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The Volunteer Review

AND MILITARY AND NAVAL GAZETTE.

A Journal Devoted to the Interests of the Military and Naval Forces of the Dominion of Canada

VOL. VI.

OTTAWA, (CANADA,) MONDAY, AUGUST 12, 1872.

No. 33.

NEWS OF THE WEEK.

On the 10th inst., the Imperial Parliament was prorogued. The first subject of the speech, after the announcement of the prorogation, is the controversy over the American indirect claims, which the Queen is rejoiced to inform Parliament, has been compromised by the spontaneous declaration of the arbitrators in a manner entirely consistent with the views announced at the opening of the session. The Canadian Parliament having passed Acts necessary to give effect to the Treaty of Washington within the Dominion, all arrangements contemplated by that instrument are now in progress, and Her Majesty reflects with satisfaction that the subject with which the Treaty deals is no longer any impediment to perfect concord between two kindred nations.

The Queen reviews most of the important measures adopted by Parliament during its session, and recounts the changes they are designed to effect and the improvements which must flow from them.

The Queen concludes as follows:—"While I cordially congratulate you on the activity of trade and industry, I hope it will be borne in mind that periods of unusually rapid changes in the prices of commodities and value of labor are likewise periods which more than ever call for the exercise of moderation and forethought. In bidding you farewell, I ask you to join with me in acknowledging the bounty of Almighty God and imploring its continuance."

It is reported that Sir John Rose has been made a Baronet.

Also that gold has been found in Ireland in the neighborhood of Kinsale, which has created great excitement, possibly because it has been found in situ, as *alluvial diggings* are of very remote antiquity indeed, gold being found in Wicklow, Leitrim, Sligo, Kerry, Down, and probably in Cork. Irish antiquities furnish probably the richest collection in the world of gold as personal ornaments—the writer saw what must have been the handle of a shield, of solid gold, turned up by a plough, its weight was over one pound, and the *umbilica* or *boss* (centre) of a shield or target of the same metal weighing

much more: while chains, fibula, bracelets, and other rich as well as rare ornaments are quite common. At one period the country was certainly rich in native gold, and the old workings in many of the counties named can yet be traced.

We are happy to be able to state that Great Britain is enjoying a season of unexampled prosperity, which, it is to be hoped, will be continuous.

A rise in the price of coal is a subject of just anxiety, as the supply is by no means inexhaustible, and any permanent diminution would affect the manufacturing industries of the country to a fearful extent. There is, however, one satisfaction that British Capital can find as profitable investment in her own Colonies as in the British Isles; the coal fields of Nova Scotia and the North West are practically inexhaustible whatever those of the mother land may be.

It is gratifying to observe that the loyalty of the people to their Sovereign appears to increase notwithstanding the efforts of the Whig-Radical press—those people now try a new tack and profess to feel pity for the *ill-bred* curiosity which make Englishmen crowd around their future Sovereign on every occasion of his appearance in Public, but H. R. H. the Prince of Wales knows better than to complain of his people's love.

A dangerous Coal Miner's strike has occurred in France—it is said to be fomented by an agent from Chicago who hopes to induce an emigration of colliers—it has been put down by force.

The ex Emperor Napoleon is about to visit Carlsbad for the benefit of the waters.

A fearful conflagration has occurred at Nishui Novgorod in Russia; it broke out in the quarter where the great annual fair is being held and destroyed a great quantity of valuable goods.

There is a projected meeting of the Emperors of Russia, Germany and Austria to take place immediately; it is hailed as an omen of peace to Europe, but experience gained by such conferences do not warrant the conclusion by any means. It is probable that Prussia wishes to draw the alliance with Austria closer in view of the inevitable conflict with Russia.

The Spanish Cabinet have submitted a plan for the abolition of the slave trade in the dominions of Spain. All the prisoners taken during the Carlist insurrection have been sent to the Canaries.

Liberal candidates have been elected in nearly all the Italian municipalities.

In the Ottoman Empire there are the germs of trouble—it appears there are two claimants to the throne, one the nephew of the Sultan and his natural successor, the other the grandson of the dowager Sultana Valido. Russia is said to be at the bottom of the intrigues, and to complicate matters the religious question between the Orthodox and Catholic Armenians has created such trouble that the Sultan was compelled to expel the Patriarch Hassoun, the Papal adherent, who has arrived in Italy.

It is understood at Geneva that the case for the Alabama claims is closed.

The Strasbourg Official Gazette publishes a ministerial decree forbidding the use of French names for streets in the city, and giving a list of the new German names by which they had been replaced. A clique of anti-German tradesmen have met the innovation by having the old French names painted on their signboards.

It is reported that Mr. Cardwell has offered Major Worsley, in command of the Canadian Detachment at Wimbledon, an appointment on the Staff of the Army of Operation during the Autumn Manœuvres.

A series of border troubles on the Mexican line is the principal matter of interest beside the Presidential election affecting the United States.

In Canada the elections for the Commons have progressed favorably for Ministerialists. A dreadful riot with loss of life has occurred at Quebec.

The Adjutant General had reached Fort Garry on 1st August, being just nine days out from Thunder Bay. At last accounts he was at Pembina.

Indian troubles are anticipated, we have no fear but they will be easily settled; those reported as occurring in British Columbia were merely local quarrels and were untended with loss of life.

KRUPP GUNS,

To the Editor of the Army and Navy Journal.

Sir:—I have waited patiently in the hope that some of our well posted artillery officers would reply to "Ozark's Battle of the guns," but thus far in vain. Though a late, I must fain take up the pen myself, and reply to that portion of the article which questions the value of Krupp steel guns. I am afraid that your correspondent has not in mind, when writing his essay the injunction of the dying scholar: "Verify your quotations." "Ozark," draws all his facts from the 43rd volume of the English Blue Books of 1870, a not very valuable authority on distasteful ordnance subjects. The very looseness and indefiniteness of some of the statements should have warned "Ozark" to search farther without indorsing them. Your correspondent seems to have his doubts, for he certainly does not quote the report fully and literally. He reproduces the sixteen "bursts" mentioned in the Blue Book, adds one already fully described in the *Army and Navy Journal*, and hints at several more. I propose to examine these in detail.

1st, "Ozark" says, "On November 13, 1871, a Krupp 20-pounder burst at the second fire." The report of the Ordnance Council, page 43 says: "Krupps 20 pdr. breech-loading steel gun, rifled on the Armstrong principle. This gun burst at the second round of proof, on the 11th November, 1861. Charge, first round, 37lbs. 8oz., charge second round 5lbs. It separated at two of the angles formed by slotting the breech to receive the wedge; the upper part separating at the front angle, the lower part at the rear angle.

The fracture presented a perfectly uniform appearance, with every indication of good metal.

This shows conclusively that it was the model (square mortise) and not the metal was at fault.

2. "Ozark" says, "In April, 1863, a Krupp 20 pounder burst after 132 rounds; heavy charges." The report quoted by him says: "Twenty pounder rifled breech loading gun, of 24 cwt., made from a block of Muehot's steel.

So this must be omitted from the catalogue of burst Krupp guns.

3. "Ozark" says: "On January 27, 1867, a Krupp 7 inch or 110 pounder burst at the second fire." The report says: "Krupps 7 in. rifled, breech loading steel gun. (*Experimental No. 228.*) This gun burst on the 29th January, 1867; charge, 18 lbs, shot, 110 lbs., the breech being blown out and thrown a distance of 13 yds. The separation took place in line with the rear end of the slab, the fracture appearing sound without flaws or air cells." Again the material is not at fault even in this *experimental* gun. The mechanical model explains the whole difficulty.

4. "Ozark" says: "At Koniggratz a Krupp field gun burst: estimated rounds 150."

5. "Ozark" says: "At Koniggratz another Krupp gun burst; estimated rounds 150."

6. "Ozark" says: "At Berlin a Krupp field-gun burst, and killed three cadets."

7, 8, 9, and 10. "Ozark" says: "During the campaign in Austria, a Krupp field-gun burst in action." The report quoted thus speaks of these seven cases; "Six of Krupp's 4 pounder breech loading rifled steel guns, and a rifled field-gun (nature not stated.) Lieutenant-Colonel Rielly reported; 14, 8, '66, that two 4-pounder (Krupp's) on the Wahrendorff principle, burst at the battle

of Koniggratz, and that a rifled field-gun had just burst at Berlin, killing three cadets. And on 20, 8, '66, he stated that 6 Krupp steel rifled field-guns (including probably the two above mentioned), had burst during the campaign in Austria, and that the manufacture of steel guns had been stopped in consequence! Lieutenant Hozier, in a letter dated 13, 8, '66, stated that he had seen one of the Prussian steel guns which burst at Koniggratz.

The muzzle and the foremost portion of the bore, for about six inches from the muzzle, remained intact, but from this point nearly up to the trunnions, the whole side of the gun was blown away. He attributed this to the pin of the fuse coming out, and the shell bursting in the bore; it certainly was not due to continued fire, as the gun had not fired 150 rounds during the campaign, and the rifling showed no signs of wear and tear. He did not see the other gun which burst, but thought that its bursting was also due to the premature explosion of the shell in the bore." This is the literal account of the Blue Book, upon which "Ozark" founds his seven indictments. The story of the failure of steel guns during the campaign of 1866, and of their consequent abandonment by the Prussian Government has been repeatedly advanced, and as often denied. Captain Nicaiso in his "Field Artillery," published in the *Army and Navy Journal*, denies this story in very forcible terms, and characterizes the statement concerning the "premature explosion of the shell" as "the assertion of newspaper reporters" as opposed, I presume, to authoritative record. That their fabrication was not given up, as stated by this official English Blue Book, upon which "Ozark" relies for his facts, needs no further refutation than the fact that the German armies used over 1 500 steel guns in the late war, most of them manufactured after 1866. The whole truth as given in the Prussian reports, is that two guns, model 1864, (square wedge), burst during the Bohemian campaign; one in the breech, and the other as stated by Lieutenant Hozier, sideways. This gentleman, however, neglects to report that the latter piece had been deeply indented in the chase by an Austrian shell, which of course readily accounts for the peculiar fracture described by the English officer. "Ozark" might have added to this list of failures, five Krupp guns which were tested to extremity at Spandau and Legel in March, June, and July, 1866.

Mr. Krupp had always been opposed to the square wedge system, as radically defective, and after the experiments made in 1866, the Government adopted the model of 1867, the cylindro prismatic wedge system.

11. "Ozark" says: "A Krupp, 9.75 in. gun burst with a moderate charge." The English authority says: "72 pounder Krupp's steel gun. Colonel Walker reported 20, 8, '65, that the largest Prussian gun he had ever seen, a 72 pounder (i. e. 200lbs. English) of 9.75 in calibre, (a mistake which "Ozark" indorses, the calibre is 8-in.) made in the same manner as the 4 pounder (11.1 lbs. English) burst at the upper angle of the breech, when under trial, with as he thinks, a very moderate charge of powder. He stated that the select committee ascribed its bursting to the inferior quality of steel supplied by Mr. Krupp." This gun was fabricated from designs furnished by the Prussian Navy Department. Mr. Krupp remonstrates officially against the model, but assumed the entire responsibility of the metal. The gun burst at one of the sharp angles of the breech-mortise as might have been expected.

The select committee having furnished the drawing, would naturally ascribe the failure rather to the weakness of the metal than to an error in the model.

