

MIMICRY AMONG FARM STEAM ENGINE BUILDERS

By Robert T. Rhode

In nature, one species often resembles another. Biologists call this *mimicry*. Among farm steam engines, the product of one firm often resembled the product of another firm. I call this mimicry, too. Did the similarity result from theft of a good idea, or was there a mutually beneficial relationship between two or more

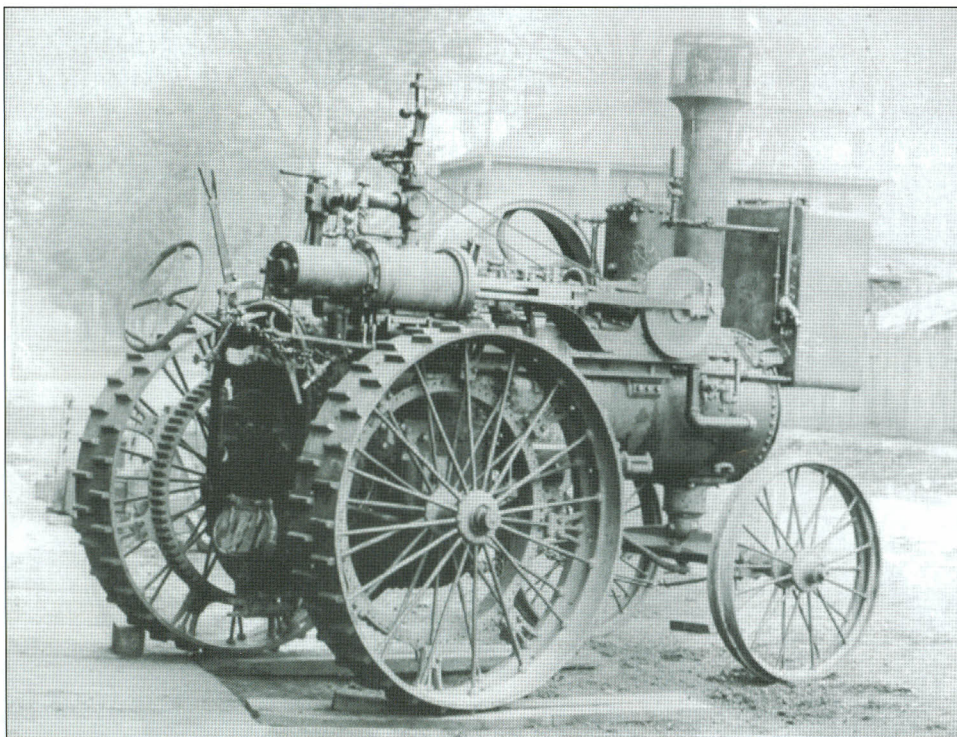
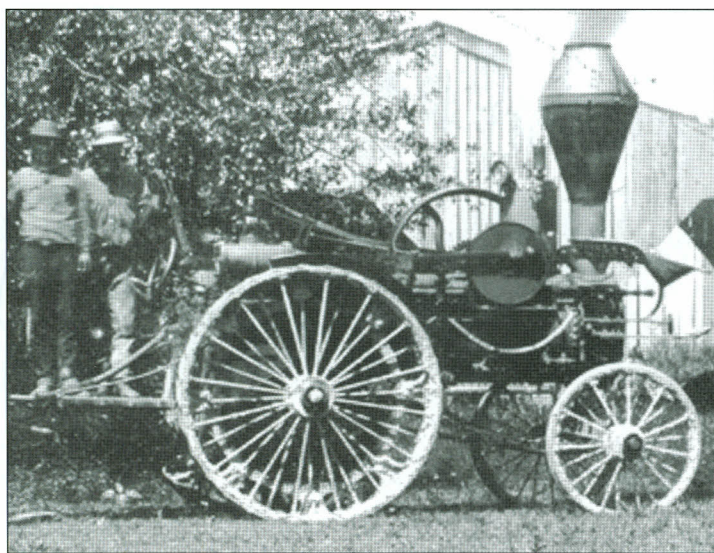
companies? From the vantage point of the twenty-first century, it is usually difficult to tell. This article is about wishing for answers to mysteries surrounding engine mimicry.

Mimicry among engines is most evident in the earlier years of agricultural steam power. The similarities between

relatively early Gaar, Scott & Company traction engines and Robinson & Company traction engines provide a widely recognized example. Even seasoned experts can easily fall into the trap of mistaking a Gaar for a Robinson or a Robinson for a Gaar in historical photographs. Why were the machines so much alike? Both firms were located in Richmond, Indiana, but what advantage might there have been for the competitors' products to mirror one another? Reaching for an explanation, a few authorities on these companies in the beginning of the preservation and restoration movement clung to a rumor that has no basis in fact: namely, that Abram Gaar and Francis W. Robinson were cousins. By now, this falsehood has all but vanished.

The exploration of mimicry is most engaging when the imitation is exact, but even an approximate similarity can stimulate speculation about the causes. A case in point involves the East Coast engines destined for West Coast markets. John Chipman Hoadley, brother-in-law of the great author Herman Melville, produced numerous portable engines at his factory in Lawrence, Massachusetts. Apparently, Hoadley engines were popular; in fact, the Pitts Agricultural Works in Buffalo, New York, sold Hoadley portables to power Pitts machines. Hoadley designed engines especially for the California trade; historian Jack Alexander found that these were marketed as early as 1861 through Hoadley's agent, Treadwell & Company, a machinery and supply depot in San Francisco. By 1867, Wood and Mann of Utica, New York, imported engines to Baker and Hamilton, a huge supply warehouse in San Francisco with a branch in Sacramento. Baker and Hamilton also offered portables built by the Ames Iron Works of Oswego, New York. Ames produced an engine called the California Style. Eventually, Ames engines were mounted on California-built boilers. Joseph Enright of San Jose, California, designed his own engine, but it bore a general resemblance to those of Hoadley, Ames, and Wood and Mann. While no identifier of American agricultural engine manufacturers would confuse the products of these builders, the engines have enough outward similarity

