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"We will need non-gasoline fuels in the future," said Dr. Roberta Nichols, one of the earliest members of the Aerospace Corporation (badge no. 590), and one of the first Aerospace "Women of the Year."

Dr. Nichols spoke on re-

search contributions to alternative fuel use during the final event of the Tenth Annual Women's Week. As principal research engineer at the Scientific Research Laboratory, Ford Motor Company, she combines a passionate interest in race-car driving with her professional career—designing cars that run on alter-



Dr. Nichols

Methanol— fueled for the future

native fuels.

"The consensus in the industry is that methanol will be the replacement for hydrocarbon fuels," continued Dr. Nichols. "It's a difficult transition, and probably won't happen until the year 2000, but we're working on it now."

In addition to methanol, Dr. Nichols' team has studied ethanol, methane, propane and hydrogen gas as alternative fuels. They adapted standard assembly-line cars, installing new engines, tanks and fuel lines that were compatible with the alternative fuels. Then they evaluated effects on performance, mileage and emissions.

"Using alternative fuels also has the potential for helping air quality," said Dr. Nichols. "It's easier to meet emission standards with alcohol fuels, which gives you the opportunity to design for higher performance and fuel efficiency."

Safety is not a problem for methanol-fueled vehicles, she said. "The evidence indicates that methanol is at least as safe as gasoline, and some of the chemical properties suggest that it's safer."

What is the outlook between now and the year 2000? "We're developing a flexible fuel vehicle that can operate on methanol, gasoline, or any blend of the two," Dr. Nichols continued. "As the fuel varies, a computer analyzes the mixture and adjusts the fuel-flow rate and spark timing accordingly."

"The advantage is that you can operate on methanol in town, where the fuel is availa-

ble, and where there's a need to keep emissions down, but when you're on long trips in the country, you can use gasoline."

"It's a good transition vehicle. The number of methanol refueling stations can grow as the number of these vehicles increases."