

## *“The Innovators and Creators of Deeds Barn”*

### Engineers Club Barn Gang Lunch at Carillon Park

July 27, 2010

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#### **Introduction**

I am very pleased and honored to speak today at such a wonderful occasion.

First, I would like to recognize the vision and skill of Brady Kress and his team to obtain the Barn and bring it here. Even Deeds himself gave up on this barn and built the replica here at the Park years ago. But not Brady and people of Dayton History – they got the original. And Dick Cummings and his Barn Gang are doing a wonderful job bringing it back to life. Please accept the thanks of the Engineers Club Barn Gang.

My talk today is about those great Innovators, Edward A. Deeds and Charles F. Kettering, who had the vision and skill to develop products that the world wanted. But, just as importantly, I also want to remember the Creators – the men who formed the balance of the group that became known as the Barn Gang.

Ultimately they created these products with their skill, knowledge, and drive to see the thing get done. So let this original barn also represent the skilled workers and technicians that made the Dayton area so productive and contributed directly to its prosperity over the last century.

#### **The Innovators: Deeds and Kettering**

Edward A. Deeds came to Dayton in 1898 to join the Thresher Company, a maker of electric motors. Deeds had graduated from Denison where he had studied science, specializing in electricity. A year later, he joined NCR as a factory engineer with the specific task of bringing electricity to the NCR operations.

After leaving NCR for a year to build the original Shredded Wheat factory in Niagara Falls, John Patterson brought Deeds back in 1903 with the title of Assistant General Manager. During this time, Deeds recognized that it was getting harder for people to turn the crank as cash registers grew in size and complexity. He designed a functioning motor-driven cash register but realized he did not have the expertise to make it a successful product. Deeds contacted a former professor who was now teaching at Ohio State to ask if he knew of a capable student in electrical engineering who might want to join NCR to create a new line of products. The professor promptly recommended 28-year old Charles F. Kettering who agreed to come to Dayton in 1904, thus beginning one of the most successful industrial teams in American history.

Kettering quickly proved to be more than capable as the company's first electrical inventor. He first created the O.K. Credit System that would allow a sales clerk at the cash register to verify the credit-worthiness of a customer from a remote office. Kettering then created a marketable electric cash register and then an auditing register that would send business information to another office for tabulation. His skill and enthusiasm captured the respect of those who worked for him as he generated more and more successful products.

Deeds was becoming interested in the growing automobile industry and decided to build one for himself. He acquired a kit for a car called the "Suburban 60" and obtained the help of a local mechanic to put the car together. And this begins the story of Deeds Barn as that is where they assembled that very vehicle.

This effort led Deeds to consider the notion that it might be more practical to "put something on a car" rather than compete with other car producers. In conversations with Kettering, he suggested that "there is a river of gold flowing past us – why don't we throw out a little dam and sluice some of it our way". Kettering agreed and the collaboration began. They initially focused on the ignition since this was one of the weakest systems on the cars of those days. And, of course, both men were trained in electricity and had experience in its application. So Kettering remained a full-time employee of NCR but started working nights and weekends in Deeds barn during the

early summer of 1908 to see what he could come up with. By the end of July, Kettering filed a patent for his ignition design and recruited two NCR employees, Bill Chryst and Bill Anderson, to work with him in building prototypes to prove out the design. The Barn Gang was underway.

Picture, if you will, Kettering sneaking into the barn at night, checking both directions to see if he is being observed. John Patterson, the head of NCR, had already fired Kettering numerous times for a variety of reasons, including the inability to ride a horse. Of course, Deeds would always bring him back but Kettering didn't want to give Patterson a valid reason for sending him packing.

After a year of effort, they presented a workable ignition system to Henry Leland of Cadillac who promptly surprised them with an order for 8,000 ignition sets in July 1909! They had no plant, no equipment, no production workers, and no company. The first task was to name the business. They settled on the Dayton Engineering Laboratories Company, which Bill Chryst shortened to DELCO and the name stuck. They were then able to successfully outsource production of the ignition sets and get their business underway.

After getting to know the young Daytonians, Henry Leland told them about a friend of his who had stopped to help a woman whose car had stalled. As he cranked the starter, it kicked back and broke his jaw. The man later died from an infection as a result of that accident. This led Leland to ask Kettering and Deeds if they could use electricity to start a car. Of course, they accepted the challenge. A self-starter would not only prevent such accidents but would also open up the car market to women who were unable to crank a car. They returned to the Barn to try and make the first self-starter for automobiles.

