CONTRA COSTA TIMES

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THE MONDAY PROFILE

His stance on ethanol sets Cal professor apart

By Judy Silber
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It began benignly enough as an assignment for the 15 freshmen in Tad Patzek's UC Berkeley college seminar class. But it soon mushroomed into something much larger.

Patzek found himself in the national spotlight as his scientific paper published in June touched raw nerves throughout the nation's energy and farm industries. Gas prices were climbing higher; Congress was in the midst of drafting an energy policy; and the article criticized one possible solution -- making ethanol fuel from corn.

Hundreds of newspapers wrote about the publication. E-mails flooded Patzek's in-box. People yelled at him over the phone. He was invited to the National Press Club in Washington to debate the issue and to Chicago to speak to investors.

Patzek and David Pimentel, a Cornell scientist who had been a lone public voice against corn ethanol for more than 30 years, argued that corn ethanol did the environment more harm than good. Growing corn, fertilizing the fields, transporting it to the factories and then out to where it was needed took more energy than the resulting ethanol would ultimately generate, they said.

Detractors, including corn growers, federal government researchers and other academics, took offense at Patzek's stance. They saw ethanol as an environment-friendly way of reducing the nation's dependence on foreign fossil fuels.

Opponents pointed to Patzek's oil industry days, saying he had ulterior motives. They said he and Pimentel knew nothing about agriculture and had relied on irrelevant data. They even criticized the premise of Patzek's arguments, which were based on the first and second laws of thermodynamics.

Patzek, 52, took the criticisms in stride. He is a mostly good-humored man who possesses an unflappable, but not pretentious, confidence in his intellect. And having grown up in post-World War II Poland under the Communist regime, he already knew well the role of rebel.

Patzek's rebellious roots extend at least as far back as his grandfather, a Polish officer during World War II who spent five years in a German concentration camp. To stave off the boredom and despair that permeated the camp, Patzek's grandfather, a physicist, taught physics to anyone who would listen, and organized a theater.

In postwar Poland, Patzek's father also rebelled. He joined a student militia group when the Russian army liberated the town of Gliwice where he was studying at the university. When he fired on Russian soldiers threatening some women, he was expelled, although later allowed to return. He also refused to join the Communist party, though the choice meant he could not teach despite a doctorate in chemical engineering.

As a young boy, his father continually quizzed Patzek, giving him hypothetical situations, then asking him to decide between right and wrong.

In high school, Patzek took his education into his own hands. He liked learning on his own better than at school and began staying home three of six days to study. When his teachers got wind of his program, they agreed to it, but only if he met higher standards than the other students.

Patzek rebelled against Communism in high school and college. His views were so well-known that like his father he was forbidden to teach at Silesian Technical University after graduating with a master's degree. Communist officials told him he would "deprive the Polish youth of their innocence."

While a graduate student at the Polish Academy of Sciences, Patzek, then 26, helped organize the first Solidarity chapter at the chemical engineering center -- before it was legal to do so.

If the foundation of his defiance was laid in Poland, so too was a fierce loyalty to the environment. His family's house lay

on the edge of fields and forest that stretched as far as the eye could see. Returning for a visit to Poland in 1991 after 10 years in the United States, he saw the destruction wrought by industrialization. Large homes had replaced the fields. Gone were the swamp, creeks, frogs and storks.

"It was affirmation of what I already knew," he said. "That we humans do a lot of bad things to the environment."

Patzek's life is nearly consumed by his work. "He is a workaholic, that's for sure," said his wife of 25 years, Joanna.

When not at work, he's often reading, late at night and during meals. He even reads while they watch a movie, though that doesn't stop him from commenting, she said. Typical books have titles such as "Carbon-Nitrogen-Sulfur, the Environmental Science of Dirty Water," "The Solar Fraud: Why Solar Energy Won't Run the World" and the three-part volume of "A History of Common Human Delusions."

