

## President's Report - January 3, 2012

2011 was a year of projects both at the sawmill and at the shop.



Number one was the fabrication and installation of the sawdust conveyor system to replace the old worn out chain sawdust drag line. The principle components (belt & roller frames) of the conveyor were donated by the John & Gary Kimura of Live Oak, Ca. To power the conveyor, a flat belt line shaft was installed in the overhead of the sawmill and driven by a small steam engine mounted near the boiler. The power for the line shaft and conveyor for the 2011 Fair was a rare restored Dake square piston engine on loan from Mike Oswalt.

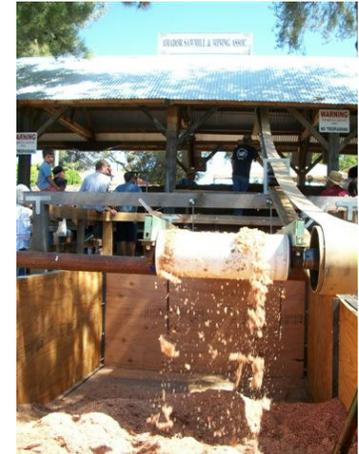
We had hoped to have the restoration of a 1890's Smith & Sayer bottle frame engine completed by fair time. The engine has since then been completed thanks to Ron Edgar and will be up and running for 2012.

The sawmill volunteers pitched in with digging, jack hammering, concrete pouring, brick laying, machining, welding, timber framing, sweat & cussing, beer and good company.

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The logs were donated for the 2011 Fair by the Sierra Pacific Industries through the much appreciated efforts of Craig Ostergaard, SPI forester. A redwood tree was also donated by John Wabs of Amador County. The tree was fell by Brian Oneto, and with the help of Eddie Oneto and John Plasse limbed, bucked into 16 ft logs, and hauled to the Fairgrounds.



A 15 HP compound upright steam engine was donated to the Association by Jim Hutchinson of El Dorado County. The engine was part of his father's small machine shop in Sacramento during the 1930's. It powered a line shaft that ran a lathe, milling machine and pedestal grinder through flat belts. A crew of volunteers has been organized by Ron Edgar to restore these historic machine tools to operation.

The Pokerville Mine display next door to the Sawmill will be getting some help from three of the ASMA volunteers. Some of the key timbers in the wood head frame have developed dry rot. Bob Wolin who operates that display each year asked for help in making repairs. Alan Langmuir, Jerry Virtue, & Richard Hansen have stepped forward and made good progress thus far.



This year (2012) the Fair has scheduled a new event called the Amador Fair Aid and Home Show to be held on June 8<sup>th</sup> thru 10<sup>th</sup> at the Amador County Fair Grounds. The annual Home Show and the annual Fair Aid programs this year will be combined to help raise operating funds for the Fair. This is in response to the State Government of California

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having cut off all supplemental funding to all of the California County Fairs. Amador Fair has been on an austerity budget since the beginning of 2011.



ASMA will be holding a new event on June 9<sup>th</sup> & 10<sup>th</sup>, during the Fair Aid weekend, called the “Steam Power Expo, Presented by the Amador Sawmill & Mining Association”. This is co-coordinated to help both the Fair and ASMA financially. A series of organizing meetings will be held leading up to the Expo. More information will be sent out as the event planning gathers steam.

Ken McCoy and Steve Bishop are busy installing new safety railings and seating for the enjoyment of the public viewing the Sawmill shows.



*“Bruno” the 1904 Nordberg Corliss steam engine was painted Forest Green and Bright Red by Austin Ford with yellow pin striping done by Ron Scofield. Beautiful!*

To our visitors, supporters, as well as volunteers:

To help ASMA fund the continuing improvements, keep the equipment in safe running order, and provide adequate liability insurance for both visitors and volunteers, we ask that you consider a donation at this time to help out. -- Thank you, Bill Braun. ♦

## Well, we finally found Watt

By Tom Innes

James Watt was a Scottish instrument maker and was working at the University of Glasgow. One of his tasks was repairing a Newcomen atmospheric engine. Remember, the Newcomen engine was an atmospheric engine, that is, it used the pressure of the ambient atmosphere to drive the piston down. Steam was introduced in the cylinder to push the piston to the top of its stroke and cold water was sprayed into the cylinder to condense the steam, allowing the atmospheric pressure to drive the piston. This cooled the cylinder and the lost heat had to be made up so the cycle could be repeated.