12. "Ozark" says "In January, 1869, a Krupp 8-inch gun burst at Berlin." In this case your correspondent quotes the English report literally and fully, for the above is all the information the Blue Book vouchsafes to give. The Prussian reports show that this gun burst under the following circumstances: "The piece was originally designed for a charge of from 12 to 14 pounds; the chamber was afterwards increased to hold 20lbs. Six hundred and fifty rounds were fired from it—100 with 20lb. charges; it burst with 24 pounds of powder and 200 lbs. of shot. The gun had further been used in experiments with the barytic nitrate powder, a very "offensive" mixture, for it damaged the wedge and caused cracks to appear in the chamber already after two rounds. An account of this powder is given in the Prussian report on prismatic powder. The limits of elasticity once passed, a gun may burst at any time, even with a much less than usual charge. Furthermore, this gun was of the solid forged, not hooped, model.

13, 14, and 15, "Ozark" says: "In April 1864, a Krupp 8-inch gun burst at Cronstadt." "In July, 1866, a Krupp 9 inch gun burst in Russia, rounds fired 66." "In February, 1868, a Krupp 9 inch gun burst in Russia."

The Blue Book quoted gives the above as follows: "1st. In March or April, 1864, a Krupp 9 inch breech loading gun burst at Cronstadt. 2nd. Nine inch Krupp's steel breech-loading guns. In a confidential report on Russian naval and military armaments, in war office paper, as per margin, it is stated that a Krupp 9 inch breech-loading gun burst at the fifty-sixth round in June or July, 1866; charge, 45 pounds; shot 200lbs *greatly shaking confidence in steel guns.* 3rd. In January or February another Krupp breech loading 9-inch gun burst in Russia. It will be noticed that the English authority is very indefinite in its statement, not even fixing the particular month in which these accidents occurred, a deficiency which your correspondent very kindly remedies. All the Russian trials have been reported officially, and have been published in the *Russian Artillery Journal*. Many cases of burst guns are given, but the result of all experiments was that confidence was so little shaken that after 1866 Russia ordered steel ordnance for millions of dollars.

16. "Ozark" says: "In July, 1869, on the Russian frigate *Alexandri Nerski*, a 9-in. Krupp gun burst with great destruction of life."

The English report merely adds, "two officers and forty men were said to have been killed or wounded." This is the crowning case mentioned in the Blue Book, and so unhesitatingly reproduced by "Ozark." The trustworthiness of the whole report may be gauged by the utter recklessness shown by reproducing officially a fact founded on newspaper rumor only. In 1868 (and not in 1869 as stated in the report) the *Austrian Military Gazette*, (Nos. 51 and 52,) reported that a Krupp gun had burst on board a Russian vessel. Official certificates were furnished, and in No. 64 of the same journal this "item" was withdrawn, yet the writer persistently added that after all a gun had burst. An action was brought against the paper, and in No. 77 it was compelled to declare that no accident at all had occurred, and to pay a fine and costs! Upon such a basis rest statements given in the English Blue Book.

Krupp trial guns have burst, and been burst intentionally, for the great steel worker did not reach his goal by inspiration alone. Many trials to extremity were necessary before the present perfection of material and construction now claimed, with right, for the steel breech loaders, could be reached.

17. "Ozark" says: "On September 29, 1871 Krupp 11-inch gun burst at Cronstadt at the first round.—Casualties—three officers killed and forty-one men killed and wounded as far as known!"

This is the culmination of "Ozark's" impeachment of the Krupp steel guns. This gun, "embodying the very latest improvements," burst at the first fire. Will "Ozark" have the kindness to turn to the *Army and Navy Journal* of January 20, 1872. He will there find an article—not very full to be sure, but still truthful as far as it goes—on this very case, wherein it is stated that this piece burst at the *fifteenth round*, with 100 pounds of powder. The piece broke in the unhooped chase only, and it is supposed that the fracture occurred when the projectile was between two and three feet from the muzzle.

No one was injured—which must be very comforting to the American relatives of the "three officers killed and forty-one men killed and wounded." The failure of this gun was undoubtedly due to the wedging in the chase of the porous cast-iron shell fired from it. "Ozark" further says: "Moreover the English journals report quite positively, the bursting of several of Krupp's siege guns during the Franco Prussian War, but concerning which there is no record available. Perhaps the best reply to this broad statement is to quote the following excellent article in the *London Standard*, which is given in full by Generals Barnard and Wright in their "Fabrication of Iron for defensive Purposes." "It is always difficult to ascertain the exact number of rounds fired from any particular gun, as such particulars are only kept by the Governments; but we know that one heavy gun was fired at Essen six hundred times, and has since further discharged four hundred rounds in Russia. The 6-inch guns have fired in service before Strasbourg, Schelestadt, Briesach, Belfort, and Paris, over three thousand rounds with out injury; and during the whole of the late war we are not aware of any reliable statement of any of the guns supplied from Essen having given way. Some of the first guns Krupp made, having square wedges, everybody knows did give way at the breech; but since the adoption of the round wedge, there has not we believe, been any accident of this sort." I can assure "Ozark" that no Krupp gun burst during the late great war, though some were fired six thousand rounds. Under these circumstances "Ozark" should give his precise authority for the above extraordinary statement. The English, with few exceptions, are a very peculiar people. They are opposed to all "foreign innovations," yet gladly accept the improvement when made on the sacred soil of Britain. For example, the *Engineer* of April 19, 1872, brings plates of the new Vavassour steel gun, and an article lauding it in high tones. And yet in the very Blue Book quoted by "Ozark" Sir William Armstrong opposes steel as a gun-metal and favors wrought iron because it does not burst explosively. This supposed non-explosive bursting, has always been considered a strong point in English ordnance. The *Engineer* of May 2, 1872, publishes a paper read by Commander W. Dawson, R. N., before the Institution of Naval Architects, which adduces some interesting facts bearing on this subject. "Within the last three years six

heavy guns are known to have been permanently disabled on shipboard by their own projectiles while firing at targets; and five others are known to have been temporarily disabled for some hours from the same cause. How many more naval guns have been compelled to cease firing for hours has been kept secret. But when two 18-ton guns were so disabled on board the *Hercules* in 1870, the Director General of naval Ordnance officially remarked that 'the crack in the A (inner tube) and the strained condition of the B (outer muzzle) tube over the crack are exactly what I should have expected.' The Woolwich Infant of 35 tons, though not yet committed to the cemetery of suicides (at the Royal Arsenal) was spiked in the lower grooves by its lower rear stud from 8 to 20 inches outside the point to which the maximum powder pressure extends, in the effort to rotate a 700lb. projectile upon nine .06 of an inch points, under the propulsion of 120 pounds pebble charges.

"Then there is a 13½ ton gun, in which a shot breaking up through its stud holes wedged itself, causing a fearful explosive burst, on the 25th September, 1868. A converted 68 pounder of 95 cwt. met with a fearful accident on the 10th of August, 1870, flinging 76 pieces over an area of 580 yards by 150 yards.

"There is a most instructive sphere of artillery at present locked up, which might be opened with great advantage to science, as well as to the public service, if some member of Parliament would move for a return of all guns since 1865, which has been obliged to cease fire temporarily or permanently, owing to self-inflicted injuries; the nature and position of such injuries, and the period which elapsed before the fire could be resumed. Also for a return of guns which since 1865, had sustained internal damages of a less disabling character; and the nature and position of such injuries.' We should then be in a position to trace out in each case the maladies of British guns, and, knowing the cause, be a long way towards suggesting a remedy. Meanwhile the ablest artillery officers are of opinion 'that there are disadvantages in the Woolwich system, and a better system of rifling could be found.' That there must be ample matter for a lengthy official return is evident from the following few examples of the suicidal effects of "Woolwich studded projectiles."

To this Commander Dawson appends a list of thirty guns, dating from 1865 to 1872.

The *London Standard*, already quoted, speaks so sensibly on the "Battle of the Guns" that I cannot resist the temptation of again using its testimony, with the explanatory remark that "for soap read candles." "This question ought not to be allowed to be longer ignored, but the same means of settling it should be adopted as was done by the late conservative Government in respect to the huge American smooth bores. It is time we had a 9-inch, or better, an 11-inch Krupp gun, at Shoeburyness, with its proper supply of powder and projectiles. This is the only way to settle the dispute—for dispute it is, when both parties confute the premises and statements of the other, Berlin and Vienna claiming the victory for heavy breech loaders, Woolwich and Elswick denying it, or explaining away all unfavorable results attributed to themselves. We may add that the very large number of guns which have been produced by Krupp makes the matter the more important. Already very close upon 9,000 of these steel guns have been

supplied to Germany, Russia, Austria, Belgium, Spain and other countries."

PHIL. STEELE.

WIMBLEDON.

CANADIAN VICTORIES.

The Camp, Wimbledon, }
July 18, 1872, }

The victory of the Canadian Eight, in the match for the "Raja of Kolapore's Cup" has created a great deal of astonishment here, and is perhaps the most brilliant feat in rifle shooting yet achieved. The score made by the English Eight was larger than ever made in a previous contest, and the shooting of the Canadians was one point per man better than theirs. We have reason to be proud of our Volunteers at Wimbledon.

All this week the small-bore matches have been going on. In the "Albert" first stage, Corp. Larkin made a highly creditable score at 200, 600 and 800 yards at each range winning the thirty-second prize of £5. In the second stage of the same match he made the remarkable score of 55 points in 15 rounds at 1000 yards, losing the £100 prize by two points only, being defeated by Mr. E. Bass. In the "Any Rifle Nursery Match," Corporal Larkin made 56 points at 500 and 600 yards, being the full score, winning the first prize of £19 in each. In the same match Private Bell, of Toronto, scored 28 points and won the 9th prize of £2.

In the "Scurry match Sergeant Turnbull was again successful, gaining the second prize with 27 points out of a possible 28—the prize being a silver claret jug.

On Thursday the "Canadian Prizes" and the "Merchant's Cup" were shot for. In the competition for the former, the shooting was not so good as it would have been had not the light been variable, and the wind "shifty" and uncertain. At the conclusion of the match the score stood as follows:—

1. Ensign Adams.....	20-15 points.
2. Private Smith.....	10-17 "
3. Capt. Wall.....	10-17 "
4. Sergeant Omand.....	10-17 "
5. Sergeant Turnbull.....	8-17 "
6. Dr. Aiken.....	8-16 "
7. Private Bell.....	8-16 "
8. Q. M. Thomas.....	8-16 "
9. Private Sheppard.....	5-15 "
10. Dr. Vall.....	5-15 "
11. Corporal Pallen.....	5-15 "
12. Ensign Johnston.....	5-15 "

The Merchant's Cup was next shot for, with the following result:—

QUEBEC.	
Captain Wall.....	23 points.
Q. M. Thomas.....	21 "
Sergeant Turnbull.....	23 "

NOVA SCOTIA.	
Gun. Shand.....	22 points.
Corporal Hickey.....	18 "
Corporal Larkin.....	23 "

ONTARIO.	
Private Bell.....	21 points.
Ensign Adam.....	18 "
Dr. Aiken.....	21 "

NEW BRUNSWICK.	
Ensign Johnston.....	21 points.
Corporal Pallen.....	18 "
Bomb Langstrath.....	11 "

It will be seen from the above that Quebec succeeded in winning the cup, which is to be handed over to the Dominion P. A. to be shot for in Canada, subject to such rules as may be decided upon by the D. B. A. council.

