step 1: Listen to your customers. Many consumers want to buy products that don’t require environmental destruction to produce. People in America are beginning to demand that the products they buy come from environmentally-friendly companies. Companies that aren’t thought of that way often lose business.

This point was driven home to Trillium in 1988 after a massive clear-cut on Whidbey Island. In an April 1993 interview, Syre said the company’s mistake in that process was neglecting to talk with neighbors of the project. “We learned to be careful and communicate—to seek and listen to comments from affected people and groups.”

A local management consultant said companies that work in environmentally sensitive areas are starting to learn the value of good stewardship and good communication. “It’s a long battle. Many people think all companies are out to get them, and some are, but of course not all of them,” said Maria del Pilar Portela, who operates Complete Consulting Services in Bellingham and is working with Trillium on the Chilean project.

“If you start looking into it, from the ’70s, probably late ’60s...people are getting more environmentally friendly,” she said.

But even after Whidbey Island, the company’s record in Whatcom County has not been great. Trillium’s main form of logging is still the clear-cuts “They’ve done the minimum they have to to be legal,” Miles said. “Why are they going all the way to Chile instead of doing it here? Why don’t they be an example of progressive forestry here?”

To a timber company, sustainable forestry means cutting trees in a methodical way that ensures trees will still be available for “harvest” in the long term. In Chile, Trillium said it plans to use a rotation of at least 100-120 years. That means in 100 years, it will begin cutting second growth.

Miles said another way to consider a forest system is to look deeper than just the trees. “People are exploring different ways of doing forestry. There are literally hundreds of organisms that you won’t have anymore, if you don’t have old trees. [Sustainability] is about trying to retain biological diversity.”

The advantage of operating with the environment in mind was addressed in a news release Trillium issued last November: “The underlying assumption supporting the project is that world markets will grow increasingly resistant to the purchase of hardwoods managed in an environmentally and socially irresponsible manner and that wood produced with a demonstrable record of environmental and social concern will have a significant market advantage.”

Trillium thinks that the first step toward responsibility in Chile is to conduct scientific studies of the territory. To this end, company officials flew to Chile in mid-March to work with local scientists. The problem is that not much data is available about the forests on Tierra del Fuego, and that the information that is gathered in this process may not be all that useful to forestry.

Miles said, “They [Trillium] haven’t been down in there long enough to be specific. Even here, we don’t know a
great deal about how we should be doing alternative forestry. We have theories, but it’s experimental.”

Portela said doing alternative forestry can make good business sense. “One of the many things is to try to teach people in general that being environmental is not necessarily being business-wise; it can cost money. But, 20 years down the road, when they still have a planet to do business on, they’ll see that it was being business-wise.”

What may make good sense economically in the long term, may not in the short term. Miles said the whole business of forestry, especially on privately owned land, is risky. Quite often, companies have to sell their land when pressures force them to get cash quickly. If Trillium sells its land, will the new owner have to follow the same forestry principles? No one can say for sure.

“The thing that troubles me about it now is that there aren’t many examples, at least in the Northwest, of really long-term private ownership. We’re in the third or fourth owner in many cases,” Miles said.

The slower pace required by alternative forestry could work against any company that tries it. Trillium will still have to be in business in 100 years for the Rio Condor project to be a complete success. “This is a problem for companies that are in a competitive market. When you’re talking about forestry, you’re talking about the long term. It seems it would be difficult to make a commitment for that long,” Miles said.

So, while sustainability of the forest is Trillium’s stated goal, the more important question may be the sustainability of Trillium itself. Miles said, “what if their company goes under? Would there be something attached to the land? Probably not. The key will be whether or not this company is able to support a large, long-term sustainable enterprise over the length of time they’ll need.”

Another variable is the government of Chile. Right now, as Chile is preparing to enter the North American Free Trade Agreement (NAFTA), the country faces international pressure to take care of its environment, including its half of Tierra del Fuego. The United States is currently asking the government of Chile to toughen its laws protecting the environment, which could work in favor of companies prepared to behave in a socially and environmentally responsible manner.

