

March 2008

# HIT & MISS

Journal of the Western Antique Power Associates

## FRANK MOODY'S FAIRBANKS MORSE

### A Six Horsepower Type T engine stays among

This article is dedicated to the memory of Jack Morgan. Jack was a long-time friend of Frank, a collector of old iron, and the previous owner of this fine Fairbanks Morse engine.

After Frank acquired the engine from Jack, he began familiarizing himself with the subtle nuances that set this engine apart from others.

Fairbanks Morse made their first vertical "farm" engine in 1895. In about 1898, the name "Jack Of All Trades" came into use, primarily for skidded engines. Soon thereafter emerged the "Type T" designation. The exact nomenclature varied depending on the period of production and the configuration of the engine. In about 1908, the "Type T" designation applied to all the vertical engines. The Type T was discontinued about 1915 after the release of the Type Z engine.

Although the Fairbanks Morse factory records prior to 1911 are no longer in existence, it is believed that Frank's engine was built in 1910. One of the most noticeable features of this engine is the optional cast iron water evaporator. Most of the Type T engines were



equipped with a large, external cooling tank. This more compact evaporator tank allows for greater portability and more efficient use of space. Factory literature claimed that an engine thus equipped would run at full load for two hours before the evaporator needed refilling.

Frank's engine uses low tension ignition. That means it has a pair of electrical contacts within the cylinder. As the piston approaches top-dead-center, the contacts close. At the proper time, the contacts "snap" open, creating a spark, and therefore the ignition of the fuel-air mixture. On the ignitor trip finger is a small knob on an eccentric that allows the ignitor to trip at a

friends

later time. This retards the spark for easy starting.

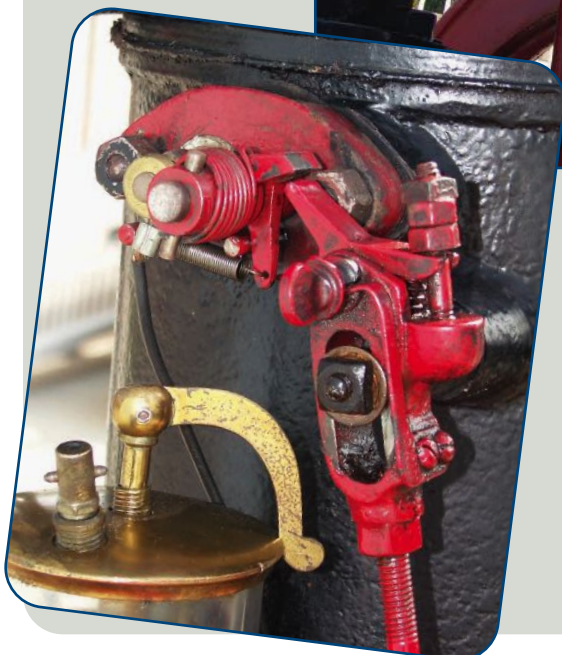
The fuel pump operates continuously off of the governor shaft, which turns at half the crankshaft speed.

The mixer is an overflow type. It has a reservoir that is supplied by the fuel pump. After the fuel reaches a certain level, excess exits a hole and is returned to the fuel tank. The mixture is controlled via a needle valve and there is a choke for starting. Before starting, the lever on the fuel pump is cycled until the reservoir in the mixer is full. The fuel level can be viewed by lifting the cap on the mixer. Lubrication of the mains and the governor

shaft is by grease cups. Cylinder lubrication is by drip oilers. The rod cap has a tube which dips into the sump and lubricates the rod bearing.

At this time, Frank is working on adjusting the end play on the crankshaft. This involves loosening a flywheel and pushing it further on to the crankshaft. He is also working on the breather, a large, cast iron clamshell that fits on the side of the crankcase. Frank intends to build it so that the engine does not fling oil all over the place.

If all goes according to schedule, we will get to see Frank's Fairbanks Morse running at Tulare in April.



Clockwise from top right: Fuel pump and priming lever, mixer, ignitor and ignitor trip, low tension coil.



# MINUTES OF THE BOARD OF DIRECTORS MEETING HELD FEBRUARY 8, 2008

**Members present:** Wayne Mabb, Bob Swan, Bob Smith, Tom Millett, Kelley Garcia, Joe Siddons and Leroy Overstreet.

**Board members excused:** Jack Johnson and Craig Maxwell.

**Members present:** Gus Lukrofka, George Noble, Slats Seeley, Rob Skinner, Jim Davis and John Hampton .

Meeting called to order at 7:03 p.m. by President Wayne Mabb. Flag salute led by Jim Davis.

