

May 2010

# HIT & MISS

Journal of the Western Antique Power Associates

## WALDEN, ALEXANDER RIDER, AND THE HOT AIR ENGINE

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While Walden residents may know something about their village's historic knife industries, how many have every heard of resident inventor Alexander K. Rider or the Rider Engine Company he founded? Few would guess that the village played a major role in a little-known chapter in the history of American industry.

An entirely new and peculiar type of engine was once made here nearly three decades before the advent of internal combustion. Rider, Wooster & Co., later to become the Rider Engine Company, was established in Walden around 1872 when a foundry and shops next to the railroad tracks on Grant Street set about making Rider's patented hot air engine.

Rider's engine, energized by heat from a slow burning wood or coal fire, used expanding and contracting air—



instead of dangerous steam—to produce power. These imposing machines operated in near silence, had a bare minimum of moving parts, and were extremely simple to use.

They became very popular for pumping water to upper floors in multistory homes and buildings, but were also used by railroads for filling water tanks and by western ranchers for watering their cattle. More than 10,000 were in use by the early 1890's when the booming business employed 70 people in Walden.

The "Rider Compression Engine," as it was called, was a revolutionary design based on engines first developed—but not successfully commercialized—in 1816 by Scottish minister and amateur engineer, Robert Stirling. This occurred not so many years after the first steam engines became widely available and more than half a century before internal combustion engines. The machines were called Stirling cycle, caloric, or hot air engines. Modern engineers have referred to Stirling's radical invention as "one of the most amazing innovations ever made...so much in

advance of scientific knowledge at the time that at least 30 years passed before anyone was in a position to understand what made the engine work at all".

While we know a lot about Stirling, we know very little about Alexander K. Rider, his family, and their associates with Walden. We know that the 20 year-old Rider came to the United States from England or Ireland in 1841 and that after working at various foundry jobs in several states, he moved his family to Walden sometime around 1872. He partnered with resident George C. Wooster to found what would become the world's largest and longest-running hot air engine manufacturing company. The Rider Engine Co. was incorporated in 1879 with four "trustees" who were William M. Sayer (first company president), Henry Merriam, Frank A. Merriam, and Jason W. Corwin, all of Goshen. While the factory remained in Walden, the company's business office was located in Goshen until 1896 or 1897. The historic factory buildings still stand proudly today at 29 Grant Street in Walden.





Although Rider was physically handicapped as a result of an early occupational accident in New York City, his mind was extremely agile and he obtained over 35 patents during his lifetime, including the most important one in 1875 for his innovative engine design. His engine became known throughout the world and is still much admired by today's enthusiasts for its elegant simplicity. Various models weighing from about 500 lbs to several tons were manufactured in large numbers at the Walden factory from about 1874 onwards. Rider-patented engines were also made at New York City's DeLamater Iron Works and by another company in England; they were sold in Europe, the British Isles, Australia, and in far flung British colonies in Asia and the Middle East. Satisfied customers included Rudyard Kipling, the Khedive of Egypt, the King of England, and FDR at his home on the Hudson.

Rider died in Walden in 1893 and is buried with other family members in an unmarked plot in the Wallkill Valley Cemetery. We believe his considerable achievements were overshadowed during his lifetime by the glory of Swedish immigrant and inventor John Ericsson. Ericsson had also invented a hot air engine and crossed paths with Rider when both worked at New York's DeLamater Iron Works in the 1860's. DeLamater manufactured both Rider's and Ericsson's hot air engines until the company ceased business in the

mid-1890's. While Ericsson was considered a national hero for his design of the Civil War ironclad USS Monitor, Alexander Rider went on to live a less pretentious life in Walden.

In 1897, the principals of the Rider Engine Company in Walden joined forces with the principals of the now defunct DeLamater Iron Works to form the Rider-Ericsson Engine Company in Walden. The new company produced hot air engines up until the early 1930's at which time cheaper and lighter weight electric motors and internal combustion engines put an end to the golden age of the Stirling engine.

The Rider-Ericsson Engine Company finally came to an end in 1939 when the facilities were sold by the company's last president Leon Dexter to Paulsen Spence of Spence Engineering Inc. Spence moved out of the old factory buildings 28 years later and the property was subsequently purchased by Mr. Hy Hilzen in 1968. Mr. Hilzen employed 10-20 people over a period of 39 years making specialized lighting systems in the old buildings until his death in 2008. Mr. Hilzen should be remembered for keeping the memories of Rider-Ericsson alive; he was happy to share the history of his buildings with the few engine enthusiasts who sought them out.

