

STEAM BOILER NOTES.

On the 22d of November, the boiler at D. Milliken & Son's tannery, in Bangor, Me., exploded, demolishing the building, in which were seven men. William Barston was blown twenty feet through a window. His left arm and a portion of his left side were badly scalded, his right arm and thumb somewhat injured, and he was also scalded on the right side of his face. Albert Milliken was blown through the roof, but received only slight injury. A man named Ames was knocked down, but was uninjured. The physician says Barston will recover in a few weeks. The boiler was located in a pit below the level of the floor, and when the explosion occurred it was lifted up, went through the side of the building, and landed some distance from the tannery. The roof of the building fell in.

It is reported by a contemporaneous newspaper, technical as to cotton manufacturing in the East, that this "was of the Sullivan pattern" of boiler. Now there are divers "patterns" of boilers bearing this name in New England, and the announcement seems to mean nothing in explanation of the explosion; while users of the later and safer forms of Sullivan origin, which are now said to be accepted for insurance against explosion, may feel undue anxiety for their safety, and the numerous family of boiler-making Sullivans will naturally feel scandalized at the insinuation. It is, moreover, reported that this sample was not only a Sullivan, but it was understood to be a second-hand one.

It may be said, if it was of the same particular "pattern" as its namesake that blew a machine shop to atoms in Ellsworth, Me., in the summer of 1875, on the seventh day of its existence as an active steam boiler, then its having endured the test of practical use long enough to acquire the title of second-hand would indicate that it was a better individual than some of its relatives, a number of whom have gone up in a cloud of dust in early life.

At 10:10 A.M., September 28, an explosion occurred at the works of the Saginaw Barrel Company in Saginaw City, Mich. The explosion occurred in the room used for steaming logs preparatory to cutting them into hoops. The usual method of doing this work was by boiling the logs in large tanks, but in cold weather this was not considered the best way, and other means were resorted to. Charles H. Utter, Alex. Bush, Ira Nichols, and Frank Busshard were seriously injured. Utter was alive at last accounts, but his injuries are fatal. Nichols will likely recover.

The device that was to be substituted for the original was a boiler or shell, forty inches in diameter and about seven feet long. This was furnished with a cast iron head fastened on by bolts to the boiler. On the 26th steam was turned in the shell for the first time, and the scheme seemed to work satisfactorily. On the 28th, however, when the practical test was to be made, the result was far different. The log was put in, the head screwed on, and the steam turned in, when in an instant the whole front, weighing 600 pounds, was blown into fragments.

Mirabile dictu!—wonderful to be told!—and yet this often happens when seam joints are made by bolting together parts whose gasket surfaces do not coincide in form when brought together, touching at two or three points only. A cast iron disk or plate, being one of the parts, may readily be put in a state of tension in making a steam-tight joint, using long wrenches, lengthened perhaps by slipping over the wrench handle an old two-inch pipe, or attaching a block and fall to the eye in the end of the wrench handle, so that only just what was done here at Saginaw would be required to break the head into fragments, though it weighed even more than 600 pounds and was a sound casting at that, till it was overloaded. Or may be the gasket is bad, having thick and thin places or hard and soft places, and continuing to leak, Mr. Steamfitter continues to screw with his compound "purchase" till the bolts are just ready to "part" on the application of the full calculated load of steam pressure, and the thing blows off, to the great astonishment and serious injury of bystanders, who perhaps think it should be strong in proportion to the power applied to the wrench.

Of course it is impossible from this standpoint to say that anything of the kind took place at Saginaw, and the operators there may feel touchy about this hypothesis, but such things have happened in more refined establishments than barrel factories. It is more than probable that construction was faulty or the management bad. It is not at all probable that low water and overheated plates caused a sudden and violent evolution of an irresistible pressure, since no fire was present. It is not impossible, however, that the dynamite advocates may gather comfort for themselves from the possible fact that some malicious person could have concealed a cartridge in or upon the logs that were put in to be steamed.

The boiler in the Yazoo Oil Works, at Yazoo City, Mississippi, burst December 1, demolishing the boiler house and one end of the main building, and injuring seven men, four of them fatally.

John Steinheim was fatally injured by a boiler explosion in the Wadsworth Coal Company's mine near Doylestown, Wayne County, Ohio, at midnight, December 2. Another man was seriously hurt. The wounded men crawled half a mile to get to the surface of the mine.

