OUR DOMINION.

Of all the favoured nations,
In the east or in the west,
The Canadian Dominion,
Is the fairest and the best;
For our homes are halls of plenty,
We have peace on every hand,
And the people are as noble
As the lords of any land.

We have many little Edens
Scattered up and down our dales;
We've a hundred pretty hamlets
Nestling in our little vales,
Where the sunlight loves to linger,
And the summer winds to blow,
Where the rosy spring in April
Leapeth laughing from the snow.

We have oaks to build us navies,
That have stood since Noah's flood;
And we've men to build and steer them,
Men of skill and dauntless blood.
We have lakes as broad as oceans,
To transport our surplus grain,
And we've mighty rolling rivers
To convey it to the main.

We have springs of healing waters;
We have ever-during rills
That encircle in their journey
Half a thousand happy hills.
Tell the oppressed of every nation,
Him that plants and him that delves,
If they'll cast their lot among us
We will make them like ourselves.

For the West shall be a garden,
And its glories be unfurled,
Till its beauty is a by-word
With the people of the world;
And the East shall build us shipping
That shall whiten every sea,
And the pride of our Dominion
Shall be British Liberty.

And if foes too strong oppress us,
On a little island shore
Dwells a lion that can shield us,
By the terror of his roar;
For its flag that rules the Ocean,
Is respected on the shore;
It has braved a thousand battles,
And can brave a thousand more.

In its folds in silent sorrow
We will wrap our fallen brave;
But we'll wave it high in triumph
Over every traitor's grave.
And in spite of Annexationists,
By the world it shall be seen
That we honor our Dominion,
Love old England and her Queen.

And our fathers up in heaven,
In the leal land far away,
Looking down with pride upon us,
Shall perhaps be heard to say,
These our children emulate us,
Tread the righteous path we trod,
Live in peace and honest plenty,
Love their country and their God.

Heavy Guns.

Messrs John Wiley and Son have recently published a text book of Naval Ordnance and Gunnery, prepared for the use of the cadet midshipman at the United States Naval Academy, Annapolis, by A. P. Cooke, Commander, United States Navy, a mere inspection of the contents of which shows that the whole *matréial* of naval warfare is becoming more and more dependent on the resources of mechanical engineering. As the author says, "gun making (and naval ship building should be included) is no longer the simple matter which it continued to be while the world was content with wooden ships and round shot. . . . Ingenuity has been exercised upon the material, the construction, the rifling and the mounting of the gun, as also in regard to the kind of powder with which it is to be loaded, the structure of the projectile which is to be fired, and the appliances with which the gun is to be worked. Everything is changed since the days when simple smooth bores and cannon balls were deemed sufficiently formidable and destructive." This complete revolution in naval warfare, we need scarcely say, dates from the construction of that purely *fighting machine*, the first *Monitor*.

So vast is the field now to be mastered by any naval officer who can be said to be *au fait* in his profession, that the short course at the Academy will serve only as an entrance to it: hence it seems to us that the course at the Naval School ought more than ever to be confined to instruction in the rudimentary principles of science, discipline, naval routine, practical seamanship, and, so far as ordnance is concerned, the foremost importance should be given to the actual practice of naval gunnery. It is of far more importance that the young naval officer should be thoroughly drilled in the use of the weapons he will be called upon to use against the enemy, than to possess a confused and meagre knowledge of the various complicated process of manufacturing great guns. The officer who possesses any real love for his profession will continue his studies in those more mechanical and practical matters relating to naval *matérial* (which are far from being in a settled state) after he had finished the short four years at the Academy. Commodore Jeffers truly says: "Under the ordinary circumstances of a naval action, the probability of striking an enemy's ship is dependant far more on the accurate knowledge of the distance, on the steadiness of the ship carrying the gun, and *the skill of the man who fires it*, than on the qualities of the gun itself."