The Canadian Camp still attracts numbers of visitors, and the team are well treated by all parties wherever they appear. They are to lunch with Sir Peter Taft on Thursday, and to dine with the London Merchants on Friday. The members, in

order to evince the satisfaction they have felt with the manner in which Major Worsley had acted while in command, will present him with an address and a diamond ring, before they return to their homes. A number will sail on the 24th instant, while others including Major Worsley remain some little while in England. Several photographs have been taken of some of the men, one of which is to be published in the London Illustrated News, and will no doubt appear to good advantage in that journal.

THE MILITIA AND VOLUNTEERS.

The *Times* holds that on the success of the regulations which the Government has adopted to promote efficiency, the character of the Volunteer Force, and perhaps its existence depends. If the Volunteers resent them, and refuse to serve under such conditions, one of two things must happen. Either the force must melt away or the Government must yield and allow the Volunteers to go on in their old ways. In the case of the former, there is of course, an end to the whole institution; in the other, the Volunteers may continue to render some service to the State, but certainly not the service which the State desires—that of furnishing an efficient army ready to take the field on the appearance of danger. Our contemporary entirely agrees with Colonel Charles Lindsay that the time has come when the future position of the Volunteers shall be distinctly and clearly understood, and thinks the country has reason to be grateful to the Government for attempting to establish such an understanding. Neither the public nor the more estimable class of the Volunteers themselves will accept the theory that a Volunteer should be continually free to do as he pleases, and to serve when, how, and as much and as little as he pleases. So long as he remains in the force he is morally bound to do his work just as much as if he were a soldier.

The *Daily News* is of opinion that the argument of Mr. Holms against the further development of the Militia principles at the expence of the promised Reserve force system, was not conclusively answered by indiscriminate panegyrics on the services of the Militia, or by the opinion of the Duke of Wellington. The great captain, speaking more than twenty years ago, said—"In the last war we had in service several regiments of English, Militia and they were in as high a state of discipline, and as fit for service, as any men I ever saw in my life." The opinion was appropriate and authoritative in its time, but it had little to do with last night's subject. A living authority is reported to have once scoffed at the teaching of French in our military schools; for he decisively remarked that Julius Cæsar knew nothing about French. The question was, as Mr. Holms put it, what the Duke of Wellington would have said, were he now living, of our present Militia system, as it relates to the conditions under which war is made in our days. Sir Charles Napier, the conqueror of Scinde, was enthusiastic about the Brown Bess; but if he were living now, he would probably decline to rely upon the weapon with which he boasted that his men had done so many wonders. Sir John Pakington complained that the effects of last night's discussion was to depreciate the Militia, but our contemporary thinks that if the Militia after reading the report of the debate, are not more proud of themselves than ever they were before, then they must surely be the most modest,

if not the most efficient, branch of the service. The discussion really ought to have had nothing to do with the personal virtues and valor of the Militia, or with their capacity for becoming good soldiers with sufficient training. Nobody can possibly doubt that with an efficient system of drill, and enough of it the Militia would become excellent soldiers. The issue really raised by Mr. Holms was whether it is wise now to go on extending and enlarging the present system of Militia to the possible disadvantage of the promised reserve force. He did not press his motion, which of course, had no chance of being carried, and which probably, he would not himself desire to see forced upon the War Office, if such a thing were possible. But he drew attention to a question of great public interest, which will come to have a more and more pressing importance as our Reserve system develops itself, and shows what its value and strength are likely to be.

The *Telegraph* observes that "Mr. Cardwell demolished the argument from authority advanced against the Militia by Mr. Holms, by quoting the emphatic words of the Duke of Wellington and Sir John Burgoyne. The truth is that military authorities, who are enamoured of the German system, naturally object to partially trained levies in any shape; but they shut their eyes to the circumstances of the country, and look persistently on theoretical perfection. In England we can only have what is practicable, and it is the essence of statesmanship not to go beyond that line. We regret to see that a Volunteer corps last night took ground against the compulsory clauses in the new regulations. Colonel Charles Lindsay is a regular soldier, and he ought to be the last person in the House to complain of measures which will raise the efficiency of the Volunteers. The compulsory clauses are a compliment to the body for whom he speaks, because they imply a belief that the Volunteers are, as we believe them to be, earnest in their desire to approximate towards undeniable efficiency. At all events, their just claim to fill an allotted place in our military array can only be admitted on fulfilment of the conditions. We believe they will respond to the confidence reposed in them, and that in time we shall possess not only a regular force, second to none, but auxiliaries who can be rapidly brought up towards that splendid standard of soldierly excellence."

The *Pall Mall Gazette* attributes half of the inefficiency of the Militia, especially of the metropolitan regiments, to ignorance, and the other half to the composition of the corps. There is no doubt that the majority of the men in the metropolitan regiments belong to the loafing class, to say the best of it. These men are not very amenable to moral obligation, and as their pursuits are incompatible with a settled residence, they, either from ignorance of the day of muster or fear of the officers of justice, absent themselves in alarming numbers, from the annual training. It is really a matter of chance whether they answer or not when summoned, and if absent it is most difficult to subject them to punishment. This is to be lamented; for the natural intelligence of the Londoner renders him, when duly trained and disciplined, an excellent soldier. The 3rd Battalion of the Rifle Brigade, which was raised during the Crimean War, and afterwards rendered admirable service during the Indian Mutiny, was largely composed of Volunteers from the Metropolitan corps assembled at Aldershot, and better light troops could not be desired.

The *Standard* is of opinion that it cannot

be too fully borne in mind, that the word volunteering should only be applicable to the act of voluntarily joining the military forces of the country, and that once that act has been perpetrated the term should cease to have any meaning. As for the Militia, their clothing and accoutrements are so bad that not only do the men resemble scarecrows, but the articles themselves would not stand the wear and tear of a week's campaigning. Again, as regards camp equipment, is there a single Militia regiment in a state to take the field? Our contemporary thinks not, yet this is far from arriving at the conviction that the Militia ought to be abolished. So far from this he adds, "we conceive that as garrisons of our forts and of fortified positions that the Militia is capable, if properly treated, of rendering most important services. We also consider that the force is a valuable adjunct to the national military training, and that it constitutes a link we could ill spare between the Regular army and the Volunteers. What we do maintain is that it is not properly treated—that it is deficient in organization, in equipment, in training, and in good officering. It is also instead of being a supplement to the Line, a most dangerous rival to it, for, instead of men passing as they ought from the Militia into the Line and back again into the Militia, it permanently diverts the stream of recruits from the Regular Army. As to the Militia Reserve, it can only be made available to the absolute ruin of the Militia, which would lose all its best men in the time when it needed them most.

The *Morning Post* observing that the discussion in the House of Commons upon the Militia and Volunteers did not lead to any immediate and practical result, "was, for all that, not a ~~great~~ waste of time. The Volunteers should not include in their ranks men who are not prepared to make such exertions or sacrifices as the new regulations may possibly demand. Should it be that the present composition of the Volunteers does not provide the demanded proportion of men able and willing to give the time necessary for their training and inspection, the sooner this is made known the better. It is, in fact, to the praise, and not condemnatory, of the new regulations that they will materially assist in removing the slur of shame from the force. It is probable that next year the 'death warrants' of the Volunteers will be said to be something else than regulations providing that the Volunteers shall attend at brigade drills and inspections in respectable force. Dire predictions, at all events of a similar character, have hitherto only been made only to be disproved by the course of events."—*Broad Arrow*.

RIFLE MATCHES.

THE LISGAR RIFLES—MANITOBA.

(From the *Manitoba Liberal*.)

His Excellency, Lord Lisgar, was graciously pleased before leaving Canada, to present to the Lisgar Rifle Company, a fine portrait of himself with his autograph, in a richly gilt frame. This was to be the property of the best marksmen of the Company, so long as he could retain superiority in shooting.

With the view of competing for this prize, as well as increasing the efficiency of the Company, Wednesday of last week was chosen for ball practice. The officers of the Company added a number of prizes, and Major Irvine, commandant of the District, who was present and took an active interest in the match,

kindly presented \$10 to the winner of the first prize. The winners of the Company prizes were as follows.—

- 1st prize..... John Mowatt,
- 2nd "..... J. G. Corrigan,
- 3rd "..... R. Ballandine,
- 4th "..... Alex. Sanderson,
- 5th "..... Adam McDonald,
- 6th "..... John Hodgson,
- 7th "..... George Ross,
- 8th "..... George Hodgson.

Eight other prizes were then shot for by persons outside of the Company, and very excellent shots were made. Major Irvine in a neat address to the Company, complimented their skill very highly, and gave them encouragement to hope that the Province might send a team to Wimbledon in another year. A foot race and a horse race closed the amusements of the afternoon. The following is the score at 200 and 400 yards, two shots at each range:—

	400 yds.	200 yds.		400 yds.	200 yds.
Sergt. Mowatt, T.....	3	4-7	0	0-0	0-0
" McDonald, A.....	0	0-0	0	0-0	0-0
" Ross, George.....	2	3-5	3	0-3	0-3
Corp'l Hodgson, G.....	4	0-4	3	0-3	0-3
" Scott, Malcolm.....	0	0-0	0	2-2	0-0
" Corrigan, James.....	0	3-3	0	3-3	0-0
" Sanderson, A.....	3	3-6	2	2-4	0-0
Bugler Ballandine, R.....	3	3-6	0	4-4	0-0
Priv'te Corrigan, John.....	3	4-7	0	3-3	0-0
" Corrigan Geo.....	3	3-6	2	2-4	0-0
" Cromartie, Wm.....	0	0-0	0	0-0	0-0
" Daniels, Philips.....	0	0-0	0	2-2	0-0
" Duchanno, A.....	0	3-3	0	2-2	0-0
" Flett, John.....	0	0-0	0	2-2	0-0
" Flett, John.....	0	0-0	0	0-0	0-0
" Fox, Wm.....	0	0-0	0	2-2	0-0
" Hodgson, John.....	4	2-5	0	3-3	0-0
" Johnston, John.....	0	0-0	0	3-3	0-0
" Johnston, Wm.....	4	0-4	0	2-2	0-0
" McDonald, A.....	3	2-5	0	4-4	0-0
" McDonald, R.....	0	0-0	2	2-4	0-0
" McDonald, J.....	2	0-2	2	0-2	0-0
" McDonald, J.....	0	2-2	0	0-0	0-0
" McDermott, A.....	0	0-0	2	3-5	0-0
" Mowatt, Thomas.....	0	0-0	0	0-0	0-0
" Mowatt, John.....	3	3-6	2	4-6	0-0
" Pruden, Wm.....	0	0-0	0	0-0	0-0
" Richards, And.....	0	2-2	2	2-4	0-0
" Richards, Wm.....	0	0-0	2	3-5	0-0
" Smith, Wm.....	0	0-0	0	0-0	0-0
" Stevens, Rich'd.....	2	0-2	4	0-4	0-0
" Stewart, James.....	3	0-3	0	0-0	0-0
" Tait, Joseph.....	0	0-0	0	4-4	0-0
" Taylor, George.....	0	0-0	2	2-4	0-0
" Thomas, Henry.....	0	0-0	0	0-0	0-0
" Turner, Joseph.....	0	0-0	0	0-0	0-0
" Young, A. Geo.....	0	2-2	0	0-0	0-0

Total points at each range. 81 87

The best shot in the Company was private John Mowatt, who obtained twelve points.