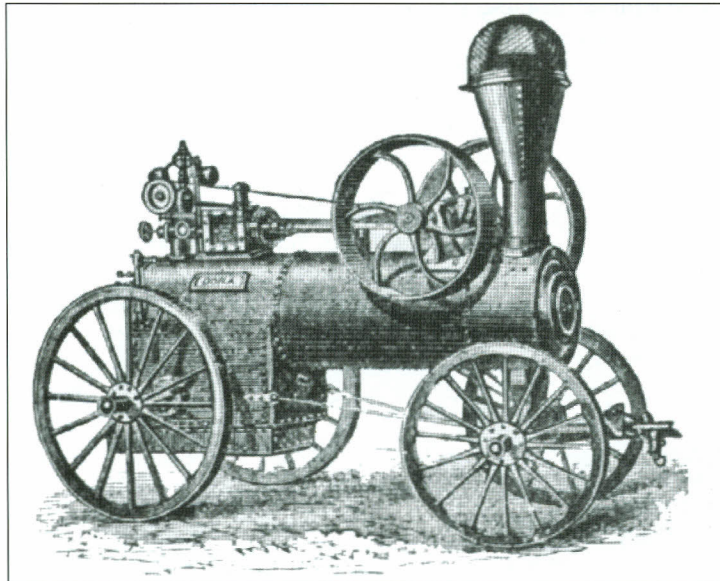
This product of Gaar, Scott & Company might trick knowledgeable viewers into thinking that cross-town rival Robinson & Company was the manufacturer. Courtesy John F. Spalding



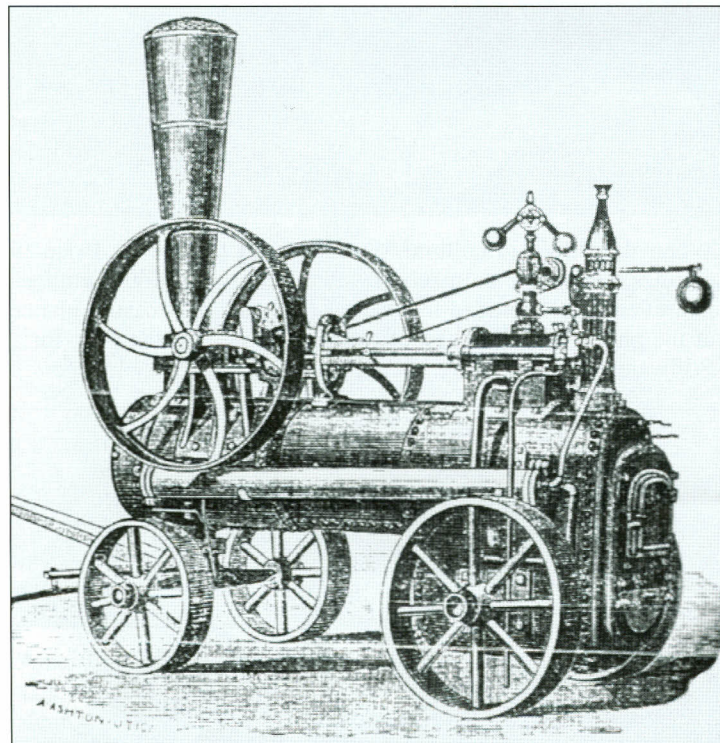
With the exception of the tandem cylinder, this product of Robinson & Company might be mistaken for a Gaar, Scott & Company engine. From *The History of Swayne, Robinson & Company* by Michele Bortoff and William A. Stahl, 1999

to prompt conjecture. Did California agriculturists expect portable engines to have a particular silhouette, and were East Coast manufacturers eager to match that expectation?

A superficial resemblance between early return-flue engines built by the Pitts Agricultural Works and equally early Stillwater engines built at the prison in Minnesota can confuse aficionados accustomed to identifying the builders of farm steam engines.

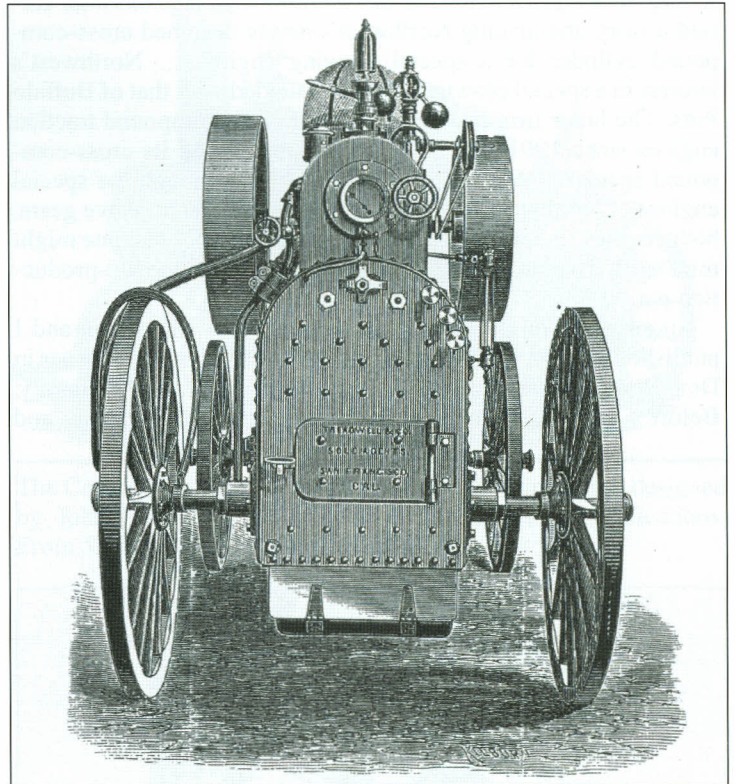


John Chipman Hoadley of Lawrence, Massachusetts, shipped engines to San Francisco's Treadwell & Company, a supply depot. This is the Hoadley portable of 1861. From *Steam Power on California Roads and Farms* (1858-1911) by Jack Alexander, 1998

