AMADOR SAWMILL
& MINING ASSOCIATION

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Fall & Winter, 2013
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President's Report - September, 2013

This report wraps up another year of progress and achievement for the Amador Sawmill & Mining Association.

The sawmill performed well during the July Amador County Fair. We had a special cut order placed by Eddie Oneto for Douglas Fir timbers. These timbers are to be used in the restoration of the Oneto family logging wagon from around 1914. The cut was a success and we look forward to seeing the wagon when Eddie completes the restoration. John Tower and his crew kept the sawdust flying and the lumber rolling out of the mill.

Joe Harralson and Phil Kreiss kept "Bruno" and the auxiliary line shaft engine running smoothly in the Engine Room.

The Sawmill Boiler Room crew were hustling keeping the firebox stoked to supply all the steam needed by the Engine Room. Frank Tower, Eric McConnon, Kevin Jarrett, and Alex Sharp round out the boiler room crew. Some of that crew also helped Tom Innes with the Steam Donkey operations.

A special machine shop display was completed in time for the Fair. See the pictures of the display in this newsletter. The restored antique machine tools were part of the collection given to ASMA by Jim Hutchinson. Jim and his family were on hand to be given a special tour of the exhibit. The display was very popular with the public. Memories were sparked with the old timers who had many happy tales to tell. Hats off to Ron Edgar and his team of Joe Harralson, Dave Linquist, Jim Hall, Wayne McCammond, Ken McCoy, Steve Bishop, Ed Arata, and Al Langmuir for their excellent planning and teamwork on this project.

The annual State of California boiler inspections in June went off without a hitch. During the layup period both the sawmill boiler and donkey boiler are protected by nitrogen gas on the water side. A thorough cleaning and drying of the water side is done before installing new hand hole gaskets and turning on the nitrogen metering system. Cleaning of all fire side surfaces is done with brushes and water washing. After drying, the firesides are coated with Shingle oil to stop damp corrosion. Tom Innes and Frank Tower head up that program. Good work guys.

Our storage of lumber in the warehouse has been a manual operation until recently. Our thanks go to Mr. Richard Wylie for his generous donation of a small warehouse forklift. It was manufactured in 1945 by Clark Lift Company. The volunteers have rebuilt the brakes, with new seals installed in the drive axles. The lift cylinder has new seals installed. All components of the hydraulic system have been flushed and checked for leaks. Also flushed was the differential and transmission and refilled with new gear oil. The engine had the oil and filters changed. New hard rubber tires were installed on the drive axle. The engine runs strong. The hoist is rated for 4,000 lbs. Loading and unloading operations with the forklift will greatly reduce the physical workload in the warehouse and the risk of injury.

The annual ASMA potluck dinner will be held at the Amador Fairgrounds in the Spur Bldg. on Sunday, November 3, 2013, starting at 4 pm. Master Chef Ken McCoy and his second in command, Steve Bishop will produce the culinary delights they are famous for.

The last Board of Directors meeting for 2013 will be held before the dinner at 1pm in the same location. I invite all volunteers to attend the meeting to hear and discuss the latest planning and progress reports.

Bill Braun
President
ASMA

Amador Sawmill And Mining Association Is Looking For Volunteers

A.S.M.A. is expanding its program in steam sawmill history: Volunteers are needed to learn how to operate historical exhibits. Do you want to learn how to operate a sawmill, a stationary steam engine, a steam powered donkey engine, or wood and oil fired steam boilers? Or are you interested in restoring old machine tools? If so, contact Bill at:
(209) 245-3448 or e-mail
info@amadorsawmill.org

P.S.—we also need volunteers to help us in Fundraising, Public Relations, Communications, Etc. too!

From Watt to Strong Steam

THE STORY OF CORLISS AND HIS ENGINE
By Tom Innes

When we last left James Watt and his steam engine, there had been continuous improvement in operation. But if you remember, Watt was opposed to the use of high pressure steam, better known as strong steam. Most of his engines tended to operate around 10 psig, not much over atmospheric. This limited the power one could get.

