



Heartland Science

Ohio's Legacy of Discovery & Innovation



Transportation

From the Soapbox Derby to the Jeep

Electrifying the Automobile

Charles F. Kettering and Edward Deeds in 1909 founded the Dayton Engineering Laboratories Company (Delco), which became known as the company that brought automobiles into the Age of Electricity. Kettering sold Delco to General Motors in 1916. He moved to Flint, Michigan, and became vice president of the GM Research Corporation. He worked there until retirement in 1947, acquiring the nickname "Boss Ket" as he fostered a spectacular series of automotive innovations.



Born on a farm outside Loudenville, Ohio in 1876, Kettering got a degree in electrical engineering from the Ohio State University and took his first job with National Cash Register (NCR). His inventions there included an electric motor for a cash register. Kettering left NCR in 1909 to start his own research and development firm, the Dayton Engineering Laboratories Company (Delco). Electricity had just begun to carve out a role in industry, and Kettering was convinced that electric devices could transform society. Most cars at that point used no electricity. Motorists started the car with a hand crank attached to the engine. Vehicles with headlights used oil lamps. Better storage batteries were becoming available, and enabled cars to use electric horns and headlights. Delco developed an electric ignition system for Cadillac, which became part of General Motors in 1909.



It was the first self-starter system. Delco pioneered other electrifying inventions for the automobile, and Kettering was holder or co-holder of more than 140 patents. Working with research associates, Kettering's inventions included Freon for refrigerators and air-conditioning systems, the tetraethyl lead additive that boosted the octane rating of gasoline, new lacquer finishes for cars, and improved automotive brake and automatic transmission systems.

Quotations From Boss Kettering

As Charles F. Kettering's successes multiplied, people wondered about his secrets for success. He became a much-sought-after public speaker and a philosopher of invention. Some famous quotes from The Boss:

- "An inventor fails 999 times, and if he succeeds once, he's in. He treats his failures simply as practice shots."
- "Failures are finger posts on the road to achievement."
- "It's amazing what ordinary people can do if they set out without preconceived notions."
- "Believe and act as if it were impossible to fail."

- "Keep on going, and the chances are that you will stumble on something, perhaps when you are least expecting it. I never heard of anyone ever stumbling on something sitting down."
- "The world hates change, but it is the only thing that has brought progress."
- "People are very open-minded about new things -- as long as they're exactly like the old ones."
- "The biggest job we have is to teach a newly hired employee how to fail intelligently. We have to train him to experiment over and over and to keep on trying and failing until he learns what will work."
- "An inventor is simply a person who doesn't take his education too seriously. He tries and fails maybe a 1000 times. If he succeeds once then he's in."

Find out more...

- [MIT Biography of Kettering](http://web.mit.edu/invent/iow/kettering.html)
(<http://web.mit.edu/invent/iow/kettering.html>)
- [IEEE History of Kettering](http://www.ieee.org/organizations/history_center/legacies/kettering.html)
(www.ieee.org/organizations/history_center/legacies/kettering.html)