Former President Bush told Chilean president Patricio Aylwin in Washington, D.C., on May 13, 1992, “We share this land. We share more than the new world; we share a responsibility to keep our world new. The United States and Chile are two of the world’s foremost proponents of free trade, and we look forward to working with you to expand bilateral and global trade as rapidly as possible.”

That day, the White House announced that it planned to eventually include Chile in NAFTA as the first of several South American nations to enter the pact.

In February of 1992, Chile and the United States signed an agreement to help Chile create an environmental project fund called the ‘Enterprise for the Americas Initiative’ with money that would have gone toward paying their national debt to U.S. banks.

Ironically, America wants Chile’s laws to be tougher because U.S. companies will have to compete with companies based there. Better environmental regulations in the U.S. increase the cost of doing business, so big businesses want the federal government to pressure countries they trade with to enact similar laws. Political change, often a concern in Chile, could sour relations with the U.S. and jeopardize any environmental regulations already agreed to.

Trillium also faces physical challenges on Tierra del Fuego. Land in southern Chile is cold, desolate and sparsely populated, like northern Canada. Steve Starcevich, a 25-year-old Environmental Ecology major at Huxley College, camped from January to March of this year on the Chilean mainland across from Tierra del Fuego, doing gradient analysis of a southern beech forest with graduate student Scott Grimm. The land was nearly empty, he said, but plenty of cattle and sheep ranches covered the plains. “It’s strange taking a bus through there. It’s strange to think of people actually living there; it’s pretty isolated.”

“The trees don’t get tall in the sense of our trees around here, maybe 40 to 75 or 80 feet high and four or five feet across,” he said. “The plants probably have a better time than humans.”

Southern Chile has heavy rainfall during fall and winter and is comprised largely of high mountains, glaciers and small islands. 19 percent of Chile’s work force is employed in agriculture, forestry or fishing. Starcevich said the growing season where he was, nearly at the 52nd parallel below the equator, is very short and that the climate is more harsh than northern Vancouver Island, which covers the north 52nd parallel.

“It’s just a fledgling environmental movement there,” Starcevich said. While he was in Chile, he noticed two or three newspaper articles about Trillium’s operation on Tierra del Fuego. The articles focused on the planning that was to be done and the logging roads already cut.

“From what I heard, the park ranger at the big national park down there (just north of Tierra del Fuego) was all for it,” he said. “He had said it’s very good for Tierra del Fuego, because for the last several years the people have been moving away because jobs were scarce.” Trillium has promised to employ local people as cutters, managers, researchers and managers. Whether the jobs turn out to be long-term and whether the project is also good for the ecosystem remain to be seen.

The Rio Condor project is part of a historical trend of continuing harvesting of natural resources in Chile. Whether it can become the beginning of a trend toward alternative forestry techniques that balance the environment and business will depend on Trillium’s commitment to the project and its own financial health.

The bottom line is that nobody can force Trillium to follow up on the principles it agreed to. And, of course, nobody can predict whether a company will be in operation 100 years from now, or if it might just decide one day to sell the land.
David Syre has no time to rest. The chairman, president and owner of Trillium Corporation has been in his office only three days during the month of April because of numerous meetings and visits to ongoing projects around the map. Most recently, Syre has focused on Trillium's Rio Condor project—625,000 acres of newly acquired land off the southern tip of Chile on the island of Tierra del Fuego.

Trillium has been criticized in the past for clear-cut logging practices, but this time Syre expects things to be different. He says Forestal Trillium Ltda.—the company that Trillium set up to manage this new land—is determined to do things right.

I asked David Syre, Jean Gorton (Vice-President of Planning and Public Relations), and Gordon Iverson (Vice President of Forest Resources), exactly how things are going to be different in Chile. They said that they will:

