



The Inspector

Volume 17, Issue 2

Fall 2010 Issue

Editor: Matt Keenan
715-648-5000

A WORD FROM OUR PRESIDENT

By: Dave Homan:

As I write this, another year has come and just about gone. Soon Christmas and snow will be here and we'll all be another year older.

WBIA 2010 was a nice success. Our Industry Days workshop in Racine was a successful event. The critiques we did receive provided valuable feedback for us to apply to our 2011 event.

The Industry Days 2011 workshop will be held in Janesville Wisconsin on Wednesday, 18 May and Thursday 19 May, 2011. We are still putting the finishing touches on the program, but once all is finalized, we'll put all of the details up on www.thewbia.com and in our newsletter and emailing at the beginning of 2011. Check back often.

This 2011 Industry Days requires some annual WBIA business. We have a number of offices opening for reelection.

The office of president opens up for election. I plan on running again, but we may have welcome competition for the job.

We also have four Board Member offices up for reelection too. They are Jim Carberry as board member, Jim Smith as board member, Mike Verhagen as board member and Jay Ehrfurth as board member. Not all of these people have indicated their intent as to whether or not they intend to run again. That being

said, I would encourage anyone who is interested in working as a board member, to run for one of these slots. Competition is healthy in any organization. As always, current board members will be most welcome to run for the slot again.

If you are interested in running for the WBIA presidency, or one of the four director slots, please let me know. As required, we will accept nominations from the floor on Election Day.

Think it over. An organization such as ours is only as good as the people who staff it. Our current group is an excellent group, but as I said before, competition is a healthy thing.

We also have some Constitutional issues we will bring before the membership. We need to develop and implement a policy for establishing a formal *Quorum for Doing Business*. What that means is that we will define a minimum number of officers and directors by office title, which must be present to conduct business. We also have some spending authority which needs to be defined, such as incidental expenses and routine budget items like web site maintenance costs. We are also looking at formalizing our recognition program and funding it. The expenses are minimal, but as an organization we need a process with spending authority to implement it and keep it legal.

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IMPORTANT

Continuing Education Requirements for All National Board Commissioned Inspectors Started in 2005!

Attending the WBIA Seminars helps you meet these requirements.

The Chief's Words:

By: Mike Verhagen, Chief Boiler Inspector



I had a great summer except for the early soaking wet weather, the mid-summer zillion pesky mosquitoes and the abundant fast growing weeds around the yard and in the garden. Regardless of those issues, I stayed indoors and the harvest was good. Plenty of tomatoes, zucchini, acorn squash, patty pan, beans, egg plant, cucumbers, beets, carrots and Swiss chard. Needless to say, my wife and I were busy canning fruit and vegetables toward the end of the season. My shelves are packed with jam, jelly, tomatoes, carrots and several jars of apple-pear sauce. Although summer was hot and muggy, I shared the bounty with neighbors and my family will continue to eat well into the winter.

During the summer harvest, we had other things to celebrate. One of my sons got married. I gained a fantastic daughter-in-law who gave us our first grandchild. Baby Brooklyn has stayed with "Grandpa and Grandma V" on numerous occasions. What a joy she is and crawling already too! I think she may become a boiler inspector because she smiles and coos while I rock and softly read to her about our Wisconsin Boiler and Pressure Vessel Codes.

Speaking of boilers and codes, have you should have received and read the fall 2010 National Board Bulletin. If not, I suggest everyone review the article "What Cost Inspections" by Executive Director David Douin. It highlights "safety" in a downward economy of budget cutting, layoffs with program and staff reductions. One fall Bulletin article informs us of a new National Board website that will be launched November 2010, another describes the National Board's "IS" in-service inspection testing method for new commissioned inspectors and others give a reader technical information on a variety of topics. Yes, if you have not received your Bulletin contact the National Board and provide your current address but be aware, the NB website keeps an archive of current and past Bulletin copies for ready reference accessible by the click of your mouse.