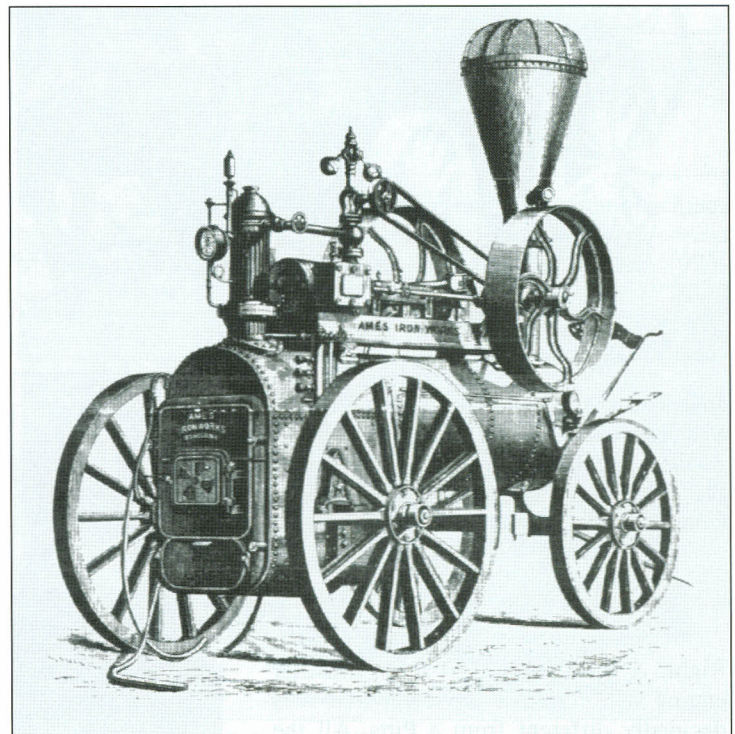


This 1867 Wood and Mann portable engine of Utica, New York, bore a general resemblance to the Hoadley: an intriguing fact because the Wood and Mann engine was similarly intended for the California trade. From *Steam Power on California Roads and Farms* (1858-1911) by Jack Alexander, 1998

Much depends on the angle of the camera when the exposure was taken. I suspect that there was a long-sustained cross-fertilization



Hoadley's engines that were imported to California bore the Treadwell name on the firebox door. From *The Portable Steam Engine* by J. C. Hoadley & Company, 1870 (supplied to the author by Bruce E. Babcock)



The Ames Iron Works of Oswego, New York, got in on the act by producing this California Style engine. From *Steam Power on California Roads and Farms* (1858-1911) by Jack Alexander, 1998

of concepts between Buffalo and Stillwater. In the expanded edition of *The Steam Tractor Encyclopedia*, John F. Spalding and I wrote, "The April 1906 issue of *The American Thresherman* carried a story announcing Northwest's newly designed cross-compound cylinder for a special plowing engine. ... Northwest's interest in a special plowing engine coincided with that of Buffalo Pitts. The latter firm had been building cross-compound traction engines since 1901, but Buffalo Pitts introduced its cross-compound special plowing engine in 1906. Even though the special engines of Northwest and Buffalo Pitts used different valve gears, both engines resembled one another so remarkably that one might think each firm had spied on the other throughout the pre-production period."

An anecdote might be in order here. Shortly after John and I published the first edition of our book in 2008, I parked my car in Don Bodine's driveway for a visit with Don and his family. Before I could open my door, Don ran up to my window and

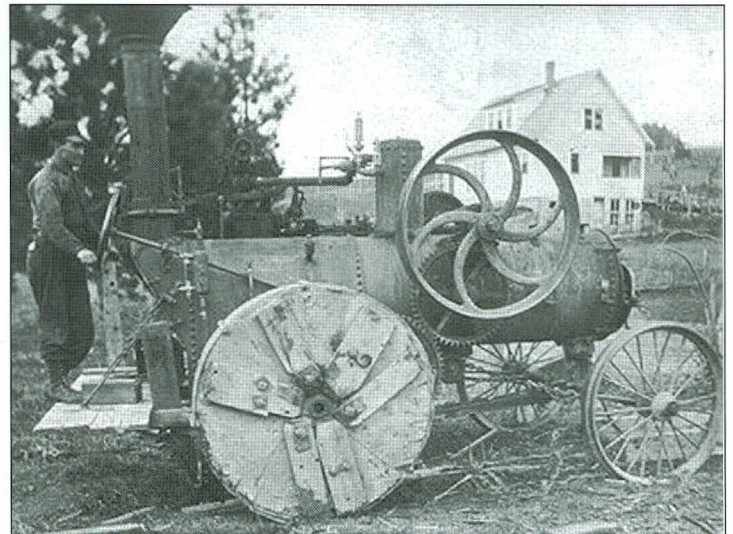
shouted, "Bob, you're killing me! How could you call a Minneapolis a Huber?" Sure enough! John and I had slipped a photo of a Minneapolis return-flue engine into the Huber section of our book. (The error has been corrected in the second edition.) I thanked Don for spotting the mistake, signed his copy of the book, and wrote beside the photo that Don was the first person in the world to call the error to my attention. (Don, hang onto that first edition! Because it is out of print and considered rare, there are booksellers asking over a thousand dollars for a copy.)

