

wrought iron, one inch thick by seven inches deep; projectiles striking this would glance off without injury to the ship; were it not for this protection they might damage the boilers.

Below deck we see on every side evidences of the immense strength of the hull, so far as heavy timbers go. Affixed to the ceiling of the main deck are circles of oak timber nearly twelve inches square; these are supported at regular intervals by stanchions of the same dimensions. These circles strengthen that part of the main deck over which the turrets are placed. Each turret shaft sets in an immense cast-iron step, provided with a wrought-iron key and a composition seat for the same on its lower surface; from the top of this step run two strong braces to the lower part of the turret shell. When the key is driven, the ways on which the turret revolves are relieved of a portion of the superincumbent weight. The engines which move the turret are directly underneath it; they are double, oscillating, and have a bore of 16 inches in their cylinders, and a stroke of 22 inches on the piston. The main engines are of the trunk pattern, with cylinders of 80 inches diameter, and about 36 or 42 inches stroke of the pistons; the trunks are, as near as we can guess, about 36 inches in diameter. There are four Martin's boilers, also a large donkey boiler for driving the auxiliary engines while the main boilers are out of service. There are four blowing engines which ventilate the vessel thoroughly, conduits being laid through the vessel, which are tapped at intervals with branches leading to the state rooms; in the latter are registers by which the inmates can at all times purify the air.

On every side we see evidences of strength and the best powers of resistance that can be afforded by the thickness of the armor which is employed. Although the *Roanoke* has the Ericson revolving turret, her hull is the same as that of any sea-going vessel, with the exception of the armor. There are no guards to the vessel, and seas which may strike her can wash over without injury, except in extraordinary cases. That portion of the rudder-post which is usually exposed in vessels is covered in the *Roanoke* by a strong wrought-iron hood, which also protects the screw from injury by shot. At the time of our visit an officer from one of the English gunboats called at the Novelty Works and requested permission to visit the battery; he was very politely accorded an opportunity to view the same outwardly, but was denied admission. These particulars do not relate to any vital points in the *Roanoke* which could result in embarrassment to the Government in future; they contain no information which would be of the slightest advantage to our enemies.

#### LANCASHIRE—ITS POPULATION AND MANUFACTURES.

Many persons have expressed a desire to know something more about the people of Lancashire (England), whose distress has excited such general sympathy. The inquiry has been made, why they alone of the population in England should now be afflicted with so much poverty. We will endeavor to throw some light upon this subject. Lancashire may be said to be the great seat of the cotton manufacture, not only of England but the world, and Manchester is the "cotton metropolis." The development of the cotton manufacture is one of the wonders of modern industry and this is chiefly due to the mechanical genius, enterprise and industry of the people of Lancashire. The spinning-jenny, the throstle and mule spinning machines were invented there, and so was the power loom.

Two centuries ago, Lancashire compared with the other parts of England, was a barren and poor country and its population was sparse. At the beginning of the American Revolution the whole British trade in cotton was valued at \$3,000,000, and only about 20,000 persons were engaged in it. In 1860 the value of the English cotton manufactures exceeded \$350,000,000 and about 5,000,000 persons were engaged in the business. These statistics will afford some idea of the rise and extent of the cotton manufacture in England. About 1760, several of the Lancashire towns and hamlets, such as Manchester, Oldham, Blackburn, &c., contained a primitive, semi-manufacturing and rural population. Manufactories were then unknown; the cotton was picked, carded, spun on small wheels and woven in hand-loom in the cottages of the peo-

ple. Seven years afterward (1767) James Hargreaves invented the spinning-jenny, by which several spindles could be operated by one person; and subsequently Richard Arkwright invented the throstle or roller-drawing frame. These inventions gave Lancashire its first great impulse in the manufacture of cotton. In 1779, Samuel Crompton invented the mule-spinning frame—a cross between the jenny and throstle frames—which was a very great improvement in the production of fine yarns, and this gave another great impulse to the cotton trade. But up to 1785 the whole of the cotton cloth was woven by hand. In that year the Rev. E. Cartwright invented the power loom, which completed the main series of improvements which have so wonderfully developed the cotton trade, and from that day forward Lancashire sped onward upon the wings of manufacturing greatness. Hand-power and horse-power were still the only agencies in operating cotton machinery. The next great step in the way of improvement was yoking these machines to the power of falling water and driving them by wheels. This was first most perfectly effected by Robert Owen (father of the Hon. Robert Dale Owen, of Indiana,) at the New Lanark Mills on the river Clyde, in Scotland. The character of the cotton manufacture then assumed an entirely new phase by the erection of large factories and the congregating of operatives into them under the employment of large capitalists, thus abolishing the independent cottage system. The falls of water on the rivers Irwell and Mersey gave to Lancashire and especially Manchester, great advantages for cheap power in driving machinery, and that city became like a whirlpool sweeping almost the entire cotton manufacture into its vortex. It is a city chiefly composed of an agglomeration of cotton manufactories, and is also the center of several large manufacturing districts. In 1800, the population of Lancashire was 672,500; its population is now 2,800,000—three-fifths of which are engaged in the cotton manufacture. In 1800, only 6,000,000 pounds of cotton were imported into Great Britain; in 1860, no less than 1,390,938,752 pounds, and of this large quantity it is alleged that eighty-five per cent was obtained from America. This supply having been cut off for nearly two years explains the cause of so much suffering in Lancashire. From the most recent accounts we learn that out of 2,000,000 persons there were 431,395 persons dependent upon charity for their daily food, fuel and clothing.

