For the Scientific American.

Steam Boiler Explosions.

The subject of steam boiler explosions is one that has for a long time interested me, but more particularly of late, since my having had an occular demonstration of the importance of something being done to insure greater security in travelling. A person to be impressed with the importance of the subject, needs to be an eye witness to a scene similar to the one witnessed on the A. N. Johnson, which of itself appears to me to be sufficient to arouse the public en masse, to the importance of early action in the matter. But the A. N. Johnson is only one of the many cases that have occurred within the last four months. Our Western waters have been the scenes of almost perpetual accident and distress resulting from steam boat explosions, and yet the mass of the community seem apparently indifferent and secure. Steam boat proprietors take no measures to prevent these calamities. I have watched with a great degree of anxiety the proceedings of this Congress, hoping that something might be done to prevent the recurrence of such awful disasters as have been chronicled in our history the past few months While I am gratified to find that even slight measures have been taken of late for its accomplishment, yet I can but feel very much chagrined to see so much indifference manifested on this and like important subjects while matters of infinitely less importance are viewed with more enthusiasm than the subject demands. In reading your paper of Feb. 19, as I do every week with no small degree of pleasure and interest, I find you have examined the report of a Committee appointed by Congress in 1844, to investigate the cause of steam boat explosions, and devising the best means of aiding the Engineer in the discharge of his duty ; and farther, that the result of their deliberations placed the invention of Mr. Barnum of this city, upon the ground of superiority to any presented to them for examination. The interest that I have felt in steam boat explosions, induced me to obtain the report referred to, and was very much surprised to find that such investigation had been instituted and such results obtained by Congress in 1844, and so little done for the adoption of said invention. It appears almost criminal. Ought there not to be some measures taken to secure to steamboats an apparatus which displace the possibility of explosions, from deficiency of water, (which I consider to be the true cause of explosions.) It would be very interesting to me, as I suppose it would to the rest of your subscribers, to know what disposition was made of the Water Witch after the failure of her engines, and whether Mr. Barnum's apparatus has been applied to any other vessel, and whether you know of *any* measures being taking by Congress for the adoption of any invention to prevent explosions.

In conclusion permit me to remark, that I consider it highly commendable in the "Scientific American" to have pursued the subject with that vigor and energy which is calculated to seek out the cause of these disastrous occurrences and, if possible, remedy the evil. H. Z. D., Engineer.

New York.

Rigging of Vessels.

The bowsprit should be long and strong ; jib boom the same ; flying jibboom in a separate piece, as in many places it is required by law to be rigged in ; too short bowsprits and jibbooms are common, and generally too much steve is given to them. Thus jibs which are lifting and driving sails, are too small ; 2½ to 3 inches steve to foot, is enough for a vessel with a good body below forward, to keep her from pitching badly. Fore and mainmasts should be the same diameter, and foremasts only 3 or 4 feet shorter than the mainmast—that is, enough to keep the yards from locking. All masts above lower masts, and all yards on fore and mainmast, to be of the same length, so that the sails may be easily shifted. Masts should be stout and strong, so rigging may be light and slack. American vessels often beat in sailing, on account of stout masts, and light slack rigging, giving the masts some play. Many foreign vessels have light spars overloaded with rigging, and tied up by it, so masts have no play. Long lower masts, as long courses, drive well ; all canvass drives better in one piece than in two ; topmasts a trifle short in proportion, as topsails are particularly storm sails ; topgallant masts and yards long, for India or South American passages, for which studding sails and stay sails should be large and plenty ; a large topgallant sail is rarely objectionable, and may often be set to advantage in lulls during squally weather, over single reefed topsails ; topgallant backstays, spread by whiskers from topmast cross-trees, enable topgallant sails to be carried long along lower and topsail yards, to spread as much low sail as possible ; storm stay sails and storm spencers are good sails. Long mast heads give strength, and long yard arms look well, and support studding sail booms. Masts should never rake less than one inch to a foot, and never more than 1 3-4 inches. All masts should rake alike ; if there must be a difference we prefer the foremast to rake most, as, on the wind, the rake to foremast does good in lifting the vessel over the head sea, and the rake to the mainmast then has little effect.—Before the wind, the mainmast does most good and then the rake, being more than ½ inch to foot is an injury, particularly in light winds, when sails are apt to flap in to the mast and throw the wind out of them ; and great rake to masts are always an objection in very light winds. Topmasts, &c., should rake the same as lower masts. A hermaphrodite brig rig appears to be fastest and best on the average.

