

the ground, culminating in the discomfit of the Admiral and his party assembled on the Toulon jetty to witness the effect.

COAST-DEFENCE VESSELS.

Perhaps it is scarcely necessary to remind our readers that the ships of the First Reserve which are employed for Coastguard duties are not, after all, in the strictest sense of the term, coast-defence vessels at all. They are sea going ships—at least, they are supposed to be such, although, unfortunately, few of them at present deserve the name—and are intended, in the event of war, to be capable of co-operating with the Channel Squadron. But by the expression, "Coast Defence vessels," we must now be understood to mean vessels which have been built specially for the purposes of coast defence, and which, from some feature in their design, or more or less incapable of proceeding to sea and remaining there for any length of time. It is, however, all the more important to remember this distinction, because, in view of the organization of Naval Volunteer Corps, now in progress, it is obvious that the sphere of duty of such corps should be entirely confined to coast defence vessels, and that the more strongly marked the distinction between a coast defence and a sea going war vessel the less obloquy will attach to those who man the former if they are unversed in the mysteries of seamanship and the wonders of the deep.

Now, when we consider how entirely the construction and fitting of a sea-going warship is influenced by the fact that she is intended to be capable of making the longest voyages, withstanding the heaviest weather, and engaging the enemy at any period during her commission, it is obvious that vessels designed exclusively for coast defence may be constructed on a far simpler model. Without entering into a disquisition on shipbuilding, it may be observed that there are two main requisites in a sea going vessel of any kind. She must, in the first place, be of considerable size—for various reasons—and then, secondly, there must be—also for various reasons—ap-
 pliances on board for propelling her through the water with considerable rapidity. As these are the two fundamental essentials of a sea going ship, in virtue of her being such, we can, as the mathematicians say, eliminate both these conditions from the designs of our coast defence vessels. That is to say, so far at least as only nautical requirements are concerned, we can have for coast defence purposes very small vessels, and vessels which can only be propelled very slowly through the water. But in thus limiting the sphere of operations of vessels to our coasts and harbours, we, on the other hand, introduce an element essential to be observed in their construction, namely, light draught. The next step in the inquiry is to superadd to the conclusions already obtained, the requirements necessary to make these useful war vessels. Now the only really absolutely essential condition from this point of view, is that the vessels must be capable of carrying very heavy guns. Armour plating is, as we shall see presently, not a primary essential; neither is speed. On this point, however, we may quote the following remark from the report of the Committee on Admiralty Designs:—
 "As a powerful armament, thick armour, speed, and light draught, cannot be combined in one ship, although all are needed for the defence of the country, there is no

alternative but to give the preponderance to each in turn, amongst different classes of ships which shall mutually supplement one another." Now there appears to us to be in this sentence what a late eminent Scotch divine said he liked to see; namely, "a grand idea looming through mist," which, however, we may, perhaps in some measure dispel by resuming the thread of our remarks.