## REPORTS:

**President:** Wayne Mabb spoke briefly about work at the Rubel Pharm Castle.

**Vice President:** Bob Swan

**Secretary:** The minutes of the January 11, 2008 board meeting were approved on a motion by Millett and seconded by Smith.

**Treasurer:** Kelley Garcia distributed balance sheets for the year 2007. The Operations Category had inflow of \$5,216.86 and outflow of \$7,711.24 with a net of -\$2,494.38.

She distributed the Smith Barney Museum fund category that had a positive net flow of \$8,854.85. All flow sheets filed with Secretary.

**Membership:** Jack Johnson absent.

**Purchasing:** Overstreet made no purchases. Tom Millett reported on the orders he is having printed. There are 1000

WAPA brochures, 5000 recipes, small cookbooks and large cookbooks. The small books are \$1.82 ea. The large books are \$3.25 ea. The large have 160 pages, two sided.

**Safety:** Joe Siddons had nothing to report.

**Library:** Craig Maxwell absent.

**Shows:** Quartzite show is from January 25th through 28th.

Tom Millett was in contact with Wilson School. They will not have us as part of VIP day this year.

Highland Citrus Festival is on March 29th.

Open House and Neighbor Appreciation Day at the Glendora Rubel Castle is on April 12th. All WAPA members cordially invited. The WAPA rehab teams will be running the two Western engines (30HP & 60HP).

Tulare show is on April 18th through 20th. They are reducing our real estate somewhat, but there will be plenty of room. Jim Davis will be there on Thursday to hold the fort.

Antique Truck show will be on May 4th at March Air Base museum again this year.

The Home School show will be on May 26th.

The Brentwood Magnet School show is on June 1st.

The Sonora School Car show is on June 7th.

Rancho Los Alamitos show will be on June 8th.

Woodland CAT show is on June 20th through 22nd.

**BREAK:** 7:42 p.m. - 8:00 p.m.

**Editor Report:** Rob Skinner asked that everyone wanting to submit articles to him should get them in early, and that the 20th of each month has to be maintained as a deadline because of his limited time commitments.

**Prado Regional Park:** No report.

**Rubel Castle:** Tom Millett reported that he has two teams competing on which one will get their engine functional first. On February 2nd, most work was done in cleaning and removing some hazard issues. Attempts to start the engines failed due to low air pressure caused by an underground leak, which will have to be found. The teams go through the gate at 9:00 a.m. on work dates and conclude work by 1:00 p.m. The next work date to be on February 16th.

