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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. IX.

OTTAWA, (CANADA,) TUESDAY, JANUARY 12, 1875.

No. 2.

The Volunteer Review

is published *EVERY TUESDAY MORNING*, at OTTAWA, Dominion of Canada, by DAWSON KERR, Proprietor, to whom all *Business Correspondences* should be addressed.

TERMS—TWO DOLLARS per annum, strictly in advance.

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All Communications regarding the Militia or Volunteer movement, or for the Editorial Department, should be addressed to the Editor of THE VOLUNTEER REVIEW, Ottawa.

Communications intended for insertion should be written on one side of the paper only.

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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. IX.

OTTAWA, (CANADA,) TUESDAY, JANUARY 12, 1875.

No. 2.

NEWS OF THE WEEK.

The Dominion House of Commons is called together for the resumption of business on Thursday the 4th February.

The Hon. the Minister of Militia and Defence arrived in Ottawa on Saturday, from Halifax, whither he had gone to spend the Christmas holidays with his friends.

The Premier gave a dinner party on Thursday evening, 7th inst., at his residence, at which there were present, the Premier of British Columbia, Hon. Mr. Walker; Marcus Smith, Esq., Chief Engineer, Pacific Railway, British Columbia; Hon. Donald A. Smith, M. P.; J. D. Armour, Esq. Cobourg; Hon. Mr. Cartwright, Hon. Mr. and Mrs. Scott, Hon. Mr. Burpee, Hon. Mr. Huntington, and Hon. Mr. Geoffrion.

The Belleville *Intelligencer* has again made its regular appearance in a bran new dress, nothing the worse for the baptism of fire it past through. It has, however, changed hands, and is now published by a company but under the same able editorial management.

The racer *Humboldt* has been sold to C. J. Alloway, of Montreal, for \$3,000.

Mr. Williams' woollen mills at Georgetown Ont., were destroyed by fire on the 6th inst. The loss to the proprietor is not less than \$25,000 and fifty industrious operatives have been thrown out of employment by the calamity.

Complete returns of the Manitoba elections show that the Provincial Government have ten professed supporters, and the Opposition eight. The balance of power is held by five Independents.

The Hon. G. A. Walkem has obtained a grant of £50,000 from the Imperial Government towards the expense of constructing a graving dock at Esquimaux.

Gen. Sheridan has received a telegram from the United States War Department, stating that the President and the Cabinet approve of the course he has adopted in New Orleans. Louisiana continues in the throes of political agitation and uncertainty.

The first of January, 1875, saw the inauguration of the new bridge across the Mississippi at St. Louis. The *St. Louis Times*, of the 1st instant, says the old practice of breaking freight and carting it from one terminal to another, with all of its waste and delay, is virtually ended. The object for which the bridge was constructed has been attained, and to day it becomes in fact a great highway over which the freights of the great valley of the Mississippi shall pass continually and without detraction.

The *London Globe* says correspondence is in progress between the Governments of England and the United States in relation to some territory in British North America which England claims, but has never formally annexed to her dominions.

Right Rev. Mr. Vaughan, Roman Catholic Bishop of Salford, accompanied by several priests, has sailed on the steamship *Oceanic* for New York. He goes to promote missions among the negroes of the Southern States.

The King of Siam has abolished slavery in his dominions, the abolition being, however, applicable only to children born of slave parents since 1864, who are to be free upon reaching 21. They may, however, be bought and sold meanwhile, according to a graduated scale of prices, with an opportunity afforded them to purchase their freedom before their majority.

A Washington despatch says it is the purpose of the President to preserve order in the Southern States until Congress determines upon a policy of its own. As to a declaration of martial law, or suspension of the writ of *Habeas Corpus*, Congress being now in session, the President says that he will take no steps unless authorised by the Legislative branch of the Government; and he adds that Gen. Sheridan's request is, that a proclamation be issued by him declaring the White League banditti will no be accorded to. No additional troops will be sent to New Orleans unless required, and every thing will be done, he says, in a manner consistent with the authority and dignity of the Government and with a view rather to pacify than to irritate the Southern people. The main body of the army on the plains is now concentrated and in winter quarters at the centres of military supplies, such as Forts Leavenworth and Russell, and at Omaha. Should serious disturbances occur, these forces and garrisons at Fortress Monroe and elsewhere could be concentrated in a few days. Should troops be needed elsewhere, the citizens of the States, in the Indian borders, would have to protect the frontier themselves, when spring opens. On one point the President's mind seems fully made up, and that is, that the political rights of every class of people in the South, as he understands them, shall be protected, and that persons elected to offices shall be sustained in possession of them.

The detective who arrested R. J. Dallas, the defaulting cashier, of Toronto, states that the prisoner was examined by two doctors in New York, who pronounced him insane.

Colonel Henry has started with a detachment of U. S. cavalry to drive out the intruders who have entered the Black Hills region. The soldiers will find it rough campaigning at this season of the year.

General Sheridan has telegraphed to the United States War Department, suggesting that the White Leaguers be declared 'banditti,' and stating that by military force it would be easy to put a stop to terrorism in the South.

The Paris correspondent of the *Daily News* telegraphs that Alfonso declared to Prince Hohenlohe, the German ambassador, that he would be as liberal and as little clerical as it is possible for a king of Spain to be.

A *Times*' despatch from Berlin says negotiations have been opened between the Berlin and Brunswick Governments with a view to the settlement of the Brunswick succession. There is little doubt that the Prussian dynasty will waive its claim if the Crown Prince of Hanover consents to acknowledge the present constitution of the empire.

Paris, Jan. 5.—All the great powers have authorized their representatives at Madrid to enter into semi-official relations with the new movement.

The ex-King of the Two Sicilies has visited Alfonso, and assured him that the Counts Caserta and Bari will withdraw from the Carlist cause.

Gen. Garibaldi has declined to avail himself of the annuity granted him by the Italian Parliament, on the ground that his country cannot afford to be so generous.

Four hundred soldiers arrived at Havana, on the 7th inst., from Spain. The Colonial Minister at Madrid in a telegraphic despatch to Captain General Concha says he hopes to be enabled to despatch reinforcements in numbers sufficiently large to crush all the hopes of the insurgents, and announces that 1,000 men will sail from Cadiz on the 10th inst.

A series of experiments has lately been made by the Russian government with reference to the use of electricity for the headlight of locomotives, a battery of forty eight elements making everything distinct on the railway track to a distance of over 1,300 feet.

It is said that upon the meeting of the French Assembly, M. Batbie M. Dufaure will demand an immediate debate on the Constitutional bills, or a dissolution of the House in the event of a refusal.

Two Protestant newspapers have been suppressed in Madrid,

The Royal United Service Institution.

The following notice of this Institution is taken from *Iron*, it is well worth perusal.

Founded in 1831, under the auspices of the King and the patronage of the Duke of Wellington, the Royal United Service Institution addresses itself to the promotion of Naval and Military art, science, and literature. Lectures are delivered on questions of deep moment to the Military world, a large library has been collected, a journal published and a museum established containing Naval and Military models, a collection of the arms of all nations, and many objects of great historical value. Admirably located, the museum of the institution is ever ready as a book of reference wherein those led to the study of Naval and Military science may find examples of every development of warlike engines. Systems of defence, from the days of Vauban down to the age of earthworks, are depicted in a series of admirable models, executed by professional hands with wondrous care and patience. From the early days when the Turks showed how heavy artillery could be brought to bear on fortified places by the use of trenches, the art of attack gradually overcame the art of defence, until under Vauban, siege operations against the best fortified city in the world became merely a matter of time, and the reduction of the stronghold, however skilfully constructed, depended simply upon a sufficient force to invest it completely, and advance by regular parallels until the fire of a large circle concentrated upon a smaller one rendered the fortalice untenable. To so great a pitch of exactness was this science carried that at one time it could be calculated to a nicety—barring the presence of kings, royal dukes, and other disturbing influences—how long it would take a given army to reduce a given fortress. Even with the feeble artillery anciently in use, stone revetments were found unavailing, and the slow but sure advance of the trenches, which, flattened in their inception, assumed bolder curves towards the last, brought certain destruction to the doomed city. For more than a century European armies indulged in campaigns made up mainly of sieges, and the attack and relief of fortified places made up the history of warfare; but at last the genius of Napoleon discovered that armies might dare to neglect a fortified well garrisoned town in their rear, and could devastate a country, win battles, and sign treaties without heeding the possible power of a few thousand men cooped and cramped in the limits of a walled town. In our own day experience has taught that earthworks and heavy guns inside are apt to prove a match for enemies outside, and the sieges of Silistria, Kars, and Paris show that once more the arts of defence have stolen a march upon those of attack. To students in fortification the United Service Museum affords instructive models—indefinitely more agreeable to study than the dry diagrams from which a knowledge of fortification is so often derived.

Perhaps no such interesting record of weapons could be found elsewhere. Here are the primitive stone arms employed in the youth of the human race—flint axo heads, daggers and arrow heads, chipped by a long and laborious operation into a practicable shape. Near these curious relics of ancient Europe are specimens of the stone weapons still in use in remote corners of the earth. A magnificent jade stone axo from New Zealand throws European examples into the shade, but is, like all these weapons, unprovided with an aperture for the

handle. In fact, these stone axo heads were and are still simply tied on the shaft with stripes of hide or bands of woven grass. A collection of savage weapons would be very incomplete without boomerangs and assegais, and the curious kind of sling used in propelling the latter weapons. Here, also, is a good store of bows and arrows of every imaginable shape and size. An exceedingly venerable long bow and sheaf of arrows are said to have belonged to a Crusader, and were found at Aleppo, in a guard house, which had been built over and forgotten for many centuries. Less interesting to Englishmen, but yet worthy of note, is the steel hunting bow of Tippoo Sultan—a powerful instrument, but inferior to the tremendous crossbows or arblasts which immediately preceded the introduction of villainous saltpetre—and for a long while held their own against primitive musketry. The best arblasts are composed of a steel bow of great stiffness, fitted on to a heavy stock, and supplied with powerful winding machinery. According to Jouville, and other writers of the crusading period, larger arblasts were used as wall pieces, for hurling bolts tipped with fire at the extraordinary wooden structures under cover of which the besiegers of the middle ages advanced to the attack. Great precautions were taken against these fiery missiles. The wooden edifices which crowned the Gothic tower, making it when finished like in outline to the pepper box tower of a later period—a detail generally omitted by modern artists—was covered, if possible, with hides, and the great moving towers and lofty screen of the besiegers were protected in similar fashion. These safeguards were often set at naught by the artillerymen of the period, who, according to Jouville, infested the attacking army with a pitching fire, shooting their fiery bolts up in the air so that they should pass over the protecting screen and carry disorder among the besiegers ranged behind.

