THE ENTREPRENEURIAL SPIRIT

FOURTH IN A SERIES

First Alert!

By Michael Shanley

Fire detectors make homes twice as safe as unprotected dwellings from fire deaths, thanks largely to the inventive good fortunes of Duane Pearsall, a key advocate of WPI's Fire Protection Engineering Program.

In 1984, structure fires in the United States numbered 848,000, down from 1,065,000 in 1980, and 869,000 in 1983, according to the National Fire Protection Association (NFPA). Considering the fact that these figures reflect only those fires in homes, factories, offices, and other structures to which firefighters were called, the improvement is substantial. How many more "close calls" go unreported is anyone's guess.

One reason for the decline, experts observe, is the widening use of fire detectors, especially in dwellings. In fact, in 1985 a Louis Harris poll found that 74 percent of U.S. households have at least one detector, and many have more.

Fire detectors are proven life- and property-savers. According to a U.S. Fire Association study, people who have home fires and lack detectors are twice as likely to die from the fire as are people who are protected by the devices. And early warning often enables residents to douse flames without the help of firefighters.

But it wasn't until the late 1960s that home fire detection overcame the hurdles that had stymied widespread use for 40 years: technology, cost, and visibility.

Much of the credit for developing the technology for an effective, low-cost residential fire detector rests with Duane Pearsall, a member of WPI's Firesafety Board of Advisors, who is considered the father of the home smoke detector. And like many inventions, his was born of brilliance—and no small supply of luck.

"Actually, we were trying to develop a device to control static in photographic darkrooms when an odd thing happened," says Pearsall, 63, from his office in one of the many new buildings that have sprouted on the plains south of Denver. "We accidentally discovered that the instrument was very sensitive to smoke. Every time someone smoked near it, the meter would react."

When Pearsall mentioned this to a representative from the Honeywell Corp., makers of firesafety systems, he was told to forget about static control and focus on smoke detection.

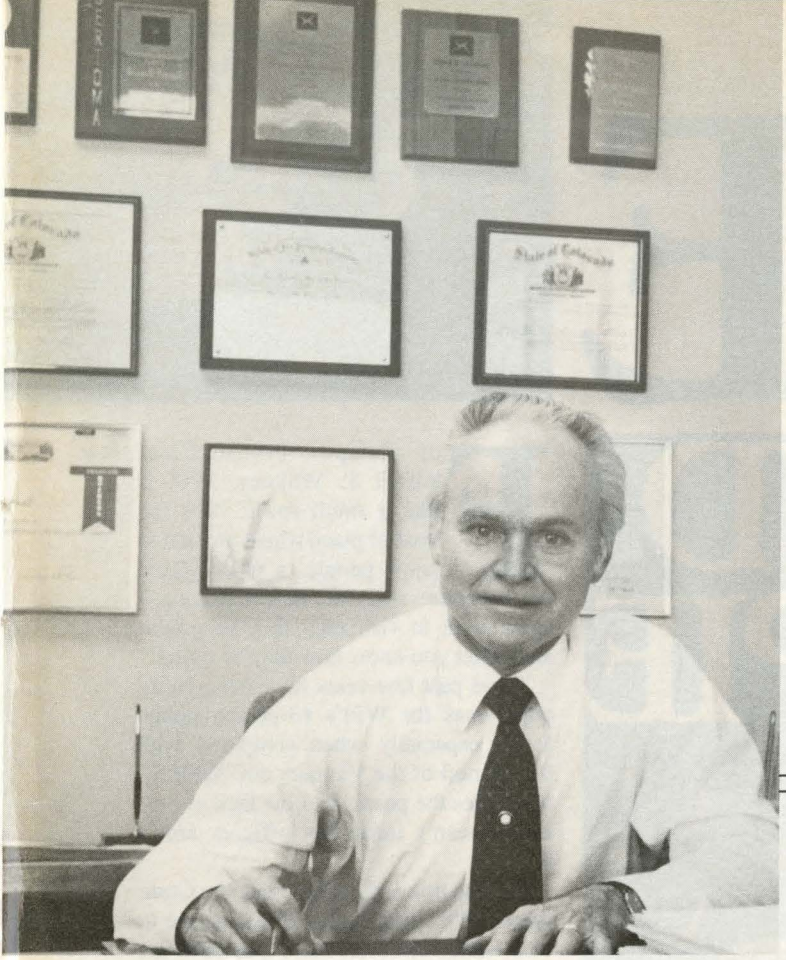
Soon thereafter, in 1966, Honeywell offered Pearsall's company, Statitrol, a contract to develop 15,000 detectors. The detectors were intended for commercial use, as supplements to sprinkler systems.

