

building the campus south of Waterloo and later expanding its focus to become Hawkeye Community College. He was involved with the school for 45 years, serving as a member of the Board of Trustees and the Hawkeye Foundation, many of those years as Board Chairman.

He was a founding board member of Junior Achievement in Waterloo, and also was on the board of the Grout Museum, Cedar Valley Hospice and other community organizations. Harold served on numerous state and national committees and advisory boards, including Iowa Work Force Development.

In recent years, Harold focused his energies on sharing the history he had witnessed. He wrote the book "The Fords in My Past" and co-authored or contributed to several books and video projects on the history of tractors and agriculture. He was called on often as a guest speaker for wide-ranging audiences, from fellow engineers and business leaders, to antique collectors and school children.

Much has been written and spoken about Harold Brock's accomplishments. He was well-recognized in the Waterloo region, state of Iowa, nationwide and internationally, receiving numerous awards and honors, including the Cyrus Hall McCormick Jerome Increase Case Gold Medal Award in 2008 and an Honorary Doctor of Science Degree from Iowa State University in 2010.

Books, internet blogs and publications about tractors, agriculture or automotive engineering are filled with references to Harold Brock, using terms like "legend" and "innovator." Folks who actually spoke with Harold recall him as "amazingly accessible" and "humble," while generous with his time and genuine in his interest for others. He lived the philosophies of Henry Ford about reaching out to youth, and continuing to learn to stay young in mind.

Harold's family and friends will remember a quiet, spiritual man who was soft-spoken and gentle. He was a valued source of advice for many with his consistent, confident and caring views on life's challenges.

He was a man of diverse tastes. He enjoyed shopping on Chicago's State Street but preferred his local K-Mart, which grew from the stores founded in Detroit by his Sunday school teacher, S.S. Kresge. He was at ease in the country club, but looked forward to his next frst-food burger, or the next taco with extra hot sauce. For many years his Christmas dinner table included a large bowl of pinto

beans and raw onions to remind the family of their humble beginnings, but guests could also enjoy meat from the grill.

He had a quick wit and a sharp memory, and loved sharing stories of his days with the influential men most people only know from history books. He also enjoyed family fishing trips to Gull Lake in Minnesota, outings to Chicago, and his many trips to Japan, along with an occasional round of golf.

Music was part of Harold's life, whether it was attending concerts involving his children or grandchildren, symphony concerts, barbershop shows or

organ recitals. Throughout much of his life, he entertained himself and family members sitting at the Hammond organ in his home.

In December, he issued his first and only Christmas letter. It focused on his love for his extended family, and gave thanks for those caring for him. He closed his letter by saying "Historians now have a chance to judge my contributions to building a better world for others." Those who knew him say a resounding "Job well done!"

Submitted by Orrin Miller
Waterloo, Iowa

A Further Note on Engines with Bevel-Gear Drives

By Robert T. Rhode

In the August-September 2010 issue of *Engineers and Engines*, Thomas G. Downing asked which companies used the bevel-gear drives that the Cooper firm in Mt. Vernon, Ohio, licensed to other builders of farm steam engines. Thomas quoted a source as stating that five firms held licenses, and Thomas said that Russell & Company and Aultman & Taylor were two of the five. In the October-November 2010 issue, I added to Thomas' list the J. I. Case Threshing Machine Company, the Nichols & Shepard Company, and the Birdsall Engine Company. I wrote that the "Birdsall mechanism is distinctly different from that of Cooper, Case, Nichols & Shepard, and Russell," and I questioned whether Birdsall paid a licensing fee to Cooper.

Recently, I was rereading Charles M. Giddings' 1916-17 essays that were published under the title *Development of the Traction Engine in America*, and I ran across this statement: "Following the attempts of C. & G. Cooper Company of Mount Vernon, Ohio, to corner the traction engine business of the country by buying up all similar patents to the bevel gear drive, a few of the leading portable engine manufacturers secured manufacturer's licenses of the Cooper Company under these several patents, among whom were Russell & Company; Owens, Lane & Dyer; E. M. Birdsall Company; Wood Brothers; Merritt & Kellogg, and a few

others." Giddings continued, "Russell & Company's annual catalog of 1879 shows this type of drive on page seven In 1882, Russell & Company brought out one of the first self-steering traction engines of the bevel shaft drive type" [I have corrected several typographical errors in the source from which I have extracted these quotations.] As I have found much (but not all) of Giddings' information trustworthy, I believe that Giddings long ago provided the answer to my question about Birdsall. Incidentally, the term "Wood Brothers" in Giddings' essays must refer to the Wood family of New York, not the Wood family of Minnesota and Iowa.

Giddings' statement about licensing is ambiguous because the phrase "under these several patents" implies that some of them may not have been for the bevel gear with inclined shaft that steam historians associate with the George Rogers 1876 patent (Number 173,498)-some of the patents that Cooper acquired might have been for inventions that were merely accessory to such gearing. Accordingly, aficionados of agricultural steam power should not leap to the conclusion that all the companies in Giddings' list built engines with bevel gears and inclined shafts.

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