The invention of gunpowder gave a new direction to human ingenuity. Curiously enough, the best specimen of a primitive cannon, like the one which might have been used at Crecy, comes from Canada. Made of hard wood, bound by iron hoops, this weapon was not encrusted with round shot or shell, but was loaded with bullets, pebbles, chunks of iron, tennenny nails, and anything else which happened to be handy. Between this primitive engine and the cannon of the Tudor period there is a great gulf. Modern readers unacquainted with the history of gunnery will be interested to hear that the guns of the fifteenth and sixteenth centuries were breechloaders. In the United Service Museum are many proofs of this curious fact. Cannon from the wreck of the *Mary Rose*, sunk in action off S. Ithead, some very peculiar Dutch guns of early date, and the spare chambers of cannon of the reign of Henry VI., found at Dover, amply demonstrate the antiquity of the breechloading system. The hinder part of the gun formed a kind of trough, into which was fitted a heavy mass of iron containing the charge. This was fixed in tightly with a wooden wedge, and the gun was fired. No doubt while gunpowder was a comparatively weak and imperfect explosive this plan answered very well. The escape of gases at the wrong end of the gun—although objectionable to the cannoniers—was not very serious; but as the manufacture of gunpowder improved, the old breechloaders fell into disrepute, and were universally replaced by muzzleloaders. Strangely enough, the latter form of gun underwent a revivification only a few years ago, and at the great Exhibition of 1862 the Armstrong gun was the observed

of all observers, albeit many philosophers marvelled greatly at the appearance of a warlike engine in an exhibition for promoting peace and brotherhood among men. Nevertheless, the exhibitors were right and the philosophers wrong, for since the period referred to mankind have exhibited an unusually strong tendency to rely upon "the holy text of pike and gun," and to refer all controversy to "infallible artillery."

For a few years breechloaders had it all their own way, and many monuments of the ingenuity employed in their construction may be found in Whitehall Yard. The wind, however, has changed, and a reaction set in in favour of muzzle loading cannons. Here are models of the great guns of these latter days—a steel 6 pounder Krupp split in two to show the grain of the metal—a model of the great Mallet mortar, constructed to throw a 36 inch shell—models of the great 41 ton gun of Bhurtpore, with its tiger mouth and grinning fangs—beautifully finished models on the Moncrieff counterpoise and hydraulic systems—of the curiously shaped Whitworth gun and bolt—of the Horsfall, Blakely, Parrot, and Rodman guns. Last, but not least, come the 31 ton gun, and the greatest development of all, the monster 11 ton gun now in process of construction, to throw a shot weighing 1,700 lb. All the models of guns are very properly constructed on the quarter scale, so that not only the shape but the comparative size of new ordnance is clearly shown.

In due proportion to the enormous shot to be propelled are the grains of powder. Pebble powder of the size of a haincot bean was once supposed to be fit for guns of the largest calibre, but the pebbles shrink into insignificance by the side of the 2 inch cubes which represent the gunpowder of the future. Among the greater ordnance, block gunpowder and chilled shot, common shell and shrapnel—war rockets make an insignificant figure, but are nevertheless of immense value in the "little wars" with savage tribes, as by quick manoeuvring the dreaded missiles may be made to appear as if coming from several different points, to the infinite consternation and confusion of uncivilized adversaries.

It is interesting to note, side by side with the evidences of the ebb and flow of taste in breechloading or muzzleloading ordnance, that a not exactly similar but still not unlike mutation has taken place in hand firearms. Matchlocks—many of them highly ornamented—were well represented, as are also the wheel locks, which were brought at last to a high degree of perfection. The great objection to the wheel locks, was that it required winding up between every discharge to give the small steel wheel the necessary power of revolution in contact with a piece of pyrites, and to thus elicit the necessary spark. More interesting is the snaphaunce, the immediate precursor of the flint lock, which held its own for so long a period. A snaphaunce pistol of the date of Charles the First is remarkable for another reason than its peculiar lock. Fitted with a single brass barrel, this curious pistol has a revolving chamber containing six charges, and differs but slightly from a Smith and Wesson—with all the modern improvements—now in my possession. It is therefore clear that the revolver principle is at least as old as the flint lock. This snaphaunce pistol is certainly the earliest revolver which has come under my notice, but there is, I believe, one of later date in the Tower, and the Indian Museum has a match lock revolver made in Central India at least a hundred years ago. There is not much to wonder at

in the early discovery of the revolving principle—the thing is simple enough; but the marvel is that, once discovered, it should have been abandoned in favor of bungling contrivances of several barrels joined together—an undoubted retrogression from the simple barrel and revolving chamber. Another curiosity is an Italian piece, loading at the butt. As the wheel of the lock was wound up the powder and ball were forced into the barrel and the priming deposited in the pan. This singular engine is said to have fired twenty shots per minute, but, as Sir John Maundevile would say, "I do not know, for I have not seen it done." These historic relics are supplemented by a fine collection of more recent small arms—a breechloading piece made for the late Duke of York, and in a central case specimens of the Chassepot, Martini Henry, Peabody, Remington, Snider, and Spencer rifles.

Swords of all kinds, shapes, and sizes are deposited in cases or displayed in trophies on the walls. Great two handed swords are among these, and also a fine specimen of a German headsman's sword, engraved with a figure of Justice. Malay kreeses excite admiration by the exquisite "skeiny" appearance of their blades—a quality shared by the right Damascus. The dagger family is very well represented—broad bladed khandjars, heavy Coorg knives, and Moorish poniards adorned with priceless metal work. In armour for horse and man the United Service Museum cannot compare with several other collections, but yet has many excellent specimens, among which may be noted a superb morion of *repoussé* work richly gilt, and a remarkable series of defensive costumes, commencing with breast-plates of hogs' teeth, and complete fighting suits of wicker work from the South Sea Islands—whence comes a helmet of true Greek form—passing through the chain mail period, and ending with the plate armour which finally became unbearable.

In curiosities the museum is particularly rich. In ghastly juxtaposition are a gillo-tine axe taken at Guadaloupe in 1794, and a headsman's axe—a hideously rough instrument said to have been used in the Mauritius to a comparatively late date. A choice collection of revolutionary pikes merits a passing glance, as these are weapons formidable enough until met by a "whiff of grape-shot." Here are Irish pikes of 1798, Welsh Chartist pikes of truculent aspect—and bran new Fenian pikes from the workshop and guiltless of blood. More ferocious trophies come from the summer seas of Oceania and the wild region of Central Africa—the trunk of the tree beneath which fell Captain Cook, at Hawaii—bracelets of boars' tusks, war trumpets of human bone, mighty war drums, Zenzibar spears, Abyssinian shield and ockward looking swords. Invested with greater interest are the weapons once worn by great captains and intrepid navigators—the sword used by Cromwell at the siege of Drogheda, which made the name of the "greatest prince that ever ruled in England" a bogey and a byword in Ireland—the sword worn by gallant Wolfe on the heights of Abraham, where he won Canada but lost his own life—Captain Cook's cutlass or "hanger," as it was then called—a vicious looking little swordling—Lord St. Vincent's sword, and the unconquered blade with which Nelson boarded the *San Josef*. The relics of Tipoo Sahib, his tiger pistols and the dress he was killed in, are also worthy of a glance, and side by side with these are Sir Ralph Abercrombie's pistols, the sash in which Sir John Moore was carried from the field of Corunna, and the pistols carried by the South Ameri-

can patriot, Bolivar, through many a hard fought campaign. To the ordinary visitor relics will perhaps be the principal attraction, but it is impossible to overlook the useful side of the United Service Museum. Within a stone's throw of Charing Cross, it affords opportunities which cannot be over-rated for referring to various kinds of ordnance, and many a time and oft saves the time and trouble of a visit to Woolwich. Admission is easily obtained by applying in writing to the Secretary, Capt. B. Burgess.

Our Militia.

[From the London Daily Telegraph.]

We all know, or ought to know, that Canada turned a deaf ear to the voice of the charmer, and was so ungrateful as to receive Montgomery and Arnold, when they attacked Quebec in 1775, with grape and canister, which cost the first his life, and inflicted a grievous wound upon the second. A century has since passed, and, through no fostering care or maternal solicitude upon our part, the noble empire of British North America has been growing in loyalty and affection for the Mother Country, as decade has followed decade. It is a singular circumstance, and especially noteworthy in the eyes of those few Englishmen who have closely watched Transatlantic history for the past quarter of a century, that within the last ten years the annexation of Canada has ceased to be a secret, unavowed plank in the "platform" of every political party in the United States. During the early years of the present century, when England was locked in a death grapple with Napoleon, there was no lack of Canadians who, in common with nine tenths of the American population, sympathised with the arms of France. Many still living, among them Lord Russell, Sir George Grey, Lord Grey, Mr. Gladstone, and Mr. Roebuck, will remember that the first Parliament of our present Queen, which assembled in November, 1837, was occupied night after night with grave debates on the rebellion in Lower Canada which is identified with the names of Papineau and Mackenzie. So late as 1850, Mr. Webster, in almost the last speech that he ever delivered in the United States Senate, said, in allusion to "the proximate annexation of Canada," that "it was as necessary to protect its everlasting snows from the foot of slavery by an Act of Congress as to insert a Wilmot Proviso in the territorial government of New Mexico," which already belonged to the Union. In 1858, Mr. Seward, who was then thought likely to be the Republican candidate for the Presidential chair, made a "speaking tour," through the North Western States, and delivered a powerful harangue in Minnesota, which plainly foreshadowed his views of the Union's "manifest destiny," and concluded with the well known lines, "No pent up Utopia confines our powers, but the whole boundless continent is ours." Then came the Titanic Civil War, and, long before its close, the dream that Canada was about to be absorbed had passed away. The Americans, as a practical people, have no superior among modern nations, and it was generally felt throughout the length and breadth of the Union that the bait of light taxation and untroubled internal tranquillity, so long held up by them before Canadian eyes, had lost its attraction. The scandalous corruptions which, since the end of the war, have brought American institutions into discredit are of a nature to make Canadians more than ever satisfied with the comparative purity of

their own Government, with the light pressure of their municipal and imperial taxation, and with their immaculate administration of justice, which contrasts so favourably with the law courts of their neighbour.

But our Canadian fellow subjects could be guilty of no greater error than to imagine that the present transparent clearness of their political horizon justified them in neglecting those obvious precautions, with a view to self defence, which are necessarily imposed upon every free nation that values its independence. We welcome, therefore, with satisfaction an able "Memorandum on the Militia System of Canada," which has just been put forth by Lieutenant Colonel Fletcher, the Military Secretary to the Governor General, Lord Dufferin. Col. Fletcher, whose active experience of war began in the Crimea, and who is not the least practical among our trained soldiers, warns his Canadian brethren "how oft," in King John's pregnant words, "the sight of means to do ill deeds makes ill deeds done." Neglect all preparations for organizing your resources of self defence upon a sure basis—such are substantially his wise words of advice to the Government and people of the Dominion—and you will tempt your powerful neighbors to renewed schemes of cupidity and aggression by the sight of your very defencelessness. He reminds them that "there is much in the life of a Canadian that qualifies him for military service, and that, owing to the great changes of climate, from an almost Arctic winter to an Italian summer, men have to accommodate themselves to circumstances not met with in England." He points out that the organization of the gangs of "lumberers," added to their necessary provisioning, their discipline, and the care taken of their general well being, demand many of the characteristics essential to a military force. "The skill of the lumberers in road making in hutting themselves, and in the rougher engineering work, might prove invaluable to soldiers campaigning in a forest country; their practice in driving teams over roads which an English carter would deem impassable, might go far to qualify them for artillery drivers; while the excitement, and even danger, attending a portion of their labours would tend to bring out qualities not dissimilar to those called forth by active service." Nothing is more certain than that England would never think of coercing the Canadians into refraining from declaring their independence, or from joining the American Union, if such was the desire of a majority among the inhabitants of the Dominion. Equally certain is it that we should not look quietly on and see our Canadian brethren absorbed against their will into the neighbouring Republic, without actively interfering on their behalf. But John Bull has an undoubted disinclination towards helping those whom he finds unable or unwilling to help themselves. We trust, therefore, that the suggestions of Colonel Fletcher will not be like seed sown upon barren soil. A country such as the Dominion, with light taxation, abundant resources, and ever increasing population, should not be satisfied to have a trained and efficient militia of less than 40,000 men. Past experience has shown that the excitement of danger awakened by the Fenian raids which followed the American War has produced the happiest effects upon the sense of responsibility felt by the Canadians. All that is necessary for Canada is that she should have a good organisation, and sufficient force to resist a sudden attack. Help would not be long in reaching her from the

other side of the Atlantic so long as she is satisfied to conform to the blazon carried upon the flags of our Volunteers, and to announce that her sole motive for arming is "Defence, not Defiance."

