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The New London School Explosion

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Introduction

A few events stick out in a state's history. Three disasters in Texas history are memorable. The first is Texas Galveston hurricane of 1900, where they are still unsure of how many people perished. I have seen numbers that varied between 6000 and 12000. The second is the 1947 blast in Texas City disaster. This involved a ship filled with Ammonium Nitrate that exploded and practically levelled the town. The third is the New London school explosion that occurred 80 years ago in 1937. The New London explosion led to the creation of the Texas Board of Professional Engineers. It was one of the most devastating disasters in Texas history and the worst school disaster in US history, yet little known outside East Texas.

Though most engineers do not know about this disaster, it affects every engineer in Texas. I grew up in Texas and had never even knew about it until the summer of 2016. I intend to discuss the disaster and its aftermath. I will then put together how it affects the rules of engineering in the State of Texas as they were established. There is a lot of conflicting information concerning the disaster as it was told by people who remember the event differently and this is enhanced in the confusion of a disaster. I have taken the facts and tried to put them into the most logical scenario, based on many sources. Texas Monthly spoke to some of the survivors at the fortieth reunion, which allowed me to fill in some of the inconsistencies in some of the sources.

History and Background

Oil and Gas Industry

The oil and gas industry was very different in the early 1930's from today. Wet natural gas was a colorless and odorless gas that was typically flared off as waste. It was a common practice to tap into the wet natural gas line and use the gas by homes, churches, and schools in the community near the oilfields. The oil companies looked the other way, but for liability reasons could not give permission for anyone to tap their residue lines. Natural gas was not treated with a malodorant, as it is today, so a leak was impossible to detect.

New London

In the 1930's, New London was an unincorporated community in Northwest Rusk County, Texas. After oil was discovered in nearby Kilgore (approximately 11 mi North of New London), many people moved into the area to take jobs in the oilfields. In the 1930's, the area had some of the richest oilfields in the State of Texas. The 1930's were in the middle of the Great Depression, but the extraction of oil from the New London area made it a wealthy school district.

The times were so hectic that National Guardsman were stationed in the oil fields in small detachments. A Texas Ranger was assigned to assist the National Guard units.

The School

The junior-senior high school was built around 1932 and had additions made in 1934. The school was a large two-story E-shaped structure (when viewed from above) made of steel and concrete on a 21-acre campus. Along with the new junior-senior high school, the campus included the elementary school, gymnasium, and a football field (the first lighted one in East Texas). It was designed in California-Spanish style (with a red tile roof) with hollow tile and brick trimmed in stone. It was built on sloping ground (3-6 feet), so it appeared to be a one-story structure from the front. It contained 64,000 cubic feet of dead air space.

They spared no expense in the building of the school, except for the method of heating the school. The original school plans, as called out by the architects, called for a boiler and steam heating system. The school board went against the architects' wishes and decided to install 72 individual gas-steam heaters to supply the heating for the building. Gas systems were in use all over the country, but required gas lines to be run under the school. The building plans were never modified to provide for proper ventilation in the basement area, which contained all of the gas piping and electrical lines for the building. There was a 4-foot by 4-foot door on the south side of the building that led into the basement. This door was kept closed and another door in the shop was left open. This is where the lumber for the shop was stored.

United Gas Company supplied natural gas used by the school until January 18, 1937 when the school cancelled their natural gas contract. The school board had made the decision to have plumbers tap into the residue lines of the Parade Gasoline Company where they could get it for free. This was to save \$250 to \$300 per month, which in 2016 dollars may roughly result in a \$4,000 to \$5,000 savings. The residue gas was delivered to each room with 1 ½" pipe by a gas regulator connected to a 2" pipe in the basement that entered on the East side.

The individual heating units were described by H. Oram Smith, of the Texas Inspection Bureau, as having the appearance of an ordinary steam radiator. The unit was described as consisting of a gas burner at the base, which was under a small water chamber. The steam circulated through hollow sections of the radiator and heated by radiation. Each unit had a regulator at the source of the gas supply and a safety valve on the water chamber.