Watt came up with the idea of a separate condensation cylinder. This cylinder was connected to the main cylinder with a pipe with a valve. When the piston reached the top of its stroke, this valve was opened, exposing the steam to a cold surface, causing the steam to condense in this separate cylinder, allowing the main cylinder to remain hot. This separate condenser was cooled with water.

This was still an atmospheric engine, but Watt came up with the idea of closing the top of the cylinder and injecting low pressure steam. This combined with the low pressure caused by condensation added to the power. It should be pointed out that Watt was against using high pressure steam.

This was a major improvement in Newcomen’s engine, both in terms of power and fuel efficiency.



The power was applied to a walking beam with a chain. Power was on the down stroke only.

Watt had the same problems as other fabricators in obtaining precision machined parts. John Wilkinson was an iron fabricator and was providing cannon barrels to the British Navy. He had pondered over the problem of an accurate bore of the cannon to improve accuracy, safety and distance. Most boring bars of those days were a long drill bit. Wilkinson's idea was to support a boring bar from both ends and rotating the work, thus eliminating any effects of gravity. This resulted in surprising accuracy, on the order of a thousandth of an inch for a cannon barrel. This had a major effect on Watt's ability to fabricate larger bore engines, up to 50 inches or so.

By this time, Watt had formed a partnership with Matthew Boulton, a British entrepreneur, who was able to fund additional work and had facilities to manufacture engines. This saw a number of Watt's engines replacing the Newcomen's throughout England.

The thought of using power strokes in both directions had been tried. An early version violated a patent Watt held. Watt had also considered this idea but was stymied on how to connect a piston to a solid rod. Chains only work in tension. Piston travel needed to remain in a straight line and a connecting rod could not pivot without a lot of wear on the piston cylinder interface. A walking beam attachment was always moving since the beam has a pivot point that causes back and forth motion during operation. Modern engines get around this problem using a cross head.

Watt developed a parallel motion connection using connecting rods and a pantograph to approximate linear motion over a short distance. He was especially proud of this invention.

Now that we have power strokes in both directions, this suggests driving a wheel. The idea of a crank had already been patented so Watt came up with a planetary gear system that allowed connection to a wheel. When the crank patent expired, Watt adopted the crank to his engines. He also adapted a governor to regulate speed. This was a flyball governor but he was not the inventor. They had been used earlier to control the speed of windmills.

All this occurred during the late 1760s to 1775. After this date, there was constant improvement in steam power.

Intellectual property became an issue during this time also. There were many really nasty fights during this time and as one can imagine, the law was in a constant state of flux. However, as time went by, the law was flushed out and some semblance or order was established: A good subject for the next issue. ♦

## Machine Tool Restoration Project

By Ken McCoy

Last year Jim Hutchinson, a retired machinist living in Mt. Aukum, made a very generous contribution to the Sawmill Association. Included was a two cylinder marine steam engine used on a navy cutter and a number of machine tools. Restoration of the machine tools effectively began on Sat. Jan 14 with a meeting in Bills shop and the identification of a dedicated work area. The finished exhibit will include engine and tools in a representation of a turn of the century operation and is anticipated to be mobile so that it can be exhibited separate from the mill. Ron Edgar is in charge of the machine tool restoration and Bill Braun will supervise work on the engine. ♦

## Wooden Ore Car

Made with lumber cut at the mill

By Phil Kreiss

This fall, Phil bought some seasoned 1x8 Doug Fir planks from the Sawmill Association to use for a project. They were cut at the mill last year and dried straight and true at Bill Braun's lumberyard. Phil builds replica ore cars for a hobby, and decided to reproduce a copy of a wooden ore car used in Idaho that he saw in an old photo.

