

AMERICAN NAVAL ARCHITECTURE.

THE STEAMER "JOHN P. JACKSON."

This steamer is intended for service between New York and Jersey City, and is owned by the New Jersey Transportation Company. It is pronounced to be the largest steam ferry-boat in the world. It is certainly one of the most capacious and splendid boats of its kind in our rivers. Her dimensions, with particulars of machinery, we subjoin:—

Length on deck, 210 feet; length at load line, 210 feet; breadth of beam at midship section (molded), 33 feet; depth of hold, 13 feet; depth of hold to spar-deck, 13 feet; draft of water at load line, 5 feet 6 inches; area of immersed section at the above draft, 140 square feet; tonnage, 860 tons.

Her hull is of oak, locust, &c., and very securely fastened with treenails, spikes, iron, &c. The floors are molded 14 inches, and sided 6 inches. Distance of frames apart at centers, 12 inches.

The *John P. Jackson* is fitted with one vertical beam condensing engine; diameter of cylinder, 45 inches; length of stroke of piston, 11 feet; diameter of water-wheels over boards, 21 feet; material of wood; length of wheel blades, 9 feet; depth of same, 12 inches; and 18 in number.

She is also supplied with one drop flue round shell boiler; length of boiler, 30 feet; breadth of same, 10 feet, and is 10 feet in height, exclusive of steam chimney; number of furnaces, 2; length of grate bars, 6 feet; number of flues above, 6; number in center, 6; number below, 4; internal diameter of those above, 15½ inches; internal diameter of those in center, 15 inches; internal diameter of those below, two of 23 inches, and two of 19 inches; length of those above, 18 feet; length of those below, 17 feet 10 inches; length of those in center, 15 feet 10 inches; possesses one smoke-pipe, fitted with slip joint; diameter of this, 4 feet 6 inches; and its height, above grate surface, is 48 feet; boiler is located in hold; bunkers of wood; the engine is fitted with expansion gear, cut off one-third.

She also has one independent steam fire and bilge pump, with valves to all openings in her bottom. Her cabins will be handsomely fitted up, and very commodious. Contrary to general usage with such vessels, her bottom was entirely coppered from the start. It is customary not to copper them until they have been running for six months. Her aggregate cost will be \$55,000. She will take her appropriate position on the Jersey City line about the middle of October. The hull of this steamer was constructed by Devine Burtus, of Red Hook, L. I. Machinery by William Birkbeck, of Jersey City.

THE STEAMER "ZOUAVE."

This fine steamer, erected in New York by John Englis, will soon assume her appropriate position on the route of her intended service—New York to Cape May via Philadelphia. Her model betokens a rare combination of speed with sea-going qualities, and she is confidently expected by her builder to prove a success. We herewith subjoin the particulars of her hull, &c.:—

Length on deck from fore part of stem to after part of stern post (above the spar deck), 230 feet; breadth of beam at midship section (molded), 30 feet; depth of hold, 12 feet; depth of hold to spar deck, 12 feet 3 inches; draft of water at load line, 6 feet 6 inches; area of immersed section at the above draft, 175 square feet; tonnage, 800 tons.

Her hull is of the best white oak, chestnut, &c., which is made very securely and square fastened with copper, treenails, &c. The frames are molded 14 inches; sided 6 inches, and 24 inches apart from centers; these frames are strapped with diagonal and double-laid braces, thereby insuring great durability.

The *Zouave* is fitted with one vertical beam condensing engine; diameter of cylinder, 50 inches; length of stroke of piston, 11 feet; diameter of water-wheels, over boards, 31 feet; material of same, iron; length of wheel blades, 7 feet; depth of same, 2 feet, and their number is 27.

She is also supplied with one return flue boiler, located in the hold; length of boiler, 27 feet; breadth of same (front), 13 feet, and its height (exclusive of steam chimney) is 11 feet 3 inches; number of furnaces, 2; breadth of these, 5 feet 9½ inches; length of grate bars, 7 feet 6 inches; number of flues above, 20; number or

same below, 10; internal diameter of those above, 10 of 8½ inches and 10 of 9½ inches, and the internal diameter of those below, 2 of 22½ inches, 4 of 15 inches and 4 of 17 inches; length of flues above, 20 feet 8 inches; length below, 14 feet; diameter of smoke-pipe, 4 feet 4 inches; boiler has no water bottom. The engine is fitted with H. Winten's patent expansion gear; point of cutting off, one-half.

Ample protection has been made against communication from fire by the boiler in the shape of felt, zinc, iron, &c. She has one independent steam fire and bilge pump, bilge injections, and ordinary valves to openings in her bottom; bunkers are of iron; has two masts, and is schooner rigged. This vessel is furnished with Ingersoll's metallic life-boats; has a promenaded deck, saloon cabins and staterooms—all very commodious, and handsomely fitted up. Owners of this steamer, Sanford's Independent Line; machinery constructed by the Morgan Iron-works, this city.

WHICH WAS THE FIRST STEAMER THAT CROSSED THE ATLANTIC?

Messrs. Editors:—On page 199 of the present volume of the *SCIENTIFIC AMERICAN*, I find an article headed "The First Steamer that Crossed the Atlantic," which does not corroborate the statements made in the *Engineer and Machinists' Assistant*, published by Blackie & Sons, Glasgow, Scotland. This publication says (on page 20) that the *Great Western*, which made the passage in 1838, was the first steamer that ever crossed the Atlantic. Please inform me, in your next issue, which to believe, or where the information is got from.

J. S.

Ansonia, Conn., Oct. 10, 1860.