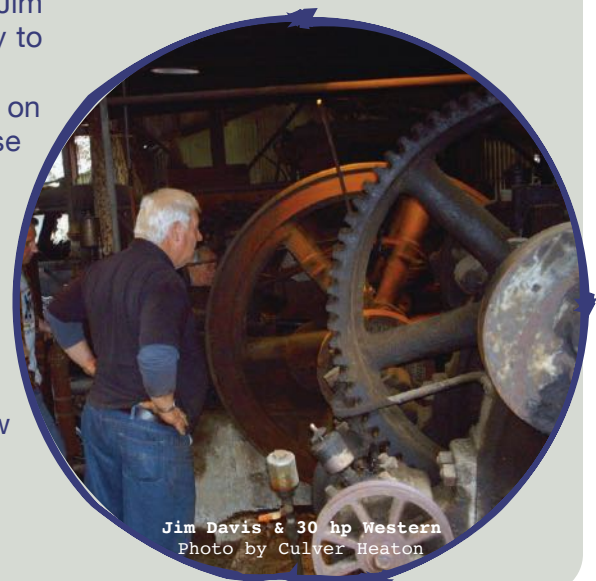
**Old Business:** None

**New Business:** None

**Announcements:** None

**Adjournment:** 8:44pm

**Tom Millett, Secretary**

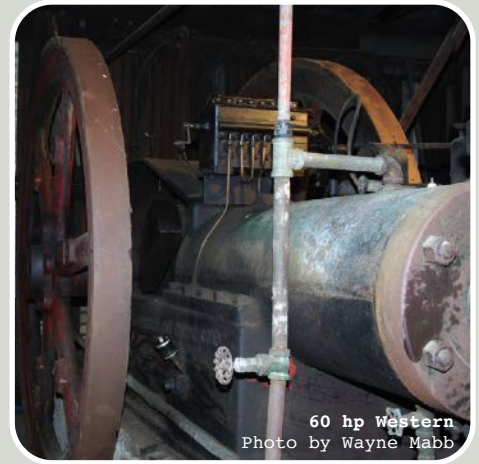


Jim Davis & 30 hp Western  
Photo by Culver Heaton

# RUBEL CASTLE PROGRESS



Leroy Overstreet, Jim Davis and Jack Johnson working on 30 hp Western  
Photo by Culver Heaton



60 hp Western  
Photo by Wayne Mabb



Rob Skinner & Friend  
Photo by Wayne Mabb

## Culver Heaton's report on the most recent WAPA workday at the Pharm

Quick WAPA Pharm report.

Saturday morning (2/16/08) the two WAPA crews gathered about the Western 60 HP and Western 30 HP, and during the morning both engines were up and running several times. They are fired on natural gas. There are a number of bugs to work out such as redirecting some of the water lines and providing compressed air to start the engines spinning at start up. Also the clutch between the 30 HP Western and the water pump is really "funky". Seems these systems are very weak and they did blow the air line from the Box Factory to the 30 HP Western. Used portable compressor to start up the 60 HP Engine. One issue is still a real puzzlement and anyone who has real knowledge on the exhaust system for the 30 HP Western could be of a big help.

So, let me try to explain the situation. The Exhaust for the 30HP leaves the engine in an old 3 to 4 inch steel pipe (east side of machine) and dives deeply under the dirt drive between the engine shed and the gas pumps. This pipe leaks just below the level of the driveway and descends at about a rate of 4 in 12 inches into the dirt. We dug it out a bit to try to trace it. It is very unlikely that this pipe connects with the 30 tall exhaust stack near the brick steps as we first thought.

Now the exhaust for the 60 HP Western (pump house) clearly exhausts out of the ground into a small round brick chimney (3 feet high) about 25 feet north and a few feet west

of the north wall of the pump house and near the north Pharm Wall (good woosh, woosh of exhaust air). The interesting thing is that when the 60 HP Western is running, (and the 30 HP Western is off), you can also hear a slight (woosh, woosh) coming out of the hole in the exhaust line (at driveway dirt level) for the 30 HP Western which is about a 125 feet south of the pump house. It would appear that the two exhaust systems are connected and might exit into the small (about 3 foot high) round brick chimney north of the pump house near the north Pharm Wall.

Taking into consideration the Pharm Lore about all of this being connected into the neighborhood sewer system... any factual information on this would now be helpful. So far, I am not aware of any neighbors complaints about back flushing of toilets last Saturday. WAPA is thinking about digging up the line in the driveway. But, I think that this would be a lot of effort and not necessary if we could figure out the exhaust system. A quick patch of the hole might be all that is necessary.

So, Please let us know if you (or you know of someone) who can contribute any factual info. on the engine exhaust subject. WAPA will be out again next Sat. to make systems repairs.

End of report.

Culver

# BIG WHEEL TECHNOLOGY

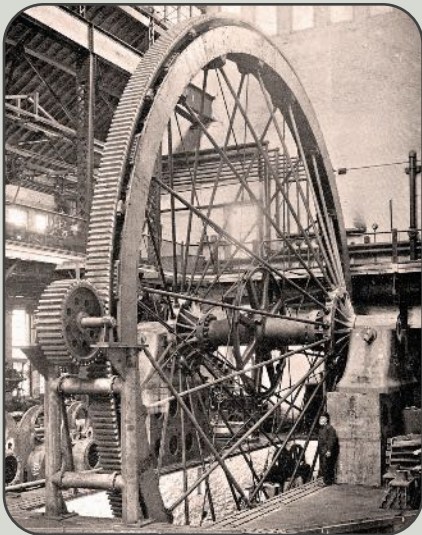
## George Ferris - Was He Really the First?