Occasionally, an explanation for mimicry is discovered. The Huber Manufacturing Company in Marion, Ohio, and the Avery brothers of Peoria, Illinois, had much in common through John H. Elward, a designing engineer who left the Stillwater factory for the Avery Company. In 1891, Elward brought out Avery's return-flue engine, which was called the New Elward. My article in *Engineers and Engines Magazine* for October and November of 2009 gives a detailed account of the close connections among the return-flue engines of Stillwater, Avery, and Huber, and the New Expanded Edition of *The Steam Tractor Encyclopedia* includes highlights from the story. With the information available elsewhere, I will not repeat it here, but I want to cite the interre-



Joseph Enright built his own engines in San Jose, California. Is it just imagination, or does the Enright outwardly resemble the Ames California Style engine? Courtesy John F. Spalding

Right: A careful study of this Stillwater engine will convince a viewer that it is decidedly different from a Pitts. All the same, the superficial resemblance leads to speculation. Was there a cross-fertilization of ideas between the two firms? Courtesy John F. Spalding

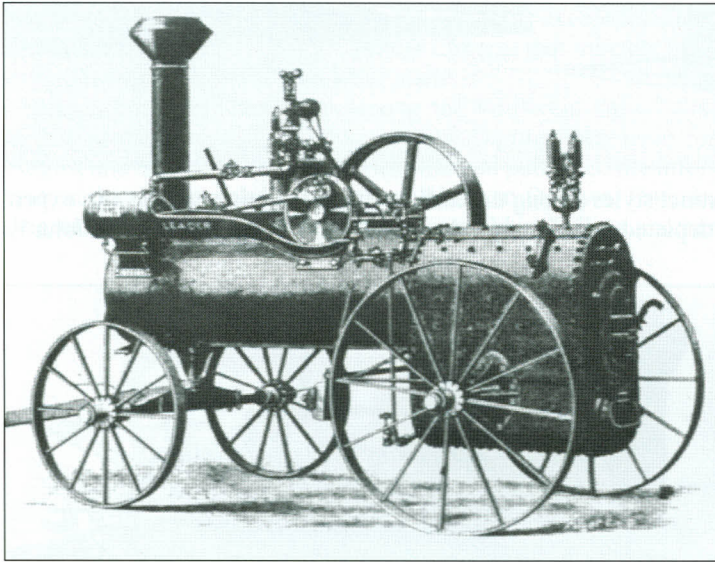


When the Pitts Agricultural Works ceased to provide Hoadley engines to power Pitts machines, Pitts began to produce engines that eventually included this return-flue model. A casual glance at the photo might lead an aficionado to mistake the Pitts for a Stillwater. Courtesy Gary Yaeger through his Facebook page

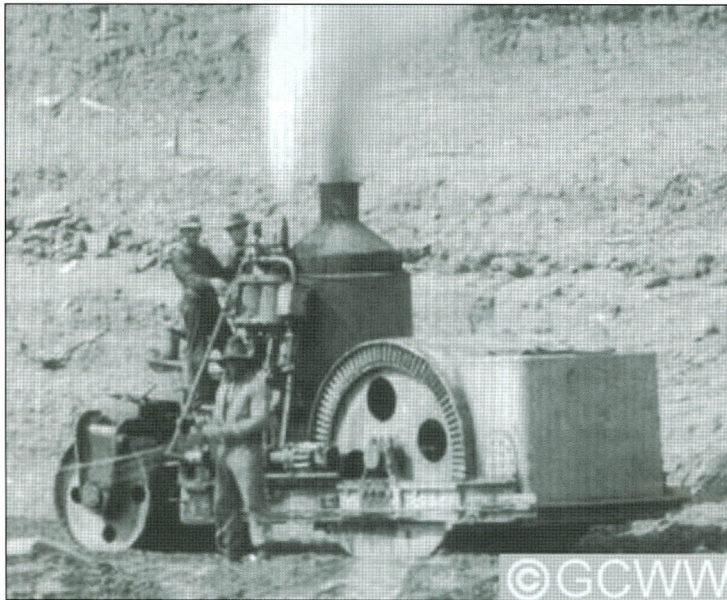


lationship among Avery, Huber, and Stillwater as an example of the discovery of a cause for mimicry.

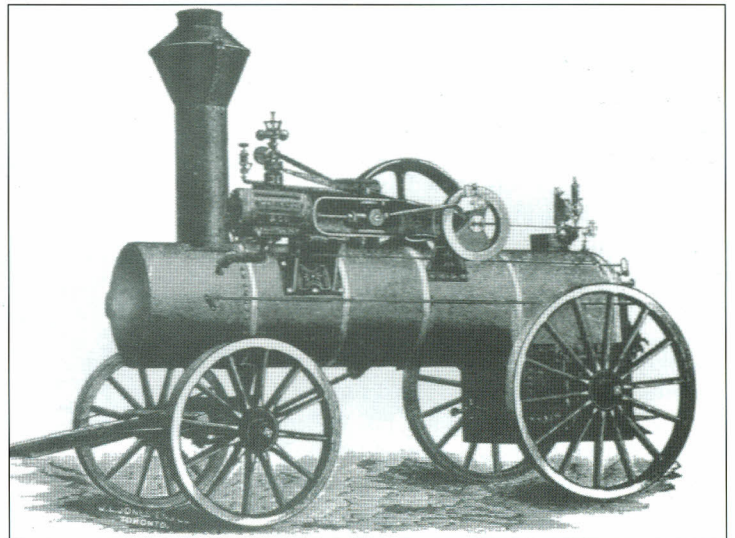
Another situation wherein the cause of mimicry is known involves the close resemblance among the Leader portable (built in Marion, Ohio), the Cornell portable (built in Clinton, Ontario and, later, in St. Catharines), and the Waterloo portable (built in Waterloo, Ontario). John Edson Sweet, renowned inventor, mechanical engineer, and professor in the Sibley College of