HASTINGS RIFLE ASSOCIATION.

The prize meeting of the Hastings Rifle Association was concluded yesterday, shortly before dark, after a very spirited competition. The scores are too lengthy to admit of publication, and we have thought to content ourselves with publishing the names of the prize winners.

The Secretary wishes to thank Captain Bogart, Capt. Nunn, Capt. Crozier, and Lt. Hanwell, squad commanders, for their valuable services.

ASSOCIATION MATCH.

Open to members of the Hastings Rifle As-

sociation. Ranges, 200, 500 and 600 yds. Five rounds at each range. Government Rifles. Entrance fee 50 cents.

The prize winners are as follows :

1. Captain Werner, 14th, 46th—Sewing Machine,
2. Private Hilton, 49th, 44—Silver Watch.
3. Sgt. Burke, 15th, 43—Rifle Pistol.
4. Pte. Miller, 47th, 41—China Tea Set, and \$2.00.
5. Sgt. Cunningham, 49th, 40—Barrel of Flour.
6. Capt. Dillon, 34th, 40—Pair of Wellington Boots and \$2.00
7. Sgt. Marsh, 49th, 39—2 vols. Cornhill, and \$2.00.
8. Private Harmer, G. T. R., 39—Set of Vases.
9. Capt. Crowther, G. T. R. 29—Two Engravings, and \$2.00.
10. Lieutenant Marshall, G. T. R., 39—Pair Lamps.
11. Corporal Wilson, 49th, 38—Wash Boiler.
12. Corp. Ford, 49th, 38—Ham.
13. Major Hambly, 49th 36—Cash \$2.00.
14. Sgt. Bennett, 15th, 34—Cash \$2.00.

There were 46 competitors.

BATTALION MATCH.

Open to the 15th, 16th, and 49th Battalions, and that portion of the 2nd Battalion, G. T. R. B. in the County of Hastings. Five Officers, N. C. officers or men whose names must be previously given into the Secretary, from each Battalion. Ranges 200, 300, and 400 yards. Five rounds at each. Entrance fee \$2.50 per Battalion. The Cup to become the property of the Battalion winning it twice. The Battalion winning the cup this year to give security to the Association that it will be forthcoming at the next annual match.

1. 2nd Battalion, G. T. R., a silver cup and \$10—208.
 2. 49th Batt, 207—cash \$10.
- Highest individual score, Lt. Marshall, G. T. R. N. Mann, to shave winner for one year. Second, Sgt. Burke, 15th Daily, Ontario for one year. Third Maj. Hambly, 49th, cash \$1.

VOLUNTEER MATCH.

Open only to efficient volunteers (*bona fide*) members of the 16th. and 49th Batt. and No. 4 Company, G. T. R. B. in the County of Hastings. Ranges 200, 300 and 400 yards. Five shots at each range. Entrance fee 25 cents.

1. Lieut. Marshall, G. T. R., 48—Sewing Machine.
2. Sgt. Burke, 12th, 45—Revolver,
3. Maj. Hambly, 48th, 46—Black Walnut What Not.
4. Pte Hilton, 49th, 44—Writing Desk.
5. Pte Hay, G. T. R. 43—Daily *Intelligencer* and \$2.
6. Sgt. Bennett, 15th, 41—Concertina and \$2.
7. Capt. Crowther, G. T. R. 41—Revolver and \$2.

8. Corporal Wilson, 49th, 40—Barrel of Flour.
9. Pte. Gillon, G. T. R. 40—Fitch of Bacon and \$1.
10. Sergt. Marsh, 49th, 50—Cigar Case and \$3.
11. Sergeant Mills, G. T. R. 39—Silk hat and \$2.
12. Pte. Carruth, G. T. R. 39—Dressing case.
13. Sgt. Cunningham, 49th, 38—Two whips and \$2.
14. Captain Bogart 15th, 38—Vest and \$1.
15. Sgt. Clarke, G. T. R., 39—Pipo and \$2.
16. Pte. Jarvis, G. T. R. 37—Crallo.
17. Pte. Wallbridge, G. T. R. 37—Bridle and \$1.
18. Corp. Ford, 49th, 43—1 pound tea and \$1.

Number of Competitors, 33.

COMPANY MATCH.

Open to all Volunteer Companies in the County of Hastings. Three officers non commissioned officers and men from each, Ranges 200, and 400 yards. Five rounds at each range. The Cup to be won twice by the same Company. The man making the highest score in the winning company the first year to hold it until the next annual Match. If the same man should not make the highest score when the cup is finally won, it must be fired for by the two winners, at the same range and the number of rounds. Entrance fee, \$1,50 per Company.

1. No. 1 Company 49th, 87—Silver Challenge Cup, given by T. Holden, Esq. and \$3.
 2. No. 2 Co. 15th, 30.—Cash \$5.
 3. No. 7 Company. G. T. R. 79—Cash \$2.
- Highest individual score, Sgt. Clarke, G. T. R. 33, *Chronicle* and \$2. 2nd. Sgt. Marsh 49th, 31—Bird Cage, 3rd. Sgt. Cunningham 49th, 29—Cash, \$1.

AGGREGATE PRIZES.

JOHN SCHULTZ,
Capt. commanding Co.

1. Pte. Hilton, 49th, 117—Ontario Badge and cash \$20.
 2. Sgt. Burke, 16th 115—The Majors Medal.
 3. Lt. Marshall, G. T. R. 112—Albert University Medal.
 4. Corp. Wilson, 49th, 106—Lt. Colonel Brown's Medal.
 5. Sergeant Cunningham, 49th, 105—Silver Medal, given by Pitceathly & Kolson.
 6. Sgt. Marsh, 49th, 105—Cash \$4.00,
 7. Sergeant Bennett, 15th, 102—Cash \$3.
- These seven competed for Mr. Wallace's prize—photograph of the winners--5 rounds at 500 yards. Lieut. Marshall, G. T. R. was winner, with a score of 16 points.

CONSOLATION MATCH.

1. Sgt. Hill, 49th, 9—\$4.
 2. Pte. Gilbert, G. T. R., 8—Box of crackers and \$2.
 3. Sgt. Young, 15th, 7—\$2.
 4. Pte Funnol, G. T. R. 7—\$2.
 5. Corp. Kennedy, G. T. R. 7—Three cans of lobsters, and a pair of child's shoes.
 6. Pte. Wilson, 49th, 5—Shirt, and "The Rifle, and how to use it."
 7. Pte Sheehan, G. T. R. 3—\$2.
- An extra prize, for the cleanest volunteer on the range during the competition—pair of trowsers and \$5—will be decided by the Council of the Association to-night.

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The Volunteer Review,

AND

MILITARY AND NAVAL GAZETTE.

"Unbribed, unbought, our swords we draw,
To guard the Monarch, fence the Law."

OTTAWA, MONDAY, AUGUST 12, 1872.

LIEUT.-COLONEL WAINSWRIGHT GRIFFITHS,—at present on a tour through British Columbia, has kindly consented to act as the Agent for the VOLUNTEER REVIEW in that Province.

TO CORRESPONDENTS.—Letters addressed to either the Editor or Publisher, as well as Communications intended for publication, must, invariably, be *pre-paid*. Correspondents will also bear in mind that one end of the envelope should be left open, and in the corner the words "Printer's copy" written, and a two or five cent stamp (according to the weight of the communication) placed thereon will pay the postage.

In the last issue of the VOLUNTEER REVIEW, a synopsis of the Military Organization of the Dominion of Canada was given, as well as the principal features of the military law, it will now be necessary to consider its operations.

In the first place, the Regular Militia provided for by the Act of Parliament, has never been embodied, the full contingent required being furnished by voluntary service, we thus secure to the volunteer the choice of corps, and as he is allowed to resign after six

months' notice of his intention to do so he is practically a free agent.

Where little social distinctions exist it is necessary to guard against handing the command of such troops over to the control of officers whom they do not know, and at the first inception of the system great reluctance was manifested to join the service; lest the command should be given to officers of the Regular Service, as it was feared their treatment of the Volunteers would be similar to that accorded their own soldiers.

Our Military Schools qualified a large body of young men (about 5,000) candidates for commissions in the Regular Militia, their position and station in society was similar to the class now proposed to be introduced into the British Army by competitive examination, and the very idea of being obliged to serve by compulsion under younger men has tended to keep the ranks of the Active Force filled with volunteers.

As the Force has existed in one shape or other for the last ten years, the country contains fully 100,000 men who have passed through its ranks, and although our Regular Militia has not been organized nor the Reserve trained, yet in any emergency we could place in the field, irrespective of the present force, fully the number mentioned as well trained as any troops that could be brought against us.

We are, however, deficient in Artillery, in all its branches of Horse, Field and Garrison, the necessity, however, is not pressing, and a respectable force is gradually acquiring knowledge amongst us.

The battalions of the Volunteer or Active Militia are numbered without reference to the Reserve Forces, the latter being designated by their regimental divisions which is generally the name of the country or city to which they belong.

It is intended by the division of Canada into Military Districts to facilitate the organization of a perfect *corps d'armee* in each, the permanent commanding officer acting as General of Division; each district is intended to have its stores, arms, artillery and full equipment at its own headquarters, so that an invasion of the country should be undertaken at eleven points at once, in order to give a chance of success a feat impossible to accomplish.

The system of training is by camps of instruction, the troops being concentrated at the period when their time is least occupied, so that the actual loss to the industry of the country is reduced to a minimum.

Company drill is kept up at the headquarters of each unit, and the brigade majors make quarterly inspections of men and material and report on proficiency, &c.

We have found by experience that service in the ranks of our volunteers has a tendency to create a respect for law and order, and our men are always amenable to discipline under arms, as a consequence the expense of a rural police is hardly known; if force is necessary the volunteers are always at hand

to assist the civil power, and no idea of resistance would be entertained by the most unruly mob that could be collected.

The ranks of the Active Force are filled by farmers and farmers' sons in the rural districts, the better class of mechanics and mercantile employees in the cities, those men take a pride in military life, and are unquestionably the *elite* of the land, soldiers by instinct, they need no stimulant to incite them to undergo the requisite training to fit them to defend the interests of their country.

As may be imagined the officers are the aristocrats of their own circles, the men follow them by choice and it is a rare case to find serious cause of complaint, because in the field or under arms once the uniform is donned, the volunteer is subject to discipline, and the articles of war in the same manner as a soldier of the Regular Army, and it is universally acknowledged by those who have been in contact with them that a more sober, docile or intelligent force could not be found.

The organization of the force has been gradually making it apparent to our people that safety and prosperity depend on being able to take care of themselves, it has awakened their military instincts and it has brought a knowledge of its practice and science to their firesides.

With little time to spare a knowledge of the rifle as complete as their ancestors had of the long bow has been acquired, and if Canadian soldiers can compete with their English brethren to-day in the use of the national weapon, it is because their military organization has been skilfully adapted to the social condition of the people, and they have been taught to regard service as an honor as well as a pleasure to be sought for, and not a burden to flee from.