Royal United Service Institution.

DESIGN.

The promotion of Naval and Military Art, Science, and Literature is the object of the Royal United Service Institution.

The principal means by which this object is sought to be obtained are—A Library containing Historical, Scientific, and Professional works;—a Topographical Room with Maps, Charts and Plans;—a Museum for objects illustrative of the progress of Naval and Military Art among all nations, for Trophies, and Relics, for Mementoes of distinguished Officers, or of remarkable Naval and Military events, and for the Exhibition of Inventions;—a Theatre where papers on professional subjects are read and discussed,—and finally, a Journal, published periodically, by means of which such papers and discussions are circulated among the members of the two Services, both at home and abroad.

BYE LAWS.—SECTION I.

1. There shall be a Patron and Vice-Patrons.
2. Patron: The Sovereign.
3. Vice Patrons. Members of the Royal Family: Distinguished Officers, and Members who have been benefactors to the Institution, to be selected by the Council.
4. The following Public Officers shall be Vice-Patrons during their continuance in office:—
 1. The First Lord of the Treasury.
 2. The Secretary of State for the Home Department.
 3. The Secretary of State for Foreign Affairs.
 4. The Secretary of State for the Colonies.
 5. The Secretary of State for War.
 6. The Secretary of State for India.
 7. The First Lord of the Admiralty.
 8. The Commander-in-Chief of Her Majesty's Forces.
 9. The Lord Lieutenant of Ireland.
 10. The Viceroy and Governor-General of India.

SECTION II.—COMPOSITION.

1. Princes of the Royal Blood, Lords, Lieutenant of Counties; Governors of Colonies and Dependancies; Officers of the Army, Navy, Marines, Her Majesty's East Indian Military and Naval Forces, Militia, Yeomanry, Royal Naval Reserve, and Volunteer Corps, shall be entitled to become members *without Ballot*.
2. Ex-Governors of Colonies and Dependancies; Retired Officers; Deputy Lieutenants of Counties; Civil Functionaries who are or have been attached to the Naval and Military Departments; the Master, Deputy Master, and Elder Brethren of the Trinity House; and Army and Navy Agents; shall be *eligible* to become Members by *Ballot*.
3. Gentlemen above the age of *fifteen* whose names are on the List of the Commander in Chief for Commissions in the Army, or who are probationary for offices connected with the Naval and Military Professions, shall be *admissible*, by *Ballot*, to become Provisional Members from year to year, on payment of the Annual Subscription; and after they obtain their appoint-

ments, they may become Ordinary Members on payment of the Entrance Fee.

4. The names of the Candidates referred to in Articles 2 and 3 shall be submitted to the Council for election by Ballot; such Candidates must be recommended by Two Members of the Institution on their personal knowledge. The List of the names, signed by the Secretary, shall be put up in the Library or Reading Room Fourteen Days before submission to the Council.

SECTION III.—HONORARY MEMBERS.

1. The Council shall have the power of admitting as Honorary and Corresponding Members, the Members of the Diplomatic Corps; Foreign Naval and Military Officers; Foreigners of distinction; other eminent Individuals, and Benefactors to the Institution, not otherwise eligible.

2. The Diplomatic Corps shall be privileged to submit to the Council the names of foreign noblemen and gentlemen, resident in England, in order that they may be elected Honorary Members during their stay in this country.

3. Ladies who contribute to the Institution may be admitted as Honorary Members.

SECTION IV.—GOVERNMENT.

1. The Government shall consist of a President and Twelve Vice Presidents, and a Council composed of Twenty four Members.

2. The President of the Institution shall be elected by a General Meeting of the Members, and shall be a Member of the Council, *ex-officio*.

3. The Vice Presidents shall be elected by the Council, of which they shall be *ex-officio* Members.

4. The Council shall be elected by the General Meeting. Eight Members shall go out annually by rotation; Three of the Members going out shall be eligible for re-election. The Council shall submit to the Annual General Meeting a list of not less than ten names from which the vacancies may be filled. Vacancies that occur during the year shall be filled up by the Council the Members so elected going out by rotation as the Members would have done, whose position they have been elected to fill.

5. After the annual meeting the Council shall elect a Chairman and Vice Chairman for the ensuing year; one of whom, or a Vice President, shall preside at its meetings, except when the President of the Institution attends.

6. Five Members of the Council shall constitute a quorum.

7. The Council shall have the custody of the Common Seal of the Corporation, and shall have full power and authority to affix the same to all deeds, documents, papers, and writings in the name and on behalf of the Corporation.

8. The Council shall appoint a Secretary and Curator, and such other officers, attendants, and servants, as they shall think necessary; with full power to suspend or dismiss the same: and no such officer, attendant, or servant shall, either directly or indirectly, accept, receive, or take, from any person or persons whatsoever, any gratuity, fee, or reward whatsoever, other than and except the salary, wages, or emolument allowed by the Council.

9. Such officers, attendants, and servants shall devote their whole time, during office hours, to the Institution, and shall not be permitted to be in any way connected with any other Institution or employment, unless the sanction of the Council thereto shall have been previously asked for and obtained.

SECTION V.—SUBSCRIPTION.

1. An Entrance Fee of One Pound shall be paid by all Members on joining the Institution, whether as Life Members or as Annual Subscribers.

2. Members who have joined previous to the 1st of January, 1870, pay, either—
1st. One Pound annually, or Nine Pounds Life Subscription.

Either of these payments entitles Members to receive the Journal; or,
2ndly. Ten Shillings annually, or Six Pounds Life Subscription.

These payments do not entitle Members to be supplied with the Journal.

3. On application in writing to the Secretary, the first of the above two classes of Members, may, when serving abroad, reduce their Annual Subscriptions to Ten Shillings, and still be entitled to receive the Journal: such reduced Subscriptions to commence on the 1st of January following their departure from the United Kingdom. The Members in the second class, while serving abroad, may, on applying in writing to the Secretary, be supplied with the current Numbers of the Journal, without increasing their Subscriptions.

4. All Members who have joined the Institution on or after January 1st, 1870, shall be entitled to receive the Journal from the date of their becoming Members, and, whether at home or abroad, shall pay One Pound annually, or Nine Pounds Life Subscription.

5. The first Annual Subscription shall be due on the day each Member joins the Institution, and the subsequent Subscriptions on the 1st of January in each year; but Members joining on or after the 1st October in any year, shall not be required to pay the ensuing Annual Subscription on the 1st of January.

6. Members failing to pay their Annual Subscriptions after repeated applications, shall have their names removed from the List of Members at the discretion of the Council.

7. Members whose names have been struck off for non payment of their Subscriptions, shall be readmissible only on payment of all arrears from the date of the last payment.

The Journal and the Proceedings of the Annual General Meetings shall be sent post free; the Journal, to such Members as are entitled to receive it; the Proceedings, to every Member of the Institution.

SECTION VI.—FUNDS AND EXPENDITURE.

1. The management of the property, receipts, and payments of the Institution shall be confined to the Council, who shall authorise every payment by an order signed by the Chairman at the Meeting, and by another Member of Council present, and countersigned by the Secretary.

2. The Royal United Service Institution neither shall nor make any dividend, gift, division, or bonus in money, unto or between any of its Members out of its present property, or out of any property which it may hereafter acquire; and the whole of its property, both present and future, shall be exclusively applied for carrying into effect its design as an establishment for the promotion of Naval and Military Art, Science, and Literature.

3. The funds of the Institution and all Life Subscriptions and Legacies shall be invested in the name of the Corporation in eligible securities, to be selected by the Council.

4. All cash received on behalf of the Institution by the Secretary shall be paid by him to the Bankers of the Institution.

SECTION VII.—AUDITORS.

1. There shall be Three Auditors, not Members of the Council, who shall be elected by the Annual General Meeting to audit the accounts, one of whom shall go out annually by rotation, but shall be eligible for re-election.

2. Two Auditors shall form a quorum.

3. Any Vacancy that occurs otherwise than by an Auditor going out by rotation, shall be filled up by the Council; and the Auditor so elected, shall go out in the same order of rotation as his predecessor.

4. The Auditors shall examine and sign the yearly accounts, adding any remarks, and making such inquiries as they may deem proper.

5. After the Audit, and at least Fourteen Days before the Annual General Meeting, the Annual Report, with an abstract of the accounts, and estimate of the probable receipts and expenditure for the ensuing year, shall be printed and placed in the Library and Reading Room, and may be obtained by Members on application to the Secretary.

SECTION VIII.—GENERAL MEETING.

1. A General Meeting shall be annually held on the first Saturday in March; that day being considered the Anniversary of the Institution.

2. The Council may call a Special General Meeting, on giving fourteen days' notice—which notice must be suspended in the Library or reading Room, and advertised in two military papers, specifying the subject to be brought forward, to which subject the discussion shall be strictly limited.

3. The Council shall call a Special General Meeting on the written requisition of not less than Twenty four Members, within one calendar month from the date of such requisition, subject to the notices and restrictions above mentioned.

4. At the General Meetings, in case of an equality of votes, the Chairman shall have a second or casting vote.

5. Any Member who is in arrear with his Subscription, shall be disqualified from speaking or voting at any General Meeting, or at any Special General Meeting, or at any adjournment thereof.

6. Any General or Special General Meeting, finding the current day insufficient for its intended purpose, may adjourn to the succeeding or any future day or days, until the business be concluded.

7. No business shall be transacted at any Annual General Meeting other than that submitted by the Council, or by the direction of the Council, unless notice thereof be suspended in the Library and Reading Room at least Fourteen Days prior to the day appointed for such Annual General Meeting, specifying the subject to be brought forward, to which subject the discussion shall be strictly limited.

SECTION IX.—MAKING OR REPEALING BYE-LAWS.

Should it be proposed to make, alter, or repeal a Bye-Law, the proposition to such effect, signed by the proposer and secondor, should be suspended in the Library and Reading Room for Fourteen Days; after which the question shall be determined by a majority of at least two thirds of the Members present at the next General Meeting.

SECTION X.—MODE OF VOTING.

All questions shall be decided by a show of hands, unless a Ballot be demanded.

SECTION XI.—HOURS OF RECEPTION—VISITORS.

1. The Museum of the Institution shall be open daily (Sundays excepted) from 11 to

5, from April to September inclusive, and from 11 to 4, from October to March inclusive. Printed tickets for the admission of Visitors are available for every day except Friday, on which day a personal introduction by a Member is necessary.

2. The Libraries and Reading Rooms shall be kept open (Sundays excepted) for the use of Members only, till 8 in the evening, or to a later hour, at the discretion of the Council.

3. The Museum shall be closed to Visitors when necessary, at the discretion of the Council.

SECTION XII.—EXPULSION.