- Follow the recommendations of Dr. Harold Schmidt of the University of Chile, who has spent 15 years studying the forests of Tierra del Fuego. Dr. Schmidt has developed a lenga silviculture program (the practice of growing and tending forests) with a 100 to 120 year rotation, no clear-cutting and no introduction of imported species.
- Work with an independent trustee. This land steward is local attorney and Fairhaven professor Rand Jack. “Since Rand is not a forester and our people are, he is there to question procedures that we may assume are elementary but are of great concern to the public and must be explained,” Gordon Iverson said. “Rand could be considered a representative of the public; he is there to ask questions, offer suggestions and keep an eye on Forestal Trillium’s involvement.”
- Extend an invitation for an institutional steward. “The World Wildlife Fund (WWF) has taken a look at the project but has not committed to anything to date,” Jean Gorton said. Rand Jack added that the WWF is as yet internally split on their decision for involvement, and that he plans a meeting with their leadership in Washington D.C.
- Work within the Chilean government’s forestry guidelines.
- Work with an independent commission of seven Chilean scientists from three Chilean universities to conduct ecological studies of the area, and provide for ongoing monitoring of the area.
- Hire personnel to maintain an understanding of changing ecological issues.
- Obey the set Stewardship Principles they signed when undertaking the Rio Condor Project, written and described by Fairhaven professor and Bellingham lawyer Rand Jack as a “reasonable and demanding set of guidelines.”

It appears, if this approach is strictly adhered to, that development of this pristine land will challenge local and international environmental groups to justify any criticism their interference. Bob Keller, a Fairhaven professor and local historian who’s taken a close look at Trillium’s activities in the past, is impressed by Trillium’s seeming willingness to adhere to a more responsible approach. “The bottom line of the Rio Condor Project, like any other, is profit, so sometimes things are overlooked and fall by the wayside. But let’s give Trillium credit for asking so many questions.”

Even though the area is largely unstudied and many uncertainties remain, Gordon Iverson defended the integrity of the project. “There have been no organized environmental groups that have taken action to oppose development, but there have been individual protesters who have voiced their opinions. These individuals are against development because of the lack of comprehensive studies of the area, which we are trying to begin,” Iverson said during a telephone interview.

Jean Gorton seemed excited about the Chilenos’ enthusiasm for the project. “Locals have given the Rio Condor Project a receptive attitude. We are using Chilenos whenever possible. Forestal Trillium has two local offices in Chile, one in Santiago and another in Punta Arenas, the majority staffed with Chilenos.” Iverson later added, “Forestal Trillium has around 40 to 50 people working down there and usually only one American is present—myself or Bob Brinn [Vice-President of Operations].”

The government also has given incentives for foreign investors, in the form of the Navarino Law. This law applies only to Tierra del Fuego and gives a five-year partial tax
remain in their country. Forestal Trillium Ltda. has a five-year grace period on Chilean taxes,” said Syre. The government has likely granted this exemption because it will create jobs for its people, strengthen its border, and generate an influx of new money that will remain in their country.

Shelterwood cutting is the method of logging that will be used. This means that 30 percent of the lenga (the tree that Trillium will be harvesting) within each generation of cutting must be left standing.

David Syre also said, “Studies on the 100-120 year rotation are beginning to show that this is more than enough time to establish a sustainable system. Sustainability refers to both the forestry and the ecosystems in the area.” One other consideration is that the lenga forest canopy is very dense and tree development is slow. Cutting some of the trees will open up the forest and allow a faster timber growth rate. However, Rand Jack warned, “there will be an increase in productivity of lenga, but the health of ecology we need to research more.”

While waiting for further ecological studies, Trillium has acquired two logging permits, confining them to two different tracts of land. Rand Jack projected that Forestal Trillium would start logging within the next couple months but remain only on the fringes, which have already been degraded by logging and grazing. Syre stated that plans exist to build a port, sawmills, veneer plant and other processing facilities. Eventually, there are plans to build a town in Port Arturo. One negative aspect of this is that it will provide a link to world markets and make it easier for companies to come into this well preserved area. However, Trillium is not the first forest developer in the area. “There are two forestry companies that I know of,” Iverson says, “one American company that has teamed up with a Chilean forester and one other that is backed by Japan.”

For now, there are no clear threshold limitations other than cutting in an area outside permitted boundaries, not abiding by Stewardship Principles, or failing to follow scientific studies. In response, Rand explains, “By hiring independents they [Trillium] are now in a position where if the independents feel things are not ecologically sound, they can resign, drawing attention to Forestal Trillium. We can continue our faith as long as Forestal Trillium follows scientific studies. Presently, that’s all we have.” Jack also says he is willing to go public with any new developments as necessary. Both Jack and Keller think the greatest challenge for Forestal Trillium is not going to be financial, but geographical. Long distance relationships are always trying; if Forestal Trillium is to succeed it will have to span cultural, economic, and social differences. Jack believes Trillium has “a resourceful group of people” and his advice to Forestal Trillium is, “Do not rush, listen to warning signals and don’t give in to pressure.”