It may be said that the ties which bind the Canadian soldier to his colors are slight and that he can in any moment of ill temper sever them; a little consideration, however, will shew, that although he may leave the Volunteer Force under a specified condition before his three years' service has expired, yet he loses thereby all previous service and is liable to be drafted if necessity should arise, and this latter is a contingency every Canadian looks steadily in the face.

Therefore the people will drill, will serve for less pay than they can earn, and will rush to arms the instant an indication is afforded that their services are required, and all this in England's quarrel as well as in their own.

In the event of hostilities with our neighbors we would not require troops from Great Britain, what would be wanting is naval co-operation, for we completely command all our neighbors' lines of communication along his whole Northern and great part of his Western frontier, indeed we may be said to threaten it from the Mississippi to the Atlantic, and in the event of a contest would laugh at his utmost efforts.

From *Broad Arrow* of 13th July the details of the experiment on the value of the *Glutton* as a floating battery; the strength of her armor, the power of resistance to the impact of a 600 lb. shot as tested by the 25-ton gun of the *Hotspur*; is given to the readers of the *VOLUNTEER REVIEW* in this issue, and the editorial remarks of our contemporary are also re-published.

Everything connected with the British Army and Navy possesses interest for the people of Canada, we are an integral portion of the Empire, and therefore cannot be supposed to look on quietly while the whole system of offensive and defensive warfare as far as its machinery and man power are concerned is undergoing a practical revolution with nothing but the vaguest and most unsatisfactory theories to base its details on.

In the present case it has been proved that armor can be built of sufficient strength to resist any gun power in existence, but that is only one step towards the solution of the problem before us.

A ship to be an effective war machine, must have mobility and be able not only to live in any seaway but be easily manœuvred, as well as capable of fighting her guns at all times.

During the days of the glory of England's Navy, the captains of her wooden ships never hesitated to engage in a gale of wind and on more than one occasion made that very circumstance the agent of victory in the face of great disparity of strength.

Now would the *Glutton* be able to fight in a heavy sea? Her free-board is not above three feet over the water line, vessels of her class will not rise to a sea, and in a gale it must wash high up on her turret, so that her adversary had only to keep to windward and pelt her at his leisure, she could not return a shot, in this case the old question of the weather gungo would be revived.

The *Hotspur* has a free board of nine feet, not much to boast of in a similar case, but it would secure the advantage of an occasional shot being fired provided she did not heel over beyond eight degrees; a very unlikely contingency.

But the most extraordinary portion of the late experiment is the fact that at a cable's length the finely and expensively wrought rifled gun could not make as good practice as the old 68 pndr. smooth bore.

Anchored inside the break-water with only the expended power of the inshore heave of the sea to deal with in water as smooth as a mill pond, with the loading, training and pointing of the gun effected by the nicest machinery, with *bull's eyes* painted on the target and training marks carefully laid out, the distance known to an inch, with her antagonist attached by two hawsers, five trial shots were required before the turret was hit a couple of feet below the point indicated, a second venture and the shot still was untrue but struck the turret in a weak

place, but neither of the hits penetrated the backing and beyond starting a few rivets and bolt heads on the inside, no damage of a serious nature had resulted.

But what is the value of such an experiment, it never could occur in all its incidents in a naval action, and it might as well have been tried on the sands at Shooburness, the 25 ton gun might at least in that case have borne out the theories of its projectors, that with rifling and careful sighting its practice would be infallible, the experience gained just amounts to this that as far as accuracy is concerned *rifled* guns are useless at sea.

Put those vessels outside the break water in an open sea-way where a naval action will occur and instead of two shots out of six hitting, the average would be under one in a hundred, a cable's length was the favorite fighting distance close hauled on a wind, French, Spanish and Yankee vessels can tell the proportion of shot from the old 32-pndrs. which British seamen could plant in their counters at that distance, and how many times shot after shot was sent into the same port sills and jamb till the gangways were laid open and the guns of the batteries of the exposed quarter dismantled or silenced because their tackles and fighting bolts were shot away.

We would ask what chances are there for such effective work being done by any of those costly experimental vessels, the offspring of Mr. Reed's genius and ability, will they ever be able to render any such service to the country, and what particular kind of artillery should they be armed with? All those questions are suggested by the experiment of the 5th July, for we hold it to be indisputable that in every respect but one it was a failure, and that was that a 600lb. shot fired at 200 yards was unable to damage materially the *Glutton's* armor or machinery.

If the British authorities are really desirous to arm their fleets with effective weapons it must be with those of more power at 200 yards than the 25 ton gun has shown, and the shot must not *punch* rivet holes but smash a plate to shivers or drive it bodily in-board, so that a second shot planted in its neighborhood will search the inside of the bulwark opposed to it.

A rifled gun will not permit such a projectile to be used and a resort to the smooth bore is a necessity. As long as mere artillery officers are consulted as to the proper armaments for the navy and their opinions alone considered, the English people may be prepared for failures like the *Hotspur* 25-ton gun, and for one of the chief problems connected with her navy remaining unsolved.

(From the *Broad Arrow*)

Some interesting particulars will be found in our intelligence columns relative to the important experiment off Portland, on Friday,

the 5th instant, but there are some points which call for our special notice in connection with the general subject of naval gunnery, which has recently occupied our attention. We propose, therefore, to use the judge's privilege of summing up previous to passing judgment, promising the reader that we will not recapitulate more than is necessary to make what we have to say intelligible.

The morning broke bright and serene, ushering in a lovely summer's day. To the ordinary eye the sea was perfectly calm, but it would be an error to suppose that it presented a platform that was perfectly at rest, and that no movement occurred that could be supposed to affect the sighting of the *Hotspur's* gun. The bay wore an unusually animated appearance, the Admiralty flag flying in the *Vigilant*, and that of Admiral Sir Rodney Mundy, in the *Black Eagle*, whilst Admiral Sir Henry Colclington, without a flag, was present in the *Princess Alice*, and the *Hoscauen* and *Salamanca* lay in positions convenient for visitors to observe the experiment at safe distances. When, at 8.30 a.m., the naval, military, and civilian visitors embarked for their respective ships, they found the *Glutton* moored head and stern inside the breakwater, with the *Hotspur* attached to it by two hawsers, moored broadside on at the distance of 200 yards. The programme was issued for the single 25-ton gun of the *Hotspur*, mounted on Scott's broadside carriage, on a turn-table, with the view of ascertaining the endurance of the working machinery of the latter vessel. The turret contained two 25 ton guns, mounted on Scott's carriages, the order for their removal, to which we alluded to in our editorial columns last week, having been rescinded at the last moment. The ports were closed by iron shutters, backed with heavy timber, supported by struts. A live kid and some basins of water were placed inside the turret, but there were no representatives of the gun's crews such as hammocks, screens, or arrangements might have afforded. Mr. Eames, the chief engineer at Chatham Dockyard, and a party of officers and men, remained on board during the experiment.

Bull's eyes were marked 18 inches below the top of the turret to the proper right of the right gun, and the centre between the two guns, 14 inches of solid iron plate, 12 inches of armor, and half an inch of inner skin protecting the weapons. At these spots 600 lbs. Palliser shot were eventually fired with 85 lbs. of pebble-powder charges, by the most skillful marksman of the *Excellent*, a chief petty officer of much experience in armor-plate experimental firing, acting under the guidance of the warranted gunner who usually conducts such experiments, being under the direction of Captain Boys, R.N. As was anticipated by experienced artilleryists, the process of hitting a bull's eye at 200 yards proved by no means so easy a matter as, under the exceedingly

favorable conditions of smooth water, close quarters, and distance measured by line, the public in general might have expected. To facilitate the aim, a canvas target, however, was erected near the turret, marked with six bull's eyes, eighteen inches apart, arranged in two vertical lines. At this target four preliminary or trial shots were aimed, each diverging from the straight line, over, under, and to the left of the respective bull's eyes, without any very clear rule. The initiators, however, know well enough that 12-inch shot at that range is subject to an eccentric movement which may be compared to that of a fish turning up its belly, or to the balancing motion of schoolboy's top before it settles down to a "sleep," and which causes inaccuracy of fire, whilst the quantity of pebble powder thrown out of the gun unconsumed at the first discharges led them to expect, in consequence of the gun becoming hot, that higher velocity and lower trajectory would be attained in the succeeding discharges. As time was being lost, it was deemed right to fire the fifth shot at the bull's eye on the turret eighteen inches below the top, and we may here observe that a piece of board, about two feet high was fastened on the turret above the bull's eye to aid the alignment of the sights. At length the *Holspur* hoisted the preconcerted signals, bang went the 25-tonner, and away went the eccentric shot, carrying off the little board resting upon the turret and a portion of the handrail, which disappeared like Dr. Dee's spirits in a streak of light blue flame, though not, we believe, with "melodious twang" the doctor speaks of. Another board was rapidly substituted, and this time a 600lb. shot was fairly lodged in the turret, but a couple of feet below the point aimed at. The shot hit fairly in a weak spot, on the side of an armour bolt, and touching the lower edge of the upper plate, along the middle horizontal line. The plate was lifted a few inches, but the point did not get through the backing, a fact which we shall presently be able to account for, in strict accordance with all we have asserted as to the disadvantages of the studded projectiles. The inner skin was bulged in and broken away, flinging about in all directions the heads of small screw bolts, and the nut and screw end of a great armour bolt, which might together have rendered the five men, who would have been stationed to the right gun, *hors de combat*. But the structure was otherwise sound, the guns and Scott's carriages quite unharmed. The base of the projectile was broken up, and it was said that it flew backward hundreds of yards, passing the *Holspur*, into the sea beyond. We spoke last week of the studded projectile of the 35 ton gun losing its head in the target when it was caught by its studs as a fish is hung by its gills, but in this case the severity of the blow, owing to the short range and the weakness occasioned by the stud holes combined, caused the hinder

part of the shot to break off and rebound like a racquet-ball struck against a wall. To reason this out more fully and seriously, every scientific man will admit that certain amount of "work" was expended by the breaking up of the projectile, and the friction of the studs when they took the armour, as proved by the brassy look of the grooves they bored in it. The question is not whether this was so, the fact so far is indisputable. The only room for question is whether the amount of work thus expended would have sufficed to complete the perforation, and thus have carried the shot through into the turret, and this we are disposed to answer in the affirmative.

The examination of the damages having been completed, and the turret revolved to prove its complete efficiency, the third 600 lbs. shot (reckoning the shot that missed the turret as the first, to avoid confusion), was aimed at the bull's eye between the ports. Again, the shot was untrue, but struck in a yet more important part, about two feet below the point aimed at, glancing along the glacis plate, and entering the turret, head and shoulders, on a line with the deck, broke off short by the front ring of studs. The studs had penetrated about three inches, and four of them had scored deep holes into the iron plate. This time the fish had been fairly caught by the gills, and what is strange its head and shoulders had been separated by the shock!