The Ferris Wheel at the 1893 World's Fair was truly a magnificent creation. It was America's answer to the Eiffel Tower, the crown jewel of the 1889 Paris exhibition. The diameter of Ferris' wheel was 250 feet. It had 36 cars that each carried sixty passengers. The forty five foot axle was the largest piece of cast iron in the world. The wheel was powered by two 1000 horsepower engines. George Ferris was branded an engineering genius for his invention of a new mechanical principle: the tension wheel.

Someone once said something about there being nothing new under the sun, and so it was with Ferris' tension wheel. As magnificent the grandeur of the 250 foot diameter Ferris Wheel, tension wheels were in use decades before Ferris' birth.

Two large tension wheels in use before the Ferris wheel were the sand wheels used by the Calumet and Hecla Mining Company at their stamp mills at Lake Linden, Michigan. These wheels were designed by Dr. E.D. Leavitt in 1888.

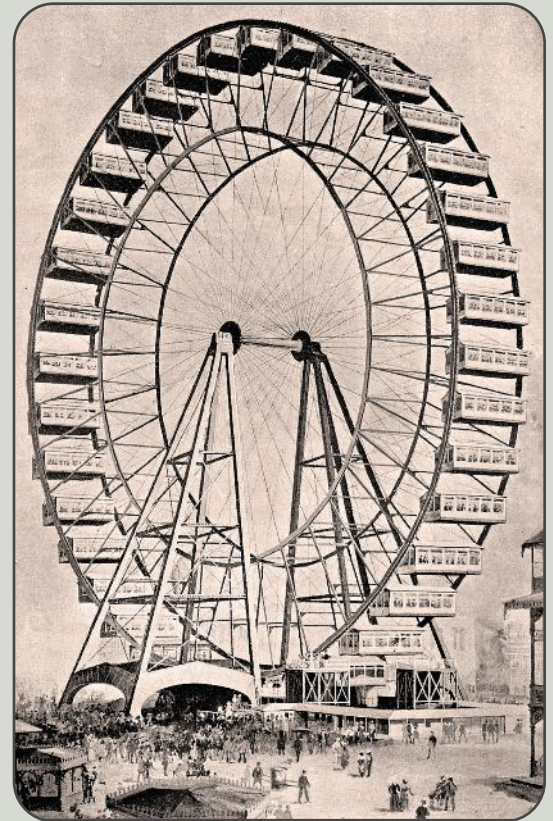
The Calumet and Hecla wheels were 54 feet in diameter and 11 feet wide. In one day they could raise 30,000,000 gallons of water and 5,000,000 pounds of sand.



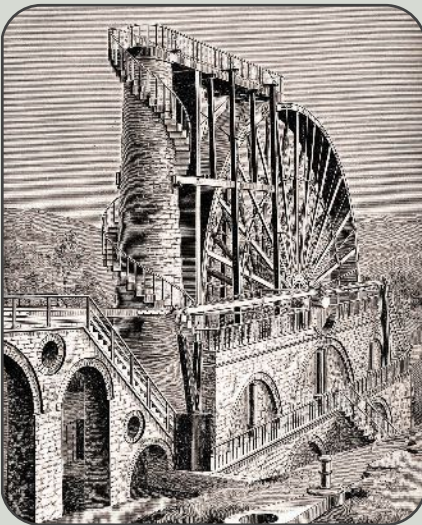
The photograph at left shows the wheel before the installation of the buckets, during the initial set-up at the Dickson Manufacturing Company in Scranton, Pennsylvania.

At the time the Ferris Wheel was being built, the largest waterwheel in existence was the Laxley wheel on the Isle of Man, off the west coast of England. It was a tension wheel, 72 feet 6 inches in diameter and was supposed to produce 150 horsepower.

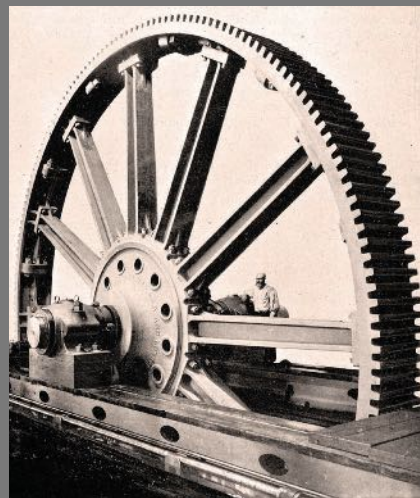
The purpose of the Laxley wheel was to provide power to pump water from a lead mine. The pumps raised 250 gallons of water per minute from a depth of 1200 feet. The wheel was constructed forty years before Ferris' and was said to have run continuously during that period.