The Explosion

The date was March 18, 1937, a Thursday and it was a clear and warm day. Classes were about to be dismissed at 3:30 PM. Friday's classes had been cancelled to allow students to participate in the Interscholastic Meet in Henderson (approximately 13 miles SE of New London). The elementary school students had been dismissed and the younger children had either gone home or were waiting for their parents who were at a PTA (Parent Teacher Association) meeting. The PTA was meeting in the school gymnasium, a separate building approximately 100 feet from the junior-senior high school building. The meeting had been moved from the school auditorium to the gymnasium at the last minute. There were approximately 500 students (some sources state 600) and 40 teachers in the junior-senior high school building at the time. Some time between

3:05 PM and 3:17 PM, a shop teacher named Limmie Raines Butler turned on an electric sander. The area of dead air space, unknown to him, was filled with an undetected mixture of natural gas and air due to a gas leak. The area of dead air space (253 feet length and 60 feet width) ran nearly the entire span of the school.

The sander, dubbed “old sparky” had just been repaired by Mr. Butler. A spark from switching on the electric sander ignited the mixture of gas and air and carried the flame into the nearly closed space beneath the building that was filled with gas from the leak. The gas exploded. The explosion was heard four miles away. Witnesses described the building seeming to bulge and lift into the air and then slam into the ground. The roof and walls then collapsed. A brief flame was seen above the building when the roof lifted into the air. The explosion blew a two-ton concrete slab floor through the roof throwing it 200 feet where it crushed a 1936 Chevrolet. Debris then rained down on people and vehicles. Only the most remote portions of the building survived the blast.

The Response

Oilfield workers and citizens from the community saw the explosion and rushed to the blast site. Many of the oil workers had children attending the school. Parents that were attending the PTA meeting rushed out of the gymnasium and over to the junior-senior high school, so they were the first on the scene. Firefighters responded immediately to the explosion, but there was no fire and firefighters searched for survivors.

As the news of the explosion spread, parents rushed to the scene wanting to know about their children. The roads leading to New London quickly became clogged with people trying to reach the scene.

H. G. White, who was in the fifth grade, stated that most of the debris was moved with bare hands until a guy brought in a truckload of peach baskets. People started looking for victims and removing debris and body parts in the peach baskets. Oilfield workers brought in heavy equipment for the larger chunks of debris. Governor Allred quickly sent Highway Patrol Officers, Texas Rangers, and National Guard Units to the area to aid the victims and restore order to the confusion that had resulted from the crowding. Doctors, nurses, and embalmers were sent from Dallas. Martial law was declared after nightfall within 5 miles of the site, and Major Gaston S. Howard was the commander for the area. He had 22 officers and 194 enlisted men under his command. Martial law lasted until March 22, 1937.

New London did not have a hospital. Mother Frances Hospital was scheduled to open its doors in nearby Tyler on March 19. Their plans for an opening celebration were canceled (and never happened) as they started taking victims from the explosion. More than 100 of the children were taken to the new hospital that had only 60 beds. Most of the buildings near the school had been made into field hospitals or makeshift morgues. It took quite a while for the parents to locate their children. As hospitals filled up the victims were placed anywhere there was room. Many of the parents had to drive to several hospitals in hopes of locating their children and then

searched the makeshift morgues if their children were not at the hospitals. Some picked up bodies and never returned, leaving New London. This may be part of the reason that there is not an exact known death toll.

There was not much talking among the rescue workers as they mostly searched in silence. William Follis told Texas Monthly that “everyone was working just like they were in a daze.” They were not checking to see if the children were alive or dead, but just getting them out. The oil field workers picked up the kids and lined them against a fence on the south side of the building until ambulances and cars picked them up to take them to hospitals in the surrounding area, according to Charles Dial (6th grader). It was the responsibility of the school principal, Troy Duran, to identify the dead before they were taken to makeshift morgues.