Watt was very protective of his intellectual properties. Part of the reason for this was the fact Watt did not outright sell his engines. What he and Boulton did was to charge for the user for the work done. The pumping application would allow them to charge the amount of water pumped. In the coal mines, they would charge for the weight lifted. As you can imagine, this was really lucrative. It sure irritated the user and but there was little they could do. But there were 450 Watt engines and 1500 Newcomen in the UK. Boulton and Watt were doing very well.

But around 1800, many of his patents had expired. So competition became the norm for the day. Also, steam pressure was increased. There had been several steam explosions so people were worried about using the higher pressures. But the demand for increased power was great. An answer to this was to make the engine very large, five foot bores and ten foot strokes could work well at 10 psig. This is OK in a stationary engine, or perhaps a marine engine, but doesn't seem practical for any sort of mobile engine.

The notion of heat energy was that heat was caloric in nature; that is, heat was a fluid that stayed with the material and could be used up. This theory worked for many cases. The relationship between heat and motion was not understood.

An American named Benjamin Thompson, he called himself Count Rumford after living in Europe, studied the nature of heat. He witnessed a cannon being bored. He noticed the barrel was hot to the touch. He had the barrel placed under water and noticed the water boiled at the point the boring bar was in contact with the barrel material and the boiling stopped when the motion stopped. In his mind, caloric was not used up so heat had to be something other a fluid. He was able to argue heat was actually motion. Heat energy and mechanical energy were just different forms of the same thing. This helped explained the low efficiency of early engines since the heat was fairly low.

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From Page 3….

An American by the name of Oliver Evans, was a natural mechanical engineer. He designed machines that were continuous in nature. That is he built machines that coordinated several operations in one machine, eliminating moving the work from one station to another.

Evans began thinking about steam for transportation. He recognized that by increasing the heat of an engine, therefore its pressure, he could increase the power, but more importantly, he could eliminate the separate condenser, and save a great deal of weight.
Boilers in the Watt era were similar to a large teakettle. The fire or furnace, was below the boiler. Evans's idea was to place the furnace inside a water filled chamber. With a larger area to heat the water inside the chamber, he was able to get the pressure up to 50 psig.

He built many higher pressure engines and by 1805, there were more that 100 of these higher pressure engines in use in the Eastern US. As an aside, he made an improvement over the Watt linkage, a design using isosceles triangles.

Late in the 1790s, he sent much of the data he developed to steam engineers in the UK. They were read by a Cornish mine engineer by the name of Richard Trevithick. He was interested in replacing the Watt engines. He was also interested in locomotion. He incrementally increased pressure to as high as 145 psig.

He was involved in developing an engine settle a bet that a steam engine could do more than a team of horses. This engine included some interesting features. It incorporated a fusible link that would melt if the water got too low and put out the fire. He also put a U shaped fire tube to increase heating efficiency. He vented the steam exhausting the cylinders through a smoke stack, increasing the draft and pulling more air into the firebox. The big problem they ran into was that the rails were not ready for the heavier engines that replaced the horse. This was in 1804. In any event, his engines became the standard for stationary applications, such as mines, pumps and mill machinery.

Development continued over the next decade or two. Engineers were focusing on transport issues since the power and weight were going in the right direction. Another aside: Piston rings were generally hemp. It wasn't until 1854 the split metal piston rings were developed.

There was a lot of development relating to locomotion. George Stephenson had a connection to Trevithick. As a younger man he was laborer and moved to operating stream valves on a mine pump. He started repairing Newcomen engines taught himself mechanical engineering. In 1914, he built his first locomotive to transport coal. He also developed the mine safety lamp.

Stephenson was what we would call today a railroader. Besides worrying about high pressure steam, he spend a great deal odd time worrying about railroad systems, that is rails, wheels and flanges. He established the gauge that has become the standard; four feet eight and a half inches. It was an arbitrary choice and was the width of the Killingworth Colliery road, where he had built a locomotive.

In 1829, a contest was to haul cotton over a 30 mile run between the mill and a port. For Stephenson, his locomotive was the Rocket, probably the most famous for many years. The Rocket was a fire tube boiler with 25 fire tubes. He exhausted through a stack to increase draft. He tested the boiler to 150 psig and ran at 50 psig until finally showing off what his engine would do. The contest was to haul twenty four tons at 10 mph over 30 miles. He did 15 to 20 mph and was clearly the winner.

Improvements took place after that time. The next breakthrough was George Corliss and his development in 1859. And we have one of these.