It appears from the *Ironmonger* that a meeting of a committee of the Smoke Abatement Exhibition was lately held in London, England, where the announcement was made that the Society of Arts had resolved to add to its other prizes a special medal to be given in the name of the society to the inventor of the best smoke-consuming stoves and

grates. Professor Chandler Roberts reported that he had arranged for chemically testing the products of combustion during the trials of the competing exhibits. The object, no doubt, is to ascertain whether or not combustible gas still remains after the elimination of the black color of the smoke.

An ordinance, which was lately approved by the Cincinnati Mayor and Board of Public Works, and which went into effect on its passage, provides for the appointment of an inspector of furnaces. It requires all users of steam boilers and other furnaces to provide some satisfactory method of preventing the discharge of black smoke into the atmosphere.

No doubt the general adoption of an effective apparatus for the actual consumption of the carbon that gives the dark color to the smoke of soft coal and other bituminous fuels would prove a great public benefit by the abatement of the smoke nuisance, and it would also effect a vast saving of fuel in almost every industrial establishment, whether the fuel yields black smoke or otherwise. A change of color, or its absence altogether, does not necessarily indicate that the escaping gases do not still contain combustible elements that should have been burned in the furnace or combustion chamber.

Anthracite furnaces improperly constructed or badly managed have been shown to be quite as wasteful as those that send out dense black smoke from bituminous fuel. In crowded manufacturing cities the peculiar odor of carbonic oxide, etc., a combustible compound from anthracite fires, is often perceived by occupants of dwellings or rooms on a higher plane than the chimney tops from which it escapes; and even in lower places, when the atmosphere is still and the barometer low, it is diffused in such quantity that its odor is perceptible. It may not be more injurious to health than the inodorous gases from more perfect combustion of anthracite, still it is possible that the double object of better air and a saving of fuel may be attained by perfecting the combustion of anthracite as well as bituminous coals.

At the last monthly meeting of the management of the Boiler Insurance and Steam Power Company (Limited), held in Manchester, England, the chief engineer reported that during October, 1881, 5,414 boilers had been inspected, of which number 58 were internally and 896 thoroughly examined; 25 boilers were also tested by hydraulic pressure. The principal defects found in the boilers were as follows: Corrosion of plates and angle irons, 212; fracture of plates and angle irons, 44; safety valves out of order or overloaded, 132; pressure gauges out of order, 67; water gauges out of order, 23; boilers damaged by overheating in consequence of deposit, 3; boilers damaged by overheating in consequence of deficiency of water, 8.

The item of special interest in this report is that relating to safety valves. In a single month it seems that 132 of these attachments were found to be no longer reliable as safety valves. This company has usually claimed entire immunity from destructive and fatal explosions of boilers in its care; and the expression used in this report, together with the large number "out of order or overloaded," without a single dangerous one being noticed, indicates the scrupulous care with which they watch and report this least departure from perfect order in this all-important appendage. It is probable that its inspectors are quite as critical in their observation and treatment of the progress of all kinds of deterioration to which steam boilers are liable, using the "ounce of prevention" in time to prevent the necessity of the "pound of cure." However this may be in its practice, it is here and now recommended as the only way to secure what this company has so often claimed in its reports.

A boiler in James Henry's shingle mill, Grand Rapids, Mich., exploded, November 27, killing Joseph Slater, the engineer, and David Hardy, of Maple Hill. George Bland was slightly hurt. The mill was entirely destroyed, and a dwelling adjoining the mill badly injured.

A boiler explosion occurred at Douglass & Son's mill, at Mud Creek, Texas, November 29, killing four men. The mill was blown to atoms.

Are Bees a Nuisance?

An unusual case is being tried in the Cumberland County (Penn.) Court this week, that of testing by a jury whether the keeping of a large number of bees in a town or borough is a public nuisance or not. The case is from West Fairview, a small town on the opposite side of the river from Harrisburg. Two citizens had about 130 skeps of bees, and as the summer was scarce of material such as the bees feed upon they came in large numbers into the houses, stores, grape arbors, and wherever there was anything for them to feed upon. In one instance they swarmed in a neighbor's kitchen, and were there for days, he not being able to hive them, the queen being killed. They were especially bad about canning and preserving time, compelling the housewife to do her preserving in the evening, and in one instance the wife had to climb in and out of the window for days, not daring to open the doors, for the bees would go in by hundreds; persons were stung passing along the streets and highways; entire houses became infested with bees, so much so that the inmates could not retire to rest at night without being stung by the bees; trays of fruit put out for drying were entirely consumed. Indeed, a reign of terror was experienced for several months, until a committee of citizens agreed to abate the nuisance, and, after several efforts, appealed to the court.

