

## Local resident puts water to work creating cheap power

by KAYE BARTON BAKKE  
Post Correspondent

Cal Horger, who lives near Dover in a lodge-like home on Deep Creek, has put the creek's water to work providing power for his large home.

Many Oregon residents are experimenting with wind and water generating plants, but for a majority, generators have turned out to be expensive toys.

The Horgers' water wheel, however, produces eight cents worth of electricity an hour around the clock and has reduced their electrical bills to a few dollars per month in the three months it has been operational.

Horger and his wife, Elizabeth, have lived on the banks of Deep Creek since 1962. One of their first projects after moving in was to investigate the feasibility of generating water power.

"Everywhere I asked, I was told there was no information available on water wheels," Horger said. He finally began searching through the hydraulic section of Multnomah County's main library and there found his first and only lead.

Horger discovered not a book on water power but a picture of a 16-foot water wheel. He persuaded library officials to let him take the print off the premises, where he had it photocopied.

An engineer friend of Horger's scaled the dimensions of the drawing from 16 feet down to 12 feet, the size needed for the water flow available at Horger's site.

A Portland metal fabrication company built the wheel of steel, and it was hauled up Firwood Road to the Horger's place, where it rested in front of the double garage, awaiting assembly.

A flume had to be built, and a concrete base for the water wheel. "For the total package to be functional, it took 15 years," Horger said.

His investment in the plant, which generates two kilowatts, totals approximately \$13,000, "not counting building the dam or any of the labor or the head work," he said.

Because technology has advanced, a plant of similar capacity could now probably be installed for around \$6,000, Horger estimated.

One of the puzzles which slowed Horger was locating a suitable generator to use with his water wheel. Trial and error taught him that the generator had to operate at very low speeds.

A neighbor referred him to Mark Lindgren, of the Portland firm Wind Power Systems, on the possibility that a wind generator might be adaptable to the water system.

The hunch proved out, and Horger purchased a generator made by an Aberdeen, South Dakota firm which has since gone out of business.

The project was "strictly experimental all the way," said Horger's wife Elizabeth. She gestured toward Scott Silva, Lindgren's partner at Wind Power Systems. "If they hadn't come along with their wind generator, we'd still be playing around with this thing."

Silva and Lindgren have since formed a subsidiary, Northwest Water Power Systems. They serve as consultants to homeowners investigating the feasibility of wind and water power generation at their home sites.

The men also sell literature on alternative energy, and act as distributors

for equipment needed to generate power on a small scale.

Silva pointed out that water power at present is much more cost effective and has an earlier pay-back than wind power plants, since water usually flows around the clock, while wind blows intermittently.

He also said a larger generating plant is a better investment and pays for itself sooner than a small one such as the Horgers installed.

But the retired couple doesn't complain too loudly about the water wheel. Since it became operational in November, their electric bills have ranged from \$3.50 to \$9 per month, including the \$3 minimum charged all customers by Portland General Electric Co.

Power companies presently buy back the power produced by wind and water generators at current retail rates.

Silva pointed out that certain preliminary steps should be taken by homeowners interested in water power, including measuring the flow of available water and determining, through state agencies, where ownership of water rights lies.



The water wheel on the Horger property has reduced electric bills to a couple of dollars.



Cal Horger looks over his money-saving waterway.

## Despite language barrier

# Student enjoys Paraguay trip

by MARK FLOYD

Last year Claudia Richards had to learn to speak Spanish in a hurry.

This year she is trying to relearn English in a hurry.

The 18-year-old Sandy High senior spent the year in Asuncion, Paraguay as part of the American Field Services (AFS) exchange student program. When she left last February, Richards knew practically no Spanish at all. When she returned two weeks ago, however, she found herself thinking and speaking Spanish and having some trouble with English.

To compound the problem, two languages are spoken in Paraguay, Spanish and Guarani, an Indian dialect.

"I had to learn them from scratch," she admitted. "I finally started to understand Spanish and people would speak Guarani when they didn't want me to know what they were talking about."

"It took me about four months to pick up Spanish to where I could manage fairly well, then I just got better from there," she added. "I've only been home two weeks and I'm ready to go back. It seems strange, it's like being in a new world again."

Richards had no special tutors in Paraguay and, since she had to learn the language from scratch, she

fell behind a bit in her studies.

"You had to learn fast and pick up what you could," she said. "They're very serious about school and they don't stop. You're expected to keep up and if you don't catch on, you have to ask a classmate. There are no sports or anything. You go to school to learn, period."

Classes were similar to those at Sandy with chemistry, philosophy, English and math standard subjects. Students attended school from 7 a.m. to noon, then went home for the big meal of the day in the afternoon. The big meal was followed by a siesta, when all the shops closed until about 3 p.m. or so, then reopened.

Life at night and on weekends was also exciting.

"There were dances, movies and lots of night entertainment," Richards said. "We'd go out and have a few beers. The drinking age there was as soon as you could reach to the counter."

"The guys in Paraguay were a lot different," she added. "They seemed to be more friendly, more extroverted. They'd meet you one day and want to go out the next."

Richards also found the food different and welcomed the change. Natural foods were encouraged and there was very little junk food. "Instead of having candy bars, you have a fruit salad," she said.

Richards stayed with a Paraguayan family during her year. Miguel and Nylda Rodriguez and their two sons, Leo, 23, and Dani, 19. Their home was in Asuncion, the capital of the country with a population of more than one million people.

"The country was very traditional and so was my family," Richards said. "Girls can't go out alone, they always have to go with someone in the family. We eventually found ways to get around that, though. My family was understanding, they'd had AFS students before."

"We had three maids," she added. "One would cook, one would clean and one would wash clothes. But even with three maids, there was a lot of work for my cousin (Leila, age four) and I. There was always scads of stuff to do."

The Rodriguez family was fairly well-to-do, according to Richards, who added that there is a class system in Paraguay. Most families are either rich or poor, not middle class.

During her stay, the Sandy student visited a ranch in the jungle area of Paraguay and made a trip to Brazil, the largest country in South America. She enjoyed the travel, but "detested the insects and mosquitos" of South America.

Richards enjoyed the Paraguayan experience but admitted that it was

costly. She and her parents, Vern and Melba Richards, had to come up with \$2,600 for the year and she is having to make up a lot of credits at SUHS. Richards' classmates graduated last year and she will be 19 when she dons the cap and gown this June.

But the experience was worth the sacrifices, she said.

"I've had no trouble with my family or anything since coming back, but it will take some time to adjust back to school," she admitted. "My first impulse is to speak Spanish and I even think in Spanish. But it's starting to go away."

"My parents noticed that the experience changed me and I'm glad to have had the opportunity," she added. "I'd like to go back. I really liked my family there and after a year, you get really attached."



Sandy High senior Claudia Richards (top) at home after a year in Paraguay. Richards enjoyed her stay and her new family (far right), parents Miguel and Nylda and her brothers Leo, 23, with the hat, and Dani, 19. Also living in her house was cousin Leila, age four (right).

