

ASOPE™ Newsletter

The American Society of Power Engineers, Inc.

From the ASOPE™ News Team

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Welcome to the American Society of Power Engineers, Inc. 2010 newsletter. This newsletter is brought to you by the ASOPE™ News Team and is meant to give you the latest and greatest news and information in regards to the power and steam generation industry.

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SECTION 1 – THE CLEAVER-BROOKS BOILER COMPANY

By: Todd R. LaPlant

The Cleaver- Brooks Boiler Company was the brainchild of a true American optimist named John C. Cleaver.

At age 23, in the 1920's John Cleaver created the J.C. Cleaver Company Inc, in Oregon, Illinois and thus began the start of a Boilerhouse Giant. He worked tightly with Milwaukee Reliance Boiler Works, to fabricate parts from his own design, which he would assemble into small portable heaters at his little shop in Oregon. He had always had an interest in the Sciences. Especially Physics, and was fond of his high school Physics instructor, Frank G. Taylor of whom explained to him the theory of water/steam conversion.

John always had an interest in the concept of what would soon become a packaged steam boiler and was constantly trying to create a smaller-more powerful boiler, while tinkering in his friend's machine shop. Within this shop he developed a small boiler, only 18 inches high & 8 inches in diameter and tried to build a head of steam with a kerosene burner, which he said was all right for lamps, but not for firing a steam boiler. His next design was a larger boiler that spurred the interest of a local street asphaltting contractor. The asphaltte stated that he could put the boiler on wheels to replace his clumsy old wood fired boiler used to power threshing machines. The asphaltte offered John 300.00 for the boiler, John asked for 400.00, but before the sale the boiler proved to be a failure. Not admitting defeat, this set a "fire" in John's veins, to keep trying to design what would prove to be today's packaged boiler.

John's first success was a boiler similar to the old scotch marine design except it used fuel oil instead of coal or wood. THIS design would finally be that old asphaltte's dream rig, and placed on wheels, it began

paving roads and highways. This development soon became the start of the portable tank car heater with more and more railroad cars hauling asphalt across America. With borrowed money from his uncle & his persuasion of two friends, in 1929, the J.C. Cleaver Company was born. Even during the depression, the J.C. Cleaver Company was booming & these heaters were SELLING!!!!

The J.C. Cleaver Company worked hand in hand with Milwaukee Reliance Boiler Works and the new design sparked the interest of Raymond E. Brooks when he spoke with one of the directors of Reliance Boiler Works. Brooks had come to Milwaukee from NY, where he learned the art of “human relations” from his father’s general store before “human relations” was a popular word in America. He became the premier and first salesman for these boilers, as a direct result of his willingness to deliver a quality product, on-time, just as he learned in his Dad’s little store.

The J.C. Cleaver Company wasn’t in Milwaukee where Milwaukee Reliance was located, so Brooks left from Milwaukee to Oregon, to see what the boys at the boilerhouse were doing. Brooks bought out Cleaver’s partners and moved the business to Milwaukee, THUS ... the Cleaver- Brooks Company was born, on December 28, 1931. With Brooks at the helm as president, general manager, and head of sales & distribution and Cleaver as vice president, Chief Engineer, & head of research & production, they became a dynamic duo of hard working versatile entrepreneurs with a bond of friendship and mutual respect as their backbone. Their first unpretentious office was at the Merchants & Manufacturers Building at 740 N. Plankinton, Milwaukee, WI, where with an office assistant they made up their three member operating force. Their boilers still being fabricated at the Milwaukee Reliance Boiler Works.

Skepticism from old-timers who believed a boiler should be permanently fixed, plagued Cleaver & Brooks, but did NOT quench their Promethean Flame which eventually would become their trademark. Throughout the years to come, they would do reasonably well producing boilers on wheels for highway contractors and tank cars and a twist of luck (or fate) landed one of their portable boilers at the Kenosha Dairy during one of its large permanent boiler breakdowns.