[If our correspondent was familiar with the writings of the English, he would know that it is the practice of that wonderful people to claim to be the authors of all great discoveries and the pioneers in everything. Do they not universally call the re-action water wheel, which was known before the Christian era by the name of "Barker's mill?" and is not the calcium light, which was discovered by Professor Hare, of Philadelphia, designated in all the English publications as the "Drummond light?" Though the Liverpool papers of Sept. 22, 1819, announced the arrival of the steamship *Savannah*, still, as the *Great Western*, which crossed in 1838, was a British ship, of course she was the first one that crossed. The English are a great people; they beat other nations in many respects, but the thing in which they get farthest ahead is in *boasting!*—Eds.]

CAN SPENT TAN BARK BE DRIED?

Messrs. Editors:—We saw, on page 177, present volume, of your journal, that in Paris the gas-works had to employ additional clerks to sell the gas tar which was used in making fuel of sawdust, tan, &c. We are tanners, and make a great deal of tan, which is of very little use to us; in fact, it is an expense, and we have gas-works here from which we could get the tar, to mix with the tan and then mold it; but we do not know how we could dry it, unless there is something to mix with the tar that will make it dry. If you have any knowledge of the process or of any substance to make it dry after it is molded, we would like to know it, as the sun will not dry it. It would be a very valuable thing to most tanners located in cities. We are constant readers of your paper, and are indebted to it for valuable suggestions and information. We procure it of Geo. E. French, bookseller, of this place.

Yours, respectfully,
C. C. SMOOT & SON.
Alexandria, Va., Oct. 5, 1860.

BUTTER MAKING.—Every improvement which facilitates the making of high quality butter is of deep interest and importance to agriculturists. We do not hesitate therefore to point attention to the subject of glass milk-pans, which have been introduced into this region. Experience has shown their extraordinary value in the dairy, by the saving of labor, and the securing of cleanliness and sweetness in the manufacture.

[We quote the above from an *Irish Agricultural Journal*. If we mistake not glass milk-pans have been used to some extent in this country, but with what success we are not advised.—Eds.]

ERRATUM.—In describing Mr. Selfridge's pump, on page 216, the printer made us state the patent was secured through this office; this was a mistake.

MAKING MAGNETS IN CASTING.

Messrs. Editors:—Permit me to trouble you with an experiment, made a few days ago for particular purposes, one of which was this. On the suggestion that there might be some truth in "Ampères" theory, (that in iron each atom has polarity, but being placed promiscuously they neutralized each other, but when a magnet was applied, the polarity of the atoms or the atoms themselves were all brought in one direction, and the ordinary iron became a magnet until the true magnet was removed, and then the magnetized iron resumed its former condition). The object being to give a permanency to the polarity of the atoms, a ring helix was attached to a small battery, and placed in the sand, and melted iron poured in a mold forming a bar ½ an inch square, and 10 inches long, directly through the center of the helix; and when cooled off was found to be a good magnet, much stronger than the cast bar which had been placed cold in the helix and subjected to its influence.

Again an iron and a steel bar of same size were severally placed (cold) in the helix, and a sledge placed at one end, and being struck on the other, with a view to fix the polarity permanently, it was found that they were pretty good magnets, indeed better and possessing twice the power of the one not subjected to the blow of the hammer. No other trials were made at this time, the results shown may have been accidental, other trials might vary, but it is thought not.

As iron even falling through a helix becomes magnetized, why may not this explain the magnetism of meteoric stone, which must pass through the magnetic influence encircling the earth, and the blow of the stone in falling on the earth, may fix the polarity of the stone.

R. T. K.

Philadelphia, Pa., October 12, 1860.

[Since the invention of the electric telegraph, the old fashioned permanent magnet is almost forgotten; we think of it only as a curious toy, but somewhat useful for picking up small tacks or fine needles. We are pleased that our correspondent calls attention again to this subject, it certainly is not exhausted. The discovery of a simple and sure process of making the most powerful magnets may lead to uses never dreamed of.—Eds.]

A WONDERFUL CASE IN SURGERY.

Professor Busch, superintendent of the hospital of Bonn in Germany, communicates to the medical journals the history of a case almost as remarkable as that of the famous St. Martin, who has been living so many years with a hole in his stomach, allowing people to look in and see the process of digestion going on inside. A woman was brought to the hospital of Bonn, who had been gored sometime previously by a cow, wounding her in the abdomen. The injury resulted in a fistulous opening through the walls of the abdomen into the upper third of the small intestines. The result was that as soon as the woman commenced to eat, the food would begin to run out of the opening, and though her appetite was ravenous, she had become very much emaciated when she was admitted to the hospital. Dr. Busch tried the plan of injecting soups through the opening directly into the intestine, even crowding in little pieces of meat and bread with his finger. Under this odd mode of feeding the patient thrived and gained flesh rapidly. Of course, Professor Busch seized this rare opportunity to make a series of physiological investigations, which have proved to be very interesting.

The fact of greatest practical value observed, was that the gastric and other juices by which digestion is effected, are secreted in much greater abundance when several kinds of food are taken into the stomach, than when a meal is made of a single article. This confirms the latest conclusions of other physiologists, and is useful knowledge as a guide to action. Dyspeptics can commit no greater blunder than to confine themselves to a very few articles of diet. It is best for us all to eat a variety of food at each meal.

KEEPING MILK SWEET.—A correspondent of the *Homestead* found that, in sending milk to market, though it left the dairy perfectly sweet, it was often curdled on delivery to customers. To remedy this, the cans were covered with cotton cloth soaked in salt water. By this method the curdling of the milk was prevented.