Trillium is undertaking a project that should keep its hands full for a long time, in an area that not much is known about. Despite this uncertainty, Trillium has been improving on one of its long-standing weaknesses—public relations—by promising better communication.

Trillium’s job now is to make good on that promise.

Joshua Klein

**TRILLIUM’S LOCAL OPPOSITION**

Trillium has attracted a good deal of attention and criticism over the last few years for its logging and development practices. In 1978, they released plans to develop a parcel of land for a new shopping mall on the north side of Bellingham—a project which eventually produced Bells Fair Mall. There was one problem with this plan though—the family estate that had sold the land had made explicit provisions that it be set aside for agricultural use. Thus the project required “special legislation” to rezone the area for commercial use. Former U.S. Senator Henry “Scoop” Jackson, pushed the deal through, much to the chagrin of local residents and business owners, who feared the destruction of the scenic valley and the influx of chain stores.

In 1988, Trillium made its first major foray into timber harvesting by clear-cutting 2,000 acres of trees on Whidbey Island that had been purchased from GP. Nearby residents and landowners were outraged that they had not been consulted about the action, and soon were blockading logging trucks. In turn, this aroused the attention of Earth First!, prompting a campaign against Trillium. Rocks and ball bearings were thrown through the company’s front windows, sawdust was dumped in the company’s lobby, and the front doors of their office were glued together. A cross bearing the inscription “May David Syre Rest in Peace” was even planted in the president’s front yard. Eventually, after meetings with environmental groups and the DNR, Trillium agreed to leave buffer zones around the clear-cut. Whidbey citizens were placated, but the event prompted criticism and opposition that has plagued Trillium ever since.

An example was Trillium’s plan to develop the Cordata North business park on a wetland, which was met with a petition listing over 1,200 signatures of residents opposed to the project. The project was completed anyway.

Kiko Anderson, a Bellingham resident and member of The Greater Ecosystem Alliance said, “they take advantage of opportune situations to the detriment of all others but their profit margins.” Anderson has spent the last five years dealing directly with Trillium, in which time the corporation has bought and clear-cut 20 acres adjacent to his home. “They buy timber...and remove it and all other value with it as far as wildlife, land use, or anything else is concerned,” Anderson said. This brings up another area of concern—the feeling that Trillium receives preferential treatment regarding permits for development. “I would say there is a strong sense that Paul Rushing and John Tyler (Whatcom County’s director and deputy director of public works) are in Trillium’s hip pocket” says an unnamed source quoted in the March 1993 edition of Washington CEO. Rushing and Tyler firmly deny the charge, yet the concern remains, underscored by the fact that Trillium leases more than 13,000 square feet of office space to the county’s Buildings and Codes and Engineering and Planning departments, as well as the Hearing Examiner’s office, all of whom oversee decisions regarding permits and regulations related to development within the county.

Trillium currently holds 230 properties in 18 states, two Canadian provinces, and Chile, including 750,000 acres of forest land, and shows no signs of slowing its expansion. Trillium’s opposition, however, is expanding as well.
ERICH RAUDEBAUGH

ECOTECH

With all the talk about recycling, perhaps it’s time to look at the environmentally-conscious technology that makes it happen.

As a senior technology student at Western, I was initially attracted to the technology program by the amount of activity within the department; the faculty and students are gaining national recognition for leading edge research, such as the Vehicle Research Institute (VRI), headed by Dr. Mike Seal. This program is an outstanding example of environmental problem solving and shows the ecology movement’s ability to offer solutions, rather than merely point out problems.

Their latest project, Viking XXI, is a hybrid vehicle which runs on both solar power and a motorcycle engine which burns both gasoline and natural gas. It recently won several prizes in California at the Disneyland rally, including first in its class and most efficient car of the race, beating out over 100 competitors. The car is currently being reworked as the Viking XXIII, utilizing such technology as a carbon-fiber body and frame. This trims 500 pounds, so the entire car will weigh only 1,500 pounds. It is expected to get better than 50 m.p.g. running only on natural gas.