1. In case the Council shall think it expedient to submit the conduct of any Member to the judgment of a General Meeting, the Council shall call a special General Meeting; and in the event of a majority of two thirds of the Members present at such Meeting, deciding on his expulsion, such Member shall cease to belong to the Institution.

2. Any Member who shall be removed from the Public Service for causes affecting his character shall, if the Council so decide, cease to belong to the Institution.

3. In either of the above cases, the Member so expelled shall forfeit all claims on the Institution.

Winter Nights.

It is wonderful how differently the same thing looks, when viewed from different points of observation. Looked at from abroad, by persons who have never been in Canada, our Canadian winter is simply intolerable. Even in England, where, we should suppose, by this time most persons would be pretty well informed, there still exists the most exaggerated notions of its hyperborean character. In fact, it would appear as if their conception of it had been taken rather from the accounts given by travellers of this session in Norway and Kamstchka, than from any rational and truthful representation of the thing itself. The very mention of the winter of this country, calls up the most grotesque and absurd visions of people crawling about wrapped up in the skins of animals, with pinched countenances and frost bitten ears and noses?

We write not, however, for the benefit of these deluded people; and our own well informed readers know what is what too well to need any information on this subject. They know that with all its drawbacks, there is no season which we could less afford to lose, than our winter. To our agricultural population especially, it comes laden with the most invaluable opportunities and blessings. After the excessive toil of summer, how welcome to the over wrought and toil worn farmer is the comparative leisure of this season. It is almost the only time he has to visit or to receive the visits of his friends, to renew the associations of his youth, and, by living over the past, to keep his heart young. It is the only time in which he really enjoys the fruit of his labor. In the summer, which in this country includes both spring and autumn, (or unlike other parts of the world, we have really but two seasons), the husbandman is so full of care, and owing to the scarcity and high price of labor, his energies are so sorely taxed often in keeping up with the duties of his calling, that he has very little time for enjoyment.—Amid the bustle and hurry, he has but one idea, to get as much done in

as little time as may be, and so far as enjoyment is concerned, he is willing to wait for that until winter. He thinks of the stormy days and the long nights, not with aversion and dread, but with pleasure and hope. To say nothing about the days of winter. What glorious opportunities are associated with its long nights. The hours between night-fall and bed time are the most precious of the whole season. It may well be doubted whether anything else has contributed more to the intellectual, social and religious improvement of the people of this country, than these long winter evenings. The churches have always known how to utilize them. This is the season in which most of the religious anniversaries are held. It is at this season that church socials, bible classes and literary societies are most numerous attended. And it is at this season that most of the reading and study is done among our rural population. Some of the men who are at this moment filling some of the most distinguished posts of usefulness, both in church and state, have laid the foundation of what they are doing in these long winter evenings. Many a young man who has never received any scholastic training, beyond that which he has received in the common school, has out distanced in intellectual pursuits those who have enjoyed the advantage of a liberal education just by making a wise improvement of these precious hours.

And what has been done by these may be done by others. If some of our youthful readers, who feel the inconvenience of a defective education and scanty stores of knowledge, would only furnish themselves with a first rate dictionary, a good gazetteer, and one of the most modern and approved atlases to begin with as books of reference, not to read them and try to remember all that they contain, but to keep them near them to be consulted as occasion may require; then furnish themselves with a few thoroughly good books of a historical biographical and geographical character to begin with; then be content to read slowly, resolving to understand, if possible, every word, guessing at nothing, taking nothing for granted, but verifying everything by an appeal to these books of reference, they will be amazed at the amount of information which they will have acquired by the end of the winter, and what is still of more importance, at the progress in real mental development which they have made.

Prince Napoleon has issued an address to the inhabitants of Ajaccio, in which he says that under the Empire he counselled a policy which achieved the enfranchisement of Italy, the annexation of Nice and Savoy, and free trade. He opposed the war of 1870. He was ever against official candidatures. The present Imperialist leaders dream of nothing but reaction and proscription. They are guided by the clerical spirit, as fatal at home as abroad, and the Neo-Legitimist would govern like the Bourbons. The Prince demands a democratic and reforming government. He accepts frankly, without barren recriminations, the forced peace, and would seek no rash quarrel on secondary considerations. What he desires is free religion, no privileges to any priests, obligatory instruction, the emancipation of the communes, free trade, a free press, and free public meetings. To those who reproach him with personal ambition, he says, "I have had too intimate an acquaintance with the grandours of power to have personal ambition left. My only ambition is for my country and for my ideas."

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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, TUESDAY, JANUARY 12, 1875.

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

LIEUT. J. B. VINER, of Victoria, and Captain H. V. EDMONDS, of New Westminster, are our authorized Agents for British Columbia.

The following paragraph points to the policy which will be forced on Great Britain by the ambition of Prussia and Russia. The former power has endeavored to place itself before the world as the champion of liberal ideas and forethought as opposed to what is known as ultramontaniam. To a certain extent it has succeeded in masking its schemes of political aggression and territorial acquisition under the feint of its advocacy of Protestant principles and hostility to the assumed machinations of the Jesuits, whom it has bitterly persecuted notwithstanding that the pious KATZEN presented Pro Nono with the carpet which covered the floor of the Œcumenical Council that pronounced the Infallibility dogma in 1870, and that BISMARCK has unscrupulously intrigued with those same Jesuits to effect the resuscitation of the Holy Roman Empire, and behaved so badly that he is obliged to persecute Count Von Arnim, his tool on the occasion, to hide his guilt. However, the persistent increase of its military force with other indications have at last awoken the English saints and shopkeepers to a sense of their danger, and an alliance not only

with France but Austria and Italy is a necessity which cannot be evaded. In all this complication the intrigues of the Jesuitical cabal at the Vatican will prove the real disturbing element, they were outwitted by BISMARCK in 1870, and will try to make themselves amends by sacrificing some other victim. Meantime it is clear that under no circumstances can England allow the next Prussian move which will involve the absorption of Holland without something more than a remonstrance à la Lord GRANVILLE. And the next question of importance to her will be what attitude the United States will take in the inevitable contest; inasmuch that in any other than that of a principal and active participation in a struggle which will test to the uttermost the value of free institutions, she would be a disturbing element of the most dangerous character, worse by far than even Jesuitical intrigues or any other unstable element, inasmuch as the necessity of watching her would involve such naval preparation on the part of Great Britain as would materially lessen her effective strength.

It is evident, therefore, that the coming contest will involve all civilized powers as principals, and will be as extensive in regard to area as that which closed the last and opened the present century. The extract speaks for itself.

“The German *St. Petersburg Gazette*, in an article on “French Alliances,” says that the relations between France and England have of late become much more cordial and intimate than they were formerly. “The appointment to the Embassy in London of the Comte de Jarnac, who has numerous friends among the English aristocracy and is very popular with English statesmen and politicians generally, was a happy idea of the Duc Decazes, and has done much to bring together the Governments of the two nations. . . . The new ambassador has, it is said, already succeeded in drawing Lord Derby out of his usual reserve, and inducing him not absolutely to reject the idea of a *rapprochement* between the policy of France and that of England. It was Lord Derby who dissipated the clouds which were gathering over the political sky between Germany and France in consequence of the late Spanish note. . . . The amiability of the Comte de Jarnac, however, could hardly have in itself been sufficient to move the practical Cabinet of St. James’s to take such a step. According to trustworthy information the recent turn of events in the East has had a good deal to do with this somewhat surprising demonstration of English friendship for France. It will be recollected that not very long ago the Duc Decazes attempted to gain the good graces of Russia. Hints were thrown out that France was prepared to adopt the view of the three Eastern Powers, that the Danubian Principalities had a right to make commercial conventions with the neighboring States independently of the Porte. This was evidently a bait thrown out to Russia, whose friendship for Germany has always been very carefully watched at Versailles. But this attempt to draw France out of her ‘isolation’ seems to have failed, for it produced no results; and it is believed that arsenals that the English Government

wishes to prevent France from taking a similar step in future. This assumption is not without probability, for the industry and commerce of England have vast interests in the East, which diverge essentially from the not less important interests of Russia in south-eastern Europe; . . . while since the interview of the three Emperors England finds herself confronted by an imposing coalition, which will not always act to her advantage in the Eastern question. Being thus isolated, England is believed to be ready to accept the equally isolated French Republic as her natural ally.”

In another page will be found an article from the London *Daily Telegraph* on “Our Militia,” in which our obvious duty is pointed out with perfect clearness. It is quite true that at present there are no complications within human foresight to trouble our repose, but it is also true that no man knows what a day may bring forth, and the following extract will show that something more than mere precaution pervade the spirit of the Great Powers of Northern Europe, and for very obvious reasons which have been detailed in a previous article. Any movement involving that continent in hostilities is sure to be felt in this. The lovers of the German System of recruiting a military force will be delighted with the following:—

“The bill for organizing the German Landsturm threatens to lay upon the German people a new burden of extraordinary magnitude. A letter from Berlin in the *London Times* will help us to understand what this burden is. The number of able-bodied men, it appears, who annually escape military service on various grounds is estimated at 70,000, and of men between seventeen and forty there are at least 500,000 who have never been in the army. Besides there are 500,000 men under forty who, after serving in the active army, the landwehr, have been set free at the age of thirty-two. Both these classes will be swept into the all-embracing net of the landsturm. Hitherto the landsturm has been little more than a name. It could hardly be called out to service when the country was invaded, and its relation to the real army was scarcely closer than that of the English Volunteers. When this bill becomes law the landsturm may be called out at the pleasure of the Emperor, and the battalions composing it may, if necessary, be drafted off to fill vacancies in the landwehr. It may be taken for granted that no German troops upon whom this last mentioned duty may, possibly devolve will be allowed to remain without proper preparation; so that, even if we assume that the men who have passed through the army will need no further practice after they are thirty two, there is not much doubt that those who have not passed through the army will be subjected to whatever training is required to fit them for foreign service. The effect of this new legislation will therefore be, first, to lengthen every man’s liability to military service by eight years, and those between thirty-two and forty—in other words the best of his life; and, secondly, to abolish the greater number of the exemptions which have hitherto been enjoyed on one ground or another by many men under thirty-two. For the present, it appears, only 30,000 out of the 1,000,000 comprised in one or other of these categories are to be

organised. But the sense of insecurity will be imparted to all. No young man will in future be able to look forward to thirty-two as to the age after which, even if he is most unlucky, he cannot be called on to leave his home. Wherever marriage has been delayed until the period of liability to serve in the landwehr is over, it will now become a question whether it ought not in prudence be delayed until after the period of liability to serve in the landsturm is also over. Where a man has postponed investing his capital in trade until he could feel sure that he would not be called off from attending to his business by the exigencies of the military law, he will now have to calculate whether the prolongation of the risk is a sufficient reason for postponing the investment still further. Probably in both cases the decision will be to take no account of the new obligation—at all events until the first landsturm battalion has been sent off to replace an invalided battalion. But the sense that such questions have to be considered will remain, and with it the feeling of the excessive burdensomeness of life under the imperial rule. Again, in so far as the organization of the landsturm constitutes an effective addition to the military strength of Germany, it must involve a corresponding addition to the country. This addition will, in part, take the most costly of all forms of taxation—contribution of personal service. Not only will the profits of all trades be diminished by the necessity of prying the expenses of the landsturm, but the productive power of all trades will be diminished by the diversion of the labor which would otherwise be engaged in carrying them on. The financial candle will be burned at both ends. Germany—especially Prussia—is a poor country, and consequently cannot afford these fresh inroads upon her resources."