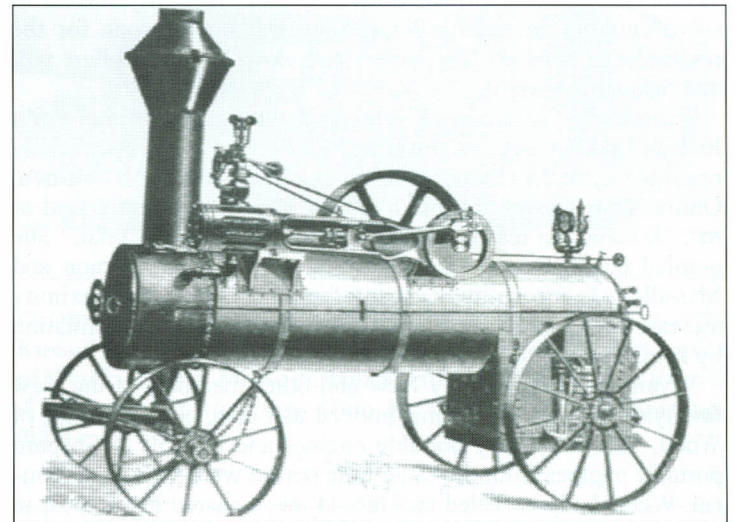
The Leader portable engine was one of several such machines that more or less followed the licensed designs of John Edson Sweet, professor in the Sibley College of Mechanical Engineering at Cornell University. From *The Encyclopedia of American Steam Traction Engines* by Jack C. Norbeck, 1976



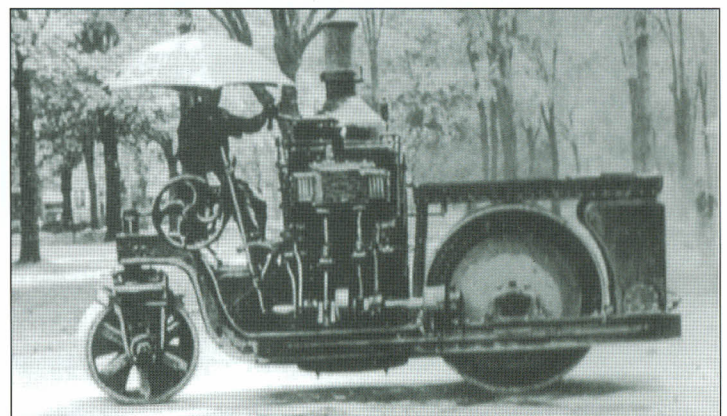
Amzi Lorenzo Barber became a legendary figure in the history of asphalt pavement. In about 1890, he acquired the rights to the steamroller pioneered by Anders Lindelof. The first of Barber's rollers were built in Brooklyn, but, in 1894, he moved the business to Buffalo and named it the Iroquois Iron Works. For reasons unknown, early Barber rollers, such as the one depicted here, bear a close resemblance to rollers produced by the Erie Machine Shop of Erie, Pennsylvania. Erie began roller production in 1889. Courtesy Greater Cincinnati Water Works



The Cornell portable engine was another of the machines designed by John Edson Sweet and closely matched his specifications. From *Steam Album* by G. E. Smith, 1962



The Waterloo portable engine was yet another of the machines that more or less followed Sweet's design. From *The Encyclopedia of American Steam Traction Engines* by Jack C. Norbeck, 1976



Here is an Erie roller. The differences in the rolls notwithstanding, the Lindelof configuration is evident in the framework, the yoke, and the disposition of the engines. From *Classic American Steamrollers 1871-1935* by Raymond L. Drake and Robert T. Rhode, 2001

Mechanical Engineering at Cornell University in Ithaca, New York, licensed many firms to build his design of portable engine. Sweet's affiliation with Cornell University is the reason why one of these portables was named the Cornell.

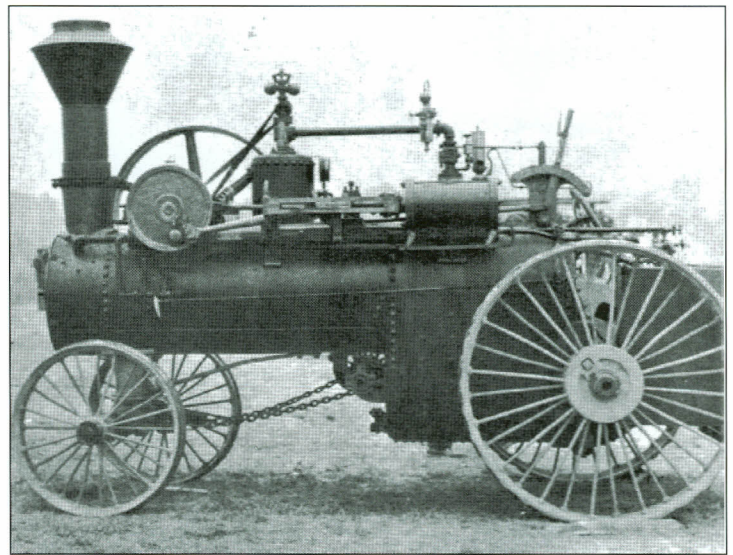
Still shrouded in mystery is the cause for the similarity between Erie steamrollers built by the Erie Machine Shop in Erie, Pennsylvania, and Amzi Lorenzo Barber's steamrollers that were built in Brooklyn, New York, just after Barber acquired the rights to Anders Lindelof's pioneering roller design and just before Barber moved his newly named Iroquois steamroller business to Buffalo. It is possible that Barber and Erie began roller production in the same year, 1889, and their machines have numerous affinities, as Raymond L. Drake, the leading authority on American steamrollers, noted. Details about steamroller production are difficult but not impossible to locate, and, in my experience, stray facts occasionally surface to solve enigmas in steamroller history. Perhaps reasons for the resemblance between Erie rollers and early Iroquois rollers will one day come to light.

The passing of time has obscured why many of the early Russell traction engines (built in Massillon, Ohio) superficially resemble C. & G. Cooper traction engines (built in Mt. Vernon, Ohio). Knox County historian Gloria Parsisson recently said to me, "It stands to reason that the engines would be similar." She pointed out that only fifty-five miles separate Mt. Vernon and Massillon. Is proximity a cause of mimicry, or does proximity increase the likelihood of trade agreements that permit imitation by firms seeking to limit competition with one another?