As might be anticipated in a text book that embraces so great a range of subjects, beginning as it does with that very complex branch of practical science, the metallurgy of iron and steel, and treating of the construction of modern wrought iron and steel ordnance, rifling and projectiles—there is much to commend and much that is obnoxious to criticism in the work of Commander Cooke. In the pages allotted to the Bessemer process of steel making, the description is confined wholly to the old English system, old schemes never adopted, while nothing is said of the more modern American practice in the way of increasing the quality and quantity of the product, and the improved method of treating the ingots. Again, we are unable to find any mention of the so called Siemens-Martin open hearth process of steel making. This omission is important from the fact that this system is the only one (with the exception of the crucible method) fit for the production of steel for great guns. A perusal of the appendix to Bauerman's Metallurgy of Iron from which quotations are made, will show the author the importance of the Martin system.

We think Commander Cooke is in error, too, or his remarks on the so-called *racking* and punching system of attacking iron clads. It is here reasserted that the Americans have preferred the former: that is, to attack ironsides not so much with the view of putting a hole through them, as to shake the entire fabric, crack or shatter the plates. The continued trials made by the Navy Department during the war to increase the service charge of the 15-inch gun is ample evidence that the aim was to project the shot with sufficient velocity to drive it *clean through* the enemy's ironplates. We all know that after careful trials, 100 pounds was officially allowed as the battering charge for this gun. We also know that this charge gives the very *high* velocity of upwards of 1 500 feet per second, and that it put a cast iron ball clean through the *Warrior* 8-inch target, without any so-called "racking" effect. The 15 inch gun was introduced into the naval service under peculiar circumstances. A gun of this calibre had been successfully cast by the Ordnance Department of the Army, after long investigation and preparation, long before we had any idea of building iron clads, and when it became a vital necessity that the monitors should have far more powerful artillery than any then in the Service, the Department wisely chose the most potent piece they could find, one that had been successfully cast and tested. This 20-ton gun was successfully mounted and used during the war, years before any other nation succeeded in putting afloat a piece of equal weight. There was no time at the beginning of the war to experiment on rifling or any other new system. At that time the heaviest rifle was the Armstrong breech loading 110 pounder. How the Service can be justly accused of advocating "low velocities" and "racking" that was continually striving to increase the speed of the projectiles from the only iron-clad it possessed—the 15-inch—and finally succeeded in driving a 450 pound shot at the very high velocity of nearly 1,600 feet per second, is more than we can understand. What we have said about the 15-inch smooth bore and its high initial velocity has nothing to do with the fact that the rifle has, for obvious reasons, displaced the smooth bore as the principal weapon of naval batteries. We merely intend to bring out the fact that neither our Ordnance Bureau, nor any other competent naval authority, ever advocated low charges or low velocities for guns to be used against iron-plates; on the contrary it was always the aim of the Navy Department to use charges that would drive shot *through* the enemy's sides. We have long intended to give our views on this so called "racking theory, which has been tacked on to the American Navy, and have taken this opportunity of doing so. Our present Chief of Naval Ordnance, says: "Since the general introduction of armored vessels, the conditions of warfare have been altered, and the subject of *penetration* has become of permanent importance." The opinion expressed in this treatise regarding the relative resisting power of *solid* and *laminated* armor of the same aggregate thickness, as applied to monitor turrets, is also very wide of the mark. We quote: "But when the surface is rounded in shape, and of small extent, as in the monitor turrets, the latter (viz., *laminated* armor) may be used to great advantage, as great thickness may thereby be easily obtained." This is a great mistake. We have on several occasions in the Journal given the result of one out of many experiments with 9½ inch rifle gun against a *laminated* turret 12 inches in thickness, composed of plates of superior iron 2 inches thick, results showing that if this shot had been fired in an actual battle, probably every one in the turret would have been killed or wounded and the vessel placed *hors de combat*. If the turret had been made of a 12 inch solid plate this shot would not have penetrated it, while in this trial the shot not only passed through, but had remaining sufficient *vis viva* to have gone through several more inches. One of the gravest charges that has been brought against our Navy Department is the neglect to replace the laminated armor of our best monitors with solid plates, instead of wasting millions in "repairs and alterations," which without the above change is money thrown away.

These errors to which we have felt called upon to call attention are the blemishes in a work which is as a whole replete with valuable information, presented in a convenient shape for ready reference, and accompanied, above all, by a good index. Commander