Terry Woychowski

We can do *something*.

Certain problems can seem overwhelming—so large they often feel as though any personal effort would make no difference at all. But that's not true, says Terry Woychowski, vice president, global vehicle program management at General Motors. We may not be able to solve the entire problem, but we can do something.

Last spring, at Woychowski's urging, Michigan Tech joined hands with GM and the Engineering Society of Detroit to offer a one-semester course in advanced propulsion technology. The goal: to enable displaced engineers from all three Detroit automakers and the supplier base to meet the growing demand for workers skilled in green automotive technologies. Students learned the fundamentals of controlling and calibrating hybrid vehicle powertrains to meet fuel economy and emissions targets. Michigan Tech provided full scholarships for all sixty students to cover the cost of tuition and fees.

The course will be offered again this fall to an additional 100 engineers backed by federal funds through the Michigan Department of Energy, Labor and Economic Growth and the Michigan Academy for Green Mobility.

"People who can create these advanced propulsion systems and calibrate them are rare and will be in great demand," adds Woychowski, a mechanical engineering alumnus of Michigan Tech. The course includes online lectures by Michigan Tech faculty and hands-on labs at the GM Milford Proving Ground and Pontiac Powertrain Headquarters run by volunteer GM engineers, including some recent retirees.

Further demonstrating his ability to overcome hurdles, Woychowski recently put the resources of his family foundation behind a Michigan Tech student Senior Design project to make a grain mill that can withstand the challenges of African village life.

Traditionally, African farmers have had two choices: hauling grain to the local mill and paying to have it ground into flour, or grinding it themselves by hand with a mortar and pestle.

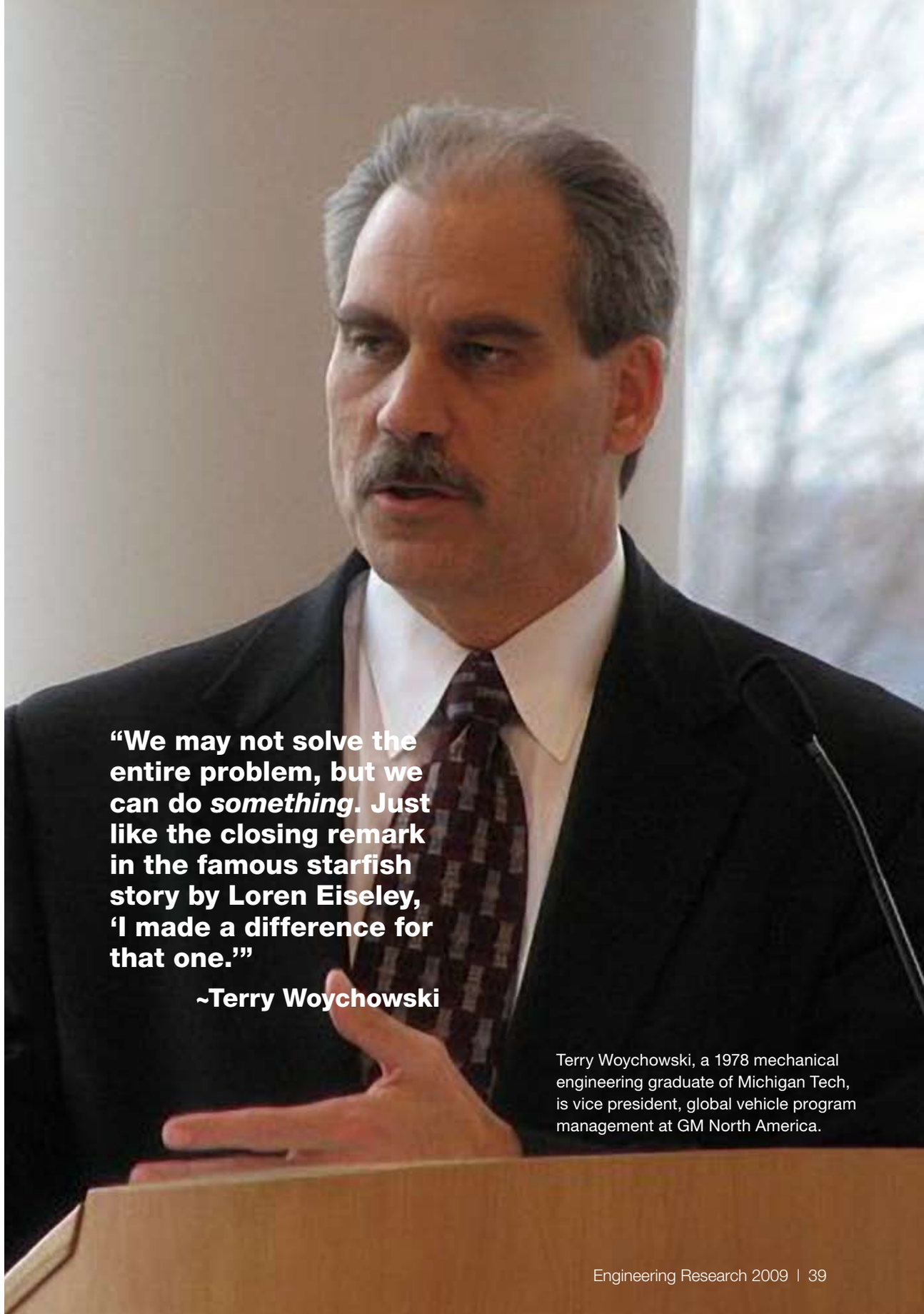
Ten-year-old Solomoni Mafuta, of the village of Sentani in the Republic of Malawi, hauls his family's maize on foot for ten miles (one way) to a diesel-powered mill to be ground. The time-consuming task has pulled him away from his studies and to the verge of flunking out of school.

Woychowski has a special interest in advanced propulsion systems, which are notable for their complexity. But when he offered to underwrite the effort to build a grain mill that would work in Africa, he stipulated that it had to be low tech: simple, cheap and made with materials available locally. Students were forced to think differently about design. Every dollar, not just every hundred dollars, counted.

In the end, they built a mill with Solomoni in mind. Powered by an old bicycle, a ten-year-old boy could hop on and grind his family's maize just by pumping the pedals. It produces a fine flour, which is cooked in boiling water. The end result is *nshima,* a staple dish in Malawi and many sub-Saharan countries that is similar in consistency to mashed potatoes.

Jamie Woychowski, Terry's daughter and executive director of the Woychowski Charitable Foundation, traveled to Zambia to transfer the design plans and spearhead the manufacturing of the first five mills. "Our design will be improved upon by the inhabitants of this region," Michigan Tech student Nathan Fetting predicted, since they know the local materials and how best to use them. If the effort is successful, many more will be built, in partnership with the World Hope International Foundation.

The biggest change will come about if Africans themselves incorporate the mills into their local economies. "The real win would be if someone starts a microbusiness to manufacture these," said Woychowski. "Then the people who make them could earn enough to buy one."



"We may not solve the entire problem, but we can do *something*. Just like the closing remark in the famous starfish story by Loren Eiseley, 'I made a difference for that one.'"

~Terry Woychowski

Terry Woychowski, a 1978 mechanical engineering graduate of Michigan Tech, is vice president, global vehicle program management at GM North America.