And Now For Something Completely Different

By Ken McCoy

If you visited the sawmill at the last Amador County Fair, you hopefully noticed the handmade wooden "Bench" at our information table. The bench had been "carefully crafted" from surplus lumber by Ken McCoy and Steve Bishop.

The ASMA sawmill needs to increase its audience and community support, and one way to accomplish this is to increase our mailing list for this newsletter. So we made the following offer: Share your e mail address with us and earn a chance to win the "Bench".

Shortly after the conclusion of the fair, a "closely supervised, triple blind, random selection" of e-mail addresses awarded the bench to Shirley of Grizzly Flats Ca. She has advised us that she is very happy with her new piece of furniture, but has converted it to a coffee table on her deck.

To our amazement, we have received, since the fair, orders for 3 benches, 2 coffee tables, and an outdoor picnic table! This allows us to utilize surplus lumber and the proceeds are greatly appreciated by this very non-profit organization.

For further information contact Ken at kmmccoy@cal.net

Restoration Group brings their display to the Fair

As that old variety show host **Ed Sullivan** might have said,
"The palletized Machine Shop at the Amador County Fair was a really big show."

Wow, did we ever have fun at the fair! Thanks to a lot of hard working sawmill volunteers who built the pallet, restored and installed the machines, made and adjusted all the drive belts and installed electricity. All in all that was one very successful adventure. Thanks again for a job well done.

We also were very successful with our first Silent Auction. We sold the 18 inch; stand up Royal drill press for an impressive $900.00. How can we top that next year?

Everyone loved the palletized machine shop, but we made the un-popular decision to remove the machines from the pallet in order to protect and store them. Our goal for next year is to have these machines installed in the completed 30 foot enclosed cargo trailer. The pallet concept taught us a lot and we can apply this new knowledge toward the design and retrofitting of the trailer.

Why the trailer, you might ask. Well, the trailer gives us the ability to protect our equipment all 12 months of the year. Being enclosed not only will keep the environment from affecting the machines and equipment but it will allow us to create an interior design which better reflects the historical period of the early 1900's. This trailer is one of the ways that ASMA has chosen to "reach out" to the community. When completed, we will be able to show this at local schools and events of our choosing. The exterior of this trailer will proudly display the ASMA logo and it will list all major contributions that helped make this possible.

If you're interested in joining our restoration group, please give me a call (Ron Edgar @ 209-304-7483), or Email me at 4edgars@msn.com.

Ron Edgar

STEAM FOR THE SAW MILL *or PILEBUTTS TO DONKEY PUNCHERS*

By Austin Ford

How two San Francisco Bay pile drivers became part of Living History in Amador County, California

CHAPTER 3: At Sea (sort of)

Note: Previously, we have discussed how the equipment was found and preparations to move it to Amador County.

April 16, 2004
Tugs and barges, and now-salty volunteer crew from the foothills, got underway, leaving the pier in its original condition, and moved out into the bay. There was no hint of the excitement to come.

It wasn't gale conditions but the 10-knot westerly stung and our unusual wind profile didn't slice through it well. Two slab-sided 2-story houses with 85 foot masts on enormous barges with 7 foot draft were a handful. We heard the rev's.of the three 6-71 diesels increase but not much happened. Three knots and no more! Glad the tide was ebbing which was helping us now.

It Gets Tricky
At the helm twenty feet up, Tug Skipper Mark still couldn't see forward through Pile Driver #2, but calmly navigated using a laptop chart program and by communicating with Coast Guard Vessel Traffic on the VHF radio. Then it got tricky.

We were pushing north under the Oakland Bay Bridge with the wind strengthening through the Golden Gate at a right angle to our course. Given our unusual lashed-up rigs, windage and current, steering became marginal. Mark started to lose control as we resolutely headed for (I mean 'under') the bridge. Bill yelled to all of us to get on the pile before we hit the huge concrete abutment. We dutifully jumped over the gap between the barges and watched the space between us and the abutment tower getting narrower. The noise of street traffic 100' straight up was unnerving.