The average wages of men in English cotton factories is eighteen shillings and sixpence weekly—about four dollars and a half—that of women ten shillings and twopence; boys seven shillings. With such low wages they cannot save much against sickness, old age or want of employment, and their general habits of life are not favorable to economy. The English cotton operatives are dependant upon their daily toil for wages, and when there is no work for them, of course starvation soon follows unless outside relief is afforded.

#### SANITARY CONDITION OF NEW YORK.

The annual report of D. E. Delevan, City Inspector, for 1862, just published, throws much light upon the condition of the city as it regards health, the condition of the poor population, the effects of drainage, living in cellars, &c.

HEALTH.—It has been frequently asserted at meetings of sanitary associations that New York was a very unhealthy city as compared with most others in America and Europe. Mr. Delevan flatly contradicts such assertions. As compared with London, it is more healthy, according to the following tables:—

DEATHS IN LONDON TO EACH MILLION OF POPULATION.	
Deaths.	To the Million.
1858—64,093.....	23,102 1-11
1859—62,616.....	22,569 2-3
1860—63,100.....	22,744 1-6
NEW YORK CITY—POPULATION ONE MILLION.	
Deaths to the Million.	
1860.....	22,716
1861.....	22,117
1862.....	21,244

The mortality of Paris is greater than that of London.

UNDERGROUND CELLARS.—There are six thousand families in the city, who live in underground cellars, and they number about 18,000 persons. In many cases the tides flow into these dwellings and they are the abodes of wretchedness and fevers. Attention is directed to an act of Parliament which pro-

hibits the use of cellars for dwellings in London, and a similar enactment is suggested for New York.

TENEMENT HOUSES.—In many tenement houses there are from forty to eighty families in each. Of course such cases are few in number, but in some of the wards the over-crowding of dwellings is notorious. In all such cases uncleanness is the rule, life is short and the mortality great.

SEWERAGE.—The benefits of drainage in cities are clearly set forth. It has been ascertained, that in those streets which have been furnished with sewers, after the buildings had been erected in them, the mortality has been reduced about one-half, and the health of the people correspondingly improved. The same results have been experienced in all other cities.

STREETS AND STREET MANURE.—The political management of New York City is one of the greatest blots upon a Government springing from the people. Under a partizan contract, the streets are permitted to smoke with filth, while a very large sum is paid annually to keep them clean. In European cities, the street manure sold to farmers pays for the expense of keeping the streets clean; in New York this manure is a perquisite to the contractor, who annually receives \$279,000 besides.

MISCELLANEOUS.—It is recommended that the cobble-stone pavements in all the streets be substituted with the small trap block pavement. The former is a constant expense for repairs, and it is more difficult to keep clean than the latter. Within a short period great improvements have been made in some parts of the city by the erection of more commodious tenement buildings for the laboring classes. Complaint is made regarding the allowance of slaughter-houses in the inhabited parts of the city, and the French system of *abattoirs* is recommended as a substitute. It would certainly be a great improvement to locate all the slaughter-houses in some district removed from the dwellings of the people.

New York is so favorably situated, that it could be rendered the most cleanly and the most healthy city on the globe. Its surface is favorable for perfect drainage, its shores are washed twice every day by the tides of the sea, so as to carry off all offensive sewerage, and the sea-breeze fans its streets daily with life-giving freshness. For the gratifying condition of the public health the political rulers of the city deserve no credit.

#### A LARGE SCREW PROPELLER.

The Novelty Iron Works are finishing a large propeller for the engines of the frigates building for the Italian Government. The propeller in question is 19 feet in diameter, and has 31 feet 6 inches pitch. The diameter of the hub, at the largest end, is 41 inches; and the length of the hub, 4 feet 1½ inch. The diameter of the two bearings, one on each end, (it being Griffith's patent), is, on the forward end, 22 inches, and upon the after end, 16 inches. The greatest width of blade is 6 feet and 3 inches, and the total weight of metal (brass) melted for the propeller was 30,000 pounds. Its finished weight will be something less than this figure.

WAGES.—Wages are higher at the present time, in the several trades, than they have been for a long time previous. This is owing to the scarcity of help and also to the increased cost of all kinds of food, fuel, light, &c. We have taken some pains to ascertain the rates paid to members of the several trades. Good machinists are paid for general floor and vise work, from \$1 50 to \$1 75 per day of ten hours. Lathe hands receive from \$1 75 to \$2 per day. Moulders receive about the same rates. Carpenters about the same. Blacksmiths receive from \$1 75 to \$2 25 for ten hours work. Coppersmiths from \$1 50 to \$2. Ship carpenters from \$2 to \$3. Laborers get about \$1 per day on an average.

SHAKER HOODS.—The manufacture of "shaker hoods" is an important part of the business of Barre, Mass., in which two hundred and fifty girls are engaged. One million of palm leaves, of which they are made, are split every year, and are woven by families within a radius of twenty miles, hundreds of these families making a good living by this branch of labor. The amount produced annually is \$150,000 worth, and the manufacturers' tax for three months past amounted to a fraction over \$1,400.