This boiler... wheeled into the dairy plant, soon became a resident of the dairy plant and the idea of a neat little compact boiler with firetubes instead of a firebox, using fuel instead of coal, no coal dust or overheated coal tenders, and no tall smokestacks to spew smoke & soot into the four winds. THIS was COOL. The plant manager decided to keep it, (smart feller wasn’t he?), Cleaver-Brooks removed the wheels.

THE FIRST CB PERMANENT PACKAGED BOILER WAS BORN!

Within a year, Cleaver-Brooks installed the new boilers in dairies & laundries everywhere and orders for custom boilers became a normal day’s work for the Cleaver-Brooks Company. With this breakthrough and the boom of packaged boiler business, the dynamic duo decided to create a high-level management team. John Cleaver took an interest in watching a young engineer named Fred W. Hainer, graduate from the University of Wisconsin Engineering School and native of Sheboygan, Wisconsin. Cleaver & Brooks recognized his technical ability as a supervisor at Wisconsin Power & Light Company and admired his “High Gear” approach as well as his approach to customers as people not profit. He joined the Cleaver-Brooks Company five years after it started, soon to be followed by James G. Brooks, son of Ray Brooks, both of them being vital contributors to the growth of Cleaver-Brooks.

Cleaver-Brooks was practically the only producer of Packaged Boilers in the US in its first 10 years of existence and in 1939 the Gentlemen were ready to fabricate their own units thus purchasing the P. Schmitt Stone Company at 5100 N. 33rd Street. They converted the stone shop into a boiler works building an office shortly thereafter. Today, this facility still exists as a research, development and training center called:

The Cleaver-Brooks Boiler House

Author's Note: You can book a tour and a training seminar at the CB Boiler House by contacting them on their website www.cbboilers.com/training.htm

During World War II, the US Army Corps of Engineers requested Cleaver-Brooks to make various boiler designs to accommodate various uses for our forces in Europe & Asia. Cleaver-Brooks accepted the task, over 600 boilers on the battlefield, wheeled in and moved again as required. Milwaukee Reliance Boiler Works jumped on-board with Cleaver-Brooks to mass-produce the boilers for our boys overseas.

The term "Packaged Boiler" became a reality and a trade-name not only during wartime but as an identification for Cleaver-Brooks new product and became a tested, factory built boiler with the gas, oil, or gas/oil combination that would be used in factories, hospitals, office buildings, schools, laboratories, a PLETHORA of assorted uses and designs as requested by the customer & designed by the Cleaver-Brooks design team.

In the US, Cleaver-Brooks Packaged Boilers are a mainstay in numerous facilities. The Development Team at Cleaver-Brooks is constantly testing and designing packaged boilers for a multitude of uses, implementing cost and resource research for varying conditions and applications. Cleaver-Brooks have built & bought boilerhouses in Thomasville, GA & Canada and have a team of export representatives in an excess of 60 countries all over the globe.

John Cleaver proudly boasts of his accomplishment of building over 150,000 boilers despite the fact he was discouraged by his skeptics as a young boilermaker: "Come back after you've built 20,000" in 1926. Cleaver-Brooks has packaged boilers stationed at such attractions as NY Giants Stadium and in such conditions as the Albuquerque Auditorium where the outside temperature is 100+ degrees (steam used for absorption chilling). We as Power Engineers can probably name a plant if not our own plants as owners of Cleaver-Brooks Packaged Boilers.

Quite a journey from John Cleaver's Science/Shop project to today's world renowned premier packaged boiler. If anything in this article, I would like to encourage all Power Engineers to Learn & DREAM!!! Remember: Dreams don't come true from dwelling in your mind; they have to be put in motion. Education, Training, Trying, Failing, Trying Again, and getting a job done right & well is what brought John Cleaver's dream to today's reality and tomorrow's yet to come.

I hope I inspired some of you by the dream- become reality of John Cleaver and his associate Ray Brooks.