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Back in the 1860's and 1870's, steel ore cars were hard to come by out in the west, so miners improvised and built their cars out of wood, with a minimum of hand forged metal parts. The only thing they had to import from a foundry was the wheels and axles. Some foundries even sold kits with all the steel parts: Wheels, axles, strapping and hinges. Where did the miners get their wood? Why of course, from a local lumber mill. Some of the bigger mines, like the Kennedy, had their own mills, but miners at small "wildcat" mines went to a small mill like our Amador Sawmill, and picked out lumber, or had it custom cut. Almost all the ore cars used in the Comstock mines before 1875 were made out of wood cut in the Sierras—they were sturdy and heavy, often made of two inch oak planks. At smaller mines, cars were cobbled together out of what ever planks and timbers the miners could get a hold of, so some of the designs were pretty crude, and the construction was shaky. When the ore cars fell apart or wore out, it was easy enough to get some new wood to repair them. By the 1880's, bigger foundries in San Francisco, Denver and Salt Lake were turning out well built steel cars, which lasted much longer, and were actually lighter (when wooden cars get wet, they become very heavy!) However, even into the 1890's prospectors and small time "wildcat" miners were building cars out of wood from their local mill. This car was built out of many old authentic parts collected over the years, plus some standard dimensional steel, and some nice planks from our own sawmill. There was a lot of measuring, scale drawing, cutting, drilling, riveting, threading, bolting and lagging, etc., using the same tools as the old timers (with the exception of an electric drill.) In the end everything fit together just fine—the beautiful rough cut planks made the car look just like an original. ♦



## Don't Fence Me Out Song

As sung at the ASMA potluck dinner

Two years ago Bill learned that the Joshua Fest was coming to the Fairgrounds; that the area would be swarming with teenagers. "Holy Joshua", were his words. "We'd better protect the saw mill" and a fence was erected. Now these are nice young Christian kids who, well yes, might do what kids do when gathered together away from home, but, on the other hand, there just may be some redemption here. I wrote the song: *Sawyers Saw the Light, or, Don't Fence Us Out.*  
*Austin Ford*

## SAWYERS SAW THE LIGHT

or

## DON'T FENCE US OUT

Austin Ford, September, 2011

### CHORUS

We saw the ce-dar, we saw the pine;  
We saw the big logs, cut them up fine;  
We make the lumber, morning to night,  
Holy Cor-liss, we saw the light.

1. We saw the sun's rays, saw through the rain  
Saw through the moonbeams, watchin' them wane  
Cut through the darkness, till it gets bright.  
Inside the fen-cing, we saw the light.

2. We have a saw-yer; off bear-ers too  
Set-ters and skin-ners, oh what a crew  
Crusty old Straw boss, best do it right  
This ship is steady, it runs real tight

3. We've got the muscle, plenty of Brawn  
Virtue and goodness - part of our song  
Humphrey and Hansen, they're the big boys  
The Powers that Tower, the real Mc-Coys

4. Thanks be to Dutton, keeps us in steam  
All glory to Nordberg, the torque is supreme  
Who needed hemi's, who needed Case?  
We are the sawyers, we cut to the chase.

## Sawmill Crew—2011



Standing in rear left to right: Phil Kreiss, Ken McCoy, John Tower, Kevin Jarrett, Austin Ford, Steve Bishop, Eric McConnon, Frank Tower, Al Langmuir, Joe Harraleson, Jerry Virtue, Vera Head, Jim Jarrett, Jim Headd, Jake Headd. Seated in front: Alan Hiatt, Alex Sharp, Bill Braun, Matt Maives, Morningstar Bryan.

## PILEBUTTS TO DONKEY PUNCHERS

Edited by Austin Ford



**Installment #1: Chasing a lead**  
Steam pile driver on barge in San Francisco

### The Lead Chase Team:

*Inspectors:* Richard Hansen, Alan Langmuir, John Tower, Jerry Virtue, Bill Braun  
*Phone & Paper Chaser:* Bill Braun

Emotions at Bill Braun's shop ran high in the spring of 2003. Restoration of the unique Corliss-Nordberg steam engine that would power the Saw Mill was nearing completion. There was just one problem...we didn't have a certified boiler; where would the steam come from? As is often the case, a unique need would precipitate an historic solution and a fascinating story, one that 'you'll be telling the grandkids'!