### **The Creators: The Barn Gang**

Late in the summer of 1909, Kettering resigned from NCR to devote full time to DELCO and the invention of the self-starter. He decided early on that the best approach was to create a system in which the starter motor would also drive the lights and ignition. But the trick was to come up with a motor that was light enough to go on a car and yet have

the power to start a cold engine. While Kettering had the experience of having worked on such a problem when he electrified the cash register, he still faced other challenges such as inventing a voltage regulator that could handle the variable speeds of the engine and also develop a generator for the lower voltage of the lights. He knew that he needed help.

By the fall of 1910, other men from the Inventions Department of NCR had joined Boss Kett in the barn. In addition to Anderson there was Bob Demaree, a talented draftsman along with Zerbie Bradford to assist him in turning the ideas and prototypes into prints that would allow parts to be made consistently. Harvey Phillips was an electrician who helped set up tests and do wiring. Two more electricians, Bill Mooney and John Sheets joined in along with machinists Ralph Todd and John Reece to make parts. Joining the Gang later on would be Walt Schiewetz to set up machines and run parts along with Bill Johns, John Lipes, and Albert Koffer. Ultimately, all but three of these men who made up the Barn Gang came to work at DELCO while the others stayed at NCR.

These men were the Creators, very skilled people who were driven to spend all those hours in the barn just so they could help bring Kett's ideas to life. Dayton has been blessed over the years to have many of these capable workers who are rarely, if ever, recognized for their contributions to Dayton industry. These were the people who did the tough things just because they needed to be done, often with indifferent absentee management and distant union leadership that had political agendas to carry out. They got little financial reward out of it, usually just the satisfaction of seeing the job done right.

Kettering only wanted workers who were willing to speak up and challenge him; it was reported that he and Chryst used to go at it "hammer and tongs". But they needed everyone to come up with solutions – this had never been done before. The belief at that time was that a motor for a self starter would have to be the size of the engine! While Kettering as a graduate electrical engineer, he never accepted the conventional wisdom and always worked to prove that an idea wouldn't work. Kettering used to tell the story that he was stopped years later at a professional meeting by a group of men who told

him he had violated every law of electrical engineering. He responded by saying that what the Barn Gang did was “90 % Automotive and 10% Engineering.” Much like the Wright Brothers invented the calculus of aviation, Kettering likewise developed the principles of automotive electrical systems.

It was an intense period of hard work, trials and errors, but they ultimately had the system functioning well enough to submit the patent in November of 1910 and had it running on a Cadillac in January 1911. Following extensive testing in Detroit, Deeds and Kettering received an order for 12,000 systems from Henry Leland. The size of this order caught them by surprise and they were unable to find anyone to make such a quantity. So now they had to become manufacturers and moved into a new building downtown, effectively ending the need for the barn. But from 1908 to 1911, it was the birthplace of automotive electrical equipment.

### **The Impact**

The work done in this structure had a dramatic impact on the entire Miami Valley, leading directly to an extensive General Motors operation that gave rise to many suppliers and resulted in a vibrant machine and tooling industry here in Dayton.

Edward Deeds went on to oversee the construction of the dams and levees of the Miami Conservancy District that have protected us for a century. While at Delco, he and Kettering purchased the land that became McCook Field where much of the early research in aviation was performed. Deeds later made Conservancy District land available for the creation of Wright Field, the forerunner of Wright Patterson Air Force Base.

In 1915, DELCO was sold for \$9 million to United Motors, which was later purchased by General Motors. While Kettering stayed with GM for the rest of his career, Deeds left Dayton to oversee World War I aircraft production. Deeds then spent the 1920's as a man of industry, serving on more than 100 boards of directors, organizing Pratt &

Whitney among other ventures. Later on, during the Depression, Deeds came back to rescue NCR and led it to become one of the first truly global companies by World War II.

While at General Motors, Kettering became the leading expert in automotive inventions, staying in Dayton where GM ultimately located five divisions. And, yes, these men became wealthy as a result of their innovative approach to creating useful products in this Barn. But what really sets them apart is their dedication to this community. Deeds gave much of himself to make the Conservancy District a reality; it took five years and many hours in front of citizens and in courtrooms before the dirt could fly. We need to look no further than this wonderful park to see what Dayton meant to Edward and Edith Deeds. We are mindful of the gift that Charles and Olive Kettering gave to us in the hospital that bears his name. But Kett was involved in so many other ways, including saving Winters Bank during the depression.

So as this display takes shape, let us remember the vital products that were inspired by true innovators and were then created by proud and skilled workers. And also let us remember the century of prosperity in Dayton that resulted from their efforts. Working in this small structure, The Barn Gang showed us how it is done. Let us never forget what they did, how they did it, and what it meant to Dayton.