THE "DUNDERBERG."

The formidable ram-frigate, *Dunderberg*, now building for the Government by W. H. Webb, at his yard at the foot of Sixth street, this city, is in a very forward state, and being completed as fast as possible. We lately visited this vessel, and are able to furnish a few details of her construction which we think will prove acceptable to our readers.

THE HULL.

The hull of the *Dunderberg* is massive, being solid from stem to stern; it is 378 feet long, 68 feet wide and 32 feet deep. The frames are twelve inches thick, and are built of oak, firmly bolted and fastened together. The model of the ship is very peculiar. The floor is dead flat for the whole length, and the sides rise from it at an angle every where save forward, where they are very nearly vertical. The bow is as sharp and has as fine lines as it is possible to give it, and the stern and run aft are very clean and handsomely modeled. The hull is divided by several water-tight compartments, both longitudinally and transversely—a precaution, common to nearly all modern sea-going ships, which has been found indispensable. The frames are strapped diagonally with heavy irons, 5 inches wide by $\frac{7}{8}$ of an inch thick, blunt bolted to them. There is a slight sheer on deck, but it is almost invisible to the casual observer at a short distance. There is but one rudder, provision is made, however, for steering by an auxiliary apparatus of a peculiar nature, should the main steering gear be shot away. The frame timbers, 12 inches thick, are ceiled inside 5 inches thick, planked outside 5 inches thick, and over the planking two courses of heavy oak beams, 12 inches thick, are again laid, making in all an aggregate amount of nearly five feet of solid timber on the ram's sides. The planking is all caulked, and the seams payed before the last protection is applied, and the entire mass is as firmly bolted together as it is possible to do it.

THE RAM.

The ram on the *Dunderberg* is about as formidable a looking object as one can conceive; the entire forefoot of the vessel is prolonged thirty feet from the hull proper, and, rising easily upward from the keel about half the distance from the water line, is there rounded, presenting a blunt end in shape like the profile of an axe edge; it then runs back toward the stem again. The mass of wood which forms this ram projects inside of the hull almost as far as it does outboard, and is there substantially secured to the main timbers. The sides and edge of the ram will be iron-plated, and even should the whole of it be knocked off in an affray the builders say that the hull will be water-tight.

THE CASEMATE.

The *Dunderberg* has, on top of the main deck, casemated quarters for the guns and crew. This casemate slopes at an acute angle from the sides to the top; it takes up a large portion of the vessel amidships, and is an elongated octagon in shape; it is made of heavy timber plated with iron 4½ inches thick; it is pierced on each side for three broadside guns, and has one port forward and another aft in the casemate, for bow and stern firing. The hull of the ship is built out from a distance below the water-line to meet the edge of the casemate above, so that the broadside of the *Dunderberg* will present an acute angle to the line of the enemies fire. We do not know what the inclination of the casemate and side is, but it cannot be less than 45°. The mass of wood and iron presenting a resistance to the enemy's rams or projectiles at this point amounts in all to seven feet. There are to be two turrets on the top of this casemate. The thickness of the turret walls will be much greater than those of the "Monitor" batteries, and strong enough to resist the heaviest ordnance. The armament of the *Dunderberg* has been variously-guessed at by parties; as it is not publicly known what it will be, we are not able to inform our readers further than that rumor assigns the 20 inch guns to the broadside, while each turret will also contain two heavy guns. The deck of the casemate, and also the main deck, will be plated bombproof, and the quarters for the officers and crew, being in the fortress on deck, will be thoroughly ventilated and open to the light and air; there will then be none of that depressing influence which is so marked in the departments assigned to the crews on the other batteries.

One great and overwhelming advantage that this splendid vessel has is that she is built of wood. She may leak, become waterlogged, roll, pitch and toss, but there will still be some hope for the crew as long as they stick to her. Iron batteries fill and plunge out of sight with very little warning. The effect of this fact upon sailors morally is not the least important one; although no men could have behaved better than the crew of the *Monitor* did in their peril, yet they all felt that their case was hopeless, and if they were saved it would be more the result of good fortune than any aid which their ship could afford them. The *Dunderberg* will draw about twenty feet of water. Her speed is not stated. Her engines are estimated at 6,000 horse-power. We are not able at present to give particulars of them.

Illinois Coal Mines.

The following interesting extracts are from the Chicago *Commercial Advertiser*:—

"It is generally known to the people of the West that along the line of the Chicago and Alton Railroad there exist several extensive and prolific coal mines, yielding annually immense quantities of bituminous coal, of a fair quality, and which go far toward supplying the railroads, machine shops, manufactories, &c., of Illinois, with cheap and convenient fuel. The oldest, and, so far as is known, the most extensive of these beds are located six miles below Alton, and three miles east of the Mississippi river; they are also stretched along the banks of a small stream known as Wood river, from which circumstance they bear the name of 'Wood River Mines.' These beds or measures were discovered about twelve years ago, and have since been owned and worked by the 'Wood River Coal Company,' of which C. Francis is the superintendent. The vein is six feet in thickness, and fifty feet below the surface. It is worked by steam power. The company have constructed a railroad from the mines to the bank of the Mississippi. Over this track the coal is conveyed in suitable cars, drawn by a locomotive, to the river, where it is 'dumped' into large flat boats. These are towed down to St. Louis, by steamboats, the coal being generally transferred from the scows to the steamers during the trip down. Immense quantities of coal from these mines are used by Mississippi boats, and also by various manufacturing establishments in St. Louis.