A reporter for the Associated Press named Felix McKnight was sent to the scene. He and a colleague, Bill Rivas were sent to the scene and they arrived at dusk. They were quickly swept up in the rescue effort after being told “that helpers were needed far more than reporters.” They joined the effort in helping to clear victims and debris. McKnight went to a skating rink in Overton, which had been converted to a makeshift morgue, in an effort to get a more accurate body count. Lines of bodies were on the floor covered with sheets. A doctor gave him a bucket of formaldehyde and a sponge and told him to sprinkle to formaldehyde onto the sheets.

One of the other reporters to reach the scene of the disaster was a 20-year old reporter named Walter Cronkite. He was assigned to the Dallas bureau of United Press International (UPI). He was sent to New London after being informed that a major story was breaking. This was his first major story. He did not understand how serious the incident was until he saw the large number of cars outside the funeral home in Tyler (approximately 26 miles from New London). He got a ride to the scene on a fire department truck that had just arrived from Beaumont to assist. He arrived at the scene when it was dark and raining. Floodlights were set up so the work finding victims could continue throughout the night. He spent four days at the site filing stories being broadcast worldwide while sleeping when he could in his car. The UPI team set up a news bureau in the Western Union office in Overton. Cronkite was put directly on the air each time he called from a payphone to describe the events.

All of the victims were removed and debris cleared from the site within 17 hours of the explosion. Only 130 of the occupants of the building escaped serious injury. The estimates of the total casualties varied from 294 to 319 as some were burned and some had only pieces recovered. There were 31 of the victims in the shop class. The NFPA Quarterly stated that 2,000 tons of debris were picked up and hauled away during the night. It also stated that the smaller fragments that were shoveled were taken in small baskets where they were carefully emptied under the floodlights. This was done as not to overlook any parts of the victims.

William Follis told Texas Monthly how he was asked to go to Overton the next day to help identify bodies in a makeshift morgue. He described fathers fighting over dead children “like dogs over a bone”. He said that he lost it and went home after seeing his best friend there. He described his friends head as “flat like a newspaper.”

Victims were identified as well as misidentified. W.G. Watson, who was in the eighth grade, stated to Texas Monthly that he was misidentified as one of the dead. He stated that his name was called out on the radio identifying him as one of the dead in the Kilgore morgue.

Most of the bodies had been prepared for burial by mid-day on Sunday. All except for one girl who was at the American Legion Hall in Overton. Her body had been damaged so badly that she could not be identified. This was before we had DNA to identify a person, so misidentification was far more likely than today. Process of elimination determined that it was Wanda Louise Emberling. A man named Oscar Worell saw the girl's body and identified her as Dale May York based on a scar under her toe. He did not know that Dale May York had been found by her brother almost immediately after the blast and had her body sent to Crim's Funeral Home in Henderson. He had stayed with her to make sure she was correctly tagged. Later, when her parent's got to the funeral home to see Dale May, they were refused because her body was too mutilated from a large slab of concrete crushing her.

The Emberlings and the Yorks went to Dale May's grave on Sunday, after her funeral was held on Saturday. The casket was opened and was identified as Wanda Eberling, as she had painted her toenails with red crayons the night before the explosion. Her body was exhumed and she was buried near the main entrance gates. That night, Wanda's brother, George died from his injuries. Their mother watched over him on his deathbed while their father had been searching for Wanda. He was buried next to his sister.

The mystery remained about how this mistake happened. Dale May's brother had correctly identified his sister at the scene. The hearse's driver took her to the American Legion Hall in Henderson instead of the funeral home. Although she was tagged, it came off and was lost in the confusion. They went to the Legion Hall in Overton, but this time were not denied viewing and made a positive identification.

The funerals were held one after another. There were several at a time and they were short due to the number. It was stated that Humble Oil Company paid for many of the funerals. One of the survivors stated that there were three or four every hour at Pleasant Hill Cemetery. Many of the victims were buried there, located between New London and Henderson. They held a memorial service on Easter Sunday at Pleasant Hill Cemetery.

The incident was an international story. Cards and letters were sent from children as well as dignitaries from all over the world. National and international leaders, including First Lady Eleanor Roosevelt and German Chancellor Adolph Hitler, sent telegrams offering condolences.