Who you know wants to buy a "Kyung Dong Boiler" Did I get your attention. Yes, recently the question was asked "Are these boilers acceptable for installation in Wisconsin? Yes, but only with ASME stamping on the nameplate per Comm 41.42. Upon searching the manufacturer list on the National Board website, I found the Korean boiler manufacturer was not listed as a current stamp holder. My email to the National Board

resulted in a quick return response from a staff engineer that the Kyung Dong manufacturer was a valid ASME certificate holder. Inspectors can expect more of the same in the future as ASME statistics show that foreign certificate holders are on the increase particularly in East Asian countries. Please review Comm 41.42, as all boilers and pressure vessels shall have the ASME stamp for acceptance / installation in Wisconsin.

Thanks for your cooperation and support this past year. Have safe and Happy Holidays!

DEPARTMENT NEWS

Wisconsin's new Comm 45, Mechanical Refrigeration code is effective Sept 1, 2010 and revision to Comm 40 Gas Systems is just starting up. Boiler code may be next for revision. Waukesha office contact info remains as follows:

Department of Commerce
Safety & Buildings Division
141 NW Barstow St, 4th Floor
Waukesha WI 53188-3789

Rick Merkle, Waukesha Section Chief

Email: rick.merkle@wi.gov

262-561-5065 / fax 608-283-7415

(608? Yes, system auto converts a fax to his email)

Mike Verhagen, Chief Inspector

Email: mike.verhagen@wi.gov

262-548-8617 / fax 548-8614

DEPARTMENTAL CORRESPONDENCE

Continue to mail general correspondence to the Madison office:

Department of Commerce
Safety and Buildings Div/Inspection Support
PO Box 7302
Madison WI 53707-7302

INSPECTOR MATERIAL ORDERS

Material orders for registration tags "B or U" # s, may be ordered preferably via materialorders@wisconsin.gov

Department News:

By: Rick Merkle, Section Chief Safety & Buildings

This past year I have taken over as the Waukesha Office Manager, which entails supervising Mechanical and Structural Engineers for new building construction and alterations. It is a challenging position and fun at the same time, they're a great bunch of folks.

Electronic data interface (EDI), all Inspection Agencies and Contract Agents are now submitting their inspections via electronically, (EDI) Electronic Data Interface. We are striving towards everyone using our standard paragraphs. Standard paragraphs are canned paragraphs that we developed for quick reference for commonly used code sections and for inserting directly unto the report. The canned paragraphs can be modified for specific situations. Approximately 98% of all the Service agents and contractors are using them. I'm still working with others to use these tools. I'm hoping by the end of summer 2011 that everyone will be utilizing the standard paragraphs.

Audits of Service Agent, Contractor and the First Class City (Milwaukee) Inspectors have proven to be an invaluable tool. Duane Leetch, our lead Auditor has created various spreadsheets to be able to monitor various aspects of the audits. First and for most, we are finding little or no problems. (Great Job everyone!) There is one big concern, which is consistently popping up;

Owners information, owner address and location addresses are not being report correctly. Being electronic we all have the current address the state has on their database, so please take the extra few minutes to ensure you are providing the correct information to the state for the Owner and location. Your help in the matter would be greatly appreciated by the Inspection Support Staff. As a quick reminder to inspectors, violations written on reports shall include a code compliance date and the following three items:

- 1. Identify each specific violation with Comm 41 section numbers, "Comm 41.29"**
- 2. State present conditions of violation on date of inspection, "Requires two temperature controls, only one temperature control is installed"**
- 3. State corrective action, "install a high temperature control with maximum setting 250 F"**