Although there are ongoing efforts to bring Stirling engines back to life—including solar-powered engines generating electricity for California Edison—none have yet achieved anything close to the success of Walden's Rider-Ericsson Engine Company. Operating there for nearly 70 years, the factory on Grant Street will go down in history as the largest and longest-lived manufacturer of Stirling engines the world has ever known.

Unfortunately the Rider and Rider-Ericsson stories are fragmentary and little is known about Alexander Rider, his family, and the work at the Walden factory. Nor do we know much about the William Sayer family of Goshen and their involvement with the company. The authors are currently working on a more comprehensive history of Rider and the company he founded.

*Dr. Brent Rowell is an amateur industrial archaeologist and Adjunct Professor of Horticulture at the University of Kentucky. Dr. Rowell is also a hot air engine enthusiast and collector and has restored several of the unusual engines that were made at the Walden factory.*

*Mary Ellen Matise is a former Deputy Mayor of the Village of Walden who has been researching many aspects of local history.*

## WAPA AND THE HIT & MISS

The Western Antique Power Associates is a 501(c)3 organization comprised of individuals who are dedicated to the preservation of antique engines, agricultural equipment, industrial tools, and other items that are part of our heritage.

The Hit & Miss is WAPA's monthly publication of the Western Antique Power Associates to keep its members up to date on current events throughout the club and the hobby.

Your input regarding the content of the Hit & Miss is welcome. If you would like to submit an article, pictures, or classified ads, please contact the editor.

Articles should be submitted in digital format, images should be at least 300 dpi.

Contact the Rob Skinner at [editor@wapa.us](mailto:editor@wapa.us) for information regarding the publication of articles.

## RESTORATION TIP

Ian Wightman, from Cumbria, U.K., describes a clever way to achieve an antique patina on new, galvanized material:

Mix three parts water with one part malt vinegar, and add a dash of sea salt. After about a day and a half, the galvanized steel will look like it's been around for many years.

For brass parts, Ian uses sulphate of ammonia to obtain a dark patina.

# MINUTES OF THE BOARD OF DIRECTORS MEETING HELD APRIL 9, 2010

**Board Members Present:** Dan Kato, Kelley Garcia, Bob Smith, Jack Johnson, Leroy Overstreet, Joe Siddons, Bob Swan.

**Board Members excused:** Tom Millett, Jim Davis, Craig Maxwell.

**Members Present:** Gus Lukrofka, Rex McCleary, Don Hunter, David Paul

**Visitors:** Cody Johnson

Meeting called to order at 7:07 p.m. by President Dan Kato.

Flag Salute led by Rex McCleary

## **Reports:**

**President:** Dan Kato welcomed everyone to the meeting and informed everyone that Henry Lynn's wife passed away April 1. Dan also announced that Vergil Chritton passed away on Easter.

**Vice President:** The new insurance policy will be effective April 16. The premium is a little less than last year.

**Secretary:** In Tom Millett's absence, Bob Smith made a motion to approve the minutes of the March meeting. Jack Johnson seconded. The minutes were approved with no corrections.

**Treasurer:** Kelley had no report since she did not have all the statements for all accounts. She will have a report for next meeting.

**Membership:** In Jim Davis's absence, Jack Johnson made a motion to accept new member Don Sedam, Joe Siddons seconded. Welcome new member Don Sedam. Jim did receive renewal dues from Eric Hazelwood thanks to Bill Baldwin. There are now 90 paying members and 30 Life Members.

**Purchasing:** Leroy reported that he, David, and Tom were working on the

McCormick Deering tractor that Wayne Mabb donated. It had two stuck pistons but with brute strength and a hydraulic jack, they got them loose. Needs full gasket set. Other than that, it is in good shape.