As we have seen, the only essential requisites for a coast defence vessel are, from a shipbuilding and nautical point of view, light draught; and from a war standpoint, the capability of carrying heavy guns. Hence, from a consideration of the general principles already explained, we arrive at the conclusion, that our coast defence vessels may be as small, and may move as slowly, as is compatible with the war requirements for fighting heavy guns; but that in any case they must possess light draught. In a word coast defence vessels, so far as this country is concerned, are simply a means of manœuvring artillery on the comparatively shallow waters which encompass our shores. This, we believe, is the fundamental principle which should guide us in the construction of such vessels. Viewed from this artillery standpoint, the difficulties as to speed and armour plating rapidly disappear. For it will at once be observed that these are matters which depend on the way in which the artillery is to be handled; and by referring to artillery operations on land it will be perceived when these points come into play in the designing of coast defence vessels. It will suffice for present purposes to recognize simply three kinds of land artillery, namely, (1) garrison guns, which are not intended to be moved at all; (2) guns of position, which are only moved slowly and occasionally, and which, when used—as in siege operations and the defence of lines—are protected by works of some sort; (3) field guns, which are moved rapidly and frequently, and which, as a rule, are never protected in any way. Now—fanciful although the notion may perhaps appear to some—we believe that we shall not go very far wrong if we assume that the same general principles which govern the use of artillery on land also regulate its employment on water in coast defence vessels. With the first named kind of land artillery—fixed garrison guns—we have nothing to do in considering coast defence vessels simply as a means of moving artillery on water. But from a careful consideration of the peculiarities and modes of using the second and third named varieties—guns of position and field guns—it will be seen that we require two very distinct classes of coast defence vessels, namely, (1) vessels of considerable size, although necessarily of light draught, carrying a large, heavy, well protected battery, capable of being moved, albeit but slowly, to any point on the coast, like a land siege train or battery of position and (2) small unarmoured vessels possessing great mobility and considerable speed, which can be collectively manœuvred in the style of a field battery, and which therefore should carry only one gun each. The ideal of the former should be an armour plated fort, capable of propulsion at as low rate; that of the latter Neptune's flying artillery.

It is satisfactory to observe that this latter type has been definitely adopted by the Admiralty, and to learn that we shall ere long have a considerable fleet of small unarmoured screw gun boats, each carrying one heavy gun—in fact, mere floating gun carriages—which, possessing great mobility,

can be quickly massed on any part of the coast that may be threatened. Still, as was indicated last week in these columns, such gun boats are not in themselves sufficient adequately to defend our large mercantile ports. To do this, it is absolutely necessary for us to have some vessels of the "floating fort" class. Unfortunately, however, this type has not yet found favour with the Admiralty, the *Glaitton* and the *Cyclops* in the meantime representing their idea of a coast defence vessel. But although these vessels may be useful in their way, they are by no means of exactly the right stamp for the defence of a large mercantile seaport town. For one thing, their offensive power—their armament—is too small; and it should be remembered that after all the *Cyclops* class was not originally designed for coast defence, but for a totally different purpose. It was only on the outbreak of the recent Franco-German War that Government ordered four vessels to be built from the design, in order to provide some light draught ironclads, which are now to be regarded as coast defence vessels chiefly because it is found that they are not fit to go to sea. It is to be hoped, however, that the representatives of some of our great mercantile seaports will take up the question, and urge upon the new Parliament the importance of speedily providing some vessels of the "floating fort" type for the purpose of coast defence.—*Broad Arrow*, March 7 1874.

The *Invalide Russe* confirms the statement that an account of the late campaign in Khiva is about to be published, adding that the Emperor has approved of the project, which is to be carried out at the expense of the State under the superintendence of Aide-de-Camp General Kaufman, Governor General of Turkestan and commander in chief of the Khivan expedition, and under the immediate direction of Major General Trotsky, chief of the Staff of Turkestan. This "History of the Khivan Campaign of 1873" will be edited by officers of the staffs of the three expeditionary columns, assisted by several persons who had the charge of scientific observations during the expedition, and will be in four parts. The first part will comprise the history of Russian movements in Central Asia from their commencement to the submission of Khiva in 1873, and will contain a complete resume of Russian relations with Central Asia up to the date of the expedition; a strategic study of the Khanate of Khiva and its roads; an explanation of the motives which led to the campaign of 1873; the plan of the campaign; and an account of the formation of the operation of all the expeditionary corps up to the taking of Khiva. The second part will be an account of the occupation of Khiva up to the time of the return of the Russian troops. The third part will give an account of the return of the troops; it will conclude the military recital, and complete the account of the conclusions which may with advantage be drawn from this campaign with respect to a war on the steppes. The fourth part will contain the scientific explorations, giving an account of all such work performed during the campaign—topographical, botanical, geological, ethnographical, statistical, linguistic, and historical. The work will be illustrated with maps, itineraries, engravings, and official reports.