On the whole, therefore, we feel justified in our conclusion that the machinery of the *Glutton* turret has stood the severest test to which it was subjected, admirably, and that the projectiles—not the guns—have miserably failed. The special object of the experiment was to ascertain whether the guns, the gun carriage, the slides, and the turning machinery of the turret would stand fire, and it is due to the present Director of Naval Ordnance to recall that it was he who recommended the definitive adoption of Captain Scott's compound pivoting carriages for the 18, 25, and 35-ton guns mounted in turrets. There was the further desire to know what effect the concussion caused by the heavy blows on the walls of the turret would have on the crew inside. The men, we are told, had a *dazed* look, but sailors are not hens, and that "dazed look" strikes us as a somewhat suspicious circumstance, knowing as we do that men in the American civil war suffered permanent cerebral injury under similar circumstances. This part of the experiment, therefore, we cannot consider satisfactory; and, after all, the men are the most important part of the machinery. The fact that some of the boltheads and the two centro buffers were knocked off inside the turret, points to a distinct source of danger to the crew, and suggests that "mantlets" made of rope or leather must be fitted entirely round the inside of the turrets, and that all light fittings and other articles stowed inside must be excluded. What the

effect would have been of a shot directed against the pilot tower must still remain a matter for speculative thought, as the authorities seemed to have declined this part of the performance, which we understand was proposed to be included in the original programme.

Having once more, by reference to the results of a severe practical test, substantiated all we have said on the subject of the studded shot, and thus, as we think, thrown the *onus probandi* on the authorities if they persevere in their present system, we will only add that the experiment has conclusively established that the risk of the turrets of our ironclads being jammed under a heavy fire, or of the gun slides and machinery being damaged, is very slight indeed. This point was settled by a crucial experiment. After the last shot from the *Holspur*, the ports of the *Glutton* were unplugged, and in the presence of Mr. Goschen and other high officials, the guns were loaded with full powder charges and shot, and fired out to seaward over the breakwater. The carriages, the gear, and in a word, the whole of the fittings worked as perfectly as could be desired.

THE FIFTH PRIZE MEETING OF THE "STANCO NA RIFLE ASSOCIATION," was opened on the Levis range, near Quebec, on the 6th August.

Our friends are sure to have a good time of it, and as their representatives at Wimbledon have won the Kolapore Cup, we may expect to see some superior shooting at the Levis meeting.

REVIEWS.

We have to acknowledge the receipt of the *British Quarterly Review*, for July, from the Publisher, LEONARD SCOTT & Co., 140, FULTON STREET, NEW YORK. It is the organ of the English Non-Conformists, and the present number contains:

William of Occam.

Wit and Humor.

Report of the Commissioners on coal.

Mano Polo's Travels.

An Ecclesiastical Tournament in Edinburgh.

The Agricultural Labor Strike.

Germany—Prussian Influence on its Literature.

Results of Disestablishment in Ireland.

Contemporary Literature.

FORT GARRY, Man., Aug. 2.—Col. Robertson Ross and Mr. Sanford Fleming arrived last night, having made the "..." in seven days.

The Indians are anything but quiet. A Chippewa squaw was killed by some Sioux Indians near the Portage. It is doubtful whether the surveying party out West will be allowed to proceed.

The Dominion election will come off here about the end of September.

VON MOLTKE'S PLAN FOR THE WAR OF 1870 '71

(From the *Pall Mall Gazette*)

The first volume of the "History of the Franco-German War," prepared by the historical section of the Prussian general staff, has just appeared at Berlin. It contains a very interesting memorandum drawn up by General Von Moltke in the winter of 1868, setting forth a complete plan of campaign in the event of a war with France, and this plan was carried out in its main features when the war actually broke out in 1870. The memorandum begins by an estimate of the relative strength of the two armies. At the beginning, says the General, North Germany would only, in consequence of difficulties of transport, and perhaps also of political difficulties, dispose of ten corps, amounting in all to about 330,000, while France would bring into the field a force of 250,000, which would be increased, after calling in the reserves, to 343,000. The proportion between the opposing armies would be altered considerably in favor of Prussia if the South German States also took part in the war, or if the three reserve corps and some of the landwehr divisions were brought up in time. "It is evident," says the memorandum, "how important it is to take advantage of the superiority we should enjoy at the very beginning, even if the North German troops only were employed. This advantage would be still further increased at the decisive point if the French were to send expeditions to the North Sea coasts or to South Germany. Sufficient means would still remain for defending the former." As for South Germany, conferences had already been held at Berlin with the representatives of the South German contingents. It was ascertained that North Germany could not efficiently protect the Upper Rhine and the Black Forest by sending her troops there, and that the South would be much better defended by a union of all the German forces on the Middle Rhine, whence they could attack the invaders in flank either on the right or the left bank of the river, and speedily compel them either to stop or to retire. The South German sovereigns agreed to this, and the whole weight of the responsibility of defending the Fatherland was then thrown on the North.

"The neutrality of Belgium, Holland, and Switzerland," continues the memorandum, "confines the theatre of war to the space between Luxemburg and Basle. We may therefore assume that the French will first concentrate on the line of Metz and Strasburg, in order to turn our strong position on the Rhine, advance on the Main, divide North and South Germany, come to an agreement with the latter, and then proceed to the Elbe. The most effectual way of opposing this plan would be to concentrate all the troops at our disposal to the south of the Moselle, in the Bavarian Palatinate. The

prospect of an easy success might induce the French to push into South Germany with part of their forces from Strasburg, but an operation carried out along the line of the Upper Rhine would strike them in flank, prevent their proceeding any further into the Black Forest, and compel them to seek an outlet on the north. If the corps of Baden and Wurtemberg form a junction with our left wing, we shall be enabled so to strengthen it by reinforcement from the Palatinate that a decisive battle might be expected on the heights of Ristatt, which, if in our favor, would make the enemy's retreat a disaster. For such a purpose we might detach a force from our main army without danger, for the enemy will in this case have become weaker on our front. If the French wish to make the most complete use of their railway system for the rapid concentration of their forces, they will be compelled to advance in two principal groups, by Strasburg and Metz, separated by the Vosges Mountains. If the first, and probably the smallest, portion is not destined for an invasion of South Germany, its junction with the main force on the Upper Moselle can only be effected by marching. Our army on the other hand, is posted in the Palatinate on the inner line of operations, between the two groups of the enemy. We may attack either separately, or, if we are strong enough, both simultaneously. The concentration of all our forces in the Lower Palatinate protects both the Lower and the Upper Rhine, and permits an offensive movement into the enemy's country, which, if entered upon at the right time, will probably anticipate any invasion by the French of German soil. The only question therefore is whether we could push forward our army without danger across the Rhine to the Palatinate, and thence close to the French frontier; and this question, should, in my opinion, be answered in the affirmative. Our preparations for mobilization are complete down to the smallest details. Six uninterrupted lines of railway are at our disposal for the transport of troops to the district between the Moselle and the Rhine. The tables routes which show the day and hour of leaving and stopping for each detachment of troops are ready. On the tenth day the first detachments may alight near the French frontier, and on the thirteenth day the combatants of two corps d'armee may assemble there. On the eighteenth day the numbers of our army in the field would be raised to three hundred thousand men, and on the twentieth day they can be provided with all the means of transport.

"As for the French army, we have no reason whatever to assume that its mobilizations, and on these occasions the vacancies in the field army were filled from that which remained at home. It is true that, by collecting garrisons and corps in the north eastern part of the country, and by means of the complete railway system and abundance of

transport materials, the French might assemble an army of 150,000 men in a very short time on the frontier. This rapid initiative would be in accordance with the national character, and is spoken of in military circles. Supposing that an army thus improvised, which could in any case be assembled around Metz, and cross the frontier of Sarrebourg on the 3th day, we should still be able to prevent them in time from using our railways and to disembark our main force on the Rhine. The invaders would require six marches to reach that river, and on the fourteenth day they would be stopped by overwhelming forces. Being in possession of the bridges, we should, a few days later take the offensive with an army double the size of that of our aggressors. The disadvantages and dangers of such a course on the part of France are so evident that she would not lightly adopt it. If, then, a march to the Palatinate and the Moselle is recognized as practicable, no objection to the assembling at that point of all the forces at our disposal could arise from the apparent uncovering of our front on the Rhine. It has already been pointed out that our front is protected by the neutrality of Belgium, and, if this is violated, by the distance of the enemy, by our own strength, and by our military operations. But above all, the main object of the operations is to be "the seeking of the principal force of enemy, and attacking it wherever it may be found," and throughout the memorandum especial stress is laid on the necessity of cutting off the French army from its communications with Paris, and driving it to the northern frontier.

THE GREAT SEA TUNNEL.—The tunnel under the Straits of Dover, from England to France is at length to be commenced. A jointstock company, for the purpose having been organized and registered in London. Two millions sterling will be required for the experimental driftway, and the tunnel can be finished in five years for five millions sterling, working day and night from both ends. The distance is twenty two miles, and as no shafts for ventilation are spoken of, it is understood that the plan includes two parallel tunnels with trains running only in one direction through each so as to keep up a constant current of air. We entertain no doubt of the ultimate success of this; and when it shall have been accomplished there can be little doubt that it will be the progenitor of other great works of the same character under the sea, just as the short submarine cables were the beginning of the great Atlantic cables. Applying this to the great problem of shortening the time occupy the transit between Europe and America, we find that if a tunnel were driven under the channel to Ireland, and steamers run from Galway to the coast of Newfoundland, and a tunnel connecting the latter with the mainland, via Cape Breton, the sea voyage might be reduced to three or four days, and the whole time between London and New York, traversed by sea and rail in about a week.

THE CHIMES OF OLD ENGLAND.

BY BISHOP COXE.

The chimes, the chimes of Motherland,
Of England green and old,
That out from fane and ivied tower
A thousand years have tolled:
How glorious sounds their music
As breaks the hallowed day,
And calleth with a seraph's voice
A nation up to pray!

Those chimes that toll a thousand tales,
Sweet tales of olden time;
And ring a thousand memories
At vesper, and at prano!
At bridal and at burial,
For cottager and king,
Those chimes, those glorious Christian chimes,
How blessedly they ring!

Those chimes, those chimes of Motherland,
Upon a Christmas morn,
Outbreathing as the angels,
For a Redeemer born!
How merrily they call afar,
To eat and baron's hall,
With holly decked and mistletoe,
To keep the festival!

Those chimes of England, how they peal
From tower and gothic pile,
Where hymn and swelling anthem fill
The dim cathedral aisles;
Where windows bathe the holy light
On priestly heads that fall,
And stain the florid tracery
Of banner lighted walls!

And then, those Easter bells, in Spring,
Those glorious Easter chimes!
How loyally they hail thee round,
Old Queen of holy times!
From hill to hill like sentinels,
Responsively they cry,
And sing the rising of the Lord,
From vale to mountain high.

I love ye—chimes of Motherland,
With all this soul of mine,
And bless the Lord that I am sprung
Of good old English line;
And like the son I sing the lay
That England's glory tells;
For she is lovely to the Lord,
For you, ye Christian bells.

And hail of her ancestral bells,
Though far away my birth,
Thou too I love, my Forest land,
The joy of all the earth:
For thine thy mother's voice shall be,
And here—where God is King,
With English chimes, from Christian spires
The wilderness shall ring.

CANADIANS AT WIMBLEDON.

By English papers up to 19th July, we have further news regarding the Canadians at Wimbledon.

The Canadians between themselves had held some well contested matches for the possession of the Merchants' Cup presented to them during the meeting, and the £100 added by the Association to the Rajah of Kalaporo's prize. The following is a statement of the results of the shooting:

The Canadian Prize.—5 shots at 500 yards, a Silver Cup and £100 in money.

THE LONDON MERCHANTS' CUP.