Chloroform and its Discoverer.

The following account of the discovery of Chloroform in this country, was received from Samuel Guthrie, Esq , of Sackett's Harbor. N. Y.

In making experiments, some eighteen years ago, with chlorine and alcohol, I obtained a new product. having the properties of the chlorine of ether of the Dutch chemists, with which I supposed it to be Identical. As I first obtained it, it was in solution in alcohol. In consequence of its pleasant flavor, and the delightful sensation it produced when taken into the stomach, it was greatly sought for in my neighborhood as an exhilarating drink. After seeing its effects in producing a higher degree of jollification and mirth, than I had ever seen from intoxicating drinks, and finding that I was introducing a dangerous auxilliary to the cause of intemperance, I refused peremptorily ever to sell another drop to be used as an exciting beverage.

From seeing its surprising powers in restoring a daughter, nearly dead from the effects of burning charcoal in a close room, and other known qualities, I thought it might prove of much value in Asiatic cholera, and while that disease was traversing this continent, I sent it into Canada, New York, New Haven, &c., in the hope that it might be tested in that frightful disease.

When first I obtained it, it was in solution in alcohol, and my first object was to separate it from all foreign matters and to present it in a state of absolute purity. This I effected on the 6th of January, 1832, by concentrating it to a specific gravity of 9.486. An account of the discovery and improvements in constructing it, up to that time, was published in the American Journal of Science and Art, by Prof. Silliman.

It was important to find a more simple mode of concentration than any I had used, and finding it was very sparingly soluble in water, I concluded that low proof spirits be used instead of alcohol in generating it, and that the product might be washed freely with water and thus freed from alcohol. The trial was made and resulted in complete success.

To give an idea how easily aud rapidly chloroform may be made, and of great purity and strength, I will detail one operation made in 1832, from which course I have never since had occasion to deviate.

Into a 500 gallon copper still I poured 100 gallons of common whiskey, and then plunged in 240 pounds of chloride of lime. The still became instantly hot, and before I had luted on the head, I had a full steam of chloroform from the still worm. It continued to run freely for some time without fuel. When the product ceased to come over sweet I removed the receiver and ran off the remainder of the spirit for future use. The product was re-distilled from a profusion of water, or was well washed in some five or six waters, when it had reached a specific gravity of 9.486. From 240 lbs. of ordinary chloride of lime, I obtained nearly 100 pounds of chloroform.

Fine Stockings.

In 1756, the magistrates of Aberdeen, Scotland, famous for its manufacture of worsted stockings, desirous of expressing the esteem which they bore to their countryman, Marshal Keith, resolved to present him a pair of stockings of uncommon fineness. The stockings were made of the Highland wool, and were valued at five guineas the pair—and were easily drawn together through an ordinary thumb ring, although they were of the largest size. These stockings were sent in a box of curious workmanship, to Marshal Keith, who deemed them worthy the acceptance of the Empress of Russia, to whom he presented them. In the year 1710 worsted stockings were made from Highland wool, valued at thirty shillings a pair, and sometimes for three pounds sterling ($15) a pair. In 1733 similar stockings were sold in Aberdeen for $27 50 a pair, and the Highland wool has been spun to the extent of more than sixty thousand yards, (about 34 miles) from one pound. Three pairs of gloves made from this yarn were bought by Lady Mary Drummond, one of the Duke of Perth's family, at three guineas a pair.

The wool that made such fine articles was introduced into Scotland from Spain, and Spanish shepherds with their plumes and narrow crowned hats, attended by their huge dogs, came over with their Spanish flocks and were subjects of much wonderment to the Scottish people. Both these men and their dogs faded away before the superior energy of the Highland shepherds and the restless activity of their small sheep dogs (collies.)

Americanisms in London.

A London correspondent of the New Haven Register, in describing the novelty of the place, states that "it is no uncommon thing to see posted in the streets—"American cheese, lard," &c. "American empty flour barrels,"—Corn bread, with the corn stalks sticking out of the window, to show that it is real Simon Pure. Also, "American boots," or boots made on the American plan, and "American overshoes," and "American clocks," and last, though, not least, "Baby-Jumpers" These have, as yet, created the greatest sensation of any thing from the land of steady habits. They have been approved by the physicians and the press.—Even the Times newspaper—the thunderer, as it is called—thinks them a very useful article; and Tuttle, the inventor, is acknowledged by all to be the great lion of the city. His extensive store in the Strand is crowded by his numerous customers, and the street and side-walk in front are blocked up by the curious gazers of all nations. It is said he is to be appointed "baby-jumper" manufacturer to her Majesty, the Queen—who has been graciously pleased to accept as a present the beautiful Jumper exhibited at the Fair of the American Institute, and is in raptures at the delightful recreation it affords the little members of her household. Surely this is a wonderful era in the history of our country when a single Yankee can set a whole nation, princesses and all, to jumping—it should be honor enough for any one man.

