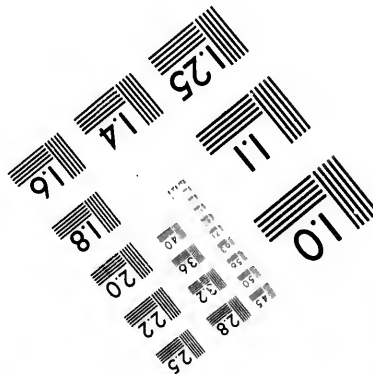
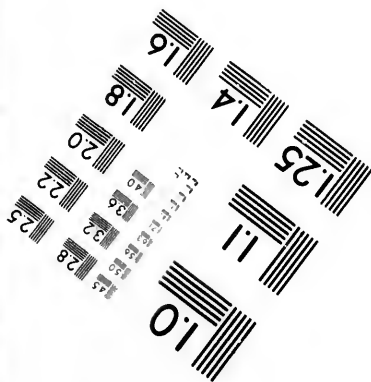
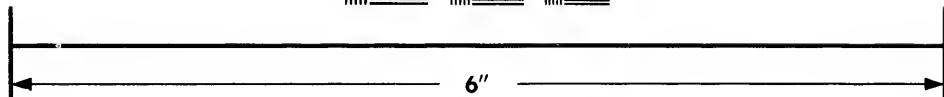
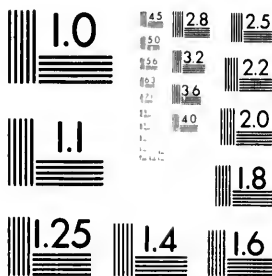


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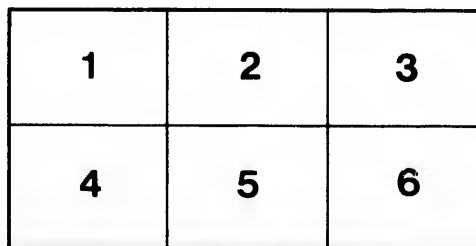
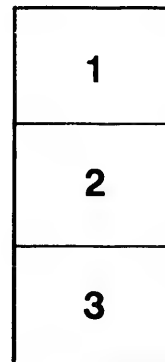
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“WAR”

A LECTURE DELIVERED AT THE MONTREAL MILITARY
INSTITUTE, APRIL 18, 1896.

BY

FRANCIS W. CAMPBELL

Deputy Surgeon-General R. R. C. I.

1896

REPRINTED FROM “CANADIAN MILITARY GAZETTE.”

"WAR"

A LECTURE DELIVERED AT THE MONTREAL MILITARY
INSTITUTE, APRIL 18, 1896

BY

DEPUTY SURGEON-GENERAL FRANCIS W. CAMPBELL
(Royal Regiment Canadian Infantry)

MR. CHAIRMAN AND GENTLEMEN :

THE subject which I have selected for my lecture this evening is certainly a very comprehensive one, but one which has appealed of late with much force to every British subject. Twice during my lifetime it seemed as if our Motherland would have to meet in battle array our neighbors across the border. Upon both occasions, well knowing that our country would be the ground upon which the issues would be fought, the Canadian people have not hesitated to express their determination to maintain the honor and integrity of the Empire. Under these circumstances our thoughts naturally turned to the subject of my lecture. It was this fact which induced me to prepare this lecture. At the outset I must claim your indulgence, for my experience of warfare is almost absolutely nil. Still the active service in which I took part in 1866 and 1870 during the Fenian raids into Canada, and repeated experiences of mimic battles—in which large bodies were engaged—at Aldershot in 1885, while attached for a month to the Army Medical Department, have at least enabled me to have some ideas on the subject, which with those of others I has jotted down in this lecture. Looking back to-day to the Fenian raids of 30 and 25

years ago, they may, to those who from their present age can have no personal recollection of them, seem as if they were but trivial affairs. But to myself and others still living they were serious enough. The enthusiastic send-off which we received upon both occasions from the population of this city—the ringing cheers and waving of handkerchiefs—proved how deeply feeling was aroused ; and it has always been a matter of very deep regret that our Government has not recognized the service of our militia on those two occasions by the issue of a medal, which some few years ago it promised, in reply to a deputation, to seriously consider.

The trade of the soldier is war. For war he is selected, maintained and taught. As a force at the command of a Government, the army is also an agent for maintaining public order ; but this is a minor object, and only occasionally called for when the civil power is incompetent.