	Points.
Province of Quebec, winner of Cup....	70
Ditto, Nova Scotia.....	64
Province of New Brunswick.....	61
Ditto, Ontario.....	61

MONEY PRIZES.

£30 Ensign Adam, 13th B. Canada....	18
20 Priv. Smith, 30th Canada....	17
10 Capt. Wall, G. T. R. Butt., Canada	17
10 Col.-Sgt. Omand, 30th Canada....	17
5 Sergt. Turnbull, G. T. R. Canada..	17
5 Priv. Bell, 10th Batt., Canada... 16	

5 Assis. Surg. Aikin, 37th Battalion, Canada.....	16
5 Sergt.-Major Kelly, G. T. R., Canada	16
5 Quartermaster Thomas, 54th Batt., Canada.....	15
5 Priv. Sheppard, 10th Batt., Canada	15

In contesting for the Burmese Cup the Canadians were very successful, as seen by the following:

THE BURMESE CUP.—500 yards, 5 shots.

The undermentioned are ties:—

Corporal Caldwell, 1st Renfrow.

Ensign Adam, 13th Canada.

Mr. Turnbull, G. T. R., Canada.

Corporal McNabb, 1st Lanark.

Mr C. Hayes, London, R. B.

Lieut. Tanqueray, 15th Middlesex.

Mr. Cortis, 1st Sussex.

Mr. Burgess, 1st Sussex.

While hospitality has been rife everywhere in the camp we find that the Canadian party has not been lost sight of. A *dejeuner* was given one evening by Sir Peter and Lady Tate, at their residence, Erina House, Putney, to Major Worseley and the Canadian team Sir John Rose, the late Finance Minister in Canada, and his lady, were present, and also General Macdougall, who had so much to do with establishing the present excellent military organization of the Dominion, and with working out the scheme about to be introduced at home. In the course of a speech made by the gallant officer, he bore witness to the excellent military qualities of the Canadians; to the readiness with which they had accepted the duty of self-defence; and to their excellent bearing when called out to deal with late wretched Fenian demonstration. Speaking of the Volunteers at home, he expressed the belief that a couple months' work in brigades would fit them to be put in line of battle with the regular troops; that they were worth more than the country was called upon to pay for them; and that in the face of our present military strength, properly organized, an invasion would be very perilous and dangerous enterprise for whoever undertook it.

There was a competition at Wimbledon which casts some light upon the problem of what might be done against an advancing enemy by native riflemen such as these. Private Gilkes and three others fired the Soper rifle, for rapidity and accuracy together, against the squad using the Snider. Lying on his back, with his knees for a rest the accomplished Gilkes discharged no less than ninety-seven rounds in two minutes and a half, which is about two shots every three seconds, scoring, this prodigious swiftness notwithstanding, 18 bull's eyes, 38 centres and 44 outers, only two bullets in all missing the target. Here is a marksman who in so brief a time, could apparently slay or wound at least fifty enemies out of a hundred at grape-shot range, and certainly no militia-louse could accomplish a similar result. Consider what havoc might be wrought upon a foe by a body of five hundred such men,

provided with the Soper or a similar piece, and hidden about in the abundant cover of our fields. They would sting an enemy to death with perpetual shots from invisible muzzles; and except on such places as the South Downs and some of our open commons nothing hostile could advance unless in skirmishing order, and from cover to cover. We calculate that these 2,500 competitors for the Queen's Prize, could fire with such a weapon as the Soper 175,000 shots in three minutes. Targets of course differ considerably from advancing enemies; and a great deal of that lead would be lost. But war has not yet witnessed such an effect as the "scoring part" of those 170,000 bullets can accomplish.

Writing editorially, the *Daily Telegraph* thus refers to the success of the Canadians. Not the least interesting feature of the meeting now concluded is seen in the notable success gained by the Canadian visitors. The Dominion sent over twenty men to Wimbledon—a very small number among so many English, Scotch, and Irish, and yet these colonials will carry home with them three of the most important trophies this year, namely, the Kolapore Cup, the prize of the Secretary of State for War, and the "Any Rifle Nursery," prize. Moreover, the "London Merchant's Cup" of £100 was won by three of the six Quebec men with a score of 70 out of a possible 74, and the Nova Scotia marksmen showed finer shooting during the tournament than even this. When such triumphs for Colonial rifles come to the ears of Austria, New Zealand, and the South African provinces, we trust the news will fire them with a wholesome emulation to be represented next year upon the common. It would be a fine sight to have all our great colonies and dependencies thus taking part in the annual rivalry with that which we take leave to call henceforth the British weapon. Perchance, if they sent over many such marksmen, as the Canadians, our own volunteers might lose some rich prizes; but competition and emulation are the very spurs we need to keep up the high stand now reached, and if possible to enhance it, while we can never feel anything but satisfaction at the proficiency of "Greater Britain." Certainly the Wimbledon meeting of 1872 has proved, from beginning to end, most remarkable and instructive.

THE GLATTON.

The following are the full particulars of the experimental firing against the turret of the *Glatton* on Friday week, of which we briefly reported the result in our last impression:—

During Thursday night the *Vigilant*, paddle despatch vessel, bearing the Admiralty Ensign, and with Mr. Goschen, Admiral Sir Sydney Dacres, Mr. Shaw-Lefevre, M.P., Captain Tryon, R.N., and other members of the Board and officials, arrived from Portsmouth and anchored in Portland Roads, accompanied by the *Black Eagle*, paddle-

yacht, bearing the flag of Admiral Sir George Rodney Mundy, K.C.B., Port Admiral at Portsmouth and commanding the Southern Naval District. The paddle yacht *Princess Alice* arrived from Devonport also during the night, with naval officers from Devonport, accompanied by the paddle-steamer *Salamander*, the latter being assigned for the accommodation of all having Admiralty blue tickets. On Friday morning early, all these newly arrived craft were moved from their anchorages of the overnight and anchored at sufficient distances outside the *Hotspur* and *Glutton* to insure the safety of all on board; and, outside all, lines of steam launches and boats were stationed at a good 800 yards' distance from the *Glutton* to keep off all outsiders. The instructions given by the Admiralty to Captain Boys were very minute and imperative, and they were as minutely and imperatively enforced. The red ticket holders, therefore, held the premier places next to the Lords of the Admiralty themselves, and they certainly appeared to keep the *Glutton* a long time to themselves after each shot, much to the chagrin of the blue and white ticket holders, who had to wait their turn of a visit to the *Glutton* until the reds had left her. There was most certainly not time between the two shots which struck the turret for those holding the blue and the white tickets to master the result of the shot upon the turret. The visitors with blue tickets on board the *Salamander* included Mr. James Luke, the Admiralty inspector of contract work; Admiral the Earl of Lauderdale; Captains Lord Gilford, commanding the Steam Reserve at Chatham; W. Chamberlaine, commanding the Steam Reserve at Chatham; Charles Fellows, commanding the Steam Reserve at Devonport; Ayasly Murray, commanding the steam reserve at Sheerness; Morgan Singer, W. H. Herbert Sharpe, G. O. Willes, late Chief of the Staff at Whitehall, and the Hon. F. A. C. Foley, commanding the cadet training ship *Britannia*, at Dartmouth, and previously commanding the gunnery ship *Cambridge* at Devonport. Mr. Montague Guest, M.P., Mr. C. V. Boys, and Mr. Edwards, M. P., with a number of other gentlemen and naval and military officers, were also on board, and the military class included Colonel Campbell, the Superintendent of the Royal Gun Factory at Woolwich, with Colonel Milward, R.A.

Some particulars concerning the two vessels may be interesting before describing the events of the day. Both are of the modern, unship-like type of breastwork monitors designed with central raised platforms or hurricane deck. The *Glutton* has a low, heavily armoured, freeboard of 3ft., and is intended for coast defence. Her length is 245ft., breadth 54ft., draft of water 19ft., displacement 4340 tons, engines 2863 horse-power indicated, speed twelve knots. Her hull is double bottomed, the skins being riveted up to bracket plates. The armour consists of two strakes, the upper (above water) being 12in., and the lower (below water) 10in. in thickness, the 12in. plate has a teak backing of 13in., and the 10in. plate a backing of 20in. The inner skin, consisting of 1½in of iron in two thicknesses to break joint, is supported by vertical iron girders 10in. moulded; the horizontal lower deck girders are 6in. moulded, and are placed on the level of the external shell which supports the armour externally, and by its projection acts as a bilgeboard to prevent rolling; the upper deck girders are moulded 9in., and are on the same plane as the summit of the armour belt; the deck which is laid upon them extends on either side of the breastwork which encloses the

turret, and consists of a one-inch iron plate covered by a two inch iron plate, and over this six inches of oak-planking. The total depth of the ship from this deck to the bottom is 21ft. 6in. The armoured breastwork, which rises 6ft. 3in. above the upper deck has on its sides two strakes of 12-in armour with 15in. of teak backing secured to three ½in. skin plates, supported by vertical girders 10in. deep and by horizontal girders top moulded to 9in.; the roof is formed of two ½in. plates covered by 3in of oak planking the glacis plates surrounding the base of the turret being 3½in. thick next its walls, and diminishing to 1½in. where they abut against the roof plating. The turret which rises out of the centre above the breastwork chamber is 30ft. 6in. in external diameter, and there is an interval of 6-in. between it and the surrounding glacis belt, which is 3ft. in breadth. The general thickness of its armour is 12in., with 15in. of wood backing, but on the port side the plates are 14in. in thickness, and were carved in the rolling to their present form. These plates have a backing of 17in. of teak, attached to the inner skin of two plates of five-eighth in. thick, the two horizontal girders are each 8in. deep, with flanges of 3½in., and are ¾ in. in thickness; the vertical girders are 10in. deep, by 3½ by five-eighth in. thick. The whole is covered inside the turret by a ½in. iron lining. The opening or trench, around the turret is covered by a leathern fringe attached to it, and weighted with lead, its purpose being to prevent the entry of water from the wash of the sea. There are two gratings in the roof of the turret for ventilation and the exit of smoke. The armament is two 25-ton 600 pounder guns, mounted on Captain Scott's carriages. The *Glutton* has no masts whatever. The *Hotspur*, of the like monitor type, looks but is not a larger vessel; the difference is that her breastwork is enclosed within an additional amount of skin plating, raised above the armour-belt of the hull to the level of the top of the breastwork, and decked over. The freeboard is thus raised to 9ft., and the vessel fitted for sea-going service. Her armament is one 600 pounder gun, mounted upon Scott's broadside-carriage. Her displacement is 4010 tons; engines, 3497 indicated horse power; speed, 12½ knots.

The programme for the practice was very simple:—1st. To fire four shots at a temporary target suspended over the bows of the *Glutton* for accuracy of training; 2nd. Four shots at the turret of the *Glutton*—viz., two at spots 2ft. from the top, and two at spots 2ft from the base of the turret, and one at the junction of the glacis plate with the turret, to see if the turret would be jammed by the shot or the splinters. The weather in Portland Roads was wonderfully favourable for the experiment, there being an almost total absence of wind, and a perfect stillness of water. The big gun in the *Hotspur's* battery, however required very nice treatment and consideration before its Palliser shot could be sent from it against the turret, and it was to give its gunner some preliminary practice in its sighting that the before-mentioned structure of canvass and leather was prepared on Thursday evening. Some five or six shots were made at this mark, which after passing through the canvass, went roaring out over the top of the breakwater seaward. These shots all appeared to be very good, both in elevation and in direction, but they also gave undoubted indications how very difficult it is to haul a 25-ton gun on boardship for "fine shooting." After these shots some fool or another in a schooner yacht sailed along the outer face of the breakwater, and

immediately in the line of the fire. This delayed the firing at the turret for some time, but about half an hour before noon the first shot was fired.