We (the Amador Saw Mill & Mining Association- ASMA) had acquired a Washington Iron Works boiler but it needed significant work before it would become operational and, more importantly, certifiable. A working boiler could be put to work sooner. As luck would have it, a State of California boiler inspector alerted

Bill to the Port of San Francisco's plan to retire two steam pile drivers, each with a certified boiler. Perfect! The chase was on.

Bill immediately contacted the Port of San Francisco for information. It turned out that the pile drivers, each on its own barge, had, in fact, been used to maintain and build piers in San Francisco Bay for over 50 years and the time had come to retire them. They were going to a new home somewhere.

## Red Tape Roller Coaster

In an effort to keep the pile drivers from being completely scrapped, it turned out that the Port was actively talking with the San Francisco Maritime Museum about preserving one or both as an exhibit. Not much chance of an ASMA acquisition here.

It was months later that the Maritime Museum decided it was not feasible to take on the pile drivers. Our hopes were suddenly raised! Unfortunately, The Port, continuing its pursuit of a local resting place for the rigs, began discussions with several other Bay Area historical groups about preserving the pile drivers. Our hopes went on hold.

The next several months seemed like a roller coaster ride: high hopes followed by dashed hopes, a glimmering hope followed by little hope. Regardless, we waited patiently on the sidelines waiting for a chance to play, never giving up on the opportunity to acquire one of the pile driver rigs.

## Action Anyway

In August, motivated by a glimmer of hope and a need to do something, Richard Hansen and Bill made a trip to inspect the pile drivers. Through ASMA Member Captain Alan Langmuir's Bay Area marine contacts (OK, he own a sailboat and hangs around the waterfront a lot), a marine surveyor agreed to donate his services to inspect the rigs and provide an appraisal of the equipment. Documents were submitted to the Port that authenticated (a) our Association's non-profit exempt status and (b) our ability to both preserve and utilize the steam equipment. More waiting.

Ever optimistic and always 'can-do', Bill began the daunting logistical planning process, just in case. How do you move a pile driver/barge in the water in San Francisco Bay to Amador County? A challenge.

By March 2004, almost a full year after the conversation with the State Boiler Inspector, every one of the San Francisco area historic preservation groups backed out; we were back in the running. The Volunteer's spirits soared. A new flurry of bureaucratic red tape ensued but, optimism prevailed and we began preparations to transport the rigs.

Yes, truth be known, a sense of uneasiness hung in the shadows. Until the final documents changed hands another roadblock could easily be thrown in the way.

Then, on April 6, 2004, ASMA became the new owner of not one, but **TWO** steam pile driver rigs!! The real fun began.

*To be continued.* ♦



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## ADDITIONAL PHOTOS



Photos Courtesy: Page 1, 2, 5 upper, 6, 7, Bill Braun. Page 4, Phil Kreiss. Page 5 lower, Austin Ford. Page 7, Barbara Kreiss, Tom Innes

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## Upcoming Events:

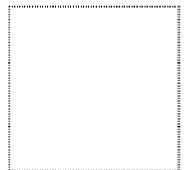
DATE	TIME	EVENT
June 9 <sup>th</sup> & 10 <sup>th</sup> 2012	Sat. 10 A.M. to 6 P.M. Sun. 10 A.M. to 5 P. M.	ASMA Steam Power Expo—The Boiler and Corliss will be used to supply steam and compressed air to power steam engines and models on display.
July 26 thru 29 2012	11 A.M. and 3 P.M.	Amador County Fair—Sawmill in operation—Two shows daily
November 3, 2012	11 A.M. to 7 P.M.	SAWMILL DAY AND APPRECIATION DINNER. Where: Amador Fairgrounds, Spur building. This event is held for all volunteers/families and invited guests.
Third Saturday of each month	8:00 A.M. to -----	Volunteer Workdays at Sawmill—No activity in November and December.

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AMADOR COUNTY SAWMILL HISTORY:  
ALIVE AND WELL FOR THE FUTURE.