Mike Seal, the project’s director, is a soft-spoken man, his manner belying the intensity and purpose which his words impart. He manages to get his students very involved with the program, utilizing their wide variety of backgrounds to create a dynamic and versatile team.

The newest and possibly most exciting venture upon which Seal and his students have embarked is called the thermophotovoltaic generator or TPV. The TPV runs on natural gas (although almost any typical hydrocarbon fuel will do), which heats a ceramic element causing it to emit infrared radiation. Solar cells on the inside of the unit then produce electricity at efficiencies of over 30 percent, the highest in the world. Since most of the heat created by the unit is retained, it is very efficient, and this efficiency is magnified when the “cogeneration” process is used. Cogeneration uses excess energy to heat water for other uses. In the electric car, this means being able to have a heater, a luxury most electric cars do not have, because the energy drain on the battery supply would be too great, but with the TPV installed, hot water can be made available as a by-product of operation.

The TPV could be put to use in domestic and industrial applications as well. In Bellingham, Georgia-Pacific is producing its own power with a natural gas cogeneration plant, which is especially useful since many of GP’s systems require a good deal of heat. Even WWU is looking into the possibility of cogeneration for its own use.

Meanwhile, the next Viking project will be to make a car that runs on eight TPV burners, as well as standard solar cells. More development is expected, again dependent on grants. One thing is certain, as long as Mike is around (he has been heard to say “I’ll retire when they carry me out of here on a stretcher”) the focus of the VRI program will remain centered on environmentally-conscious technology geared toward an alternatively-fueled 21st century.

A second engineering technology endeavor, the plastics program, headed by Dr. Steve Dillman, has been highly involved in such projects as recycling and waste reduction. The Clean Washington Center, a division of the Department of Trade and Economic Development, has worked with Western over the past few years in developing recycled materials from plastic waste, and finding ways to reduce production waste. The plastics program has also acted as a technical advisor to businesses using recycled materials in such projects as the production of dock pilings from recycled plastic to replace present dock pilings which are impregnated with creosote, a serious environmental hazard.

Energy savings in the transportation field will also come through using composite plastic materials, such as fiberglass. New plastic composites are constantly being developed and tested in the plastics lab. According to Dillman, "the amount of energy saved just from using plastics [instead of metal] in transportation makes up for the energy expended to make all plastics ever made."

Additionally, the field of industrial design can play a major role in solving problems arising from technology. The industrial design program at Western, spearheaded by Arunas Oslapas, teaches students about the life cycle of products through assessing the impact a product has on the environment. Students also are involved in projects to design products which can be disassembled in order to reuse the constituent parts.

Arunas is involved in a couple of interesting projects himself, for which he has received grants. One that he is currently working on is designing furniture made from paper products, primarily from post-consumer recycled goods. He has encountered some problems, but if his research pans out, the next sofa you buy could be made from old Dixie cups.

A project which he will begin work on this summer will be to make a plastics trash compactor to reduce the bulk of recyclable plastics in order to make them cost-effective to reuse. This device would apply heat and pressure to form plastic jugs and bottles into solid bricks. The problems involve things like sorting the different types of plastic, but with Arunas’ design skills, he may find a solution to this problem as well.

The Technology department, although currently separate from Western’s Huxley Environmental College, could soon merge with its neighboring school. The faculty involved has seriously discussed the matter, and the people who I talked to are definitely interested. Dean Storch of Huxley said, “I see the possibility of bringing more people in from the technology side of things.” Arunas agrees, saying that he too would like to see students “swapping classes” to get a broader view of all the issues. Bob Raudebaugh, who is in charge of the Technology Education program, told me that he is considering requiring his students to take two introductory environmental classes as part of their overall curriculum, perhaps signaling a future partnership in the making. Certainly the two programs have much to gain by cooperation.
Viking XIX solar-gas hybrid vehicle.

The Planeteers, or most of them . . .
Back Cover: A L.E.A.D student hard at work in a stream.