

his business successfully, to grind the spices himself. Some spices (especially pepper) should only be crushed, and the husks separated by a sieve. Cayenne pepper is adulterated and colored with red lead; he had known a case of lead colic produced by eating such pepper. Spices should not be put up in papers.

The President—Every article should be labeled with its proper name, quality and the name of its manufacturer. A law requiring this of all articles to which it would be practicable is perhaps the extent of useful legislation against adulterations.

The subject for the next meeting—"The Means of Conveyance to and from New York"—was then agreed upon, and the association adjourned.

#### AMERICAN NAVAL ARCHITECTURE.

[Reported expressly for the Scientific American.]

##### THE STEAMER "R. R. CUYLER."

The *R. R. Cuyler* has been completed only two or three weeks, and at the time of our writing has made but one trip to the port of her intended service; yet this limited trial, in which the many improvements introduced in her erection were thoroughly and properly tested, gave the greatest of satisfaction to all that were interested in her success. Full particulars relative to hull and machinery will be found annexed:—Length on deck, 235 feet 6 inches; breadth of beam (molded), 38 feet; depth of hold at beam, 17 feet 6 inches; depth of hold at spar deck, 23 feet 3 inches; draft of water at load line, 15 feet 6 inches; length of engine space, 66 feet 3 inches; area of immersed section at load draft, 548 square feet; tonnage, 1,600 tons. Her frame is of white oak and chestnut, and square fastened with copper and treenails; distance apart at centers, 24 inches, and filled in solid for length of whole floor; secured by iron straps double and diagonally laid, 4 by  $\frac{5}{8}$  inches; cross floor (molded), 14 inches, and sided 10 and 12 inches.

The *R. R. Cuyler* is fitted with a vertical direct engine; diameter of cylinder, 70 inches; length of stroke of piston, 4 feet; diameter of propeller, 16 feet; length, 4 feet 9 $\frac{1}{2}$  inches; pitch of same, 22 feet 6 inches, and has 4 blades.

She has two horizontal tubular boilers; length, 17 feet 5 inches; breadth, 13 feet 6 inches; height, exclusive of steam chests, 13 feet 9 inches. They have 6 furnaces, the breadth of which is 3 feet 11 inches; length of grate bars, 7 feet 8 inches. The number of tubes in these boilers is 288; internal diameter of same, 4 $\frac{1}{2}$  inches; length, 14 feet 5 inches. Diameter of chimney, 4 feet 3 inches; height of same above grates, 21 feet. The boilers possess a heating surface of 6,258 square feet; capacity of bunkers in tons, 170. Average revolutions, 36; depth of keel, 12 inches; does not use blowers to furnaces; boilers located in hold; one smoke pipe; one independent steam, fire, and bilge pump; one bilge injection, and bottom valves or cocks to all openings in bottom; two masts, foretopsail schooner rig; has an independent rudder post.

She possesses two decks for freight, above which is the large and comfortable cabin, capable of accommodating in the best manner 220 passengers, with berths and state rooms. Above this cabin is situated the spacious dining saloon, the ladies' saloon, various pantries, and officers' quarters. The upper saloons are paneled in oak, and the lower cabin is beautifully furnished; the entire woodwork being polished white and gilt. Broad flights of stairs connect the two saloons.

This steamer cost about \$142,000, and composes, with three other vessels, the line running between New York City and Savannah, belonging to H. Cromwell & Co. The hull was built by Samuel Sneden, of Greenpoint, of the best material and in the most substantial manner. Builder of engines and boilers, the Allaire Works, this city.

##### STEAM FERRY-BOAT "PACIFIC."

Within a few weeks the Union Ferry Company have added another splendid boat to their many others, and it is now running on the East river, between Whitehall-street, this city, and Atlantic-street, Brooklyn. Below will be found some of the particulars of hull and machinery:—Length on deck, 180 feet; breadth of beam (molded), 33 feet; depth of hold to spar deck, 14 feet; draft of water at load line, 6 feet 3 inches; tonnage, 650 tons. Her frame is of white oak, chestnut, &c., properly and securely fastened with rivets and treenails. Built in 1859; has one independent steam, fire,

and bilge pump; one bilge injection; does not use blowers to furnaces; one smoke pipe; water bottom to boiler. Is fitted with condensing engine and drop; flue boiler; built by Neptune Iron Works, this city.