Rich, Skipper of the smaller tug, ran back to his wheelhouse and saw Mark signal for him to go full reverse. Mark then put Shorty into full forward and we started to spin ever so slowly like a clock. If we hit head-on we could break up. We moved closer to the 40-foot high piles of bird droppings around the huge concrete abutments. Our port side just barely kissed the piles thanks to the current of water that was pushing between us and the abutment.

As the current now pushed us away, we began to go backwards, slowly turning clockwise *under the bridge*. We did a full 360 with Mark and Rich running those diesel engines and spinning their wheels first one way and then the other. It was like a slow-motion ballet. We all cheered as we straightened out and began to crab into the wind and current that was pushing us toward Treasure Island to our right. That's when we heard the three 6-cylinder engines go right up and over their governor's max speed. Now what? More Challenges!

The Benicia Bridge Railroad Bridge

The Coast Guard was happy to hear from us but advised that the Benicia railroad bridge was closed in the down position until about midnight. Our destination "Chipp's Island" was on the other side. The bridge has a 'down' clearance of 70 feet and we needed at least 90 feet. Alan began to calculate how long it would take to refill those ballast tanks we pumped dry. **Continued on page 6…**

From page 5…
While steering, Mark continuously did calculations in his log book, looked at his tide book and gave hand signals to Rich. His eyes were everywhere but his demeanor was cool and collected. He remarked to Alan, "this is turning into a very, very interesting tow!" He then suggested we get ready for the big waves coming at our port side. I looked up and saw a huge green roller come right at us. We were in the windiest part of the bay, about 20 knots now, and were about to get hit hard at the wrong angle.

The huge roller hit our port bow and the two towers began a slow dance, pitching forward and then rolling apart. The large fenders, 12" x 12" Doug Fir logs chained to each barge, started to rub and grind. Then the tugs started to get thrown around. In the wheelhouse 20 feet up, we had to hang on tight. Maybe this was what it was like in one of those San Francisco earthquakes. It was getting scary. Bill, the only seasoned seaman on board, worked his way up to see Mark.

TO BE CONTINUED.

The Pokerville Mine Display Now Part of ASMA

At the July ASMA Board Meeting, Bob Wolin, along with Tom Wait announced they are stepping down or "retiring" from day to day operations at the Pokerville Mine display at the County Fair. After building the mine display and running it for many years, both agreed they must focus their energy on their many other projects. Bill Braun and the Amador Sawmill and Mining Association agreed to take over the running of the working hoist, ore bucket, crusher and stamp mill at the County Fair and other special events. Administration of the display will be transferred to the Amador County Sawmill and Mining Association: This new arrangement will also tap into the manpower of ASMA for maintenance and repair of the head rig and equipment, and will allow for more communication and coordination of the volunteers that work there. Volunteer work at the mine display will now be headed by John and Frank Tower and Jerry Virtue. Bob will continue to volunteer during the Fair, and Tom will continue running the steam winch. Doc will also help out wherever he is needed.

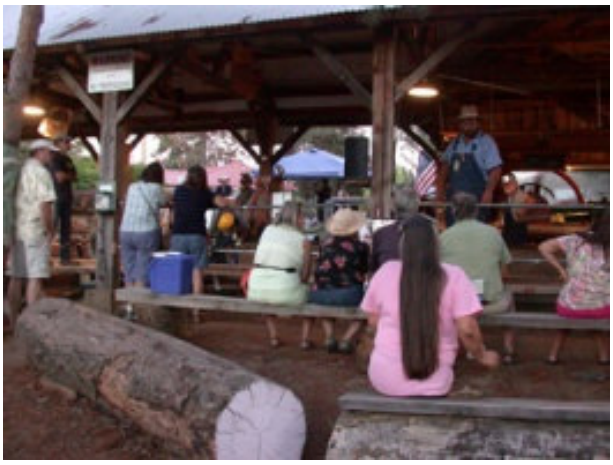
Many thanks to Bob and Tom for their time and effort over the years in making this a unique and interesting display for fairgoers.