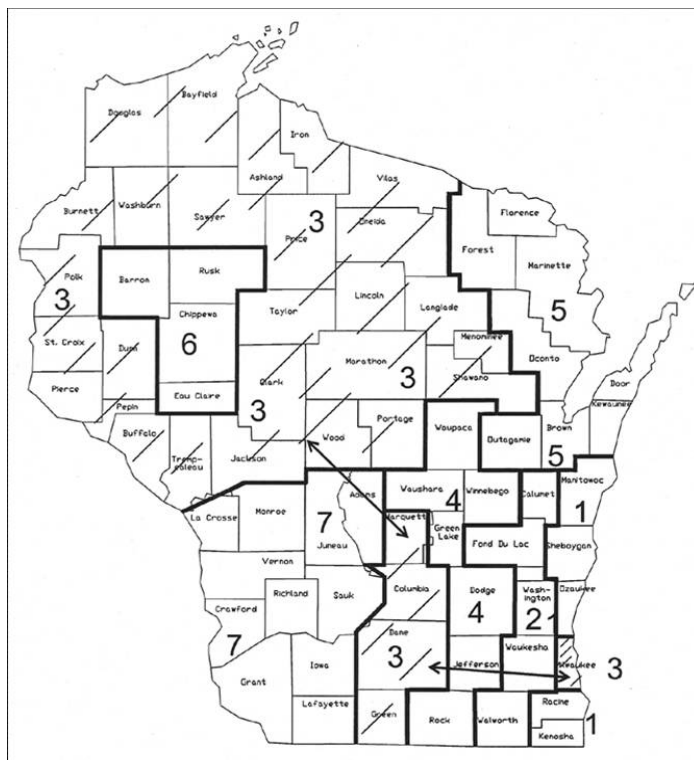
Overdue boilers and Pressure Vessels are coming

down. We will be sending out the overdue listing in December 2010 and again every quarter thereafter.

Thanks again to everyone for their past work to reduce the number of overdue objects and hopefully the EDI System and CORGI system will help in those efforts.

I appreciate all your efforts in keeping Wisconsin a safe place to be and work. Have a safe winter and have a great holiday Season.

Wisconsin Inspectors Map



- 1-David Homan 262-424-1471 / 608-283-7433
- 2- Terence Waldbillig 414-303-8575 / 608-283-7429
- 3- Damarc Quality Inspection Services, 866-361-4321, Fax 715-755-4800
- 4-Jon Wolf 920-723-0032 / 608-283-7435
- 5- James Markiewicz 920-428-9423 / 608-283-7434
- 6-Duane Leetch 715-559-8817 / 608-283-7431
- 7-Dean Yourchuck 608-235-0607 / 608-283-7430
Supervisor Rick Merkle 608-266-3037 / 608-267-9723

Presidents Words (con't)

THEWBIA.com

Once the draft changes have been finalized, these issues will be brought before the floor for a full up or down vote.

I want to remind everyone that the Wisconsin Department of Commerce, Safety and Buildings Division has an excellent and up to date web site, where any inspector, and even the public can check to see what the detailed status of that particular object is. The web address is: http://apps.commerce.wi.gov/SB_ServiceAgent/SB_RegObjMain.jsp

You can go to this address and enter the tag number for the object you wish to review. It will tell you the location details, owner information, date the Permit To Operate (PTO) expires and which agency of record is expected to do the inspection. If there were any orders issued for that object, what they are, and by whom they were issued, all key information, is there.

The state updates the system daily, so what gets uploaded today, will be on the web after 8 Am the morning after.

Finally, as this newsletter hits the street, the heating season is upon us. We need to continue our ever vigilant inspection process to keep the public safe. I would encourage each and every inspector to use a bit greater scrutiny when looking at gas trains. Gas side explosions and fires are injurious and even lethal. If you see a problem in a gas train, be sure to discuss it with your owner/operator. The life you save may be that of the very person you are working with.

I look forward to seeing each and every one of you in Janesville in May. Thanks for a fantastic year.

The WBIA operates a website and you should take a look at what it can do for you! The Jurisdiction Section allows you access to Codes and Search engines for eight different States. Our Newsletter back issues and Seminar information is available a click away. We also link to all ASME/NB forms and every important Organization having Boiler and Pressure Vessel information. More links coming daily. Our website is easily usable from your Blackberry or other hand held devices. You are always near the information you need! Try it! Tell others about it!



2011 WBIA Elections

The following Officers and Board Members are up for re-election.

