

Scientific American.

NEW YORK, FEBRUARY 4, 1854.

The Length and Breadth of Steamships.

The sad fate of the steamer "San Francisco" has led to a tremendous amount of discussion in some of our Daily Papers. One writer attributes the cause of her disaster to this, and another to that defect, while a third attributes it to the want of a proper breadth of beam. From the discussion we have elicited one simple fact which deserves to be held up prominently before our nautical architects; that fact is the great difference of opinion which seems to be entertained respecting the correct relative proportions of the length and breadth of ships. There seems to be no fixed standard recognised with shipbuilders of what should be the breadth to a positive length of vessel. This shows us that there is still great room for investigation and experiment in this art. This question should engage serious attention, especially when we take into consideration our vast shipping interests, and the numerous disasters which have befallen so many of our sailing vessels and steamships during the past six months. One writer on the subject asserts, that the rule in the British Navy is to build ships, in the proportions of four times the length to the breadth, and he also asserts that our safest and best ships (the old Atlantic liners) are not five times as long as they are broad. These proportions he considers necessary, to impart steadiness on a stormy sea; and he condemns our new clipper ships for want of breadth, considering them unsafe, *crank* and leaky. The "Great Republic," was built in the proportions of length to breadth as 7 is to 1—a very great departure from the proportions which used to prevail in ships that were built about twenty years ago; the breadth of beam then being a little over one-fourth the length. Some have held up the ark of Noah as affording the best proportions of length and breadth, namely, as 6 is to 1, but as that vessel was not built for making rapid voyages from one port to another, those who advocate such proportions, should give sound reasons for their correctness. Every steamship should be built with regard to speed, steadiness, strength, easy rise on the waves, comfort, and cargo capacity. These conditions involve more questions than the mere relative proportions of length and breadth; the form of the submerged section, is perhaps the most important question of all.

The question of length and breadth of steamships was discussed for some evenings before the Institution of Civil Engineers in London, during the month of last November. Some able nautical architects took part in that discussion, but the facts presented on the subject are of more importance than the opinions expressed. It was stated that as the length of steamships had been increased in England, there had been an increase of their speed, and at the present day the general length to the breadth was as 7 to 1, but some steamships far exceed this. One, "The City of Norwich," running on the German Ocean, was 183 feet long and 26 feet in the beam, with 200 horse power engines; her average speed was 10 knots per hour. Another running on the same route, named the "Tonning" was 222 ft. long, with 27 feet beam, having the same power of engines—200 horse—the average speed of which was 12 knots per hour. The latter vessel was of greater capacity than the former by 263 tons, and it was swifter, and was stated to be as steady and dry as her consort. The relative length to the breadth of the one was as 8.22 to 1, the other as 7.03 to 1. One steamer, named the "Vave Queen," has been built with the relative proportions of length to breadth, as 13 is to 1, and it was stated to be not only a very fast but a good dry sea vessel. These statements can be trusted; and they teach us that the whole discussion in our daily papers about the relative proportions of length and breadth of steamships—leaving other questions out of consideration—affords us no positive satisfaction whatever, and certainly no positive data for the adoption of a fixed standard applicable to every case.

The science of nautical architecture embraces a range of knowledge and practical experience far more extensive than any other whatever, and it is no wonder that there should be many different opinions among nautical men respecting certain questions relating to it.

It appears to us that the nautical architects of our city would find it to their advantage to organize a society for the purpose of reading papers and discussing questions connected with their profession. It is only by collecting and arranging ideas and facts relating to any art or science, that we can expect to improve and progress. We hope these remarks will lead to such results.

Etherizing Congress.

We see it stated in some of our cotemporaries that Dr. Morton, of Boston, is now in Washington, hard at work to get friends and favor among the Members of Congress, in order that he may obtain an appropriation from Congress for the discovery of Etherization in surgical operations.

On the 19th of February, 1853, Mr. Walker, Chairman of a Select Committee appointed by the Senate to whom were referred certain memorials in regard to the discovery of the means for rendering the human body insensible to pain during surgical operations, reported in favor of granting \$100,000 to Dr. Morton. A Select Committee of the House of Representatives, of which Dr. Bissell, of Ill., was Chairman, presented a majority report in favor of Dr. Morton's claims, while an able minority report, by Edward Stanley, of North Carolina, and Alex. Evans, of Maryland, awarded the credit of the discovery to Dr. Jackson, of Boston.