She is protected from communicating fire by having felt on boiler, space above same, and iron around chimney. Her bows are sheathed; has water wheel guards, fore and aft. Splendid saloon cabins on side one anchor and two life-boats.

##### THE STEAMER "PERUANA."

This steamer, a fine and complete specimen of naval architecture, has just reached completion, and is now making her first trip to the ports of her intended service, on the coast of Peru. Subjoined will be found minute particulars of hull, engine, and boilers:—Length on deck, 180 feet; breadth of beam (molded), 29 feet 6 inches; depth of hold, 11 feet 3 inches; depth of hold to spar deck, 7 feet 3 inches; length of engine and boiler space, 65 feet; area of immersed section at load draft of 6 feet, 169 square feet; tonnage, 560 tons.

Her frame is made of white oak, chestnut, and hacket, and square fastened with copper and treenails; the frames are filled in solid, distance apart, 31 inches; cross floors (molded), 12 inches, sided, 7 $\frac{1}{2}$  inches, and these are secured by double laid and diagonal iron straps, 4 $\frac{1}{2}$  by  $\frac{5}{8}$  inches.

The *Peruana* is fitted with a vertical direct-acting engine; diameter of cylinder, 44 inches; length of stroke of piston, 11 feet; diameter of waterwheels (over boards), 27 feet; length of boards, 7 feet; depth of same, 22 inches; number of blades, 24.

She has two return flue boilers; length, 24 feet, 6 inches; breadth, 8 feet 6 inches; height, exclusive of steam drum, 8 feet 3 inches; number of furnaces, 2 in each boiler; length of grate bars, 6 feet, 9 inches; have 10 flues in each boiler, whose internal diameters are 15, 16 and 12 inches; length of flues, 20 and 14 feet. The smoke pipe extends 32 feet above grates; bunkers, made of wood; capacity of same, 120 tons, and the daily consumption of coal is expected not to exceed 12 tons.

Her maximum pressure of steam is 25 lbs.; maximum revolutions at this pressure, 18; the boilers are located in the hold; does not use blowers to furnaces; she has 3 water-tight bulkheads, and a large and pleasant cabin on deck; water wheel guards fore and aft.

In addition to these she is fitted with one independent steam, fire, and bilge pump, one bilge injection, and has bottom valves or cocks to all openings in her bottom; and is protected from communicating fire from the boilers by felt and sheet iron. Builders of hull, J. Westervelt & Sons; builders of machinery, Morgan Iron Works. The vessel is owned by Charles A. Dimon and others.

#### IRON AND WOODEN SHIPS.

MESSRS. EDITORS:—On page 131, of the present volume of the *SCIENTIFIC AMERICAN*, you propose to enlighten your readers on the subject of naval architecture—a most praiseworthy purpose—but, alas! they are doomed to disappointment, unless the editors change their course, and give their readers something more than the opinions of "eminent ship builders," as quoted on page 180.

Every reader of your journal knows that you are favorable to iron ships, and that you give them the preference over those built of wood; but who has ever found in your journal one single reason why iron ships should have the preference in this country? The "eminent shipbuilder" to whom you refer has an object in view, beyond his country's good. If you will permit him to come to the witness-box it will be shown through the *SCIENTIFIC AMERICAN* that it is not for the best interests of the United States that her merchants should go into iron shipbuilding, except for river navigation, where the lightest draft of water is demanded. Is it not because ships are not remunerative that our shipyards are idle? If a wooden steamship of a given size, costing \$200,000, will not pay, will she pay if built of iron, of the same size and capacity, and costing \$250,000? Does the increased cost make her more profitable? Again, we are told that they are stronger than wooden ships; does the increasing list of shipwrecks of iron-built ships prove it? Does it not rather prove the converse to be true? That iron may be more fully represented in the construction of this noble fabric, we fully admit, but deny that it is the best material of which to