Many thanks to the Publicity Team at Cleaver-Brooks Company for providing the information for my article. Feel free to contact them for a company tour, training, or product information at: www.cleaver-brooks.com

SECTION 2 – EPA TO CUT MERCURY, OTHER TOXIC EMISSIONS FROM BOILERS, SOLID WASTE INCINERATORS

Cost-effective proposals would reduce harmful air pollution in communities across the United States

WASHINGTON – The U.S. Environmental Protection Agency (EPA) is issuing proposals that would cut U.S. mercury emissions by more than half and would significantly cut other pollutants from boilers, process heaters and solid waste incinerators. These pollutants include several air toxics which are known or suspected to cause cancer or other serious health problems and environmental damage. The proposed rules are estimated to yield more than 5 dollars in public health benefits for every dollar spent.

“Strong cuts to mercury and other harmful emissions will have real benefits for our health and our environment, spur clean technology innovations and save American communities billions of dollars in avoided health costs,” said EPA Administrator Lisa P. Jackson. “This is a cost-effective, commonsense way to protect our health and the health of our children, and get America moving into the clean economy of the future.”

Combined, these proposals would cut annual mercury emissions from about 200,000 industrial boilers process heaters and solid waste incinerators, slashing overall mercury emissions by more than 50 percent. Industrial boilers and process heaters are the second largest source of mercury emissions in the United States.

Mercury can damage children’s developing brains and nervous systems even before they are born. When emitted to the air, mercury eventually settles in water, where it can change into methylmercury, which builds up in ocean and freshwater fish and can be highly toxic to people who eat the fish. This sometimes leads to fish consumption advisories to protect public health.

When fully implemented, today’s proposal would yield combined health benefits estimated at \$18 to \$44 billion annually. These benefits include preventing between 2,000 and 5,200 premature deaths, and about 36,000 asthma attacks a year. Estimated annual costs of installing and operating pollution controls required under these rules would be \$3.6 billion.

These actions cover emissions from two types of combustion units. The first type of unit, boilers and process heaters, burns fuel such as natural gas, coal, and oil to produce heat or electricity. These units can also burn non-hazardous secondary materials such as processed tires and used oil. Boilers are located at large industrial facilities and smaller facilities, including commercial buildings, hotels, and universities. The second type of unit, commercial and industrial solid waste incinerators, burns solid waste.

Large boilers and all incinerators would be required to meet emissions limits for mercury and other pollutants. Facilities with boilers would also be required to conduct energy audits to find cost effective ways to reduce fuel use and emissions. Smaller facilities, such as schools, with some of the smallest boilers, would not be included in these requirements, but they would be required to perform tune-ups every two years.

EPA is also proposing to identify which non-hazardous secondary materials would be considered solid waste and which would be considered fuel. This distinction would determine whether a material can be burned in a boiler or whether it must be burned in a solid waste incinerator. The agency is also soliciting comment on several other broader approaches that would identify additional non-hazardous secondary materials as solid waste when burned in combustion units.

EPA will take comment on these proposed rules for 45 days after they are published in the Federal Register. EPA will hold a public hearing on these rules soon after they are published in the Federal Register. For more information on the proposals and details on the public hearings:

<http://www.epa.gov/airquality/combustion>

5,214 workers died on the job in 2008

"With every one of these fatalities, the lives of a worker's family members were shattered and forever changed. We can't forget that fact."

-Hilda Solis, Secretary of Labor

Weekly Fatality/Catastrophe Report

This table contains the weekly summaries of fatalities and catastrophes resulting in the hospitalization of three or more workers. Employers must report these incidents to OSHA within eight hours. The summaries below include only preliminary information, as reported to OSHA Area Offices or to States which operate OSHA-approved State Plans. The fatalities listed here include only those that initially appear to be work-related, but exclude fatalities that do not appear to be work-related, such as an apparent heart attack of a sedentary worker. OSHA investigates all work-related fatalities and catastrophes. After OSHA's investigation is complete, these reports will be updated with inspection results and citation information.