If you are interested in filling a position please let a Board Member know: or drop the Secretary an email:

secretary@thewbia.com

Officers:

Dave Homan - President

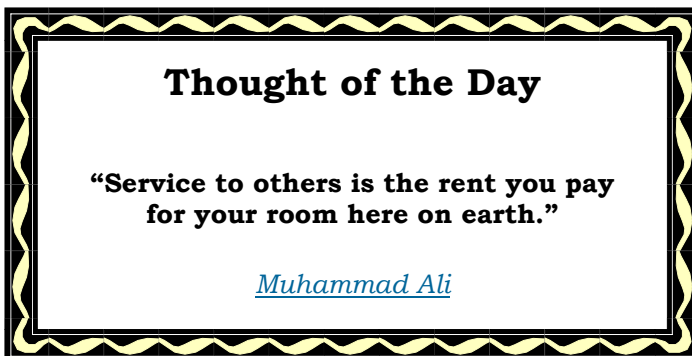
Board Members:

Jim Carberry

Jim Smith

Jay Ehrfurth

Michael J. Verhagen



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Low Mass Flow Furnace

By: Ed Belski

Those of us who operate, repair, maintain and inspect boilers often see many different types of boilers in the field. These boilers range from cast iron hot water heating boilers, all the way up to the big boys, utility boilers. Those of us who have the privilege of working with utility boilers know that they can be quite intimidating at first site. One of the biggest reasons, except for sheer size, that utility boilers can be intimidating is the fact that they are all different. Unlike your common package water tube or scotch marine boiler, each utility boiler is made to order, which can lead to differences in boiler design, even between boilers from the same manufacturer. This can even be true of boilers erected in the same plant.

There are many ways of classifying utility boilers. Some of the common classifications are operating pressure, heating surface, boiler capacity, and firing method. One other way of boiler classification is by furnace design. One of the newer utility boiler furnace designs in use is the once through, low mass flux, vertical tube, variable pressure design furnace. The first of these boilers was designed and put into operation by Mitsui Babcock at the Yaomeng Thermal Power Plant in China, approximately seven years ago.

The more common high mass flux furnace design uses forced boiler water flow, flow measuring devices, and individual valves for flow distribution to maintain proper heat transfer in furnace wall tubes. This causes heat transfer and overheating problems at low load conditions. The low mass flux furnace design uses optimized small bore vertical ribbed tubes, which exhibit natural circulation characteristics to maintain the proper heat transfer through the full height of the furnace. The use of these optimized tubes permits the use of low water mass flux, which produces a natural circulation characteristic. This low mass flux design maintains tube mean wall temperature through the entire load range, which reduced possible overheating in furnace wall zones. Also, because of the natural circulation characteristic of this design, the normal boiler water pumping power required on older design furnaces would not be needed. This provides for an auxiliary power savings, and makes this furnace design more efficient.

These are just some of the design specifics for the low mass flux furnace design. There are many more design characteristics that can be discussed about this furnace design, as well as design

characteristic of other boiler designs. But if you happen to work in a plant that has a boiler with a low mass flux furnace design in the future, then maybe after reading this article, that utility boiler will not be as intimidating as it once could have been.

Reference

Refurbishment of Yaomeng Boiler No. 1. (2005). *DTI, 04/1914*. Retrieved from <http://webarchive.nationalarchives.gov.uk/+http://www.berr.gov.uk/files/file20071.pdf>

Boiler explosions on the Mississippi River

In the forty years to the mid-century mark of the 1800's, there were some 4,000 fatalities on the river due to boiler explosions. Some 500 vessels were wrecked by the peril. Early boilers were riveted of weak iron plate. Vessels at the time were not inspected, or insured. Passengers were on their own. Meanwhile, the explosions continued: the *Teche* in 1825, with sixty killed; the *Ohio* and the *Macon* in 1826; the *Union* and the *Hornet* in 1827; the *Grampus* in 1828; the *Patriot* and the *Kenawa* in 1829; the *Car of Commerce* and the *Portsmouth* in 1830; the "Moselle" in 1838.

Mark Twain noted a bad boiler explosion which occurred aboard the steamboat *Pennsylvania* in 1858. Among the injured passengers was Henry Clemens, his brother, whose skin had been badly scalded. Twain came to visit Henry in an improvised hospital. This is how he described the long painful death of his brother: "For forty-eight hours I labored at the bedside of my poor burned and bruised but uncomplaining brother...and then the star of my hope went out and left me in the gloom of despair..." On February 24, 1830, as the *Helen McGregor* prepared to pull away from the Memphis waterfront, the starboard boiler blew. The blast itself and flying debris killed a number of people, and about thirty others were scalded to death.



