

and all of these supply a good article." "And what," we ask "should the student first do, after getting his clay all 'knocked up' and ready for working?" "You must prepare a vertebra, as it were, to support your figure," replied Mr. Hems. "On the wooden stand that forms the base, erect an upright rod or pole long enough to reach to the neck of the figure, and fasten it securely in a perpendicular position. The upper end must be directly under the pit of the throat, or else the body will not stand well. Put some cross pieces near the pelvis to support the clay, and see that the clay is thick enough. If it is not, it will have a tendency to roll down; into the wood, too, drive a number of small nails, knocking them, however, only an inch in; they will thus stick out and all add to support the clay when it is put on. For the bent arm and leg use pieces of ordinary lead gas-piping, which will bend easily and can be readily adjusted at the proper angle after being covered with clay. Iron pipe does not do, it is liable to oxidize, and besides would be more or less brittle and unmanageable! Over all the skeleton thus made, put on the clay, remembering that the nearer the frame-work the stiffer the clay must be; this will make the figure more compact. Thus you will gradually build up the body, putting on large strips of clay around the waist, the head, feet, legs, and so on. Mind and keep all the main parts of the figure at about the same stage of completion, so that you may judge intelligently of their relation the one to the other. It won't do, for instance, to half finish the head before beginning the bust; for afterwards, when the torso was done, the head might require considerable alteration. No matter how the figure is to be draped, always model it in the nude first, so as to feel the masses and the movement of the figure."

"That," said he, continuing and warming in his conversation with all the enthusiasm which is so characteristic of the true artist, "that, you see, will be a statue of St. Benedict. The worthy saint in question lived so long ago as the sixth century, and founded the celebrated order of monks known to this day as the Benedictines. Here are the actual robes (*i. e.*, the self-same kind of costume) that St. Benedict himself wore. I have borrowed them of my good friend Father Hamilton, O.S.B., at Buckfast Abbey, where a community of Benedictines now live. They wear precisely similar vestments to those their founder himself wore, and for several hours every day, I have this man," pointing to a noble-looking grey-bearded old fellow hard by, "dressed therein; he stands as a model to be worked from. So you see the folds of drapery, although strictly Gothic, are withal soft and natural. As for tools, almost anything will do to make modelling tools out of; for instance, you may take—"

But here an interruption came in the shape of a messenger with a telegram which called for the immediate presence of Mr. Hems elsewhere, and hastily begging to be excused, he left with a cheerful promise to give me an hour at an early day, when I mean to pay another visit to the studio of the "Luckie Horseshoe."—BY AN ART LOVER, in *The Stonemason*.

THE DOLPHIN'S DEFECTS.

In view of recent developments in connection with the Dolphin, the following statement, made by Chief Engineer B. F. Laherwood somewhat over a year ago, is interesting:

"The Dolphin is not available for any military use, being merely a steam yacht, designed apparently only for the use of an admiral commanding a squadron, her elegant and spacious accommodations and high speed rendering her convenient for such purpose. She does not, therefore, fall into the category of a naval cruiser at all, and the only question in relation to her is whether so expensive a vessel to make and maintain, and so useless a one, is desirable in a navy that is destitute of fighting ships. As the appropriations for naval vessels are likely to be very limited, and as the cruisers now belonging to the navy or likely to belong to it in the near future are very few, there can be no doubt that no more yachts of the Dolphin type, or, indeed, of any type, should be constructed for many years to come, if ever. The money should be wholly expended for useful vessels of war, the common wealth not requiring the appendage of luxurious yachts for its squadrons. A properly built cruiser of the smaller class, with such speed as it ought to have, will perform all the services that could be rendered by a yacht, besides being always available for military uses. Imagine a squadron restricted from motives of economy to two or three fighting vessels, as our squadron will be, yet with the wholly useless addi-

tion of a magnificent steam yacht, costing to make and maintain as much as a small cruiser, and merely for the personal use of the admiral commanding.

"The boilers of the Dolphin are largely above the water level. Her engine extends to a considerable height above even her spar deck, and not a single shot could be fired at her that would not destroy the machinery sufficiently to immediately put the vessel *hors de combat*. To speak of arming such a sheet-iron vessel, with her machinery all exposed, or of expecting any military service from her, is utterly absurd, though such statements may disguise her character. This type of vessel was proposed to the first Advisory Board, of which the writer was a member, and the proposition was voted down almost unanimously, as appears in the unpublished minutes of the proceedings of that board. No vessel should be built for the navy unless she be for her dimensions an efficient vessel for war purposes, and vessels of all dimensions can be so built.

"The contract price for building the Dolphin, but not for equipping her, which is additional, is \$315,000; adding for the equipment, her cost in round numbers will be about \$400,000. Her length between perpendiculars is 240 feet; her breadth is 30 feet; her mean draft of water is 14½ feet; her displacement is 1485 tons, and her estimated speed is 15 geographical or about 17½ statute miles per hour. These are the dimensions, the speed and the cost of a third-class cruiser.

They are cited to show that the terms expensive and magnificent applied to her as a yacht are not exaggerations.

"The designs of the Dolphin are claimed by the present or second Advisory Board. The machinery is simply that of most coasting screw steamers, and is probably a duplicate, or nearly so of machinery built by the contractor, Mr. John Roach, for such a vessel. It will unquestionably function well, and is admirably adapted for coasting steamers, but is entirely out of place in any vessels intended for war service unless they be armored. The entire designs of the hull and machinery are understood to be made at the contractor's works, only the general idea being given by the board, which certainly furnished no working drawings. In fact, the contract for this vessel especially stipulates that:

"Fifth—It is hereby agreed by the contractors that such plans as it may be necessary to prepare during the progress of the work shall be submitted to the Naval Advisory Board for approval before the material is ordered or the work commenced."

"From which it is evident that the board furnished at most only a very general idea, the real designs or working drawings being afterward made by the contractor from time to time as the work progressed. Of course, neither the weights, the details of mechanism on which so much depends, both of the cost and the efficiency, nor the character of the work, can be known until all the working drawings are completed; consequently, the greater part of what is predicted of the vessel by the board can have no real basis—in fact, is mere assumption."

Miscellaneous Notes.

ON Wednesday the total number of visitors to the International Inventions Exhibition reached one million in 45 days, being an average of 2,000 a day more than last year.

BOILER EXPLOSION.—Last Monday a steam boiler exploded in the wool-scouring establishment of M. de Coster, at Turcoing. Seventeen persons were killed and forty injured.

AN improved system of building jetties has lately been devised in America. The entire jetty, except the sills and mats, is made of metal and stone, the only wood being the sills, which are completely embedded in mud, so no part of the structure can be injured by the teredo, and the metal plates are coated with paint to prevent their oxidation, the whole making a form of jetty adapted for use in deep water, or where the current is very strong, and great strength is required.

MR. GLADSTONE has carefully estimated that the production of wealth in Great Britain, since the opening of this country and up to the year 1870, equals the aggregate that had been acquired during the entire time from the landing of Julius Cæsar, fifty-five years before the birth of Christ, up to 1800. Furthermore, that the wealth produced since 1850 has been equal to all that was made the fifty years preceding; yet there are more poor people and fewer rich than ever before.