A peep into the automated future

by Paul Mickle / The Trentonian

Without any fanfare, the world's first working robot joined the assembly line at the General Motors plant in Ewing Township in the spring of 1961. It was nothing like the metallic humanoid robots seen in movies and on television in those days in America and Japan.

It was an automated die-casting mold that dropped red-hot door handles and other such car parts into pools of cooling liquid on a line that moved them along to workers for trimming and buffing. Its most distinct feature was a grip on a steel armature that eliminated the need for a man to touch car parts just made from molten steel.

GM executives didn't publicize it at the time because, as the creator of the Unimate die-caster said last week, it was an experimental technology and they were afraid it wouldn't work out.

But someday in the next millennium, when automated figures like those seen in the "Star Wars" movies of today are commonplace, the historians will look back on GM's Ternstedt Division plant on Parkway Avenue in suburban Trenton as the Eden of robots.

Still, much to the chagrin of the developer of the Ternstedt die-caster, "Father of Robotics" Joseph F. Engelberger, the Japanese may be viewed as the people who seized the concept from industrial America and took robotics to the next level of development.

Why and how is a story that sheds some light on Japan's status today as the world's top auto maker, as well as the reason GM's plant closed forever last summer after 60 years.

It's a story of America's fascination with robots as entertainment and the Japanese flair for the practical, Engelberger said.

Robotics had been made possible by the advances in electronic and mechanical technologies made during World War II, Engelberger said, and by the 1960s both the American and Japanese societies were poised and ready for automation on a large scale.

People in Greater Trenton certainly knew it was coming: In a monthly magazine produced by Trenton's Chamber of Commerce, for instance, there was an article on a city telephone answering service showing a long row of operators seated at a giant switchboard and a New Jersey Bell advertisement showing a single secretary handling 30 lines on a phone smaller than a bread box.

"There was very little opposition to robotics from American labor," Engelberger recalled by telephone from his current business, HelpMate Robotics Inc., in Danbury, Conn. "It helped with working people that the first robots were put to work doing hot, hazardous and dull labor."

When Engelberger and his Unimation Inc. brought the Unimate die-caster into Ternstedt's Ewing plant, 3,000 men and women were under employment and few of them wanted to operate the dangerous old equipment for molding door handles and the like.

The Ternstedt die-caster worked nearly around the clock side by side with the huge labor force for more than 10 years and is now on display in the industrial history of the Smithsonian Institution in Washington.

The success of Unimate had put it and, later, robot welders and riveters in auto plants around the world, including Japan. Engelberger's company grew so much in those years that, by 1983, he would be able to sell it for $107 million.

But in the early years of marketing his first industrial robots, Engelberger couldn't understand why the Japanese seemed more enthusiastic about the technology.

"I had a hard time with American industrialist," Engelberger said. He told the story of his appearance with the first real robot in a humanoid form -- named PUMA -- on "The Tonight Show" with Johnny Carson a few years after his Unimate debuted in Trenton.

"The robot did a beer commercial and the people loved it. It took over the whole show," said Engelberger. "But after that, the

only calls I got were from people who wanted my robot to be the entertainment at the county fair."

A trade group invited him to Japan soon after, however, and Engelberger said "they put 500 industrial executives in the room and all of them were more interested in more practical applications for robotics.

"The Japanese caught on right away. That's why robotics is a $7 billion industry and it's dominated by Japan," said Engelberger.

Movies featuring robots in the 1950s, popular both in the U.S. and Japan, whet the American appetite for more entertainment, but sparked an industrial revolution across the Pacific.

Westinghouse paid Engelberger the $107 million for his Unimation Inc. in '83, "and they mucked it up," Engelberger said. The industrial giant eventually sold off Unimation to a French company that is doing well with it now, he said.

"In Japan and other countries, there's not the same fixation on quick return on investments like there is in America now," lamented Engelberger.

The Unimate he installed in Ewing in 1961 took a few years to turn a profit, he added, and nobody at GM complained.

"But America isn't like that anymore," he said.

Today, at age 73, Engelberger is marketing a robot that looks a bit like R2-D2 from "Star Wars." It's rolling around in 70 hospitals, delivering medicine and messages to patients and nursing stations.

HelpMate is also at work on a more humanoid, two-armed robot like C-3PO of "Star Wars," which is designed to help people in need of nursing care to remain in their homes.

As for his first robot, the Ternstedt Unimate, Engelberger said he was sure he could get it up and running again if the Smithsonian would let it out of the museum.