



FOR the RBES 5000

USA Today reported late last year that **Len Forbes** (Engineering Physics '62) was 10th on a list of the top utility patent-holders in the United States. The announcement took the Oregon State University professor by surprise—though, in truth, it shouldn't have. **BY DEBBY WALDMAN**

By his own estimate, Forbes has (or shares) about 500 patents, all held by companies for which he's done contract work during his 40-year career. Most are held by Micron Technology, an Idaho semiconductor memory manufacturer. Forbes has consulted for the company since 1996.

Micron was a new company then, looking for people with experience in semiconductors. By that time, Forbes had spent years working with some of the best people in the industry, something that might not have happened had it not been for the U of A.

"I was very fortunate," he recalls.

"There were a couple of guys who had gone to the University of Illinois and had come back and were professors at the U of A in 1961. That's where I learned about the University of Illinois."

Forbes spent a year in Illinois earning his Master's degree before leaving to serve in the Canadian Air Force for three years. In 1966, he returned to Illinois to earn his PhD.

There were about a dozen students in the lab where Forbes worked, all given the freedom to study various aspects of semiconductors. About a year-and-a-half into the PhD program, Forbes discovered a technique for characterizing impurities in semiconductors. The technique involved applying a stimulus to a diode and observing the time-dependent response of the subsequent electrical signal. The length of the response indicated a particular impurity.

And so, instead of sticking with his original dissertation topic, equivalent circuit simulation, Forbes focused on gold doping in silicon, a process to introduce gold into the semiconductor silicon to control the lifetime of electrons in the material. It was his first patent-worthy work, and it would have lasting implications on science.

"We were fairly young and we weren't being too careful about who we told about it," he recalls.

"Some other people picked it up and ran with it, and ran way ahead of us and made a significant refinement."

Those other researchers were at AT&T Bell Labs. They had the experience and resources to make a difference. They also had the sense of responsibility to credit the original sources, something for which Forbes is still grateful.