In theory, an army should be so trained for war as to be ready to take the field at literally a moment's notice. The various parts composing it should be so organized that, almost as quickly as the telegram flies they can be brought together at any point, prompt to commence those combined actions by which a body of men are moved,

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fed, clothed, kept supplied with munitions of war, maintained in health or cured if sick, ready to undertake all the engineering, mechanical, strategical and tactical movements which constitute the art of war. That an organization so perfect shall be carried out, it is necessary that all its parts shall be equally efficient; if one fails, the whole machine breaks down. The strength of a chain is the strength of its weakest link, and this may be said with equal truth of an army. Commissariat, transport, medical and engineering appliances are as essential as the arts of tactics and strategy. It is a narrow and a dangerous view which sees in war merely the movements of the soldier, without recognizing the less seen agencies which insure that the soldier shall be armed, fed, clothed, healthy and vigorous.

During peace the soldier is trained for war. What is meant by training for war? Not merely that the soldier shall be taught to use his weapons with effect and to act his part in that machine where something of mechanical accuracy is imprinted on human beings, but that he shall also know how to meet and individually cope with the various conditions of war, which differ so much from those of peace.

It is in the nature of war to re-induce a sort of barbarism. The arts and appliances of peace, which tend, almost without our care, to shelter and clothe and feed us, disappear. The man reverts in part to his pristine conditions, and often must minister as he best may to his own wants. No doubt the State will aid him in this; but it is impossible to do so as completely as in peace. Often, indeed, in war an army has maintained itself in complete independence of its base of supplies. In almost every campaign there is more or less of this independence of action.

In peace, the soldier, so far as clothing, feeding, shelter and cleanliness are concerned, is almost reduced to the condition of a passive agent. Everything is done for him, and all the appliances of science are brought into play to save labor and to lessen cost. Is this the proper plan? Looking to the

conditions of war, ought not a soldier to be considered much in the light of an emigrant, who may suddenly be called upon to quit the appliances of civilized life, and who must depend on himself and his own powers for the means of comfort and even subsistence.

There is a general impression that the British soldier, when placed in unaccustomed circumstances, can do nothing for himself and is helpless. If so, it is not the fault of the man, but of the system which reduces him to such a state. That it is not the fault of the man is shown by the fact that however helpless the British soldier may appear to be in the early part of a campaign, he subsequently becomes as clever in providing for himself as any man. This was very strikingly proved during the long period of the Peninsular war, and has been repeated since. During that protracted struggle he learned to cook, to house himself, to shelter himself from the weather when he had no house, to keep himself clean, and to mend his clothes. Was it not the power of doing these things, as well as the knowledge of movements, which made the Duke of Wellington say that his army could go anywhere and do anything. The wars at the Cape, at New Zealand, in Zululand, in Ashantee, show that the British soldier, when removed from the appliances of civilized life, has not lost this power of adaptation. But the campaign itself should not be his sole tutor. It must be in the mimic campaigns of peace, in which the stern realities of war are imitated, that the soldier must be trained. The field days at Aldershot represent the very acme and culminating point of war—the bright moments when the long marches and the wearisome guards are rewarded by the wild excitement of battle. Of late years much has been done to instruct the soldier in the minor arts of war. The flying columns from Aldershot and the autumn manoeuvres show him the life of the bivouac. He is also trained how to prepare his food. A campaign can never be successful unless the men are healthy. How are men to be trained, so as to start in a campaign in a healthy condition and have a reasonable

chance of being able to bear the many trials of war? The answer may be given under three heads :

1. Preparation for War During Peace.
2. Entry on War.
3. Actual Service in War.

PREPARATION FOR WAR DURING PEACE.

EXPOSURE TO THE WEATHER.

It is constantly observed that men who have led out-door lives are far more healthy during a war than are men whose occupations have kept them indoors. The soldiers' life should therefore be as much as possible an outdoor one. They ought to be encouraged in every way to interest themselves in all manly games—like cricket, football and lacrosse, and in Canada during the winter they ought to be proficient snowshoers. Not alone is it a healthy pastime, but in the event of a winter campaign it is an absolute necessity. So important is this outdoor training of the soldier considered by many in Great Britain that they have advocated placing the entire army in tents from the middle of May to the end of September. Wooden or brick huts, in which they are now housed at Aldershot, are too like ordinary barracks. During war a soldier has often to sleep out; he, therefore, ought to be trained to it during peace, warm summer nights being first selected to train him. He very soon acquires the power of resisting cold. The tenting would also test the utility of his clothes. The soldier, after some preliminary training, should also be exposed to raining nights, occasionally—a couple of waterproofs being served out to each man ; one to place on the ground and one to cover him. One of these might be discarded if his clothing were prepared by the Rigby solution, which renders the fabric repellant of water. The new issue of great coats to the Canadian Militia will be protected by this solution.