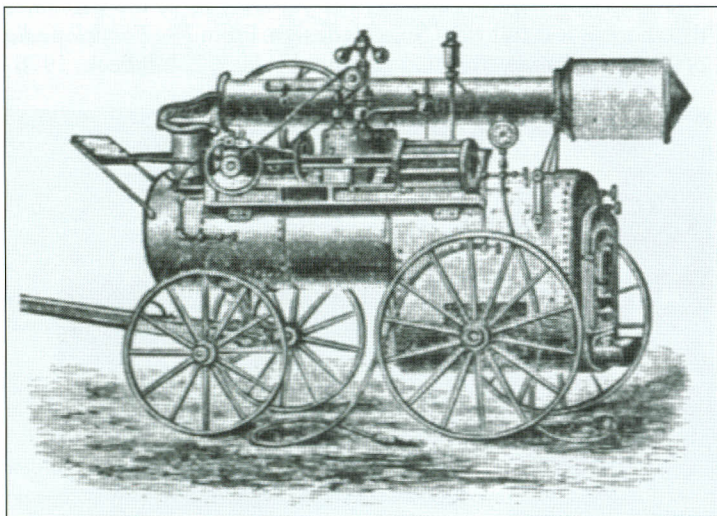
Several years ago, Andy New and other members of the New family of Pendleton, Indiana, noticed that cuts, or engravings, of Wood, Taber & Morse portable engines and Nichols & Shepard portable engines from the same time period were virtually identical. When Andy revealed this fact to me, I shared his interest in



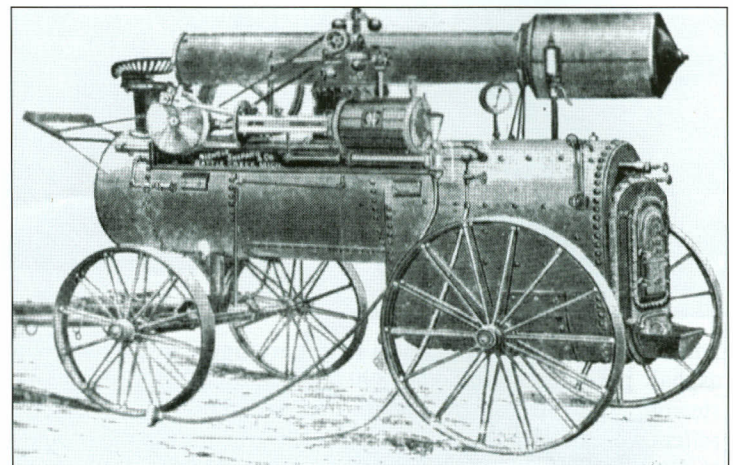
There are at least two distinct styles among the earliest Russell traction engines. An expert might mistake the style depicted here for a product of C. & G. Cooper. Courtesy John F. Spalding



Knowing that early Cooper engines experimented with various drive mechanisms is enough to cause an expert to mistake one style of early Russell traction engine for a Cooper similar to this one but with the driver wheels alongside the firebox. From the cover of *The Iron-Men Album Magazine* for May and June of 1966



Andy New and other members of the New family discovered that a Wood, Taber & Morse portable engine and a Nichols & Shepard portable engine were nearly identical. Here is the Wood, Taber & Morse, which other firms copied. From *American Steam Engine Builders* by Kenneth L. Cope, 2006



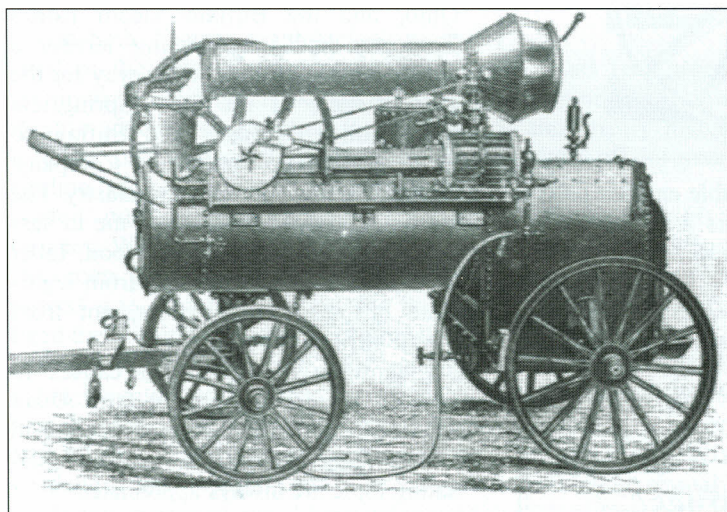
This is a Nichols & Shepard portable engine, which was practically a twin of a Wood, Taber & Morse portable. From *The Encyclopedia of American Steam Traction Engines* by Jack C. Norbeck, 1976

the discovery. I remembered that, from August of 1916 through May of 1917, Charles M. Giddings published a series of articles in *American Thresherman* in which he mentioned that “different firms,” including Russell (one of Giddings’ employers), “had copied the Wood, Taber & Morse design of engine by using the parts they had purchased for patterns to make identically the same portable engine.” As Andy found, the Nichols & Shepard portable was one of the copies. By placing a digital image of a Nichols & Shepard cut on top of a digital image of a Wood, Taber & Morse cut, it is possible to see that they match perfectly, except for slight differences caused by the angles of the cameras that took the photographs from which the cuts were made.

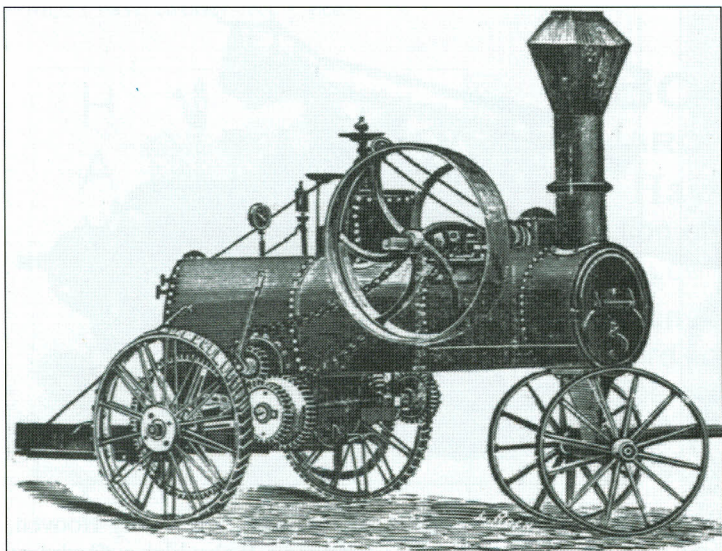
Which other builders were among the “different firms” that Giddings mentioned? In *Engineers and Engines Magazine* for August and September of 2008, Rick Mannen published the information that the Joseph Hall Machine Works in Oshawa, Ontario, originally sold Wood, Taber & Morse portables. Selling another