"The coal mines owned and worked by the 'Madison Coal Company' are located under a ridge, crossed by the Chicago and Alton Railroad. They have been worked successfully and profitably for about ten years. Thomas Dunford, who resides near Alton, is superintendent of the mining operations here. Fifteen or twenty shafts have been sunk, which are worked by horse power, and which, when supplied with a full complement of 'hands,' yield about eight car loads of coal per day. The principal vein lies eighty feet down, and presents an average thickness of thirty inches. This coal is shipped both North and South. It is used extensively in St. Louis, and at all points on the Chicago and Alton Railroad as far north as Springfield. The railroad company use the Alton coal and find it adapted to their purposes.

"At a point called Braceville, six miles south of Wilmington, in Will county, a splendid vein of coal was discovered about a year ago, though it is only seven months since it began to be worked to any considerable extent. This vein is the property of Charles Boyer, Esq., senator from Will county. Mr. Boyer is now working his valuable mine with steam power, and gets out an average yield of eighty tuns per diem. The vein lies within fifty feet of the track of the Alton and St. Louis Railroad. It is one hundred feet down, at Braceville, running deeper south of that point and nearer the surface north of it. Its greatest thickness, so far as measurements have shown, is four feet. The quality of this coal is good, being quite similar, in all essential features, to that produced by the Alton mines.

"Within a few weeks past, the city authorities of Bloomington have appropriated one thousand dollars to the purpose of boring for coal, at a spot west of the city and a short distance from the Chicago and Alton Railroad."

THERE are 59,000 branches of holly and 56,500 of misletoe sold yearly at Christmas in London.

THE PNEUMATIC POST IN OPERATION.

We learn from the London *Mechanics' Magazine*, of February 6th, that the Pneumatic Post, illustrated on page 209, Vol. V. (new series) of the SCIENTIFIC AMERICAN, is now in operation transmitting the mails between one of the railroad stations and a branch post-office in London. Our cotemporary says:—"The mail bags, upwards of 120 per day, will be blown through the tube in 55 seconds to the post office, Eversholt street; the usual time occupied by the mail carts being about 10 minutes." The Pneumatic Despatch Company are also about to lay down tubes for connecting the markets of London with one of the great railroad stations and with the General Post-office. It is expected that the operations of this company will ultimately in a great measure tend to revolutionize the carrying system in London, and relieve the crowded state of its principal streets.

Canadian Petroleum.

In 1862 seventeen vessels loaded with Canadian petroleum cleared for Europe through the St. Lawrence; total capacity 15,016 tuns, and containing some 35,000 barrels or 1,279,000 gallons. With respect to the future supply of Canadian petroleum the Toronto *Globe* says:—"The stoppage of several of the largest flowing wells indicated, it was feared, an exhaustion of the sources of the oil. When it was found, however, that even more than the usual response was made to the vigorous pumping operations thus induced, the suspense was succeeded by a very general feeling of relief, not only because a good supply was forthcoming, but also that a large number of persons interested in the pumping wells would reap the benefit of their investment. Indeed the 'indications' in the oil regions of Canada are every day more apparent, covering an immense area of country, and promising an abundant return for the investment of apital. In the vicinity of Oil Springs there are over 100 wells, twenty-five of which are in constant operation. The present yield of crude oil in Canada oes not fall short of 300 barrels per day, which can be almost indefinitely increased."

An Engine for the "Mosquito" Fleet.

The Portland (Me.) *Advertiser* editor has seen a miniature steam engine made by a genius in New York. It is on the low pressure principle, the total length being six inches, the boiler three inches long and one and a quarter in diameter, all being made of brass except the driving and piston rods, which are of steel. It can be put in motion with the aid of the single flame of a small spirit lamp and works as perfectly in every particular as any engine of large capacity. It is about "50-mosquito power." This is not at all diminutive as compared with one exhibited at the steam fire-engine trial at Troy, in 1860; this was a model of Lee & Larned's engine, in which the steam cylinder was only half an inch bore and three-quarters of an inch stroke; it had a feed pump which might have been put into a thimble. This was a working model and threw a ponderous volume of water, of the size of a pin, about five feet. The whole affair, boiler, truck and carriage, with everything in working order, weighed two pounds and a half.

TUNS OF BULLETS.—The army of the United States used, during the year 1862, sixteen thousand tuns of bullets. By an improvement in elongated bullets made by E. D. Williams, recently adopted and gradually being brought into the service, such a reduction in the weight is effected that it is calculated a saving of six million dollars a year will be made in the expense of metal and of transportation. It will save to the army of the Potomac alone two hundred ammunition wagons.

THE astronomers and other savans of London are getting up another big telescope, of far greater dimensions than Lord Ross's famous six-foot reflector. It is thought that with the new instrument a vigilant observer may easily converse with "the man in the moon," and in that manner to be able to solve many interesting and yet mysterious problems.

COTTON (middling American) has been selling for ninety and ninety-one cents per pound, last week, in New York.