

RECEIVING SHIP "VERMONT."

At the end of the official lists of the vessels of the United States navy will be found a table with the heading "Wooden sailing vessels, unfit for sea service." It includes the names and particulars of some half dozen veterans—relics of the days of sail power and the smoothbore—the most youthful of which, the "Dale," built in 1839, is in its sixtieth year, and the oldest, the glorious old "Constitution" (1797), has entered the second century of its eventful career. Two of the ships, the "New Hampshire" and the "Vermont," are twins. They left the cradle in the year 1818 and are, therefore, in their eighty-first year. They are by far the largest vessels on the list, having a displacement of 4,150 tons, or nearly double that of the "Constitution," whose displacement is 2,200 tons. Both are stationed at New York, the "New Hampshire" near the Twenty-third Street ferry, on the East River, and the "Vermont" at the Brooklyn Navy Yard, the former being used by the State naval militia and the latter doing duty as a receiving ship.

The "Vermont" was a first-class line-of-battle ship of the type in vogue in the early years of this century, and by comparing her hull, with its lofty topsides, with a modern battleship like the "Indiana," we get an impressive idea of the vast changes which have been wrought by the introduction of steam into the navy. If a visitor should chance to be at the Brooklyn Navy Yard when one of the latest steel warships is lying within a stone's throw of its wooden prototype, he will find it difficult to realize that such ships as the "Indiana," the "New York" or the "San Francisco" have been evolved out of the clumsy old hulk which now does duty as the receiving ship of the yard.

If the reader would reconstruct the "Vermont" in his mind and recall her as she appeared in the days of her glory, he must first strip off the unsightly roof and the upper tier of windows and side walls. These have been added to provide a covered deck for exercise and instruction, and they formed no part of the ship as first built.

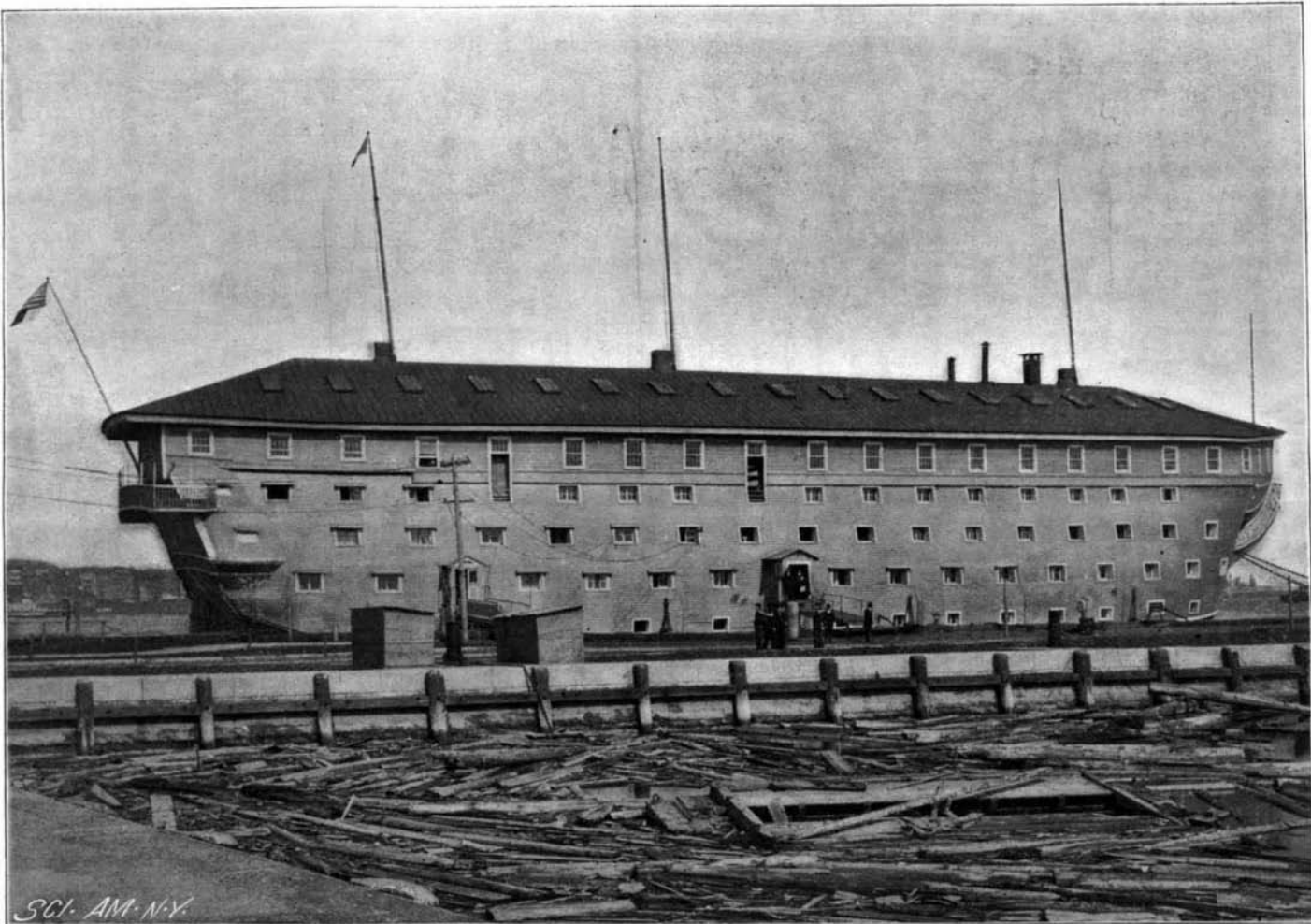
The line of the original bulwarks can be seen starting at the top of the figurehead and running clear to the stern. About six feet below this line is the spar deck, or upper deck, as it is sometimes called. Like the other three decks of the ship it is flush throughout, the forward part of it in the bows being known as the forecabin, the after part, astern of the mizzenmast, being the quarter deck. Above the quarter deck was a raised deck called the poop, sacred to the admiral, captain and chief executive officers of the ship. Beneath the spar deck is the upper gun deck, and below this again are the lower gun deck and the berth deck. The spar deck and the two gun decks are pierced by square portholes, as shown in the engraving, and from each of these protruded one of the many guns with which the "Vermont" fairly bristled. Judging by the number of portholes, she must have carried about 100 guns, and these would range from the 12-pounders up to the 32-pounders, all, of course, being smoothbores.