Does your Business need a Wisconsin Construction Contractor License?

On December 1, 2010, there will be an expansion of the types of work covered by Safety and Buildings Division construction contractor regulations. There also will be penalties created to put more teeth into enforcement of those regulations.

Construction contractor businesses, including one-person companies, need to have a license, certification, or registration when working under Wisconsin construction codes. There are twelve different types of contractor credentials ([see below](#)) administered by the Safety and Buildings Division of the Wisconsin Department of Commerce.

- Contractor licensing provides identification for state departments to share info about who's claiming contractor tax status, paying for workers compensation and unemployment insurance, to support fair competition.

- Contractors can get codes and training info. - Property owners can find contractors who are not transient.

- On-the-job identification of contractors helps protect against employers misclassifying employees as sub-contractors.

December 1, 2010, changes to Comm 5, the Licenses, Certifications, and Registrations Code, include:

> An expanded set of codes under which contractors need to be sure they have appropriate credentials for the work.

> Work on one- and two-family dwellings will be covered regardless of when the dwelling was built. Previously, work on dwellings built before 1979 was not involved.

> There will be possible forfeitures of \$250 to \$1,000 for contractor companies which work without appropriate credentials or contractors which have the correct credentials but hire subcontractors which do not have the correct credentials.

The two most common contractor credentials in Wisconsin are the Dwelling Contractor Certification and

the Building Contractor Registration.

A Dwelling Contractor Certification is required for businesses to obtain a Uniform Dwelling Code (UDC) building permit. A Dwelling Contractor Certification

(issued to the business - \$40) must be partnered with a Dwelling Contractor Qualifier Certification (issued to the individual - \$45) in order to get UDC permits. Both certifications are needed to pull UDC permits.

The Building Contractor Registration (BCR) is needed if a construction business, including a one-person business, does not have any other contractor credential and works under one of the 13 building construction codes. The BCR is only \$100 for four years. Register for BCR online.

Contractors working under these codes need a license/credential ([See codes online](#)):

- Comm 16, Electrical
- Comm 20 to 25, Uniform Dwelling
- Comm 28, Smoke Detectors
- Comm 33, Passenger Ropeways
- Comm 34, Amusement Rides
- Comm 40, Gas Systems
- Comm 41, Boilers and Pressure Vessels
- Comm 43, Anhydrous Ammonia
- Comm 45, Mechanical Refrigeration
- Comm 61 to 66, Commercial Buildings
- Comm 81 to 84, Plumbing
- Comm 90, Public Swimming Pools
- Comm 91, Sanitation

Safety and Buildings Division contractor credentials (See Comm 5, Licenses, Certifications, and Registrations Code):

- Building Contractor Registration
- Dwelling Contractor Certification
- Dwelling Contractor-Restricted Certification
- Electrical Contractor Certification
- Electrical Contractor-Restricted Certification
- Elevator Contractor License
- HVAC Contractor Registration
- Liquefied Gas Supplier License
- Liquefied Gas Supplier-Restricted License
- Manufactured Home Dealer License
- Manufactured Home Installer License
- Manufactured Home Manufacturer License

The Department of Commerce Safety and Buildings Division is an equal opportunity service provider and employer. If you need assistance to access services or need material in an alternate format, please contact us, 608-266-3151, TDD Relay dial 711 in Wisconsin or 800-947-3529, or ttaylor@commerce.state.wi.us

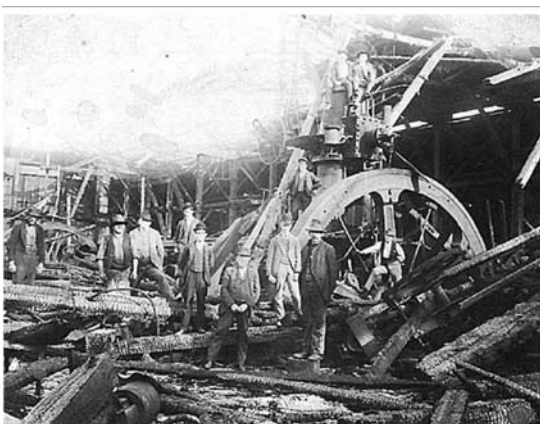
Big Bang in Danville, 1896

It is October 1896. Life in Danville, PA was normal for this time of year. It is a lovely autumn day with the color on display, and downtown merchants were advertising their wares.