After the Honeywell contract was completed in 1970, Pearsall and Lyman Blackwell, a local inventor, came up with an idea that would make smoke detectors available to every homeowner. They planned a device that would eliminate the two problems thwarting previous attempts to develop an inexpensive, practical detector: false alarms and "the battery problem."

Statitrol's new ionization-type model took care of the first problem—it was sensitive, reliable, and not prone to false alarms. The second problem—the danger of dead batteries leaving the alarm powerless in an emergency—was solved by Blackwell's new mechanism that sounded a warning when the batteries were low.

These developments turned out to be key in lowering the cost of home fire detection, and the new detector made widespread acceptance of the technology by homeowners and builders alike a reality.

As late as 1972, complete detector protection may have added $700 to $1,200 to the cost of a new home, partly because an NFPA standard dictated not only smoke detectors outside all sleeping areas but also heat detectors in all other rooms. So to



Duane Pearsall in his Denver office: "Discovery of the technology that led to the home fire detector was almost an accident."

protect your home and family with in-home detectors would have run about the same as today's estimated cost for complete home sprinkler protection. Pearsall's work changed all that. Tests found that the power of the new smoke detectors made additional heat detectors unnecessary.

The next major step was to gain widespread acceptance, which meant getting the detector incorporated into the model building code. This took some time. "We had to educate people about the importance of an early warning system," says Pearsall. "That's the value of the detector. It doesn't put out fires—it saves lives."

But public service television announcements promoting the new technology did little at first to broadcast the word, coming as they usually did in the wee hours of the morning. Detector installations reflected Nielson ratings: until 1974, the number of homeowners installing the devices hovered around the 10 percent mark nationally.

Yet Pearsall continued to lobby tirelessly for the detector. Still, not until American manufacturers recognized the potential market for the new technologies did they begin to advertise aggressively, buying prime-time pitches by celebrities such as William Conrad and Danny Thomas.

These initiatives, together with competitive pricing, packaging, and in-store promotion turned the tide. Detector levels of 1975 were double those for 1974, and 1975 sales were tripled a year later. By 1977, only 12 percent of respondents to a national survey did not know that fire detectors were available for home use. Nearly twice this number had already installed them.

"Even with 1,000 employees working in two plants, we couldn't keep up with the demand," says Pearsall. And other companies were trying to pick up the slack. When Pearsall sold Statitrol to Emerson Electric in 1977, there were 54 companies in the smoke detector business.

In 1983, 37 states had at least some smoke detector requirements for dwellings and apartments, compared with only 19 in 1977. Moreover, 16 states had made the installation of the device Pearsall had pioneered mandatory in residential construction and called for retrofitting existing dwellings in some situations. The trend shows no signs of reversing itself.

It was in 1980, while he was in Boston to receive the Fire Protection Man of the Year Award from the National Society of Fire Protection Engineers, that Pearsall heard about WPI. "Dave Lucht, director of the FPE Program, told me about the Institute's new undertaking."

Pearsall, no longer in the business but still interested in the progress of firesafety in America, made a proposal: he would match any gifts to the program, up to $10,000 a year for five years.

"I looked at it as giving something back to an industry that gave me the opportunity to be successful," says Pearsall, referring to the fire protection community's support for the home smoke detector.

Since 1978, Pearsall has been an advocate for small businesses. He was named national Small Business Person of the Year in 1976 and has testified a number of times before House and Senate subcommittees.

He is currently one of four general partners in Columbine Venture Fund, Ltd., one of the largest venture capital companies in the Rocky Mountains—and is still putting out fires, no doubt.

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