The mark painted on the face of the turret on the previous day was to the right of the right hand gun port, and eight inches at its centre from the upper edge of the turret. This mark had been removed on Thursday evening to a position higher up on the turret's front, and was now on the extreme upper edge, and about thirty inches out of a vertical line with the center of the right gunport. It required extraordinary luck as well as skill to bull's eye such a mark, and no astonishment was therefore felt when the huge Palliser shot passed out to sea just over the top of the turret, cutting off the iron standard supporting the hand rail round the roof of the turret at four inches above the upper edge of the mark. Such was the fact but it was not immediately known to all who looked on from a distance. Had it hit? had it missed? were the questions asked, which nobody could answer. The "red tickets"—the committee—were seen going from the *Hotspur*. Steam launches scattered about between the ships; the committee remained on the *Glutton* a while, and then returned to the *Hotspur*. The red flag was not kept flying, and the blue flag was not hoisted for the visitors. Then it was understood that the shot had done no essential work.

At 11.45 the signal flag went up again; the bugle sounded "Still" as a warning to the crew on board the *Glutton*, who kept secure below the water line whilst the shot was being fired. The sharp crack of impact resounded, and quickly through the glasses the shot-hold was perceived. Again the red tickets went on board, and the turret is observed to move. It was indeed a terrible shot for the turret; it had hit it under the fifth rib as it were, but its mechanism was not hurt; its gearing was all sound. The turret had held its own. The hitting force of that huge shot was over 6400 foot-tons; the 55-lb. of pebble-powder had hurled it with a speed of more than 1300 feet per second. And now the welcome blue flag was noted; a tender steamer was alongside to take on board to sea results. As she nears the vessel the *Glutton's* deck is seen to be covered with pigs of iron balls—150 tons—laid out evenly on a platform of planks raised at the outside so as to keep the load level when the ship is heeled. The inspection soon resolved all doubts. The shot striking in the weakest place it could have done, had lifted the upper plate, or rather forced it upward and over the face of the backing until its lower edge was separated from the upper edge of the lower plate to a distance of 2½ inches, the upper edge of the lower plate where the shot penetrated being depressed nearly one inch by the sheer downward force of the shot. The shot penetrated beyond the plating to some distance into the timber backing and then broke up at the base leaving its head embedded in the teak behind the 14-inch plate. The only measurement of the depth of penetration that could be taken was from the upper part of the "core" in the head of the broken shot to the outer surface of the turret plating, and this gave a distance of 15 inches. The fracture extended upwards from the plate's lower edge in a three-quarter circle form, measuring 17 inches vertically and nearly 20 inches along the plate's edge. Other effects of the shot's work outside the turret were seen in the broken-off head of the bolt struck, a starting apart of the plates in three longitudinal and vertical joints in the immediate vicinity of the blow, and also a starting of the two plates between the gun ports in their vertical

jointing. Inside the turret, the inner end of the bolt struck by the shot was found to have driven in and fractured the inner skin or iron lining, the inner end of the bolt with its nut breaking off and lodging upon one of the trunnions of the starboard gun. A score or two of rivet-heads were also shaken off from the skin plating, and there can be no doubt that had the men belonging to the guns been in the turret at the time several lives might have been lost, and many of the men wounded. One of the inner and one of the outer frames of the turret walls were broken, the timber backing immediately behind the shot's blow was bulged inward a good seven inches, and the inner skin was burst open by the end of the bolt driven in by the shot, to a depth of 4ft. 6in., and helped to make matters at first sight look very ugly indeed inside the turret. Still, with all the immense striking force of the shot, there was no thorough penetration. The piece of fractured lining was cut off by the engineers of the ship in very short space of time, and then, steam and hand power being successively applied, all the machinery at its base for turning it, as well as its central bearings, was found to be not in the least damaged, and the turret revolved with the same facility as it did before the shot was fired.

In the opinion of all the officials present the turret, with its guns, was perfectly fit to go into action. No portion of Scott's machinery was injured in any way. The kid, the rabbit, and the hen looked dazed, but they had sustained no visible harm.

The second shot fired at the turret not only most effectually did the work it was intended to do, but also as effectually did the work which had been laid down for a third shot intended for the glacis plate, and saved the trouble and time which would otherwise have been taken up in inclining the *Glutton* for this part of the experiment. The mark upon the turret upon which the gun was trained for the third shot was on the lower ring of armour plating, between the gun-ports, and eighteen inches above the bottom of the plating and the glacis plate. The shot was lower than intended, taking the glacis plate in its entire breadth, making a deep indentation and cracking the plate through but doing no material damage to the underneath deck-plating or beams. From the plate the shot struck the bottom of the turret plating, penetrated to a depth of fifteen inches, and then rebounded broken up on to the deck in front of the turret. No damage whatever was done to the interior of the turret or to any of the gun fittings or their slides. There was simply the hole the shot had made in the armour plate to a depth of fifteen inches, and that was all. The inner skin of the turret was not even bulged. This was thought quite sufficient as establishing in the most indisputable manner the free working of the turret under the heaviest fire without much danger of being jammed or of damage to the gun slides. The three unwilling occupants of the turret had also suffered no injury. The ports were next unplugged, and, with Mr. Goschen and other members of the Board present, the guns were loaded with full power charges and shot, and fired out to seaward over the breakwater. The carriages and gear were found to work in the most perfect manner, and this test brought the trial to a conclusion.

BRADDOCK'S FATE.

A correspondent, after giving an account of the planting on the 29th ult., by Mr. Murdock and Mr. King, of sundry selected

trees at the grave of General Braddock, in Fayette county, Penn., adds the following interesting historical sketch of events and incidents connected with Braddock's expedition and death, and the customs of that period.

In connection with Braddock's grave we cannot resist the temptation to give some historical incidents derived from Andrew Stewart. About the year 1802, Stewart's father lived about two miles east of Braddock's grave, on what is called "Braddock's Old Road"—the military road. Being Supervisor of roads, he went with some hands to repair the road, taking with him Stewart, then a boy ten or twelve years of age. While the men were at work on the east bank of Braddock's Run, Thomas Faucette (born in 1712, and died in 1816, aged 104 years, and who was with Braddock's army at the time of his defeat and death), on old mountain hunter, then living on the road less than a mile east of Braddock's grave in a cabin, some of the ruins of which are still visible, come along with his rifle on his shoulder, a hunting-knife in his belt, dressed in a blue hunting shirt, bearskin cap and buckskin pants, standing straight as an arrow, about six feet four in his moccasins. Faucette said:—"Take care, men, or you will dig up Braddock's bones. We buried him here where he died, right on the bank of this run. We dug away the bank and drove the baggage-wagons over the grave, so that the enemy could not find the grave. I will show you the spot. The water his washed down nearly to the bones. Dig down here a foot or two and you will find them." The men did so and found the bones.

"Braddock," said Faucette to the work men, "was a brave man, but to save his men I shot him." "Why so," we asked. "I will tell you. My brother Joe and I were fighting behind trees, when Braddock came riding along and struck Joe, saying, 'You coward, stand out and fight like a man.' Considering him our worst enemy, I turned round and shot him instead of an Indian. When Washington took command he told us to *tree*. We did so, and the remnant of us were saved."

In confirmation of Faucette's story, history says that it was thought at the time that Braddock was shot by one of his own men and it was upon this occasion that Braddock, when Washington advised him to let the men *tree*, said: "High time, when a Virginia buckskin undertakes to teach a British General how to fight."

Stewart further says that the bones were reinterred at the foot of a large white oak tree, except a few which his father took home and afterward sent by some Western merchants going East, with directions to put them in the museum at Philadelphia. The merchants, Stewart says, then traveled in companies, armed with pistols, to protect their money, consisting of Spanish dollars. Each pack-horse carried two or three thousand dollars in small leather bags. The merchants would carry back on the same horses, iron, salt and other merchandise for the supply of the Western people, the whole in a year amounting perhaps to not much more than one "iron-horse" now takes over the mountains in a single train. Slaves from Virginia were driven through Uniontown in those days, corralled together like horses for the Western market. This may seem strange to young ears, but there are many old persons still living who witnessed it.

The *London Times* describes a novel and experimental railway which has just been constructed at Aldershot Camp. It is of eighteen inch gauge, and upon the "suspension" principle patented by Mr. J. B. Fell.

It is to be worked by a locomotive engine specially designed and built by Messrs Manning, Wardle & Co., of the Engine Works, Leeds. It is to meet military as well as other requirements that the "Narrow Gauge Suspension Railway" has been introduced. It can be made and worked at a much less cost than any other form of railway, and is capable of carrying the whole of the traffic of branch or mineral lines. The whole railway consists of a continuous structure, formed of wood or iron; a single row of pillars stand at regular intervals along the line, the lower ends of the pillars rest upon wood sleepers and are steadied by transverse diagonal struts; holes are dug in the ground, the pillars placed in position, and the earth well rammed down. The length of the pillars varies according to the contour of the ground, for their upper ends must range with each other, so as to carry the superstructure; this is formed by two longitudinal beams of wood (or iron) placed side by side, with a space between them, bolted to, strutted from, and supported by the pillars. The railway will thus be sometimes only 3 feet above the surface, while in crossing valleys or ravines it may be from 20 feet to 30 feet high from the ground, and it may have curves or gradients as on any other railway. These longitudinal beams form continuous "sleepers," and carry four rails; two on their upper surface, and two on their outer sides; the surface rails are of iron, these carry the train, and may be of any desired gauge from eight inches to eighteen inches; the side rails are of wood (or iron), nailed along near the lower edges of the beams, so as to be below the level of the carrying rails. They are peculiar to this system, and act as "guides" for the horizontal wheels of the wagons and carriages. Where sidings occur, or shunting is required, the switches are formed by making a twenty foot length of the railway to pivot on one end, while the other end, resting on a pair of rollers, travels from the main line to and from the siding. The carriages are suspended below the axles, by which arrangement the center of gravity is brought very low, and they are furnished with horizontal wheels running against the "guide" rails above described, whereby the equilibrium of the carriage is maintained, and it is rendered almost impossible for it to leave the rails. A committee of Royal Engineers having been appointed by the War Office to investigate the system, reported so favorably that an experimental locomotive line of eighteen inches gauge, about one mile in length, has been made at Aldershot Camp. All the details appear to have been carefully considered, and if the result is as satisfactory as anticipated it is intended to make several miles of this railway in and about the camps at Aldershot, and in leisure times the soldiers will be exercised in taking down and putting it up again for military transport service.

The slave trade is as yet far from being extinct. Between July 1, 1869, and January 1, 1872, the English squadron off the east coast of Africa captured twenty-four regularly equipped slavers. On these vessels were found over seven hundred negroes. The slavers have largely forsaken their old hunting ground on the African coasts, which are carefully guarded and very dangerous, and find easy and uninterrupted pursuit of their nefarious work in the south seas. The reports which come from them are simply appalling, and have aroused the attention of the English Parliament to the necessity of immediate action.