build the external of the hull; and we think the editors will agree with us, if they will give the subject a fair amount of investigation. Why does England build iron ships? Is it not in conformity with her best interests to export her iron in a manufactured state, and would she not build her ships of wood if she could get it without importing it? Undoubtedly she would? It has always been her policy (and should be ours) to sell more than she buys, and, when one of her staple products has become exhausted, to substitute something else, so that her commercial policy may be maintained. And when the people of the United States shall have learned that the perfection and manufacture of wooden ships is one of the most profitable of all our exported fabrics, then we shall discover whose interests the "eminent shipbuilders" and iron-workers are advocating when they talk of iron ships. May we not hope that you will allow this subject to be ventilated through the columns of your journal? Although your humble servant may lay no claim to "eminence" as a shipbuilder, yet he will pledge himself to show that either ignorance or avarice forms the basis of all projects for substituting iron for wood in the outer shell of our ships. If the "eminent shipbuilders" will labor as assiduously to improve the models of American ships, as they have to favor British policy and British interests, we should find even England herself willing to admit that not *Britannia* but *Columbia* rules the waves. JOHN W. GRIFFITHS.

Navy Yard, Philadelphia, Pa., March 17, 1870.

[An answer to the above will be found on page 217. We are positive that the last clause of the above is an unwarranted insinuation against the patriotism of our shipbuilders. We are confident that the charge of any one of them having labored assiduously to favor British policy and interests cannot be sustained.—EDS.]

#### ENGLISH LOCOMOTIVES ON A "BENDER."

An amusing case recently came before the Court of Queens Bench at Westminster; we find it reported in full in the *London Times*:—The plaintiff in the action, James Washington Myers, was by birth an American, and had acquired considerable celebrity in England by his equestrian performances. His services were in great request, and for some time he served under the auspices of Messrs. Hawes & Cushing, at the weekly wages of 45 shillings. In the Spring of last year these gentlemen offered to increase his weekly allowance if he would continue with them; but having the "Young America" spirit in him, he declined the offer and started a company on his own account, with which he traveled from place to place, giving performances. When about to "go the circuit" the plaintiff's attention was attracted by an advertisement of "Bray's Patent Traction Engine," designed for draw-carriages &c., upon the common road by steam power, instead of the ordinary means of locomotion by horse-flesh. It occurred to him that if he could get one of these engines to answer his purpose, it would both save the expense of horses in carrying his "Pavilion" round the country, and would at the same time "astonish the natives," and act as a grand advertisement of his exhibition. Accordingly, he applied to the defendants' company, and on the 16th of June, Mr. Hanson, the secretary, wrote him a letter saying that he thought it could be arranged to let him have an engine, but as the directors had two other proposals before them, he must decide by the next day. He accordingly attended the board the next day, and told the directors what he wanted the engine for; and that if it would not go at the rate of seven or eight, or six miles an hour, it would be of no use. They said it would go seven or eight miles an hour with great ease, and would carry 20 tons at seven miles an hour, though they would not like it to go at that speed, but it would go five miles an hour well. The plaintiff told them he did not want to go more than five miles an hour. The next day the draught agreement was sent to him, but it contained a stipulation that the plaintiff was not to work the engine more than three miles an hour, and as that speed would be of no use, he altered the "3" to "5," and with that alteration the company executed the agreement under their seal. The agreement was dated June 21, 1859, and by it the defendants agreed to let the plaintiff their traction engine "No. 1" for three months from July 11, 1859, at the monthly payment of £65, to include engine-driver's and steerer's wages. As the engine was to be made an advertisement, the plaintiff gave directions that it should be painted with all the colors of the rainbow, and he