firm’s products is not mimicry, but, when Joseph Hall developed the Oshawa portable, the engine bore some resemblance to a Wood, Taber & Morse portable. Apparently, Joseph Hall enjoyed a good working relationship with Wood, Taber & Morse. Peck & Tyler of Jordan, New York, was another firm that sold Wood, Taber & Morse portables. One style of portable engine built by Hooven, Owens, Rentschler & Company of Hamilton, Ohio, may have been modeled on the Wood, Taber & Morse.

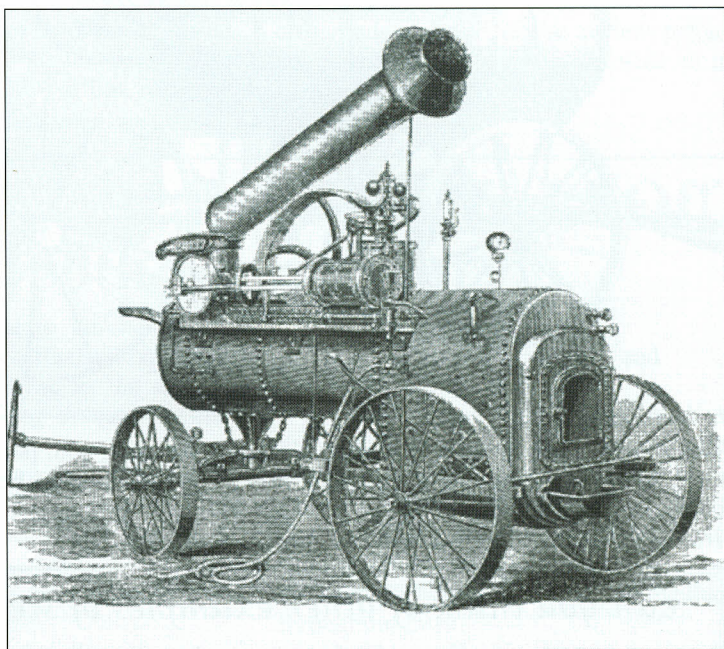
Minard Harder’s Empire Agricultural Works in Cobleskill,



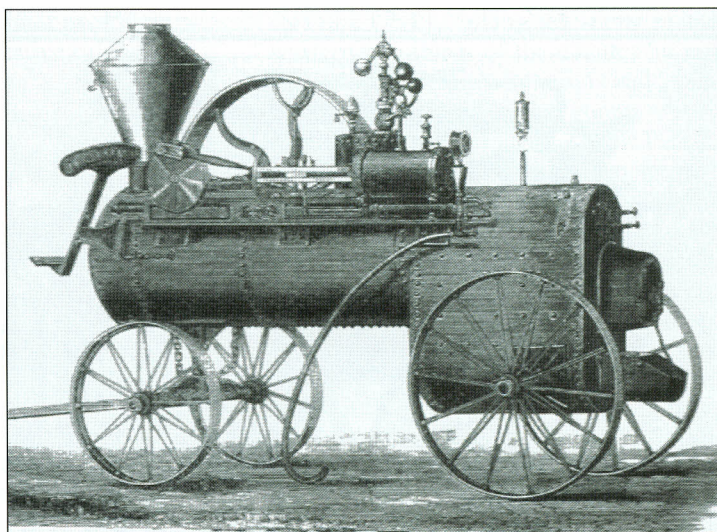
One style of Aultman & Taylor portable engine also closely resembled a Wood, Taber & Morse. The friendship among Aultman, Taylor, Nichols, and Shepard may account for the similarity. From *American Farm Tools from Hand-Power to Steam-Power* by R. Douglas Hurt, 1982



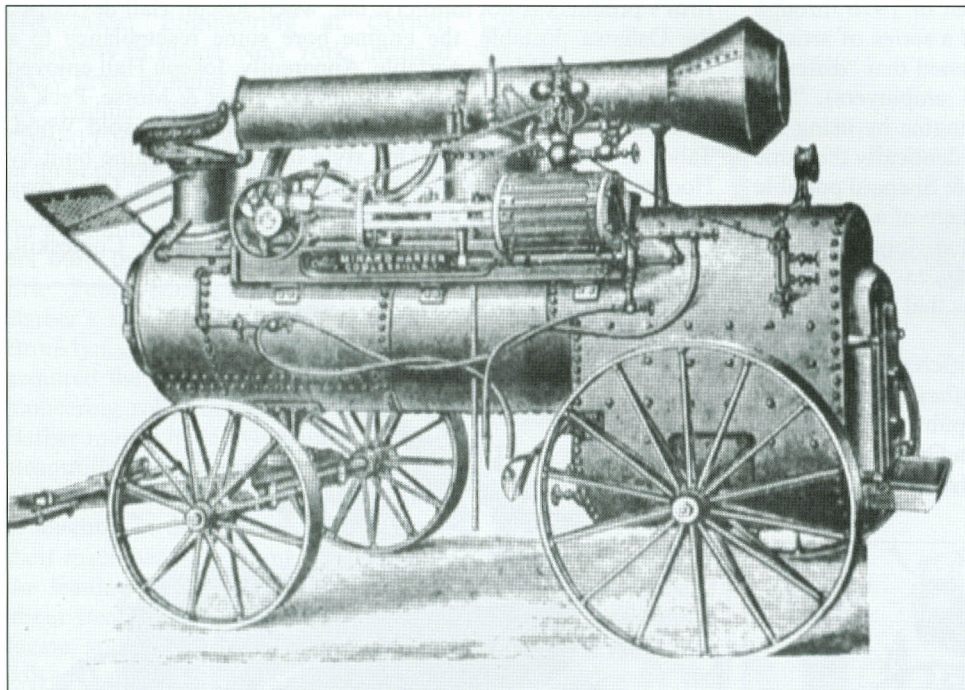
Peck & Tyler of Jordan, New York, sold Wood, Taber & Morse portables. From *The Iron-Men Album Magazine* for January and February of 1959