At the corner of Mill and Mulberry streets, J.H. Cole had stocked his "new room" with a clean line of hardware and tools. John F. Tooley had just opened a grocery at 318 Mill St. in the room formerly occupied by the Grand Union Tea Co.

Nothing appeared to be out of the ordinary at the Montour Rolling Mills of the Reading Iron Co. on that second Thursday, Oct. 8.

But just before 8 p.m., the No. 5 boiler exploded, ripping through the building and sending a portion of it like a 20th-century rocket



outside and into a home on Northumberland Street.

The explosion was felt in most parts of Danville, shaking some buildings and rattling windows.

By the time the dust and debris settled, a 6-week-old baby had been killed in its mother's arms. The explosion also resulted in the deaths of five workmen inside the mill. Thirty-three other employees suffered injuries ranging from critical to minor. Mrs. John Baron, mother of the 6-week-old child, suffered broken ribs when part of the original 28-foot-boiler crashed through the home and landed 100 feet beyond the house, 180 total yards from the point of the explosion.

One of those injured in the blast was the woman's husband.

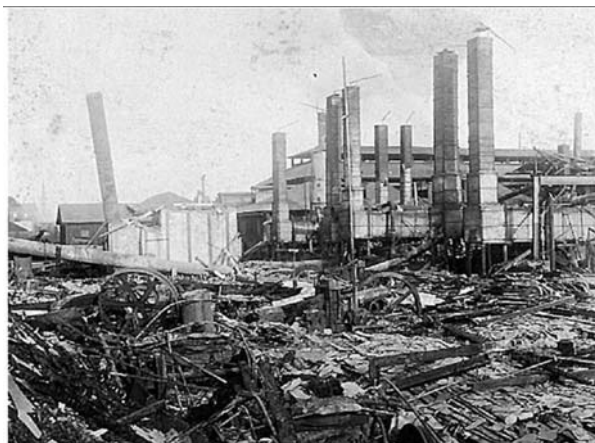
Upon exploding, part of the boiler was forced backward inside the building, sending scalding steam, bricks and pieces of iron in all directions.

News of the disaster spread quickly, and hundreds from the town rushed to the scene, looking for friends

and family members and to provide aid to the injured.

Robert Reid, the Montour Rolling Mills manager and one of those scalded by steam and injured by debris, pulled a co-worker from under a pile of rubble.

The dead included two brothers, Thomas and Oliver Cromwell, brick masons who were under the No. 5 boiler at the time of the explosion, repairing the roof of the furnace. The others killed were Johnson Lovett, a charger at heating furnaces, John Castleman, a plumber, and John Mullen, employed on the hotbed.



What caused the disaster

has never been determined. Just the day before the fatal accident, an inspector from Reading had checked the boilers at Montour Rolling Mills. And some five minutes before the explosion, several men and women were standing on a line where the boiler exploded, but had moved on to another area of the mill.

Within days of the tragedy, laborers were clearing away debris and making repairs, allowing the mill to resume operations in fewer than two weeks.

Oddly, the Oct. 8, 1896, blast occurred almost 42 years to the day of another deadly explosion at the mill. On Oct. 7, 1854, as many as 10 people died and many others were injured when a boiler exploded and passed through a home right next door to the one destroyed in the 1896 blast.

In the 1854 explosion, those killed included two children who had been sleeping in their beds. The body of one of them was found inside the boiler, which landed in the same area as the one in 1896.

One more oddity: The first "T" rail in America was rolled Oct. 8, 1845, 51 years to the day of the 1896 boiler explosion. Danville's place in the history books was forever forged because of the "T" Rail, but there was a cost of hard labor and lost lives.

SS Saluda Steamboat Explosion

SS Saluda exploded in in 1852 on the Missouri River just outside the dock and town of Lexington, Missouri. The boiler explosion killed over a hundred people. Body parts and dead were flung onto the bluffs and even into town. The cause of the explosion was a boiler breech caused by overheating when the captain, after several days and attempts, was trying to get around the Missouri River bend.