At parties and at the dinner table, he's always teaching or prompting discussions around "what we should and shouldn't do," Joanna Patzek said. Current topics include saving water with shorter showers, dangerous chemicals in cosmetics and, of course, ethanol.

In his personal life, Patzek thinks somewhat obsessively about how to be a good citizen to the environment. During the summer, he rides his bike a few times a week to UC Berkeley from the Oakland hills. He drives his Nissan Altima, which gets 34 miles per gallon, only about 8,000 miles a year. Walks on the beach were never just that; he, his wife and their three grown children are always armed with bags to pick up trash. Insulating his house is an ongoing project, and he plans to try solar panels on the roof.

But until he joined the corn ethanol debate, Patzek's professional work didn't touch directly on environmental concerns. Instead, he focused on energy, working for seven years at Shell Development Co. His contribution to society was to help provide the fossil fuels it needed, he told himself.

By the time he left Shell, his philosophical views had changed. "I realized that society will never have enough energy," Patzek said. "We are incurable addicts. Our national policy is to satisfy the addict."

As a professor at UC Berkeley, he continued research that looked at how to efficiently extract fossil fuels. But he was bothered by the increasing environmental damage done as the oil fields became depleted. He began thinking about how he as a scientist could take a bigger, more relevant and more holistic approach to society's problems.

The ethanol corn debate may have thrust him into just that. What started almost as a whim after reading a book by Pimentel has become much larger. Patzek is now planning a center at UC Berkeley to take a careful look at all energy sources, including fossil fuels, biofuels like ethanol, solar and nuclear. He wants scientists to devise a common framework for evaluating the advantages and disadvantages of each. Such a forum is necessary to inform U.S. policy, he said.

Patzek's opponents on the other side of the corn ethanol discussion have similar concerns about the diminishing supply of fossil fuels.

But to hear them debate one can't help but wonder whether either hears anything the other says. Each accuses the other of misrepresenting, misusing and excluding data, as well as not understanding the full scope of the problem. And while supporters argue corn ethanol can be part of the energy solution, Patzek argues vehemently that it cannot.

"However you look at it, this is a rather inefficient way of concentrating solar energy into fuel," he said. It takes more energy to make ethanol than what is produced, he said.

In addition, he argues that ultimately, ethanol can contribute only a single-digit portion of the nation's fuel. Yet it causes environmental damage with pesticides and fertilizers, and co-opts land that could otherwise be dedicated to food.

There is no magic bullet to replace fossil fuels, Patzek said. He says the United States drastically needs to reduce its energy use. Fuel efficiency standards need to rise. People must commute less by living closer to work. Food should be produced locally, instead of shipped and trucked from far-away places.

Patzek's harshest critics in the corn ethanol debate say he is ignorant and arrogant.

"I think he needs to do his homework, spend some time actually learning things before he talks about them," said Bruce Dale, a professor of chemical engineering and materials science at Michigan State University.

Friendlier opponents, like Rick Tolman, CEO of the National Corn Growers Association, say Patzek has no practical knowledge of farms or a typical ethanol production plant. Nonetheless, Patzek earned Tolman's respect at the National Press Club debate when he remained composed and friendly even when eight people consecutively stood up to shoot his logic down.

Then there are those who say they want to continue the conversation.

"Patzek's point is the same as ours," said John Sheehan, a senior engineer at the National Renewable Energy Laboratory in Colorado. "The size of the energy problem is huge."

For the sake of the country, the differences between the two sides should be worked out, Sheehan said.

"It has to be worked out," he said. "Because this country has to make rational choices."

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ONLINE

Hear excerpts of the interview with Tad Patzek at www.contracostatimes.com.

Name: Tad Patzek

Age: 52

Education: Ph.D. in chemical engineering from Silesian Technical University in Poland

Occupation: UC Berkeley professor of chemical engineering

Residence: Oakland

Claim to fame: One of two public dissenters in the debate around corn ethanol fuel production