Circus Spectacles.

Van Amburg, the lion tamer, has been sent over by Mr. Titus to England, to purchase arena horses and engage arena talent. He has purchased a number of spotted chargers from Mr. Batty, of London, and the very horses that have been foremost in the charge on the British side, in the grand spectacle of "the Battle of Waterloo," will shortly be engaged with equal energy under the "star spangled banner," in bearing down Mexican mustangs in the glorious battle piece, entitled "The Battle of Mexico." Mr. Van Amburg has also purchased two of Mr. Batty's three elephants, for £1000 each, and the whole of the beautiful camels, with their splendid eastern trappings.

An enterprising Yankee, now in Russia, has obtained the exclusive privilege of cutting ice from the Neva, for foreign markets.

Ancient Astronomy.

The honor of priority in observing the celestial sphere had been claimed for the ancient Hindoos, the Chinese, and the Egyptians and to the two former, a knowledge of its mechanism at a very distant period had very properly been assigned. The preponderance of evidence, however, was in favor of the Chaldeans, The Hindoo tables showed a date of upwards of 3,000 years before Christ ; but from modern calculations based upon their theory, some doubts had been entertained as to its accuracy.

In Egypt, attention to the celestial phenomena commenced with the era of its early inhabitants. The exactness with which some of the pyramids were made to face the four cardinal points had given rise to the supposition that they were designed for astronomical uses. And authorities might be cited to prove that they terminated at the top in a platform which the priests occupied as an observatory of the heavens. But it the Greek philosopher taught his pupils how to find the height of a pyramid by its shadow, (one of the most simple examples of practical geometry,) no very high estimate could be formed of the accomplishments of the Egyptians. In Fact, Ptolemy, who lived in the country, and might be presumed to have been acquainted with its records, derived none of his materials from that source, but only quoted the observations of the Chaldeans.

The age of astronomy in Greece commenced in the seventh century previous to our era, but, in the writings of the oldest poets, Hesiod and Homer, some centuries earlier, passages occurred which proved that the appearance of stars and groups of stars,, had been carefully noted. Hesiod mentions that the Pleiades were invisible for forty days, and also that when they rose from the dark rolling sea, sailing was dangerous.

Thales, the Milesian, was the founder of the Ionic school, to him were the Greeks indebted for the proficiency they attained in astronomical science ; for, as a people, they were never distinguished for their study of physical nature. It was on record, though without much foundation in truth, that Thales when a boy, fell into a ditch, whilst contemplating the stars, upon which his conductress exclaimed, "Why, O Thales, do you seek to comprehend the things which are in the heavens, when you are not able to see those on the earth?" Had Thales been discouraged and relinquished the soul-absorbing study of astronomy, what the world at large, would have lost by it, is a question, which we would leave for reflection ; but, surely, it would make us pause, ere we condemned those, who, in seeking for discoveries in the intermediate paths of science, at times appeared blind to passing objects and events.

Passing over the names of some of the successors of Thales we arrived in about two centuries to that of Pythagoras, who, appeared to have reached the sublime conception of the earth's motion round the sun. The Pythagoreans taught, that not only the planets, but the comets themselves, moved round the sun. But these views of the science, though not universally received by all enlightened minds, met with nothing but discredit and ridicule, because they were opposed to the evidences, and it appeared that so strong was the party of those clever sticklers for "the evidence of the senses," that for 1800 years they had their own way.

Early in this period of opposition to the Pythagorean system, Egypt became the chief seat of astronomical science. The first of the Ptolemies laid the foundation of the celebrated library at Alexandria, perhaps the most extensive collection of books ever brought together, before the art of printing was known. His successor established in connexion with it, a college for the cultivation of the pure sciences ; invited the Greeks to repair to it, supplied them with the best instruments of the times, necessary to their pursuits and thus arose the Alexandrian School, in which was learned those Greeks, who after the capture of Constantinople by the Turks, spread themselves over Europe and broke up the darkness of the middle ages.

Four steamboats were burned in Cincinnati on the 28th ult.

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