In reviewing the claims of both applicants, we took occasion to express our views upon the injustice done to Dr. Wells, of Connecticut, now deceased, who had performed a surgical operation upon one person at least, when under the influence of ether, two years before Dr. Morton obtained a patent. Congress did not grant any appropriation for etherization because the claims of the applicants were altogether too conflicting. We hope that no appropriation will ever be made for any such purpose until the whole matter is sifted to the very foundation.

In the Reports of the Committees of both Senate and House of Representatives, evidence is presented which proves that neither Dr. Jackson, Dr. Morton, nor Dr. Wells were the discoverers of "etherization,"—that is, neither of these gentlemen originated the suggestion of rendering persons insensible to pain during surgical operations, by a gas or drug,—or even the first to employ such means in surgical operations. On the sixth page of Senator Walker's Report, it is stated that the Chinese surgeons used a preparation of hemp (hashisch) centuries ago, for rendering their patients insensible to pain during severe operations. On the 8th page it is also stated that in the 13th century, a liquid made by boiling opium, unripe mulberry, hemlock, mandragora, wood ivy, lettuce, and burdock, in water, was used by some surgeons for rendering patients insensible to pain, by applying it to the nostrils with a sponge as chloroform is now applied. In 1832 experiments, which were but a revival of the old plans, were made in France, and M. Dauriol specifies five cases in which he performed painless operations. Sir Humphrey Davy employed nitrous oxyd gas to relieve pain, and suggested its use in surgery. On pages 4, 5, 6, and 7 of the Report of Dr. Bissell, of the House Committee, a number of cases are cited of the employment of anesthetic agents in olden and modern times, before Drs. Jackson and Morton applied for a patent. These facts show that etherization was not a new idea, but the use of a particular agent—sulphuric ether—as a superior anodyne, perhaps was. The whole claims, therefore, of either Drs. Jackson or Morton, must rest upon the agent first employed by them, namely, sulphuric ether. The use of chloroform, therefore, is a different discovery, and the person who first applied it to surgical purposes, has as good claims to be considered a public benefactor, as the first person who used sulphuric ether.

These are our views upon this question, and we cannot for the life of us, see how any of the

Committees of Congress, from the very information which they have presented in their Reports, could have come to any other conclusion—"Honor to whom honor is due."

Ocean Locomotion.

On land we require rails over which to run our locomotives; these are very expensive especially in such days of high-priced iron. We also require, to level down the hills and level up the valleys, in order to make a smooth pathway for our iron horses. The ocean, to be sure, is not very level during severe storms, neither does it afford a good foundation for rails, cross-ties, or sleepers; but no matter, there are those who are bound to make it a *race-course* if their words can do so. Here is Mr. Frost, of Worcester, Mass., who has devised a plan for an ocean horse to traverse the stormy Atlantic without *any head resistance*; and not to be one whit behind him, a certain M. Planavergue, a Prof. of Mathematics, in France, has published in "La Presse," his plan for a sea horse, which he says "will effect such a revolution in ships as was effected in locomotion on land, when the first sled was placed upon wheels." Our vessels plow through the water, and throw it out of their course; his is "to roll upon the surface, and over the sea with a train of cars,—outrunning the tempest, at the rate of 80, 90 and 120 miles per hour."

The constituent parts of his vessel are a great case, corresponding to the body of a carriage, with four large floating cylinders secured to its wheels. This case rests upon a strong frame, and is divided into stories—the lower story for the motive power, provisions, &c., and the upper for passengers and luggage. The cylinders upon which this sea-horse rests are made of boiler plates, having interior cells, the water being allowed to flow in behind but not in front, so that these cells become an air mattress, to buoy up the vessel. The inventor states that "when the engines are set in motion, the air becomes compressed in these cells in proportion as the velocity of the vessel is increased, so that instead of the resistance increasing according to the square or cube, it actually decreases." It is thus, he says, he is "going to gain great velocity by his air mattress, which will also enable his hydro-locomotive to mount over sand banks and waves, the same as if he were in a balloon."