Although the dismantled hull of the "Vermont" appears clumsy and devoid of any lines of beauty, when she was fully rigged in all the glory of her long yards and lofty masts she must have been an imposing spectacle. A great three-decker like this was masted and sparred on a scale that is never seen in our merchant marine. It was no uncommon thing for the main yard to be from 100 to 120 feet in length, and the topsail and topgallant yards were in proportion. In those days the sail maker and rigger knew nothing of the convenience of upper and lower topsails—the whole

stretch of the topmast intervened between the single topsail yard and the main yard, and the huge single sail forms a conspicuous feature in the representations of a line-of-battle ship of those days.

The stumps of the fore, main and mizzen masts are still standing in the "Vermont" and the tops of them may be seen protruding above the roof at the base of the flag staffs. The captains of those days sailed their ships hard and were wont to carry a heavy press of sail when it was blowing "great guns." Standing and running gear, masts and yards had to be stout in proportion; and if the stump of the main mast is any criterion, the "Vermont" must have been nobly sparred. The mast is over 4 feet in diameter and is built up of a central stick 3 feet in diameter, reinforced by four vertical stiffening pieces 4 inches thick by 16 inches wide, evenly spaced around the core and firmly held in place by shrinking on $\frac{1}{2}$ -inch by 5-inch iron bands.