The following article from the United States *Army and Navy Journal* of 19th Dec. last, shows that the military preparedness of our neighbors is not of a character to warrant grave apprehension of any intention to disturb the peace of society, but there are more ways than one of effecting that result, and neglect of all military precaution is as likely to do it at present as excessive military preparation.

"The *Army Register* for 1875, just out, records no remarkable changes from that of last year. The general officers remain the same, and the most noticeable change in the Corps of Engineers is the transfer of General Cullum to the retired list, and the promotions consequent on this and the death of General Foster, already noticed in the *Journal*. A feature of interest this year, is a table inserted at the end of the volume, giving an "abstract of the militia force of the United States, organized and unorganized according to the latest returns received at the office of the "Adjutant-General." This table for the present year is mainly remarkable for its omissions, and a foot note informs us that this is owing entirely to the remissness of the State and Territorial authorities, who have neglected to send in the returns, though repeatedly written to. New Hampshire, Virginia, West Virginia, Delaware, Georgia, Alabama, Mississippi, Tennessee, Michigan, Wisconsin, Nebraska and Nevada have sent no returns. Illinois, Kansas, and Indiana report "no organizations." The total number of men available for military duty in the United States outside of Missouri (where there is no enrol-

ment) is three and a half millions, of which on paper 153 320 appear as "organized." In this, however, there is a clear mistake, inasmuch as Texas is credited with no less than 74,593 of the number, "unorganized strength not reported." We have in our table the last report of the Adjutant General of Texas, in which the total uniformed force of the State is put at just ten companies, and a moving appeal is made to the State Legislature to organize enough men to keep off the Mexicans and Indians. Clearly the 74,593 of Texas cannot be counted as "organized." New York is the next on the list, with a nominal force of 24,357, and South Carolina follows with 8,523. What this latter force amounts to, Governor Moses and his riots and troubles have recently shown us. Pennsylvania has a force on paper of 9 039 but outside of Philadelphia this force is almost a myth. The only thoroughly honest reports are those of Connecticut, New Jersey, and Massachusetts, with 11,169 men all told. New York State really does not possess more than the equal of this force, fully armed, uniformed and equipped; and thus the whole militia force of the United States really dwindles to less than 30,000 effective men, or one per cent. of the numbers available for duty. We hope this exhibit may open the eyes of Congress to enact at last a real militia law, that will not deceive us, as we were deceived in 1861, by delusive reports of numbers of organized troops that only exist on paper."

"THE Annual Report of (the United States) Secretary of War," appears in the *Army and Navy Journal* of 12th December, it is a lengthy and important document dealing with the army in all its relations, and in no country has the military element, practical and scientific been so thoroughly utilized; for it must be remembered that this War Department deals with affairs that in Great Britain and her colonies are too often left to the will and caprice of interested speculators such as harbors, rivers, railways, telegraph lines, surveys, topographical, mineral, geological and geological, as well as astronomy and meteorology. The total expenses of the department for the fiscal year is sixty millions one hundred and eighty thousand, nine hundred and twenty-three dollars. Of this sum about \$28,532,332 were expended on the military establishment, the balance being accounted for in appropriations to the various branches of which the Engineer and Ordnances are to us the most important. Seeing that we have no corresponding corps and must therefore consider well when the fulness of time or necessity compels their organization as to what model they should be made to conform. The following extract from this most valuable Report will show how the talent and ability of the soldier are utilised by the Government of the United States,

ENGINEER DEPARTMENT.

Under the Chief of Engineers the works for the defence of our coast have been prosecuted with vigor and as rapidly as the appropriation in hand would permit, and in several of our important harbors some of the larger works are approaching completion. Generally, the works are modifications

of existing defences, constructed for less powerful armaments than those now used. The rapid advances that have been made in power of modern ordnance, renders it essential that these works should be pushed forward to completion and properly armed.

The battalion of Engineers, in its construction, drill, and efficiency for service, has been kept to the high standard requisite for this arm of service. Stationed at Wille's Point and West Point, they have principally been employed in the trials and developments of our torpedo system, and in the instruction of cadets, while small detachments have assisted the officers engaged in western explorations. The appropriations asked for its service are recommended to Congress.

The trial with torpedoes, which for some years past have been going on at Wille's Point, have developed a system inferior, it is believed, to none in use abroad, which will furnish us at small cost with the means of barring our harbors against the inroads of ironclad vessels, furnishing us with one form of obstruction for holding them under the fire of our guns. The importance of this class of defence is so obvious that the necessity for making the appropriations asked for the collection of such materials as cannot be obtained speedily need not be urged upon Congress.

Satisfactory progress has been made upon the works for the improvement of rivers and harbors, and the surveys and examinations connected therewith, in accordance with the provisions of the river and harbor appropriation act approved March 17, 1873.

The report upon the practicability of bridging, consistently with the interests of navigation, the channel between Lake Huron and Lake Erie, required by the third section of this act, was submitted during the last session of Congress, and printed, forming Executive Document No. 64 House of Representatives, Forty-third Congress, first session.

The provisions of the second and third sections of the act approved May 11, 1874, "providing for the payment of the bonds of the Louisville and Portland Canal Company," so far as relates to the transfer of all the property of said company to the United States, have been complied with. This transfer of the canal was made on the 10th June, 1874, from which date the reduction of tolls took effect. The requirements of the act regarding the rate of tolls for the year 1875 will be complied with as soon after the close of the present calendar year as practicable, when a special report will be submitted setting forth the receipts and expenditures during the period of reduced tolls, i.e., from June 10 to December 31, 1874, and the condition of the canal at the close of the year.

In compliance with the provisions of the act approved June 23, 1874, authorizing the construction of a substantial iron and masonry bridge and of a causeway across Anacostia, or Eastern Branch of the Potomac River, at or near the site of the present Navy-yard bridge, a contract has been entered into with responsible parties for the construction and completion of the said bridge.

An act approved June 23, 1874, provided for the appointment of a commission of engineers to investigate a permanent plan for the reclamation of the alluvial basin of the Mississippi River subject to inundation. The commission has been organized, and the members are now engaged upon the investigation and collection of the data necessary to the preparation of a full report.

The amounts appropriated by the river and harbor act of June 23, 1873, are applied to the specific objects therein designated. Detailed information in regard to the condition of each work of improvement, and the progress made in the surveys provided for in the act may be found in the report of the Chief of Engineers.

The surveys upon which to base estimates for the improvements recommended by the Senate Select Committee on Transportation Routes to the Seaboard including that for the extension of the Chesapeake and Ohio Canal now in progress.

The board of engineers provided for in the third section of the act has been organized and the members are now engaged upon the investigations, examinations, and surveys necessary to the preparation of a report upon the best method of obtaining and maintaining a depth of water sufficient for commercial and military purposes, either by canal from the Mississippi River to the waters of the Gulf of Mexico or by deepening one or more of the natural outlets of the river.

The survey of the lakes has been carried on during the year with its accustomed energy and success. The connection of the triangulation of Lakes Superior and Michigan, the inshore and offshore hydrography and topography, have been finished; the Wisconsin triangulation has been carried southward to the vicinity of Chicago, and the Keweenaw base has been measured. The surveys of the Detroit River and river Saint Lawrence from the forty-fifth parallel have been completed, and a map of the lower half of the former has been published; the determination of several points in the interior of Michigan has been made in aid of surveys by the State; the survey of Lake Ontario has been commenced, and much of the field-work has been reduced. The preparation of Chart No. 1 of the Saint Lawrence, of Sandusky Harbor, and of the mouth of the Detroit River, has been completed, and they are now in the hands of the engravers. The need of the vigorous prosecution of this important survey is shown by the number of copies of the various finished charts called for now, from five to six thousand and copies a year, and by the constant demand for charts not yet completed. It has been stated that a single survey made last year, viz., the survey of the mouth of the Detroit River, will save from \$50,000 to \$100,000 to commerce this year.

The labors of the party engaged on the geological exploration of the fortieth parallel have been mainly directed during the last year to the preparation of the report and accompanying illustrations. The topographical maps, all of which have been completed, have been put into the hands of an engraver, and the preliminary work for the report, consisting of chemical, paleontological, and microscopic studies, has been carried on with success.

Microscopic researches are also being made with a promise of identifying American rocks with well-known types in Europe. It is confidently expected that the reports of this important survey will be brought to a close within the present fiscal year.

The geographical surveys and explorations west of the one hundredth meridian in California, Nevada, Utah, Arizona, Colorado, New Mexico, Wyoming, and Montana, have been carried on most successfully since my last report. At the commencement of the fiscal year the three main parties engaged in this work had left their rendezvous at Salt Lake, Utah, Denver, Colorado, and Santa Fe, New Mexico. They moved south into

Arizona, connecting with the work of former years, and covering during the surveying season about 75,000 square miles of territory. In addition to its topographical work proper, the survey embraced the fixing of many points astronomically, and investigations in geology, mineralogy, natural history, and the natural resources of the country traversed. It is expected that a large part of the results of this survey will be ready for the press during the coming year.

The officers of the Corps of Engineers who have been attached to the headquarters of the military divisions and departments into which the United States is divided have been engaged during the past year in reconnaissances and explorations, in the collection of geographical and topographical information required by their commanding generals and for the completion of the map engraved and distributed by the Engineer Department. Facilities have been furnished through these officers to most of the interior posts for the plotting of the routes of scouting and other military journeys, and an increased interest appears to have been taken by the officers and men in adding to our present knowledge of the interior posts of the continent, as is evidenced by the fact that in one of the departments—the Department of Missouri—23,000 miles have been covered by the military journals and sketches during the last year, while in the preceding year there were but 9,000 miles recorded in the department. Among the more important results during the last year may be mentioned the discovery of a new wagon route from the line of the Union Pacific Railway to the Yellowstone Park and Montana; a reconnaissance in the country of the Ute tribe of Indians; the construction of a wagon road from the Santa Fe to Taos, New Mexico, and a survey of the Black Hills, of Dakota by the Engineer officer attached to the military expedition which was sent into that interesting country during the summer of 1874.

The commission of two engineer officers and one coast survey officer, organized under the act of Congress approved March 3, 1873, for the purpose of examining and reporting upon a system of irrigation of the San Joaquin, Tulare, and Sacramento Valleys, have completed their investigations and have made their report, the principal points of which are referred to in the report of the Chief of Engineers.

The estimates of the Chief of Engineers are submitted separately, as presented by that officer, viz.:

Fortifications and other works of defence.....	\$2,103,700 00
Public buildings and grounds, and Washington aqueduct.....	678,410 50
Surveys.....	399,000 00
Engineer depot at Willet's Point, New York.....	9,000 00
Office expenses.....	35,000 00
Improvement of rivers and harbors.....	12,970,500 00
Total.....	\$16,200,630 50

ORDNANCE DEPARTMENT.

At the different arsenals, the operations during the year have been chiefly the erection of public buildings at the Benicia and Rock Island Arsenals, under specific appropriations; the care and preservation of the different arsenals, and of the ordnance and ordnance stores thereat, the manufacture of small arms, ammunition and other ordnance stores and supplies; the preparation of experimental cannon, and the sup-

plies; the preparation of experimental cannon, and the supplying the Regular Army, the Marine Corps, and the whole body of the militia with arms, ammunition, and materials.

The adoption of the Springfield breech-loading system by a board of officers convened under congressional enactment, and its subsequent establishment by law as the only system to be used in the manufacture of arms, enables the Department to continue the manufacture upon a secure basis, and provide an arm with no superior, that may not be superseded by any more perfect invention for many years to come.

