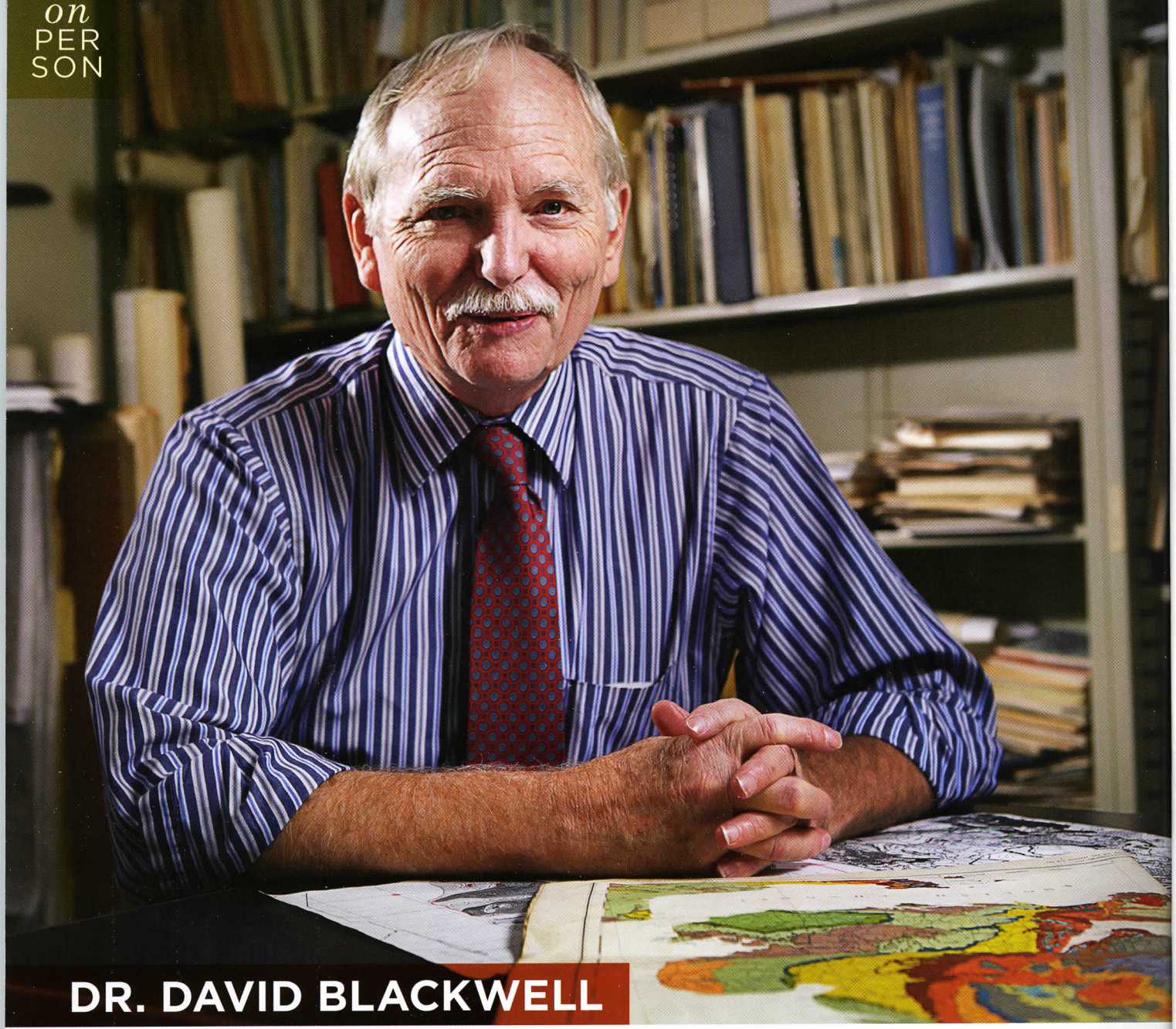

DR. DAVID BLACKWELL

by JACKIE KENNEDY | *photo by* NATHAN WHITNEY

DAVID BLACKWELL, PH.D. and W.B. Hamilton professor of geophysics at Southern Methodist University was into geothermal energy long before it was considered cool.