By today's standards, the way the rescue and recovery operation of that day would be considered a disorganized mess. This was long before FEMA and the incident management systems we use today in a disaster. They worked so fast to clear the area and locate any victims that there was no evidence to analyze for a proper investigation with more complete information.

Aftermath of the Disaster

Inquiries into cause of the disaster began three days after the explosion. Governor Allred, as commander-in-chief of the Texas State Militia, ordered a military court of inquiry into the cause of the explosion. The United States Bureau of Mines (Department of the Interior) and the State of Texas sent experts to the scene to investigate. The investigation was really just an inquiry since the site was cleared of any evidence that could have been examined. They learned from the inquiry about the cancellation of the contract with United Gas Company two months earlier.

The official cause of the explosion was blamed on a combination of the unventilated floor space and the method of heating being wrong. The Bureau of Mines determined that the source of the gas leak was likely due to a faulty connection installed when the school ordered the tap into the residue line. The Texas Inspection Bureau's H. Oram Smith published his preliminary findings on March 27, 1937. His findings were that:

Raw gas escaping from leaking lines had accumulated in a dead space between the foundation and basement floor. The gas expanded because of a drop in barometric pressure, and an electrical spark from a switch in the manual training shop had triggered the explosion.

Mr. Smith concluded that most of the faults of construction were due to a “lack of supervising power such as would apply in communities having city ordinances.” Since New London was an unincorporated area of Rusk County, he suggested that state laws were needed. There has not been a reason given for the cause of the leak, which likely would have been determined if the evidence was not taken away as fast as it was.

In the days before the explosion, there had been evidence that there was leaking gas. A recollection from local resident, witnessing from his porch, William Judson Robertson (to the New London Museum) stated that for several days children had been complaining of having headaches. If true, the headaches would have been an indication of exposure to natural gas. Not much attention was paid to their complaints. Examination of statements of others sent to the museum indicate the same thing. A recollection from Allen Earl Vinson stated that a teacher, Mary Ethel Neal (age 27), had a headache most of the day and went across the street to get an aspirin and a Coke from a store approximately 30 minutes before classes were to end. The men at the store stated she had reached for the door back at the school at the time of the explosion. She was killed in the blast.

Information sent to the New London museum from Darlene Lummus, also indicates prior warning that there was a problem. Her mother was a student at the school at the time of the explosion and stayed home that day because she had a bad headache. They lived near the school and her mother described the explosion as shaking their house. Reba Richardson recalled that she and many of her friends' eyes were stinging that morning, when she spoke to Texas Monthly. Margaret Siler, who was in the seventh grade, had a headache and went to her uncle's car to lie down. She told Texas Monthly that she was asleep when a boulder came through the front windshield of the car.

No school officials were found liable in the explosion and all were exonerated. This is despite the fact that they were clearly responsible. These were finding that brought quite a reaction from many of the parents. Many parents filed lawsuits against Parade Gasoline Company seeking damages. Fourth District Judge Robert T. Brown, mostly due to lack of evidence, dismissed the few cases that came to trial.

The superintendent of the school board, W.C. Shaw was forced to resign and leave town amid talk of a lynching. He lost a son, Sambo Clifton Shaw (10th grade) in the explosion. Bill Thompson (who was in the 5th grade at New London in 1937), recalled to Texas Monthly that Mr. Shaw had a nervous breakdown and that some wanted to “tar and feather him.”

Within a few weeks of the explosion, the 45th Texas legislature passed legislation that was signed by Texas Governor James Allred to prevent further disasters with natural gas in Texas. House Bill 1017 was approved on May 17, 1937 and became immediately effective. This legislation required the introduction of a malodorant to natural gas and made the Texas Railroad Commission the responsible agency to investigate the use of them. Malodorants allow people to be warned of a gas leak by the smell. The Texas Railroad Commission began enforcing these rules in late July of 1937. Today this is an international practice, but the Texas Law was the first law codifying the practice. One of the survivors, Carolyn Frei (maiden Jones) spoke before the legislature for about five minutes.

