SOLAR

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Propulsion Lab in Pasadena, Calif., studying such things as planetary geology and geochemistry, nuclear physics and atomic physics.

Not to say he didn't have glamour jobs. Haines analyzed damage tracks in the crystal structure of moon rocks to determine their age, for example. But, he says, it wasn't enough.

"What was missing was that I wasn't making a contribution to life on earth," he says. "Studying moon rocks doesn't help us survive the next 20 years."

So, he began to tinker with the engineering necessary to make the Cricket work.

Along the way — at a party in Eugene, to be specific — he ran into Bob Block, a graduate student working in the solar radiation lab at the University of Oregon.

Block was intrigued by Haines' ideas, and in 1983 the two formed a partnership.

The Cricket advanced slowly. Block lived off school loans and took various jobs when he could. "It's been a kind of meager existence," he says, his eyes drifting far off.

To make the business end work, Block eased back on his scientific pursuits and began work on a master's degree in business administration.

By late 1985, Sage was ready to sell its patents to the highest bidder. But by late 1985, federal tax credits for solar heaters were just about dead.

So were most manufacturers in the business.

Doug Boleyn, a marketing supervisor with Portland General Electric Co., remembers how bad the market got for solar companies. PGE gave its own rebates to people with approved solar systems, so most solar companies registered with the utility.

In the early '80s, 200 companies were registered in the Portland area. By 1985, there were five, Boleyn says.

Early systems cost up to $8,000. There also were mechanical problems with solar systems.

Block figures the Cricket cost $300,000 for research and development. That's a lot for a grad student and a scientist, even if much of the figure is sweat equity.

It was a dismal time for the industry and for Haines and Block.

"Remember the World War II tank commander in Africa whose company was surrounded?" Block says. "This tank commander told his troops, 'For the first time, we can attack in all directions.' That's what got us off the starting blocks."

Haines, Block and Tom Scott — an old hand at selling solar systems in Eugene — pooled their resources and came up with $10,000. It was enough.

They incorporated, leased a building, wrote a business plan and hired an attorney to draft the documents necessary for a private stock placement.

The stock offering raised $70,000, and Sage Advance (a wise step forward) was rolling. Through subsequent offerings, the company has raised a total of $217,000.

More than 100 Crickets have been sold and tested over the past two years.

To break even, Block says Sage must sell 32 Crickets every month. There already are 30 orders for August and 40 for September.

PGE is installing 10 Crickets on the homes of employees to begin a yearlong test of savings. If the tests work out, Sage Advance will have one more glowing testimonial and perhaps a lot more orders.

Marketing Director Scott is still flush from the excitement at the Oregon Country Fair, where he was a staff member working the energy booths. He has his sales pitch down solid.

The cost is $1,880, he says. Oregon tax credits knock that down by $1,142 in this area. But forget the tax credit, he says, pulling you into the web of his argument.

The Cricket saves $200 per year — a figure that may be high, but then he points out the benefits of being gentle to the environment.

Say you instead spent $2,000 on a certificate of deposit. And just to keep the arithmetic pretty, say you earn a generous 10 percent interest. That's also $200 per year.

But from the certificate, you have to subtract taxes (maybe a third of your interest, state and federal, or $66). And you have to figure on the damage inflation did to the $2,000 (about 5 percent, or another $100).

By Scott's calculations, the $2,000 certificate is worth less than $40 per year as an investment. But the Cricket saves $100 to $200 a year, more if energy costs rise.

And Haines isn't worried, even if the money doesn't flow in.

"My income has dropped by a factor of three since I left the Jet Propulsion Lab," he says. "Debts have piled up, and I've never been happier in my life."

THE

Copper Cricket

Geyser Pumped Solar Collector

The Copper Cricket uses a solar roof panel to boil a mixture of water and alcohol. Air is removed from the system to create a vacuum and enable boiling to begin at 60 degrees Fahrenheit. The boiling vapor pushes hot water up the panel and into a header, where gravity pulls it down to the hot-water tank. Heat is transfered to the potable water in the tank. The downward pressure is enough to force cool water back to the roof where it is reheated.