The defense claimed that the raising and keeping of bees was an industry, and as such could not come under the head of a public nuisance, and that suit could not be brought nor

damages recovered for the keeping of honey-bees. The attorneys on both sides presented the opinions of several judges and the law points in the case, after which the court decided the case should be tried, and the testimony was received. But one case seems to be on record in the State, and that was tried before Judge Pearson, in Dauphin County, years ago, in which the defendant was adjudged guilty, and had to pay a fine and abate the nuisance.—*Harrisburg Telegraph*.

Correspondence.

Durability of Redwood.

To the Editor of the Scientific American:

Having been a subscriber for the SUPPLEMENT of your paper ever since the first number, and of the paper itself for many years, I do not wish it to be astray on any subject, as I look upon it as a sort of oracle for mechanics of all branches. But somehow or other an erroneous article from a local paper, here called the *Scientific and Mining Press*, in relation to the durability of redwood, has found its way into the columns of your paper.

Redwood, when exposed to alternations of wetting and drying, will not last more than three to five years before it is completely rotted. I am a bricklayer by trade, and have had about seventeen years' experience in this city of redwood houses, and I am certain of what I say. As regards putting redwood under brick walls, it is never done nowadays, and, in fact, never was done in any important structure. Where plank foundations are used here is on made land, in the region of the city front, and then they use plank of what is called Oregon pine, three inches thick; and this planking is supposed to be placed deep enough to be covered at all times with water, so as to exclude the air. Done in this way, I have seen some planks that had been down twenty-five years, and they were perfectly sound. Redwood placed deep enough in water to exclude air will also last for I do not know how long.

Within the last few years a great many houses that had been built of redwood, with 4 x 4 inch redwood posts, resting on a 3 inch plank of redwood for a foundation, have had to be placed on screws and a brick foundation put under them. The wooden houses here are numerous, so there is every chance to see how long redwood will last. I have seen the redwood stringers and sleepers of the street railroads taken up completely rotted after five years.

The particular kind of redwood that some call "black heart" is a humbug. As regards the sinking of redwood, I have often seen that, but they were pieces commonly called waterlogged. Messrs. Fulda Brothers are makers of wine casks, and not builders.

The way the name black heart redwood originated, at least the first mention of it I ever saw, was when the redwood pavements of this city came into disrepute from rotting away so fast. Some contractors said they would not do so if it was the black heart redwood; but the supervisors of the city were not humbugged that time, as they were a week ago, when a man calling himself an engineer, stated in his testimony before them that crude petroleum was not inflammable. Enough further information in regard to redwood can easily be had from any mechanic in the building trade in this city.

San Francisco, November, 1881.

M.

Breaking of Steamer Shafts.

To the Editor of the Scientific American:

In case of an ocean steamer breaking her propeller shaft in a gale of wind, by no means such a rare occurrence, she must do one of two things: "Lay to" under canvas, or become unmanageable in the trough of the sea. The former course, where the modern locomotive steamer is concerned, is an impossibility, and I wish to offer the following suggestion to prevent the latter.

Why not fit, and be kept ready for use in heavy weather, hydraulic pumps on each quarter, at whatever depth below the water line that proved convenient, the nozzles for which could be protruded from inboard whenever required to be used? Exactly similar to the hydraulic propulsion power fitted to H. B. M. S. Waterwitch. The Waterwitch, as a test, was tried in all weathers, and by means of this method obtained a speed of 9½ knots per hour. It was also used by her as an extra and very efficient steering power. In case of the shaft breaking the steamer's engines would be used for pumping and forcing the jet of water outboard on each side, instead of for turning a propeller shaft.

B.

Gas Treatment of Whooping Cough.

In the treatment of whooping cough in gas works, as lately resorted to, especially in London, the purifying chamber consists of a large room with doors and windows freely open, and each contains twenty-four vessels, holding five cubic meters of depurating substance—lime and sulphate of iron mixed with sawdust—through which the gas has to pass. When the workmen are emptying and refilling these vessels, the children with whooping cough are placed around it, and inhale the vapors which escape; they are in an atmosphere containing ammonium sulphide, carbonic acid, and tarry products. As to the efficiency of this treatment, one physician reports that of 120 cases persevered with, in twenty there was entire failure, forty-eight showed improvement, and the rest were cures; it is thought, however, that it acts only upon one element of the malady, viz., catarrh.