On entering the between-decks one is impressed with the wonderful strength and solidity of the construction, an impression which is confirmed by the fact that the frame of the ship is built of live oak and the decks and planking of the best yellow pine, the vessel being copper fastened throughout. The ribs and deck beams are of bulky dimensions, the latter in the spar deck being 10 by 14 inches and still heavier in the lower decks. The sides are fully 2 feet thick and they are strengthened and stiffened in all directions by stout copper clinched oak knees. The decks and walls are, indeed,



THE OLD THREE-DECKER LINE-OF-BATTLE SHIP "VERMONT," NOW RECEIVING SHIP AT THE BROOKLYN NAVY YARD. Length between perpendiculars, 196 $\frac{1}{4}$ feet; beam, 53 feet; draught, 25 $\frac{1}{2}$ feet; displacement, 4,150 tons; speed, 10 knots; original complement, 1000 men; built, 1818.

extraordinarily heavy, and when we remember that a hundred guns, worked by a thousand brawny tars, were wont to roar out their broadsides by the hour, and that this was liable to be accompanied by the crashing and rending hail of twice one hundred round shots of the enemy, it can be understood that the work is none too strong.

The "Vermont" in her present capacity as receiving ship serves as the temporary home of crews whose ships have gone out of commission or who are being transferred from one ship to another. The length of a seaman's stay varies from one night to a week or more. The deck beams on all decks are provided with hammock hooks, and there is berthing space for a thousand men. The berth deck is used as a mess room. There are 32 tables, each seating 16 men.

During the present war the "Vermont" is doing duty also as an enlisting station. The recruits are exercised in the "setting up" drill and each man is provided with his full outfit, including bag, hammock, clothes and all the etcetera (not very numerous) which are indispensable to the modern Jack Tar.

THE Surgeon-General of the Army has placed with certain instrument makers of New York City large orders for capital and minor operating cases and other apparatus. One firm received an order for 950 probes and 500 field tourniquets. Adhesive plaster has been ordered up to nearly 4,000 yards, and 2,000 spools of antiseptic ligatures.

Curiosities of Filtration.

In Sir E. Frankland's annual report on metropolitan water just published by the local government board some very curious details may be found in regard to the results of the filtration to which London water is subjected, all of which tend to support the statements recently made by the London Hospital as to the extreme variability of the filtered product. Take, for example, the West Middlesex, which month after month supplies its customers with water of a high degree of purity, containing on one occasion only four microbes per cubic centimeter and on another appearing to be absolutely sterile. Of what advantage, however, is this if, on another occasion, the number mounts up to 120, and on still another to 576 microbes per cubic centimeter? Something happened in the month of June to nearly all the filters.

"Of the five companies drawing from the Thames, all except the Southwark were smitten with this microbial epidemic in June, and even the Southwark had got it on the 2d of the following month. Of the two companies drawing from the Lee, the New River alone escaped." So serious was the condition that, from the tables given to show the reduction of microorganisms by filtration alone, we find that in one case 66.3 per cent of the microbes passed the filters.

Lest, however, we should be tempted to cast ourselves upon Providence in these matters, and think that this "microbial epidemic" was some widespread

fatality that no company could escape from, it is worth while to look further into the matter, when we find that where separate filter beds were separately examined, as we have maintained ought always to be done, a very great difference was demonstrated in their activity.

While one of the Grand Junction filters was passing sixteen and another fifty-six microbes per cubic centimeter, another was passing 1,080! What this has to do with the construction of the filters and what can be done to improve them is another matter; but Sir E. Frankland seems to be on the right track

when he draws attention to "the enormous advantage of fine sand in securing efficient filtration." Some companies go to the trouble of using much finer sand than others with apparently good results. "Thus: 1.8 feet of the fine sand of the New River Company and 2.75 feet of that of the West Middlesex Company are respectively more than twice as efficient as 4 feet of the coarser material used by the Chelsea Company."

The Marking of Imported Goods Bearing Registered Trademarks.

The Assistant Secretary of the Department of the Treasury has just issued a circular to collectors of customs by which the Department Circular of February 14, 1898 (synopsis 18963), has been modified in accordance with the advice of the Solicitor of the Treasury so as to allow the importation of articles stamped with a registered trademark, although such trademark may consist in part of the name of a city, county, or State in this country, provided that such trademark shall have been duly registered prior to the date of this circular, which is April 8, 1898, and that the evidence of such registry shall have been duly filed in the treasury department. In such cases, however, the words "made in Germany" (or other country of production) must appear on the same surface with it and in close proximity to the said trademark. The address of an importer or dealer in this country who is not a manufacturer may likewise appear under the above named conditions.