The production of rifles and carbines upon the adopted plan has been pushed forward at the National Armory with energy and success, and the new arms issued to the troops will no doubt give great satisfaction. Their use has been retarded by the lack of ammunition, the small appropriation not supplying the number of cartridges permanent indispensable by the commanding generals of departments.

That the troops might be trained to more accurate firing, orders have been issued by the Department authorizing the annual issue of 120 ball cartridges per man, being ten per month for each man. This certainly does not appear to be too much, but when a calculation is made of the number and the cost, it is found that this limited issue will require 3,000,000 cartridges, which would absorb the whole of the appropriation of \$75,000 for the manufacture of metallic ammunition for the fiscal year. It is evident, therefore, that a larger appropriation for this purpose should be made and I trust the matter will receive the favorable consideration of Congress.

The appropriation of \$100,000 made by Congress at its last session for the manufacture of arms, had to be supplemented from the permanent appropriation for "arming and equipping the militia," in order to work economically, to keep the cost of the sum within proper limits, and enable the Department to supply the wants of the Army and the militia. Not less than half a million of dollars should be annually expended at the National Armory, not only as a measure of economy in producing the best arm for the least money, but in the interest of the country to make a gradual but sure accumulation of the best weapons as a reserve in case of war. In again urging this important matter upon the attention of Congress, I am actuated solely by a sense of public duty, and an earnest desire to have the nation brought to a keen realization of the necessities of the country and the gravity of the subject, and do not hesitate to express my decided conviction that a liberal expenditure at present will prove to be the greatest economy in the future. Every nation that aspires to the dignity of a first class power has cast aside its obsolete muzzle loading arms, and at immense cost has been and is providing the newest and most approved models by hundreds of thousands. The sudden occurrences that end in war, and the startling rapidity with which wars are waged and terminated, demand complete preparation in time of peace. With us the want of a large standing Army can only be compensated by keeping on hand, ready for any emergency, a complete supply of every description of war material. Arms and ammunition are of the first importance when an army is to be improvised, and the country should place its dependence at such a juncture on the reserve supplies stored in its arsenals. Certainly not less than half a million of the best arms should be manu-

factured as rapidly as the monetary condition of the country will permit. The experience of the past is the surest and safest guide in making preparation for the future.

An increase in the annual appropriation for arming and equipping the whole body of the militia is again brought to the attention of Congress, with the hope of some legislation thereon. Not only should the appropriation be largely increased to meet the wants of our ever-growing population, but some legislative action should be taken to relieve many of the States and Territories from charges for arms issued to them during the rebellion, and which should not in fairness have been so charged. This subject has been so often referred to in previous reports, and so largely dwelt upon, that a more extended reference to it at this time is deemed unnecessary.

In October, 1873, consideration was given to the necessity of changes that should be made in the horse equipments, accoutrements, tools, and materials for cavalry service in the field, and the determination of a standard table of supply. A board of cavalry officers was appointed, to give the Department the benefit of its knowledge and experience. Its report is appended to that of the Chief of Ordnance.

The recommendations, when executed, will undoubtedly add greatly to the efficiency of the cavalry service, and every detail will be carried out as fast as funds will permit, and with due regard to the utilization of the stock on hand.

For several years past I have directed attention to the large number of arsenals east of the Mississippi River scattered through the country, the consequent lack of concentration of work in the interest of economy and perfection of product, and the undoubted necessity of disposing of several of these national establishments, and the building up of a grand arsenal on the Atlantic seaboard. In order to facilitate intelligent action on the subject, by the collection of all necessary data for the information of the Department and of Congress, a board of ordnance officers was appointed some months since, to make a comprehensive and exhaustive study of the subject, and also of the question of a proper location for a powder depot and of an experimental ground for the testing of heavy ordnance. After several months of patient and careful investigation the board has made its report, which is herewith transmitted. It strongly recommends the retention of the Springfield Armory and the Frankford Arsenal, and the establishment of a grand arsenal in the vicinity of New York City for manufacturing purposes; retaining also the Indianapolis Arsenal, Indiana; Kennebec Arsenal, Maine; Fortress Monroe Arsenal, Virginia, and Augusta Arsenal, Georgia, as places for storage and repair. It recommends the sale of the Allegheny, Columbus, Detroit, Pikesville, Waterliet, Watertown, and Washington Arsenals, the sales to be made as rapidly as circumstances may permit, the proceeds to be devoted to the purchase of a site and the erection of buildings for the grand arsenal. I heartily concur in these recommendations and invoke favorable consideration on the part of Congress. Some such definite policy must be inaugurated and steadily pursued. That such establishments demand the fostering care of the country calls for no argument, and that the number of our arsenals must be reduced seems to be the conclusion reached by Congress in the past two years, judging from the very small appropriations made for their care and pre-

servation—appropriations not sufficient to keep the buildings from running to decay. These seemingly large reductions by sale will, when accomplished, leave thirteen arsenals and the armory; a number amply sufficient, when liberally sustained, to meet all the demands of the nation, and all this can be effected from the sales of arsenals, and without the expenditure of a single dollar out of the national Treasury.

The establishment of a powder-depot and an experimental ground for heavy cannon are also discussed by the board, and its recommendations are approved. An estimate for these very important and desirable objects has been made, which it is earnestly urged that Congress take favorable action upon. The great gun problem cannot be solved without continued experiments, considerable expenditure, and all the facilities of a well appointed experimental and proving ground. The improvements in modern gunnery are as much the result of the hourly demonstrations on the experimental ground as in the success of mechanical manipulation and skill in the workshop, and certainly no exercise of theoretical knowledge and research will avail without the tests of experimental proof.

We have to thank Captain B. Burgess, Secretary and Curator of "The Royal United Service Institution," for copies of the By-Laws, a description of the Institution and forms of application for membership, which we shall be happy to place at the disposal of any officer of the Canadian Army who would wish to avail himself of the advantages it affords, for the scientific and literary illustration of the "Art of War." As we have repeatedly brought the valuable aid to military knowledge which this Institution affords before the officers of our military force, we now publish for their information the "Design and authorized description," for the purpose of exhibiting its constitution and the objects for which it was organized, in the hope that they will take advantage of such valuable aid to obtain a true notion of military science.

MUSIC.—No. 1 of *The Chorister* containing the Anthem—"The earth is the Lord's and the fullness thereof,"—is just to hand. *The Chorister* is neatly got up and the very thing for the church choir, the home circle and the social gathering. We wish the publisher, Mr. Ashdown of Amherstburg, Essex County, Ont., every success. Send in your subscriptions to him, only 56c. a year and postage free to clubs of four or more.

THE SUPPLY AND DEMAND FOR LUMBER.—The *Portland Press* says that within ten years not less than 12,000,000 acres of forest have been cut down or burned over in this country. Much of this timber is used for fuel, twenty-five cities being on record as consuming from 5,000 to 10,000 each. Fences used up much timber, and railroad ties require the product of 150,000 acres a year. The amount of pine and hemlock timber yet standing in the forests of the timber States is estimated at 225,000,000,000 feet. The sum of \$44,000,000 is invested in this industry, affording employment to 200,000 men.

Fighting Fish.

The *Daily News* says:—"We are threatened with the introduction of a new 'sport' into this country. Our versatile neighbors across the Channel have lately introduced a new kind of sport—a fight between fishes. Mr. Carbonnier, who has been successful in introducing several varieties of tropical fish from the waters of China and India—such as the climbing perch, the goverami, the paradise fish, the rainbow fish, and the telescope fish—has lately added to his collection some examples of a piscine curiosity known as the 'fighting fish.' It appears to be a favorite amusement among the natives of Java and other East Indian islands to arrange tournaments between these creatures, and they watch their combats with an eagerness that would do credit to a confirmed bookmaker on the turf. Bets pass as freely on the results of the struggle as on any of our great sporting events, and the establishment of a Tattersail's rooms among the dusky Malays offers a promising speculation to any enterprising individual. The selected champions are put in separate glass vessels, which are placed near each other, and the 'first scene' comprises their ineffectual attempts to penetrate the intervening glass. In due time the fishes become greatly excited and continually change color till at last they are almost black, their gill covers open out in a sort of Elizabethan frill or collarette on each side of their head, the tail and fins become phosphorescent in appearance, and beautiful colors of every hue intermittently tinge their scales. Still they cannot reach each other, and their anger is roused to its highest pitch; till at last combatant No. 1 is summarily transferred into the vessel containing combatant No. 2, and the real business begins. Rapid strokes of the tail and quick vibrations of the fins follow, till one or the other, vanquished, seeks safety in flight, and eventually jumps from the water, leaving his antagonist master of the field."

The following is an analysis of a confidential circular from the Russian Government, dated the 26th of September, relative to the Brussels Conference, which was delivered to foreign Governments last month:—

"The Russian Cabinet, being interrogated from various quarters as to its future course, replied that the Brussels Conference was an inquiry, and that its protocols reproduced the harmonising or opposing opinions of the Governments represented. The final protocols reserved the examination of the questions discussed for the various Governments. Consequently, these Governments, having received the protocols, will consider the decisions to be arrived at. St. Petersburg appears to be a suitable place for receiving the various conclusions, observations, and proposals on the subject. Thereupon Russia would state whether it would be desirable to embody the points agreed upon in a document intended as an exchange of declarations, or to bring forward a fresh scheme, or, lastly, to propose a new meeting of delegates for a final convention. Foreign Governments are requested to send their observations, proposals, and conclusions to St. Petersburg as soon as possible."

The Judge who sentenced Count Von Arnim has been called upon to explain how it happened that the sentence on that nobleman was published in Vienna several hours before it was pronounced in Berlin.

FAIR CANADA.

(BY MR. WINGFIELD.)

Let others sing of sunny climes,
Of lands beyond the sea;
There's not a dearer spot on earth
Than Canada to me.

Dear Canada; loved Canada,
Wherever I may be;
There's not a land on all the earth
Shall win my heart from thee.

Her sons will ne'er submit to crouch
Beneath a tyrant's sway;
The stag that roams her forest glades
Is not more free than they.

Dear Canada; loved Canada,
Wherever I may be;
There's not a land on all the earth
Shall win my heart from thee.

The red-cross flag our fathers raised,
We hail it as a friend;
And should the flag e'er be assailed,
It's glories we'll defend.

Fair Canada; brave Canada,
No land on earth more free;
And his would be a coward's arm,
That would not strike for thee.

The Scot may boast his heather hills,
The Englishman his rose;
And Erin's sons may love the yales
Where Erin's shamrock grows.
But Canada; loved Canada,
Is dearer far to me;
No other land, however grand,
Shall win my heart from thee.

The sun that tints her maple trees
With Nature's magic wand,
Shines down on peaceful, happy homes,
In our Canadian land.

Fair Canada; loved Canada,
My heart is wed to thee;
Be thou the land of noble deeds,
And empire of the free.

Our Heavy Artillery.