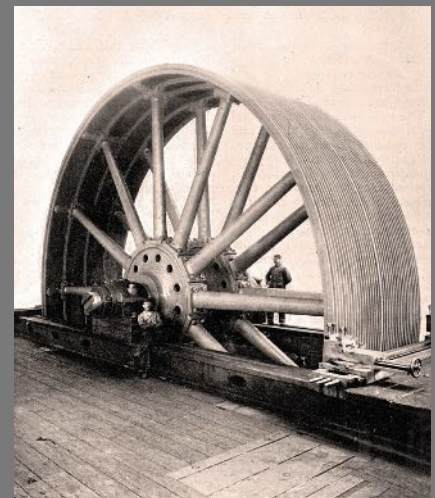
## More Really Big Wheels



The Calumet and Hecla sand wheel (top) and the Laxley wheel (above) are tension wheels that predated Ferris' wheel.



Machine cut spur gear, 30 feet 6 inches diameter, at the Kimberly Diamond Mines, South Africa, built by the Walker Mfg. Co., Cleveland, Ohio.



Rope wheel, 32 feet in diameter, 8 feet 4 inches face, built for the Broadway Cable Railroad, New York, by the Walker Manufacturing Company.

## President's Report

Wayne Mabb  
wmabb@yahoo.com

(626) 286-6452

As we all go along joyful times are tempered with sad times. We all mourn the loss of Bob Helm, and I hope that as many of us can go to his service on March 1 and show support for his widow and family.

The two Western engines at the Pharm have been run and we continue to work to restore them for running during public view.

A group of cub scouts got to see them last Saturday and at least their leaders were impressed.

Go find new toys and play safe.

## From the Editor

Rob Skinner editor@wapa.us  
(562) 694-2301

The first order of business this month is to apologize to Craig Maxwell for omitting him from the list of our new Board of Directors in the February Hit & Miss. Craig is our Librarian for 2008 and we are all grateful for his dedication to the club.

Although this month's edition is frantically being put together at the last minute, it's been a blast! I got to see Frank Moody's most recent toy, play with some really big Western engines, and read about a lot of neat old technology. I hope you're enjoying it as much as I did.

Gus Lukrofka sent over a bunch of pictures that he took at Quartzsite in January. Here are a couple on the right.

As usual, if you have anything for the Hit & Miss, give me a call or an email as early in the month as possible. If you're reading this and are not already a WAPA member, contact us and we'll get you fixed up. Last, but by no means least, a hearty WAPA welcome to Tom Fee, our newest member.

Hope to see you all soon at Highland!



## UPCOMING EVENTS

**March 14, Friday**

**7:00 p.m.**

**Board of Directors Meeting**

The WAPA Board of Directors meeting is held at Heritage Park in Santa Fe Springs. Heritage Park Rd. is off Telegraph Road just west of Norwalk Boulevard. The meeting is held in the train depot next to the steam locomotive.

**March 29, Saturday**

**10:00 a.m. - 3:30 p.m.**

**Highland Citrus Festival**

From the 10 Fwy, take Route 30 Freeway North to Baseline. Take Baseline West

to Church Avenue. Turn right on Church and proceed to Pacific Street. Turn left on Pacific to Center Street on your left. We will have the entire street again this year with plenty of parking.

Show Chair: Bob Smith  
(909) 435-9978  
smith@diamondpointe.us

**April 12, Saturday**

**Rubel Castle**

**Invitation from Scott Rubel**

The Castle will be having a Neighbor Appreciation Event and Historical Society Open House on April 12. WAPA will demonstrate the Western engines. This is an excellent opportunity for any curious WAPA members who may not

ordinarily pay a visit. Watch the April Hit & Miss for details.

**June 20-22**

**Antique Caterpillar Machinery Owners Club**

The Dan Best Ranch in Woodland, California is providing over 160 acres of land for the 2008 ACMOC (Antique Caterpillar Machinery Owners Club) National Show. Some details can be seen at [www.bestshowontracks.org](http://www.bestshowontracks.org).

The show is concentrating on Cat and California products, but will except any model for display or work. Engine displays will also be included. Sites will be available for camping or RV's. Please contact Craig Maxwell with your intentions ASAP.