The same legislature created the Texas Engineering Practice Act in 1937, which prohibited any person from practicing or offering to practice engineering without being licensed. The Act became effective on May 28, 1937 as Title 52A, Article 4371a of Vernon’s Texas Statutes. This was not a first, since California created its state board after the failure of the St. Francis Dam killed more than 500 people along the Santa Clara River (North of Los Angeles). The Act defined the term professional engineer as:

The practice of professional engineering within the meaning and intent of this Act includes any professional service, such as consultation, investigation, evaluation, planning, designing, or responsible supervision of construction in connection with any public or private utilities, structures, buildings, machines, equipment, processes, works, or projects, wherein the public welfare, or the safeguarding of life, health or property is concerned or involved, when such professional service requires the application of engineering principles and interpretation of engineering data.

The New London Explosion also resulted in the creation of the Texas Board of Architectural Examiners. This agency was also created in 1937 to protect the public from irresponsible acts by architects.

Students returned to school approximately 2 weeks after the disaster. Construction on a new school began quickly, while the remaining students finished the year in temporary buildings. The new school was finished in 1939. The new school was located on the same property.

The disaster was mostly forgotten for years by history. Maybe it was partially because we entered World War 2 less than 5 years later. Few spoke about it until 1977 when they had a

reunion. Texas Monthly spoke with some of the survivors on the seventieth anniversary of the disaster. Nadine Dorsey (maiden Beasley) was a seventh grader at the time of the explosion. She stated that after the new school was built, no one mentioned the school explosion. She stated that “With kids, it was like it never happened.” Describing it as kids being able to put things behind them easier than adults. She stated that the first time she cried about it was when she got the invitation for the fortieth anniversary because she had blocked the memory from her life.

There were other instances where it was quickly learned not to discuss the disaster. Barbara Page (maiden Moore) stated that her mother was talking about the explosion to some other women. Her mother said that “The Lord was so good to me, because my two sons and daughter weren’t hurt.” Another woman reacted by stating “Well, why wasn’t he good to me?” Barbara stated that her mother never mentioned it again.

Amos Etheridge was a seventh grader at the time of the explosion. He stated that in 1938 they started school in the new building. He stated that on March 18th they left the building and gathered under a memorial that had been built. They were met by a math and science teacher named Mr. Tate, who convinced them to return to class. Mr. Tate told them to forget it and said “You can’t keep thinking about it the rest of your lives.”

Bill Thompson was in the fifth grade at the time of the explosion. He had traded seats with a girl and she was killed in the explosion. He felt guilty for fifty years until he called the sister of the girl killed.

The Dallas Observer spoke with L.V. Barber, who was a senior at the time. His father was the janitor and bus driver for the New London school. L.V. Barber, whose brother Arden Leon Barber was killed in the blast, rarely told the story of that day. He remembered that their father didn’t talk about it much after his brother’s funeral.

William N. Grigg was a fifth grader at the time of the explosion. He spoke to the Harrison Daily Times in 2003 about the explosion. He stated that he still had trouble talking about it. He stated that he thought about it as little as possible and fighting in World War 2 did not bother him like the school explosion.

A granite memorial was built in 1939 to remember the victims of the disaster. It is located in the median of Texas Highway 42 in front of the new school built after the disaster (now West Rusk High School). The London Museum opened in 1998. They run a website <http://www.nlsd.net> that has a lot of information on the disaster. They are located in New London, directly across from West Rusk High School.

Discussion and Conclusion

The New London School explosion was one of the worst disasters in Texas history, yet little known. Several new laws were passed because of the disaster. The law requiring malodorants probably would not have prevented the explosion. This is because the superintendent made the decision to cancel the contract with the gas company and tap the raw gas line. The gas coming from United Gas Company would have been the gas that would have the malodorant to warn of the leak.

The Engineering Practice Act, as it was originally written, would have required the school board to consult a professional engineer. A school is considered a public work and plans would have to be prepared and supervised by a professional engineer. This was required for any public works project over \$3000. This may have made the school board think twice before ignoring the recommendation of a boiler and steam system to heat the school. It provided that “supervising power” that H. Oram Smith believed was lacking.

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