The *Pall Mall Gazette* returns to its one-time favourite subject—that of our heavy artillery—by giving some particulars concerning "The Growth of the Woolwich Infants." Our contemporary says:—"In June, 1871, the first Woolwich Infant, of thirty five tons weight, was cast, and in December of the same year it came to an untimely end by the fracture of its inner tube of steel through the use of a charge of powder unsuitable in character and dimensions to the calibre of the gun during experiments for the purpose of determining the proper service charge. At this time the bore of the gun was twelve inches in diameter, and the weight of shot 700lbs., while the experimental charge weighed 120lbs. In consequence of the results of these experiments it was decided to fix the charge for these guns at 110lbs. of Waltham Abbey pebble powder and 700lbs. projectiles the calibre of twelve inches being definitely adopted and the length of gun remaining the same as at first, it was generally allowed to be too short. In commenting on the experiments (January and February 1872), we pointed out the folly of sacrificing the power and efficiency of a gun by making it to fit the turret of a ship, instead of adopting the plan of building the ship, or in other words the carriage, to take the best gun of any given weight. We further pointed out that, as the length of these guns appeared unfortunately to be limited, the best method of making them more efficient would be by increasing the calibre, thus affording more space for the consumption of the charge, as well as making it of such a force as to develop its best effect on the shot with the minimum strain on the gun. Lastly, we recommended experiments with special powders of larger grain—larger, that is, than that of the service pebble powder. It seemed to us that experiments with a lengthened (if possible) and bored-up gun, and with special powder, would result in a marked increase in the efficiency and power of these enormous weapons.

"The whole of these methods of improving the 'infants' have been tried, singly and collectively, and the results amply bear out our most sanguine anticipations. For the purpose of these experiments the body of the defunct infant has been utilised; it has been supplied with a new steel tube and lengthened by three feet, making its total length about nineteen feet; and having thus grown into a 38-ton gun, it has been again handed over to the Committee on Explosives, who have carried out a series of experiments with it, both with 12 and 12.5 inch calibres, using powders of various sizes. Commencing with the smaller calibre (12 inches) and service pebble powder, the grains of which are, roughly speaking, half inch cubes, making seventy two to the pound, the grains of powder were increased gradually until they reached the enormous size of 2 inch cubes, weighing rather less than half a pound. The intermediate sizes tested were 1-inch, 1.25 inch, 1.5 inch, and 1.7-inch cubes, weighing respectively about eighteen, nine, six, and four to the pound; while various experimental powders—furnished by private manufacturers, and also foreign prismatic powders—were also tried. The shots used during these series weighed 700lbs. and 800lbs. When sufficient results had been obtained from the 12 inch calibre the gun was bored up to 12.5 inches, and the same experiments repeated, excepting some of those which were so manifestly failures as to require no further test. The results of these experiments were then compared in order to ascertain the most suitable diameter of bore. This was done in two ways: first, by comparing the work imparted to the same weight of shot by the same charge of powder when fired from the two calibres; and, secondly, by comparing the best results obtained with either calibre with any charge and weight of shot. By both methods the superiority of the larger calibre is abundantly established, but in a more marked degree by the latter method of comparison; and it has been decided by an ordnance council that 12.5 inches shall be the calibre of the 38 ton guns, and that they shall fire a shot of 800lbs weight.

"As regards the powder, it was very soon discovered that the increase in size of grain gave very good results up to a certain point, but that if the increase was continued further, though the pressure on the gun was very materially reduced, the velocity imparted to the shot fell off also. The most suitable size of grain for this calibre appears to be cubes of about 1.25 inch, as more work is imparted to the shot by a charge of this powder than by any other, while the pressure on the gun is less than with the smaller sized powders, and is well within the limits of the endurance of the gun. The charge which appears to be most effectively consumed weighs about 130lb., and this will probably be the future charge of these guns, though the question is not yet positively settled. Should this be the result, and it cannot be far wrong, we shall have guns firing 130lb of powder, and thereby imparting to an 800lb. projectile of 12.5 inch calibre a velocity of 1400ft. a second, instead of guns capable only of burning 110 lbs. of powder, and giving to a 700 lbs projectile a velocity of 1300ft while the strain upon the gun in the former case is less than in the latter. This, as before pointed out, is due to the employment of a powder better suited to the charge, and by increasing the calibre and length of the gun, so as to enable it to burn the charge to more advantage. The arguments—and they are strong

—against this increase in calibre are that the larger diameter of shot will encounter greater resistance in passing through the air than the smaller, and having when it reaches the object aimed at to make a larger hole, will require more energy to do so. By increasing the weight of shot from 700lbs. to 800lbs. the first objection is at once met; in fact, the tables are completely turned, as the large heavy shot has more power of overcoming the resistance of the air than the smaller and lighter one, so that the longer the range the more its superiority increases. Again, the greater initial velocity given to the 12.5 inch shell is quite sufficient to endow it with greater penetrative power than the 12-inch shell, and thus again the advantage lies with the increased calibre, for, granting the power of both to penetrate a given object at any range, the larger shell will make a larger hole, and, carrying a larger bursting charge, will be more destructive. In every point of view, therefore, the growth of the infants in interior diameter is a decided gain. We have avoided so far the question of increased length since it is an entirely separate matter. As before stated the infant has grown three feet in this direction, and the result of the increase in its length is a gain in initial velocity of about sixty feet, and such an increase in penetrative power that the long gun is about as powerful at 500 yards range as the short gun is at the muzzle. The advantage of this increase in length is now so well recognized by the navy that one of the turrets of the *Thunderer*, originally built like the *Devastation* for the short guns, is being specially fitted to take the long guns. This change is only rendered possible by the adoption of a system of loading and working by hydraulic power. By these mechanical appliances it is stated that the guns of this immense size can be traversed, loaded, and trained ready to fire in about thirty seconds by one man, and should they prove a success, there can be little doubt that all our new ironclads and important forts will be supplied with them. The 80-ton guns, at any rate, cannot possibly be worked without them, and with the present scarcity of trained gunners, compared with the number of guns to be manned, the general adoption of the system would be decidedly advantageous."

Sighting.

To the Editor of the Army and Navy Journal.

SIR: "Sighting" has never been made the subject of any particularly careful study. Most of our time and money has been expended in improving the guns themselves, and trusting the perfecting of the sight to after consideration. It is presumable on this account that the sights now in use are so primitive in their construction. The study of the sight, indeed, naturally follows that of the gun in the logical order of practice; but now that guns have arrived at such a marked stage of improvement, and may be fired with so great accuracy and precision, the time has surely come when we may be benefited by devoting a few thoughts and some expense to determining the best means of accurately aiming them. It is surely a field for improvement, and at the very outset it must be admitted that with the heavy rifled guns of the present labored models, there is no reason why we should not gain results that would do credit to Creedmore practice. Indeed, *cætris paribus*, large rifle projectiles should be even more certain in their course than the lighter

ones from hand arms. That they have not been is the fault of sighting more than of any inherent variability in the trajectory of the heavy projectile. It is a mistake to imagine that because heavy guns are employed against large objects we may expect to attain them by a mere general direction. We cannot accomplish this end so easily, and even if we could we ought not to neglect accuracy, for now more than ever do we seek it, endeavoring as we do to make a few shots decisive.

An accurate sight has now, therefore, become a desideratum. The telescope naturally suggests itself, but it is objectionable both on account of its expense and its liability to get out of order. Its main advantage, that of magnifying, is in reality unimportant in artillery, as the ordinary eye is perfectly reliable within the limits of accurate cannon range. It is very different however with small arms, for these being used against comparatively small objects, the eye needs the assistance of a magnifier; consequently, for heavy guns, a cheaper, more substantial, and a more simple instrument is needed, and one which will at the same time be equally as accurate a collimator as the telescope.

In aiming we have two principal objects, to point and to elevate, *i. e.*, to bring the axis of the gun into the proper plane of fire, and give to it a suitable elevation for the range required. Of these two, pointing is by far the most important, and by far the most difficult, because elevation is now reduced down to the mere use of a properly graduated arc. Pointing, however, is a problem as perpetually recurring as loading itself, and into this important practical question enter many side issues, based upon the various causes of aberration of flight, such as drift, influence of wind, inequality of platform, etc., and a suitable allowance must be made for each and all of them before we can, with any justice to the gun, expect to attain great accuracy of fire.

A sight should therefore be primarily a good pointer, *i. e.*, it should possess the property of being quickly and accurately put in collimation with any required object. Again, owing to the fact above alluded to, that a projectile is not strictly obedient to a direct aim, the sight must possess another important feature, namely, that of being readily adjusted to the proper allowance for this variation whatever it may be.

At present we know of no such sight in any service; surely there is none in our own. In particular cases, such as the pendulum hausses for inequality of platforms, and the adjustable screw on the breech sight for drift, the attempt has been made to overcome some of these obstacles to an accurate aim, but no sight has attempted to combine them all, and every sight now used is objectionable on account of coarseness.

An instrument, however, called the "Collimating Sight," has lately been invented by Lieutenant Totten, of the Fourth Artillery, at the Artillery School, Fort Monroe, which, it is understood, combines all these valuable features, and bids fair to be a very handy military acquisition. It is principally intended for aiming heavy guns and mortars, but there are a great variety of important geometrical uses to which it can be put in what we may term battlefield surveying, which enhance its value to the practical soldier. Of the latter we may mention the valuable instrumental aid it affords in running right lines, setting out lines of works, trenches, etc., determining right angles, running perpendiculars, parallels,

offsets, verticals and horizontals, determining intersections, accessible or not; interpolating points, indicating differences of level, etc.

As a sight, it enables us to give a hair-line direction, and the proper elevation to the axis of the gun, making use at each successive shot of the actual line of metal, be it variable or not, and, moreover, it affords an easy means of correcting for the various aberrations of flight due to whatever cause. These corrections may be instantly made, and their need is as instantly indicated. This is all accomplished by a simple and very pretty combination of the spirit-level and an adjustable reflector. Its mode of employment is within the comprehension of and soldier, and its various uses may be accomplished with the greatest despatch. It combines at once all of the valuable features of an accurate collimator, a perfect breech sight, a gunner's level, a gunner's quadrant, a pendulum hausse, and, together with these, is useful as an instrumental aid in the ordinary field problems of practice.

The principles upon which the construction of this instrument is based are not stated as yet, but are understood to be of so simple a nature as to suggest their accuracy at once. As soon as the instrument shall have been submitted to an appropriate board, a more complete description of it will be furnished. H. C. M.

Tecumseh.

Yesterday an ubiquitous *Journal* reporter while in the discharge of his professional duties, happened on a venerable relic of humanity who had views. The old man's name is Daniel Boone Myers, he lives in Boone County, Indiana, and his views relate to the death of the late lamented Tecumseh. Mr. Myers had a long and somewhat eventful life. He was born in a block house in Nicholas County, Kentucky, in June, 1788, and is therefore weighted with the wisdom of eighty five years. His birthplace was but a few miles from Boone's station, and though the family left Kentucky for Missouri when he was a mere child, he remembers seeing the festive Daniel during one of the latter's visits to the dark and bloody ground. In 1811, being then a lusty youth of twenty-two, Mr. Myers made a pleasure trip to this State, passing through and spending a night at this point. The name of Indianapolis had not then been heard of and the brilliant career of the central city of the Meridian zone was shrouded in the dim and misty future. There was not a rod of Nicholson pavement here, nor any city council, nor a single gambling-house or liquor saloon. Even the old State house had not been built. The noble red man plied his vocation hereabouts, and the primeval forest which covered the present site of Indianapolis echoed to the mellifluous growl of the American black bear and the plaintive cooing of the hoot owl. Mr. Myers stopped at a log house near white river, which, though neither a gorgeous palace nor a cloud capped tower, was the best and only hotel here. Although a sharp young man for those times, he made no investments in real estate, an error he now regrets the more since he could probably have purchased any quantity of Washington street property with the proceeds of the horses he rode. But in one respect he was like Daniel Boone and Daniel Webster—his foresight was not as good as his hindsight. Besides, there were no real estate agents here at that time, and very little attention was paid to distinguished visitors.

