Developments were swift. Efficient loading and unloading was enabled by the growing popularit of full-trailers from 1915, and semi-trailers from 1920. In 1917 both pneumatic tires and tandem axle suspenders were introduced, improving comfort and load capacity. Safety was greatly enhanced when power brakes were developed during the 1920s. And in 1935, the first cab-ovei truck was built, cutting the tractor's length and allowing greater payloads.

However, the industry was still chaotic and unregulated, until the American Trucking Associatioi were formed in the 1930s, establishing minimum wages and maximum labor hours. After World War II, the interstate highways improved on an already efficient road system, and the trucking industry, long since integral to trade, became absolutely vital.

The pond behind the shed

Like every progressive company, Dana had its new-product disasters. Launched with a big splash, these seemingly brilliant ideas just didn't float, and were finally thrown away out of sight, rusting in the pond behind the shed.

Dana's effort to expand into consumer products was a simple concept -- Dana was already manufacturing a significant proportion of the containers, golf carts and boat trailers that were being sold under other company names. All Dana needed to do was put its name on its product: and sell directly to the consumer. What could go wrong?

Plenty.

First, Dana went in so whole-heartedly that their products were over-engineered. Secondly, consumer products required sophisticated marketing and distribution skills, which Dana lacked. Finally, Dana's customers protested that if Dana became a competitor, they would no longer bu' their supplies from it. Chastened, Dana returned to the business it knew best.

Navistar

Navistar (formerly International Harvester) was established in 1901 as a conglomeration of agricultural equipment companies. In 1907, Navistar expanded into truck production with the "Auto-Wagon," and in November 1914, Navistar submitted its first order for Spicer Universal Joints.

A Fort Wayne plant was opened in 1923 for the production of heavy duty trucks, and an Indianapolis plant was erected a few years later for the production of truck engines. In 1928, it began to produce a 4-cylinder heavy truck, and by 1937 it was the top medium and heavy truck producer in the United States. In 1986, International Harvester renamed itself Navistar. And in 1989, working closely with Dana, Navistar developed a 9-speed heavy truck transmission.

3rd vignette

The multinational company

Dana legend has it that once, when Winston Churchill was touring America, raising funds for wa bonds, he met Charles Dana while staying at the Toledo Club. The story goes that the two leade met and stayed up all night, arguing passionately about the future of Great Britain, which Charle Dana believed was fated to an irreversible political and economic demise.

In 1954 Dana ended thirty years of direct transatlantic association by selling his shares of the British company Hardy Spicer. Ironically, when America had been isolationist, Dana had expanded overseas; and now that America was expanding overseas, Dana decided to retrench.

The decision proved ill-timed.

In 1950, the United States produced some 80 percent of the world's trucks, cars and buses. Ove