Now, as advocates for green power tout the positives of geothermal energy, Blackwell looks back on a 41-year career in geothermal studies—and looks ahead to increased applications of this science he has studied for so long.

"Geothermal is probably the most effective green energy available," says Dr. Blackwell. "Its base load, like the wind and sun, can be used 24 hours a day, 7 days a week, and it's generally more available on a much larger scale than solar or wind because availability is everywhere if you drill deep enough, whereas wind and solar are area-dependent."

Currently, about 3,000 megawatts of electricity are produced via geothermal energy in the United States, all in western states. While projects are being developed in North Dakota, Mississippi and Louisiana, none are currently underway in Texas. The largest producers of geothermal energy are Nevada and California; in California, five percent of all energy produced is from geothermal, 2,000 of 50,000 megawatts, according to Dr. Blackwell.

"The potential market for geothermal in Texas is even larger than in California," he says. "Texas could become as important for geothermal as it is for wind power."

In fact, he says, the geothermal capacity in Texas could easily produce up to 10,000 megawatts of electric power. During the oil embargo that started in the mid-'70s, a one-megawatt geothermal power plant operated in Houston for six months, according to Blackwell. "Texas has generated geothermal energy," he says, "just not for long."

Conducting geothermal research at SMU for more than four decades, Blackwell has watched interest in the science ebb and flow, from the 1970s

when the energy crisis caused great interest in alternative power to the '90s when lack of interest put research on the back burner to the current decade with concerns of global warming bringing geothermal research back in great demand.

A native of Arkansas, Blackwell grew up in Dallas, graduated from Woodrow Wilson High School and Southern Methodist University, earned his Ph.D. at Harvard, put in a year at Cal Tech, and then returned to SMU as a professor. At SMU, he teaches geophysics, geothermal studies, plate tectonics and regional geology. When not in the classroom, he enjoys all things outdoors including fishing, camping and hiking. His two sons, two grandchildren and two great-grandchildren all live in the Dallas area.

"I was always interested in geology and it just so happened that some of my early work involved geothermal energy even before it was called geothermal energy," he says. Back then, the study was referred to as "earth temperature."

"A lot of people believe geothermal is the one renewable that can make a big impact countrywide," says Blackwell. "We hope we can facilitate the widespread application of geothermal, but there's still a lot of work to be done."

While conventional geothermal energy production calls for drilling at locations where hot water or steam is near the surface and converting the water and steam into power, Blackwell and SMU took part in a 2006 report on the "Future of Geothermal Energy" (sponsored by the U.S. Department of Energy) that focused on nonconventional geothermal energy.

"Nonconventional is going where there's not actively moving hot water but water underground that's hot enough to generate power—and then developing a technique for heat mining," says Blackwell. The formal name for this nonconventional method: enhanced geothermal systems.

Yet another technology has been developed to utilize lower water temperatures. "There are a lot of wells in gas producing areas such as Texas that reach 400 degrees Fahrenheit," says Blackwell. "These wells can potentially be used to produce geothermal power."

The scientist/professor works with the Texas Energy Office to research applications of geothermal energy in the state. In addition, his and other Texas agencies have applied for grants created from Federal stimulus monies administered through the Department of Energy. SMU recently joined the Semens Corporation and Texas Tech University in submitting a $5 million proposal to create a geothermal database to further the development of geothermal in Texas.

"We certainly hope that Texas projects get funding," he says. "If the grants come through, we could see geothermal produced on a small scale within a year." East Texas and northern Louisiana are among the most attractive sites for geothermal energy development in the area, he adds.

Blackwell has been active in collecting nationwide data to create geothermal resource mapping of the United States. "We'll ultimately do a detailed map of all temperature at depth," he says. "This mapping could be used by any state to further their programs."

A preliminary version of the map is available at google.org/egs.