**Library:** No report

**Safety:** Joe reports that everyone is playing safe at the shows.

## **Shows:**

Shows to sanction:

**Children's Day at Heritage Park** April 17, motion by Bob Smith, seconded by Jack Johnson.

**Antique Truck Show** May 2, motion by Bob Smith, seconded by Kelley Garcia.

**Cal Poly Tractor & Car Show** May 8, motion by Bob Smith, seconded by Jack Johnson.

**Home School Show** on May 31, motion by Bob Smith, seconded by Joe Siddons.

**Brentwood Magnet Science School Fair** on June 6, motion by Bob Smith, seconded by Dan Kato.

**Sonora High Car Show** on June 12, motion by Bob Smith, seconded by Kelley Garcia.

**Glendora Castle:** Ron Haskell donated an air tank at the Highland show and Leroy hauled it to the castle. Tom & him unloaded it. They will use it to start the big engine.

**Cal Poly:** Bob Smith presented the final MOU (Memorandum of Understanding) and President Dan Kato will sign. The attachments required will be proof that Dan Kato is president, copy of insurance coverage, and additional insured for Cal Poly on our policy. Once Bob Smith has all documents he will mail to Cal Poly for acceptance. We are close to starting work on their restore jobs. Bob will keep members posted on the WAPA mail.

**New Business:** Heritage Park would like WAPA to get the pump in

the pump house working by April 17. Dan Kato and David Paul will work on it Saturday the 10th. Several members went over to the pump house after the meeting to pull the pump out of the pit.

**Adjournment:** 8:25 p.m.

**Bob Smith, acting Secretary**

## VIRGIL CHRITTON 1925-2010

### Our Treasure

Building blocks and Tonka trucks  
long days out at the beach,  
antique toys and choo choo trains  
fond memories of each.

Airplane trips go to and from  
a man we call our Dad,  
we wished the time would slowly pass  
but we're so glad for what we had.

So closely watched by the two of us  
as you tinkered in your shop,  
we'd watch your talent  
come shining through  
your hands would never stop.

Now the years have all passed by  
the memories have stayed,  
the path you walked before us kids  
was an important role you played.

We learned so much from you Dad  
your lessons weren't in vain,  
you showed that there was  
strength in Love  
and that we are more than just a name.

You had an eye for treasures lost  
you collected them for a fee,  
you turned them into a masterpiece  
for the entire world to see.

Dad you are our "Treasure"  
a gift from God tis true,  
we were blessed the very day  
that God gave us to you.

*With Love to our Dad  
Your Son and Daughter  
Scott and Carrie Lynn  
Written by C.L. Onorati*





Dan Kato was very busy with his new camera at Tulare.



## UPCOMING EVENTS

### **Board of Directors Meeting** **May 14, Friday** **7:00 p.m.**

The WAPA Board of Directors meeting is held at Heritage Park in Santa Fe Springs. All members are welcome and encouraged to attend. If you have ideas on how WAPA can become a better club, or if you just want to come and join in the festivities, please join us.

Heritage Park Rd. is located just south of Telegraph Road just west of Norwalk Boulevard. The meeting is held in the train depot next to the steam locomotive.

### **Home School Show** **May 31, Monday (Memorial Day)** **Show 9:00 a.m. – 4:00 p.m.**

Located at Ontario Christian High School. Exit the 60 freeway on Mountain, and go north 1/4 mile. For more information, contact show chairman, Craig Maxwell at 951-681-4449.

### **Brentwood Science Magnet School Fair** **June 6, Sunday** **Show 11:00 a.m. – 4:00 p.m.** **Setup begins at 8:30**

From 405, exit Wilshire and go west. Turn right on Bundy, left on Montana, then right on Gretna

Green. The entrance to the school will be on your left.

This show is attended by many families with polite and inquisitive children. The school places us in a nice location and serves coffee and pastries during the setup.

Without this fundraiser, the school would not be able to continue many of its exciting and educational programs.

For more information, contact show chairman Bob Smith at 909-435-9978.

### **Sonora High School FFA Car Show** **June 12, Saturday** **Show 9:00 a.m. – 3:00 p.m.** **Setup begins at 8:00**

Located at 401 S. Palm, La Habra. From the 57, exit on Lambert, go four miles to Palm, and turn right. Enter between the big building and the tennis courts. Don't wait in line with all the car people.

Traditionally, this has been a car show to benefit the school's Future Farmers of America program. This year it has expanded into a three-day event with other attractions. WAPA will only be attending on Saturday, in conjunction with the car show.

There will also be a livestock auction, so bring your checkbook and go home with a cow... or a goat. For more information, call show chairman Rob Skinner at 562-694-2301.