How very foolish all this is; and how unscientific! He overlooks the fact, that the compression of the air in his cylinders, (by which he expects to overcome resistance), must be obtained by the exercise of steam power just in proportion to the amount of compression, and this will be exactly equal to the resistance, which he expects to obviate. This is the law of mechanics, relating to the question and is as plain as a pike-staff. No man of the least mechanical acumen, would propose such a clumsy marine-hog as a substitute for our present steamships. We have had some experience in this State already in such air-cylinders, on which to rest the hull of a steamboat. The "Cigar-Boat," which was built some seventeen years ago, near Troy, N. Y., on two conical air-tight iron trunks, shaped like cigars, was constructed to surpass all the steamboats on the Hudson River. The object of the air cones was to buoy up the hull of the vessel—to make it rest-like M. Planavergue's marine-horse, on an air mattress. But alas for human miscalculation and oversight, it made but one voyage, and the "Cigars" went out forever. It is the most foolish and unscientific notion in the world to suppose that any advantage can be obtained in the construction of marine vessels, by placing the load upon an air-mattress, composed of tubes, cells, or anything else. With an increase of buoyant material below the load, there must be a vast increase of resisting surface, the very evil which all nautical men endeavor to obviate.

Colt's Patent in Congress.

We had been under the impression that the patent of Col. Colt, the extension of which is now sought to be obtained by Congress, was the same for which an extension had been refused by Commissioner Mason; but we have learned with great surprise, that it is his older patent—which has been extended once already

—the re-extension of which for seven years longer, by Act of Congress, is solicited. This patent was granted in February, 1836, extended in 1850, and will not expire until 1857. This method of trying to secure special legislation for prospective purposes—three years before a patent's term expires—does not look well. The reports from Washington, now confirm our former expressions on this case, namely, that the people will not permit their Legislators to vote for its extension. We believe there is but little doubt but this scheme is *dead*, but there are others, however, to be looked after equally glaring.

The Astor Library.

This Institution, so creditable to the founder and to our city, was opened to the public on the first of this month. It now embraces about 80,000 volumes, among which are many of great rarity and value. As our readers are probably aware, this is a Free Library—equally accessible to the poor as well as the rich; to the hard-handed mechanic no less than to the millionaire. No books are allowed to be removed from the building, but any one can be admitted to the rooms, which will be warmed in winter and lighted in the evening, where any work selected from the catalogue will be handed down by the librarian. Ample table room is provided—an oaken table extending entirely around the hall in the center of the alcoves. To these alcoves none are admitted besides the librarian. The catalogue embraces many scientific works of great interest, and we trust the mechanics of this city will not be slow to avail themselves of the privileges offered.

Ferry Boat Lights.

During the past week our city has been visited by dense fogs, by which the ferry-boats of our city, especially those running on the East River, have found great difficulty in making their regular trips. These fogs render our ferry navigation exceedingly dangerous; and when it is considered that perhaps no less than 75,000 persons cross between the cities of New York and those on Long Island, every day, the liability of accidents from collisions, &c., should be guarded against by every reasonable and approved means within the power of the Ferry Companies to apply. That so few accidents occur, is a subject of wonder, considering the very inefficient means provided to prevent them; thus, when on every ferry dock and boat there should be a strong brilliant light equal to that in the best lighthouse, there are only feeble glow-worm lanterns of the common kind, the light of which cannot be observed in a fog beyond the length of a decent-sized nose. It is a shame for our Ferry Companies thus to be so old-fogyish as not to employ the most improved lights of the present day. These old lanterns might have done very well twenty years ago, but they are entirely behind the present age, and should be discarded at once.

Petitions for Extension of Patents.

**COLORING MAPS**—Lucius Stebbins, of Hartford, Conn., has petitioned for an extension of his patent for seven years, for an improved method of coloring maps, which will expire on the 12th of next March. The petition will be heard at the Patent Office at 12 M., on the 13th February.

**ORE CRUSHING MACHINE**—James Rowe, of Tampa Bay, Fla., has petitioned for the extension of his patent for seven years, on machines for crushing ores, which will expire on the 24th April, 1854. The petition will be heard at 12 M., on the 20th of next March, at the Patent Office.

Persons opposed to the above extensions must file their objections in writing twenty days before the time of hearing, in accordance with the rules of the Patent Office.

The Emmons' Patent.

We have been informed by Wm. W. Hubbell, Esq., of Philadelphia, the counsel for Mr. Emmons, Senr., that there never has been any collusion between the parties interested in the Woodworth and Emmons' patents, as we had been informed. This patent expired a number of years since; we are not aware of the machines being in use at present.