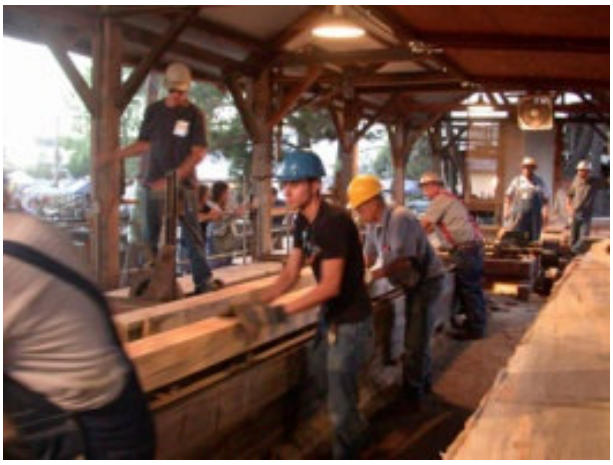
Miniature Ore Car on Display at Mine

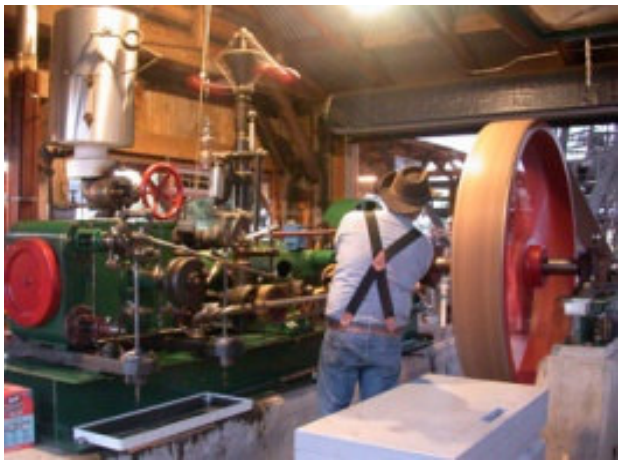
By Phil Kreiss

Last year Phil Kreiss built a fully functional, hand riveted miniature ore car for display at the sawmill for the fair. It is made to 4/10 scale, or 1 inch=2-1/2 inches. The design was copied from an old ore car used at the Baliol Mine near Sutter Creek. This year it was on display again, but at its natural home—the Pokerville mine display. Phil improved the look of the car this year by adding custom cast spoke wheels. A pattern was made by Joe Harralson of ASMA with the help of Jake Angius, and Phil had the wheels cast at Sunset Foundry in Double Springs, Calaveras Co. In the future, Phil hopes to build a few more of these cars to donate, or display with ASMA or at historical locations in the County. However, the cars are not for sale, since collecting money for one would be making it work, and not fun.

PHOTO GALLERY—
Scenes from the Sawmill at the Amador County Fair—July 2013







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Photos Courtesy: Page 2, Phil Kreiss. Page 4, Ron Edgar. Page 5, Austin Ford. Page 6, Phil Kreiss. Page 7, Phil Kreiss. Page 8, Barbara Kreiss

Contributing Editors: Bill Braun, Tom Innes, Ken McCoy, Ron Edgar, Austin Ford, Phil Kreiss.
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Upcoming Events:

DATE	TIME	EVENT
To Be Announced		Special Cuts at Sawmill for lumber orders.
Sunday, November 3, 2013	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.
Twice a Month On Wednesdays	Contact Ron Edgar For Times	MACHINE RESTORATION GROUP Workdays—Contact Ron Edgar at: 4edgars@msn.com
Third Saturday of each month or to be announced	8:00 A.M. to -----	Volunteer Workdays at Sawmill.

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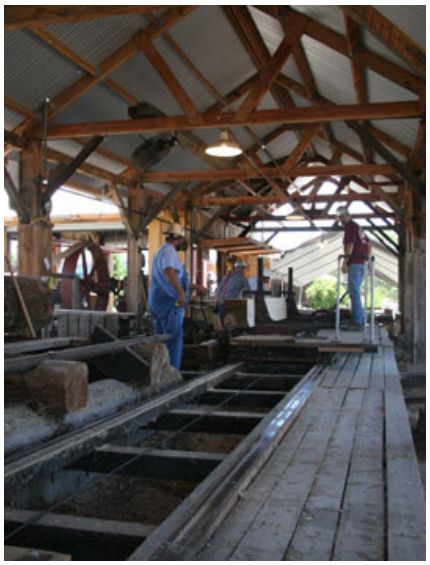

AMADOR COUNTY SAWMILL HISTORY:
ALIVE AND WELL FOR THE FUTURE.