Mr. Myers was in the war of 1812, having volunteered and served under Col. Richard M. Johnson, of Kentucky, better known in those days as Dick Johnson, afterward United States senator and Democratic candidate for vice president. Myers was corporal of a company under his command, and took part in the somewhat celebrated battle of the Thames, fought in Canada in October, 1812. It is a matter of history that in this battle the Indian chief, Tecumseh, who had received the rank of brigadier general from the British, commanded that portion of the British forces consisting of whites and Indians. Colonel Johnson commanded that portion of the American troops directly opposite to him. Mr. Myers says that prior to the battle his company, with one or two others, were sent forward to reconnoitre. This they did to their satisfaction and were able to report the exact position of the British and American troops. In due time the Americans moved on the enemy, and a very severe battle ensued. It is known that Tecumseh fought bravely, and that he fell while rushing ahead of his troops. We will give Myers' statement as nearly as possible in his own language:—"My company had been in the thickest of the fight, and the Indians had been driven back, when up rides Colonel Johnson with his sword in hand and his horse covered with sweat. Just then our Captain said, 'Give 'em another round, boys,' and we blazed away. At that we saw an Indian, followed by few others, rushing straight at us. Some of the men who still had loads, fired, when the Indians all turned tail but one, and he kept ahead. I was standing less than twenty yards from Colonel Johnson. The Indian came rushing on like a crazy man, and when about ten rods from Col. Johnson took aim and fired at him. The ball went through the colonel's thigh and into his horse, which pitched around terribly. Quicker than lightning the Colonel jerked his pistol out of his holster and fired at the Indian, and shot him through the breast. He fell full length, and the men rushed up to see who it was. He was covered with shoulder straps and harness of all kinds, and a man named Ferguson, who knew Tecumseh like a book, told me who it was as soon as he saw him. Afterwards some prisoner said so, and everybody admitted it. Our men cut nearly all the skin off his body for razor-strops. I sharpened my razor for years on a strop made out of Indian's hide." Mr. Myers' memory of the past events seems very clear, and from his testimony, we are inclined to accept the old song, "Rumsey dumpy, Col. Johnson killed Tecumseh."

Mr. Reed on the Navy.

Mr. E. J. Reed, M. P., the late Chief Constructor of the Navy, addressed his constituents in the Temperance Hall at Pembroke Dock, on Monday night. He said a close analysis of the Navy Estimates for the present year showed that our great Empire—with its twenty eight million tons of mercantile shipping leaving and entering its ports in one year; its £703,000,000 worth of import and exports; with £34,000,000 worth of ironclads in the hands of other Powers; and its own ironclad fleet needing great repairs—yet proposed to spend only £660,000 on new ironclads in 1874-75. Such a proposal was an abandonment of the position of the country in Europe, and he remonstrated to the best of his ability against it, Cabinets practically decided

such expenditure as that of the navy with little practical reference to its requirements. It might be unpopular in these piping times of peace to advocate expenditure on the navy, but the very people who in such times denounced our shipbuilding expenditure would be among the very first to turn craven in time of war in presence of the consequences of their own folly. Referring to Mr. Ward Hunt's promises as to the navy, he (Mr. Reed) feared the result of a year's administration on the part of the new Board of Admiralty would scarcely prove satisfactory; for, so far as he could learn, there was little prospect of the twenty-seven ironclads being found in a state of efficiency when Parliament met, and in one respect he anticipated a most serious failure, no very valuable result, as far as he could learn, having been arrived at concerning the boilers of ironclads by the committee appointed to consider that question. He should require to be more fully informed in the next session of Parliament respecting the shipbuilding proposals of the Government than the House was during last session. On the manning of the navy, Mr. Reed said that now, when the mere management of sails was becoming of altogether secondary importance in comparison with the working of machinery for propelling, for working guns, and for other purposes of shipboard, the case was such as to make it absolutely necessary that our officers of every class should receive a scientific and mechanical education, and this could not possibly be obtained unless a thorough grounding was first laid at suitable schools before the seafaring element was introduced. There was so much distraction and excitement on board ships that they were probably the very worst places for studying in the world. He must next say that there was a great field for the Government to develop in bringing about a better relationship and closer identification between our great mercantile marine and the Royal Navy. The efforts made in connection with the Royal Naval Reserve and with the Naval Artillery Corps, fell far short of the requirements of the country. In point of fact, the time had arrived when a thoroughly enlightened and vigorous Minister of Marine might turn his attention with the utmost advantage to the question of relieving the expenses of the Royal Navy, and at the same time of augmenting its practical and potential force in time of war. Mr. Reed, on sitting down, was loudly cheered.—*Broad Arrow*, Dec. 12.

Gunpowder Experiments.

Captain Noble, and Mr. Abel (says the engineering journal *Iron*) have come to a definite stage with their experimental researches into the action of fired gunpowder, and have embodied their conclusions in a report of the proceedings of the Royal Society.

Their objects they state to have been:—(1) To ascertain the products of explosion when fired in guns and mines; (2) to investigate the tension; (3) the effect of various sizes of grain; (4) the variation caused by various conditions of pressure, comparing explosion in a closed vessel with that in the bore of a gun; (5) the volume of permanent gas; (6) the heat; (7) to ascertain the work performed on a shot in the bore of a gun. For this very careful experiments were carried out to ascertain the pressure, volume of permanent gas, heat, and analysis of gases and solid products. A vessel of mild steel, tempered in oil, was used, com-

pletely closed with a closely-fitting screw firing plug, through which were led circuit wires with fine platinum wire enclosed with mealed powder, which it fired when heated by the current of a Daniell battery,

The results were briefly as follows:—The pressure was registered by Captain Noble's crusher gauges at from 1 ton to 36 tons per square inch. The analysis of the gaseous products showed a regular change, due to variation in pressure, carbonic anhydride increasing, with a decrease in carbonic oxide, as the pressure increased. The solid products were subject to greater and less regular variation; speaking generally, the chemical action is more complicated than has been supposed, and the old fundamental equations are found to represent it very imperfectly. More carbonic oxide and potassium carbonate, and less potassium sulphate than has been thought is produced. Potassium sulphide is thought to be formed primarily, but eventually it is not present in any considerable quantity, having given place to potassium hyposulphite. The temperature of explosion is found by means of platinum wire or foil to be about 2200 deg. Cent. About 35 per cent, of the heat generated is communicated to a small arm, and but 3 per cent. to an 18-ton gun. The products of explosion consist of about fifty seven parts weight of solid to forty-three of permanent gas. When the powder fills the space in which it is fired the pressure is about 6400 atmospheres, or 42 tons per square inch. The products of explosion generally are the same in a gun and in a completely closed vessel. The work on the projectile is due to the elastic pressure of the permanent gases. These results have only been obtained by a long and laborious course of very carefully conducted experiments. They are very valuable, and such as but very few individuals have the means of carrying out.—*Broad Arrow*.

The calibre of the English 48-ton gun has been fixed a 12 1-2 in., which, until the completion the 8-1 ton gun, may safely be pronounced the most powerful piece of ordnance in existence. This arm is similar in construction to the 35 ton gun, but is 3 ft. longer, and the projectile is 800 lb. instead of 700 lb. Experiments are being carried out by the Committee on Explosives, in order to determine the kind of powder best suited to these large calibres, the guns having somewhat outgrown the food originally provided for them in the form of pebble powder. The experimental powders under consideration differ materially in appearance from ordinary gunpowder. The "grains" are mostly in the shape of cubes, and various sizes have been tried, some measuring as much as 2 in. along the edge. It is expected that about 130 lb of powder will be the charge for the 38 ton gun.

THE SUPPLY AND DEMAND FOR LUMBER.—The *Portland Presse* says that within ten years not less than 12,000,000 acres of forest have been cut down or burned over in this country. Much of this timber is used for fuel, twenty-five cities being on record as consuming from 5,000 to 10,000 acres each. Fences use up much timber, and railroad ties require the product of 150,000 acres a year. The amount of pine and hemlock timber yet standing in the forests of the timber states is estimated at 225,000,000,000 feet. The sum of \$44,000,000 is invested in this industry, affording employment to 200,000 men.

Yesterday Her Majesty the Queen received M. d'Agiout and the Comte Serrurier, who arrived a Windsor Castle to present a remarkable testimonial of thanks from the French nation. This "Homage National" consists of four magnificent volumes of addresses sent to England by the various French departments and municipalities, in testimony of their gratitude for the assistance which England gave to France in 1870 and 1871. The deputation, representing a committee, was introduced to the Queen's presence in the Audience Chamber by the Earl of Derby, and was presented to Her Majesty by the French Ambassador. The Queen, accompanied by Princess Beatrice, and attended by the ladies and gentlemen in waiting, afterwards received the deputation in the White Drawing Room. Her Majesty received the offering most graciously, and as the volumes were of considerable size, they were placed on a table for the purpose of being shown to Her Majesty, and M. d'Agiout and Comte Serrurier explained the name of their contents. Having accepted the volumes, Her Majesty, made a reply to the deputation in French, of which the following is a translation:

I accept with pleasure the volumes which you have presented, and which will be carefully preserved by me as records of the interesting historical events which they commemorate. They are beautiful as works of art; but their chief value in my eyes is that they form a permanent memorial of the gratitude of the French people for services freely and spontaneously rendered to them by Englishmen acting under a simple impulse of humanity. Your recognition of those services cannot fail to be appreciated by my subjects, and it will increase the friendly and cordial feeling which I am happy to believe exists between the two nations.

It may be of interest to state that twenty-six general councils, in the name of their departments, express the national gratitude to England. More than 900 municipalities, under different forms of expression, but all inspired by the same feeling, come forward to proclaim the deep feeling of the inhabitants. At Boulogne-sur-Mer the whole town signed the address. From Bourges it is said that in the midst of the misfortunes of France the English people assisted by charity the solidarity of peoples. Calais, Lorient, Angers, and Nantey coincide with this utterance. From Etrepagny (in the Eure) comes the following:—"The great English nation, hearkening but to the voice of her heart, came to bring help to our wounded soldiers, and generously brought to us her harvest. Honour to the English people! May God bless and protect them!"—*Broad Arrow*, 12th Dec.

THE STEAMSHIP AFLOAT.—It is stated on British authority, that there were 4,335 steamships afloat in 1872, of which 2,538 were from Great Britain, and averaged 800 tons each. The year following 460 steamers were built in Great Britain, averaging 1,167 tons each. It is estimated that there are 5,250 steamers afloat this year. The figures do not include river craft.

King Alfonso has sent a telegraphic despatch to Canovas confirming the ministerial appointments, and expressing a hope there will now be inaugurated an era of real liberty, peace and forgetfulness of past discords.

The Police at Arizona have arrested a number of women belonging to a nunnery, convents being prohibited by the new law.

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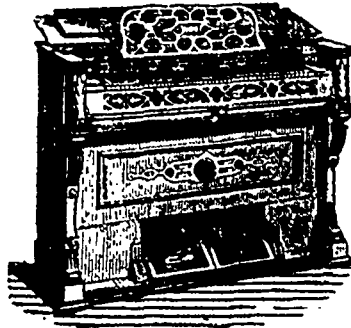
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