Charles M. Giddings, who worked for Russell, said that early Russell portables, such as the one shown here, were exact copies of Wood, Taber & Morse portables. From *A History of the Russell & Company of Massillon, Ohio* by Thomas Graham Downing, 2009



Joseph Hall Machine Works originally sold Wood, Taber & Morse portables but eventually marketed the firm’s own Oshawa engine. An indebtedness to the Wood, Taber & Morse design may be evident in this illustration of an Oshawa. From *Engineers and Engines Magazine* for August and September of 2008, article entitled “The Joseph Hall Machine Works” by Rick Mannen



The Empire Agricultural Works in Cobleskill, New York, sold portable engines built by the Oneida Steam Engine & Foundry Company. This Empire bears a striking resemblance to a Wood, Taber & Morse portable. From *The Encyclopedia of American Steam Traction Engines* by Jack C. Norbeck, 1976

Can you think of other examples of steam engine manufacturers using identical or very similar designs? Or, do you know other causes to explain the mimicry among farm steam engines?

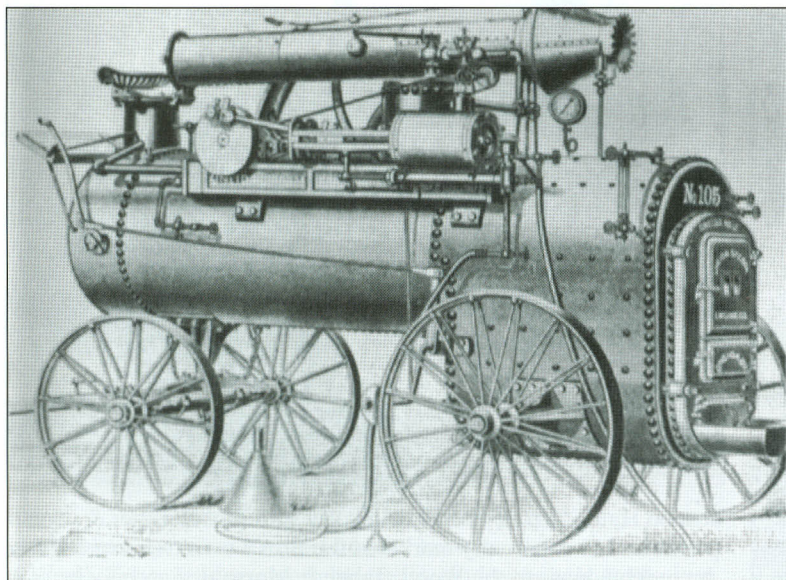
If so, send them to Bob Rhode and look for them to be featured in an upcoming issue of E&E.

New York, sold engines manufactured by the Oneida Steam Engine & Foundry Company. The Empire and Oneida portables likely belong on the list of Giddings' "different firms." The fact that early Aultman & Taylor portables resemble Wood, Taber & Morse products may be attributed to friendship. Cornelius Aultman often went hunting and fishing with John Nichols and David Shepard, and, at one point, Henry H. Taylor worked for Nichols & Shepard.

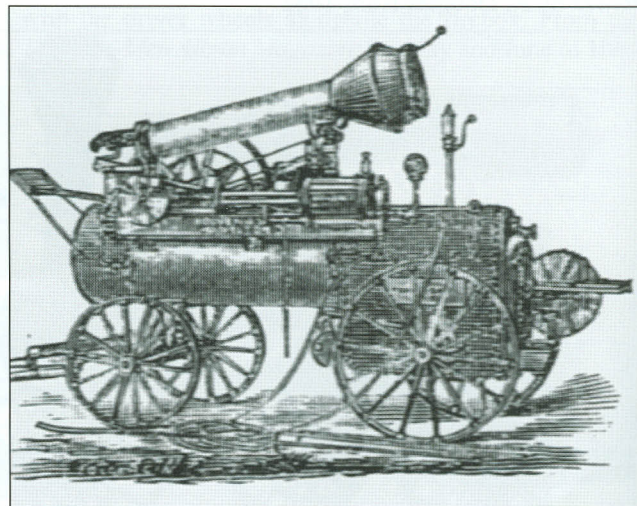
Despite Giddings' claim that firms simply copied the Wood, Taber & Morse portable with no compunction, did many of these firms have agreements with Wood, Taber & Morse? Ray Drake learned that O. S. Kelly of Springfield, Ohio, and the Buffalo Steam Roller Company had longstanding territorial accords that helped pave the way for the 1916 merger of the Kelly-Springfield Road Roller Company and Buffalo to form the Buffalo-Springfield Company, the giant of the compaction industry. The existence of such deals leads me to suspect that a proportion of the Wood, Taber & Morse lookalikes resulted from legitimate business arrangements, not from patent infringement.

I continue to search for causes to explain the mimicry among farm steam engines. Clues from readers who can add to our mutual understanding of this fascinating topic are always appreciated.

Contact steam historian Robert T. Rhode at 990 W. Lower Springboro Rd., Springboro, OH 45066; e-mail: case65@earthlink.net



Here is an Oneida portable engine, which surely must owe its inspiration to Wood, Taber & Morse. From *The Encyclopedia of American Steam Traction Engines* by Jack C. Norbeck, 1976



This style of portable engine manufactured by Hooven, Owens, Rentschler & Company looks like a candidate for the list of builders that copied the Wood, Taber & Morse engine. From the 1881 Cincinnati Board of Trade Report