Weekly Summary (Federal and State data tabulated week ending MAR 27, 2010)

FATALITIES

Date of Incident	Company and Location	Preliminary Description of Incident
3/17/2010	GE Transportation, Kansas City, MO 64153	Worker was working on the wheel and axle line, using an overhead bridge crane to lift a 5,100-lb locomotive wheel set. Worker lifted the locomotive wheel set, causing it to swing in a pendulum motion, pinning his leg against another stationary locomotive wheel set.
3/17/2010	The Pit Stop, Chico, CA 95926	Worker became entangled in the rear differential of a vehicle.
3/18/2010	Simpson Bridge Company Inc., Cleveland, TN 37311	Worker fell about 7 feet while pouring a concrete column for a new bridge. He was taken to the hospital where he died during

		back surgery.
3/18/2010	Yacov Likhterman, Brooklyn, NY 11215	Worker fell 25 feet off a manlift.
3/19/2010	Bottom Dollar Tree Service, New Port Richey, FL 34654	Worker was cutting tree branches and cut himself with a chainsaw.
3/19/2010	Hidden Mill Marina Center, Egg Harbor Twp., NJ 08234	Worker was working on a client's boat, and an explosion occurred.
3/19/2010	Southern Pump and Tank Company, Charlotte, NC 28629	Worker was working under a pull-behind compressor/generator and it fell off the jack stands.
3/20/2010	Triple S Oilfield Construction, Odessa, TX 79766	Worker received a severe electrical shock after an overhead crane derailed in the facility he was working in.
3/21/2010	T.J.B. Logistics, LLC., Mountain Lakes, NJ 07046	Worker fell off of an unguarded stair landing and struck his head on edge of stair tread 10 feet below.
3/22/2010	Columbia Forest Productions, Presque Isle, ME 04769	Worker went into a stacker to clean dust off a photocell eye. He did not use lockout/tagout, and after the dust was cleared away, the stacker activated.
3/23/2010	Miles City Auction Yard Miles City, MT 59301	Worker was trampled by a bull.
3/23/2010	United States Infrastructure Corporation, Fort Wayne, IN 46825	Worker was spray painting utility when he was struck by a vehicle. Worker later died on 3/19/2010.
3/24/2010	7-11 Store #13693, North Las Vegas, NV 89030	Worker was fatally shot during a robbery and was pronounced dead at the scene.
3/25/2010	AIM Construction, LLP, Delran, NJ 08075	Two workers were moving an aluminum ladder. The ladder contacted an overhead power line. One worker was electrocuted and the other was hospitalized.
3/26/2010	Phoenix Fabricators and Erectors, Cleburne, TX 76033	Worker fell from an elevated water tower area.
3/27/2010	Creative Biomass Inc., Fitchburg, MA 01420	Worker was working on a motor, contacted live wires and was electrocuted.
CATASTROPHES - MULTIPLE WORKERS HOSPITALIZED (None Reported)		

Information provided by the U.S. Department of Labor <http://www.osha.gov/>

None of these had to happen, please take time and think about what you are doing before doing it.

Provided By: Larry G. Tarvin

SECTION 3 – NEW ATP BOOK

Fluid Power Systems is a new text/workbook from American Technical Publishers that covers topics specific to the design, application, and maintenance of hydraulic and pneumatic systems. The text/workbook includes fluid power systems, components, and devices that are related to industrial and commercial applications such as pumps, valves, actuators, electrical controls, and troubleshooting techniques. Each component, device, or system is introduced with descriptions, operational procedures, common applications, system examples, and operating characteristics. Schematic symbols are introduced throughout the text/workbook to assist the learner with schematic diagram comprehension. Detailed illustrations provide examples of each component, device, or system, and its related operation. Chapter objectives at the beginning of each chapter provide learning goals for the topics introduced. Review questions and activities at the end of each chapter provide a variety of assessment opportunities.

Relevant chapters include activities related to the FluidSIM Hydraulics (Student Version) software included in the interactive CD-ROM package.

This book and its contents will integrate with American Society of Power Engineers testing curriculum on pneumatic equipment, controls and systems.

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Note: *I had been looking for a good book on pneumatic equipment, controls and systems, I have found some but none that can compare to ATP's Fluid Power System. The ease of understanding, the graphics are excellent, and the CD-ROM they provide is worth its weight in gold. As always American Technical Publishers has produced an excellent student manual and learning tool. I highly recommend it.*

Larry G Tarvin
ASOPE Chairman of the Board

REGIONAL NEWS

(No reports for this edition)

