

## **Albert Mroz about Nash-Quads and Jeffrey**

### **Albert Mroz. "American Military Vehicles of World War I"**

Wisconsin has been called the "badger state," and the Badger Four Wheel Drive Auto Company of Clintonville, Wisconsin, revolutionized motor vehicle design one century ago. (The Badger name had been dropped in 1911 and the company became known as FWD.)

FWD trucks of World War I, along with Nash Quads, made a very significant impact transporting soldiers and materiel in a widespread theater of war at a time when there were very few paved roads and four-wheel drive was essential to slog through mud and snow across Europe.

Four-wheel-drive trucks had been built before those manufactured by FWD, but aside from the Jeffery Quad (Nash Quad, per subsequent purchase), earlier designs were very crude, inefficient and flimsy.

The patent in 1901 for four-wheel drive by Gustave Hoffman in England was not viable, nor were a number of other patented designs, primarily due to engineering deficiencies regarding chain drive, durability, torque transfer and other mechanical disorders.

It was Ottow Zachow with his brother-in-law, William Besserlich, who finally got it right. They owned a machine shop in Clintonville that had been started in 1891.

The patents they filed in 1907 and that were granted the following year proved to be truly functional, and their two-man shop would become one of the great success stories in American ingenuity and productivity.

After Pancho Villa crossed the border and attacked Columbus, New Mexico, on March 9, 1916, the Quartermaster Corps ordered 147 FWD trucks. The U.S. government demanded shipment under the National Defense Act, and trucks painted gray for shipping to England, already loaded onto trains, were unloaded and repainted green as U.S. Army vehicles (although there was little greenery in New Mexico and northern Mexico in which to be camouflaged with those colors). With FWD trucks proving themselves in the pursuit of Pancho Villa (although he was never caught), another order came for a trainload of FWD 3-ton trucks to be shipped to Honolulu for the 8th Regiment of the Artillery, which became the first unit of the U.S. Army to be completely equipped with motor transport.

Thomas Jeffery made an equally important contribution regarding military trucks used in World War I. His company had built the Rambler automobile in Kenosha, Wisconsin, and it also introduced the Jeffery Quad 4x4 truck in 1913. The company built 3,096 Quads in 1914, but that year was marred by the sudden passing of Thomas Jeffery from a heart attack. His son Charles took over and continued to lead the prosperous enterprise.

One of the first revolutionary purpose-built vehicles the Jeffery company built for the military would be Armored Car No. 1. It has been considered by military vehicle historians to be top-heavy and clumsy. It was basically a large quantity of .20-inch armor plate riveted at right angles to a square cage made of structural steel on a 4x4 Jeffery truck of 1914, probably completed in early 1915.

Despite its real shortcomings, the Jeffery armored car would be a platform from which further development continued. However, as impressive as the vehicles appeared, the issue of armor for armor's sake would be complicated by the problem of speed, maneuverability, steering, traction and visibility for the driver. Lack of good roadway, pavement or even solid ground precluded most armored cars from being at all effective in real combat situations until these problems were solved with deflection shape for lighter materials, large tires with heavy tread pattern, periscope vision and bullet-proof glass, multiple-drive axles and wheels, and other utilitarian features.