The citizens of the town were recognized for their Christian charity and took care of the survivors, even adopting children whom lost their parents. There were 69 Mormons on board whom were moving west, by Missouri decree, and a majority were killed in the explosion.

Side Wheeler Pennsylvania 1858.

The steamboat *Pennsylvania* was a side wheeler steamboat which suffered a boiler explosion on the Mississippi River and sank at Ship Island near Memphis Tennessee on June 13, 1858.

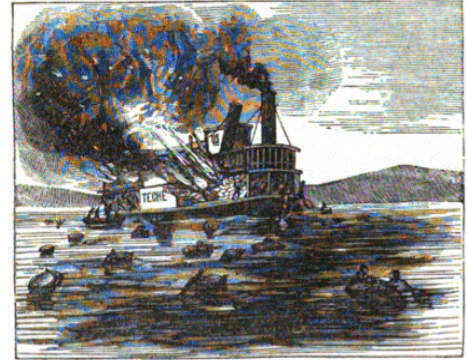
On June 13, 1858, the *Pennsylvania* was steaming near Ship Island, just below Memphis, Tennessee when its boiler exploded. Estimates at the time put the passenger manifest at 450 with an initial loss of life of 250. The first vessel on site was the *Imperial*, which picked up several passengers and transported them to New Orleans. The *Diana* took many others to Memphis. Several of these were seriously injured and the death toll continued to climb. Among this group was Henry Clemens, whose skin and lungs were so badly scalded that he succumbed to his wounds on June 21. Eyewitness testimony was given to the fact that the engineer was not at his post in the engine room just prior to the explosion, instead being in the company of some women.

Steamboat S.B Teche

The S. B. Teche left Natchez on the evening of May 4th, 1825, heavily laden with cotton, and carrying about seventy passengers, many of whom came on board at the moment of departure, and were unknown to each other. Her course was down the river, and she proceeded about ten miles, when the night became so excessively dark

Captain Campbell, deemed it unsafe to proceed further, and concluded to come to anchor. At two o'clock on the following morning, May 5th, the anchor was weighed, and the steam having previously been raised, the boat had just begun to pursue her voyage, when the passengers, many of whom had been sleeping in their berths, were startled by a shock which seemed sufficient to separate every plank and timber in the vessel, accompanied by a report which sounded like the discharge of a whole broadside of the heaviest artillery.

Every light on board was immediately extinguished, either by the escape of steam or the concussion of the air. As the day had not yet dawned, an impenetrable darkness now hung over the scene of the disaster, the extent of which could only be imagined by the affrighted and horrified



crowd collected on the deck ; but at that moment of appalling danger, and still more dreadful uncertainty, was heard a cry that the boat was on fire ! Then followed a scene of indescribable confusion ; the passengers, in the very insanity of terror, were rushing hither and thither, through the dense and ominous gloom, and many anticipated their doom in their erring endeavor to avoid it.

By this time the flames began to ascend, illuminating the deck with a lurid glare which enabled the passengers to discern the means of escape which offered, though these means were made less available by the terror and confusion which prevailed. The yawl made several trips to the nearest shore, carrying off a load of passengers at each trip ; but as the flames began to extend rapidly over the deck, it was evident that all the people on board could not be saved in this way. In these circumstances, the Captain gave orders that bales of cotton should be thrown overboard, and on these many passengers were kept afloat until the boats finally took them off.

But the last incident of this tragic narrative is one of the most distressing. About three o'clock, A. M., the steamboat Washington, while passing up the river, was hailed by the survivors on board of the burning vessel.. The Washington promptly sent a boat to their assistance, and waited to receive them. All who remained on the Teche, (about twelve in number,) embarked in the Washington's boat; and now, assuring themselves of safety, they had reached the side of the steamer, when, by some unlucky accident, the small boat was upset, and every person on board, man, woman, and child, was drowned. It would seem that their inexorable fate had doomed them to destruction.

The number of lives lost by this accident could never be ascertained. Several persons were instantly killed by the explosion, and others were so badly injured, by scalding, or otherwise, that they died soon afterwards. It is thought that not less than twenty or thirty were drowned.