At the same time it is important to have the men raised off the ground, both when in tents and lying in the open air, especially

in all countries where the ground may be moist or cools rapidly during the night. It is a wise policy to give the best rest possible to a soldier in the field, as it fits him for his arduous work. This can be done by means of a small hammock suspended on two sticks by means of guide ropes. The hammock should be made of some strong woolen material. It may be thought that training of this kind is needless, and that it may be left to the campaign to accustom the men to exposure. Such is not good practice. At the commencement of every campaign a large number of men are rendered inefficient by the unaccustomed exposure.

TENT AND CAMP LIFE.

The pitching, striking and cleansing of tents; the digging trenches round the tents, and providing for general surface drainage—the arrangement of the interior of tents, should all be carefully taught.

COOKING OF FOOD.

Within a decade Governments have done much to lessen the duties of the soldier, as regards cooking, by supplying all armies in the field with prepared food. Still, as this cannot always be depended upon, the soldier must be trained to cook his ordinary rations, and that with the only appliances he will have in war—his camp kettle, canteen and tin plate.

At the commencement of a campaign many men lose flesh and strength or suffer from diarrhœa, from the food being badly cooked and indigestible. In the Peninsular war the men of the British army became admirable cooks. At first very large camp kettles, intended for half a company, were used and were carried on horses. It was soon found that this did not answer, and the men left them behind, when smaller kettles were supplied—one for each mess of six or eight men. A recent writer on this subject says : "The canteen should be small, but very strong, made of unsoldered tin, and with a good deep lid and handle. The cover or lid can be used as a frying pan or second dish. The shape of the canteen should be long and flat and not deeper than

is necessary, and the men of the third strength. The dishes are taken to soup, served bread cooked, shot, given. position matter, important called deal of service, ing the Hemm three of where Here out in and it form the village battali battali as a rule latter.

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is necessary for cooking. All the other vessels, such as the camp kettles for each mess and the larger water vessels, are carried for the men. It is advised that they be made of thin steel, which is very light for its strength and is not acted upon by the food. The different kinds of camp cooking which are taught are stewing, boiling and making soup, making tea and coffee, cooking preserved vegetables, making cakes of flour, bread and oatmeal porridge. A school of cookery has long been in operation at Aldershot, and certificates for proficiency are given. These certificates qualify for the position of sergeant master cook. This matter of cooking would be one of great importance to the militia force of Canada when called into active service. I had a good deal of worry from bad cooking when on service with the 1st Battalion in 1866, during the Fenian raid. Our first station was Hemmingford, where we remained two or three days, when we proceeded to Ormstown, where we were quartered for some time. Here the trouble from bad cooking broke out in full force. Every meal was spoiled, and it was eventually found necessary to form the men into messes and billet them for their meals among the inhabitants of the village. In this matter, I believe, city battalions would suffer more than rural battalions. Among the former, cooks are, as a rule, hard to find; it is otherwise in the latter.

ENTRY ON WAR.

All experience shows that men under twenty or twenty-one years of age cannot bear the fatigues of war. In the Napoleonic campaigns of 1813-1814, his despatches state the hospitals were filled with sick; he complains of the boys sent to him. He said: "I must have grown men; boys only serve to encumber the hospitals and road-sides." In the campaigns of 1805, the youngest soldier was 22, and the sick were few. If possible, then, all men below 21, or at any rate, below 20, should be held back and formed into depots, whence they may be drafted for active service as occasion requires. During their stay at the depot every means

should be taken to strengthen and harden them. In the British army, men are now enlisted at 18 years; buglers, drummers and musicians at an earlier age. They must, at present, have a height of 5 feet 4 inches, and a girth of 33 inches. In the Canadian militia, for infantry, it is 5 feet 5, and 34 inches chest girth; artillery, 5 feet 6 inches. In time of war, however both height and chest girth vary, according to the demand there is for men. Before enlistment, the recruit is examined by the medical officer. This examination is a very severe one, and is conducted as follows:

When not required to approach the recruit, for special objects, the medical officer should always take his place at a distance of about six feet from him. The recruit should be so placed that the light may fall upon him. The recruit being wholly undressed, the examination should be made in the following order:

1. He is measured under a standard.
2. He is weighed.
3. His vision is tested by the test-dot cards, his back placed to the light, tested first with both eyes, and then each eye separately, an assistant covering the closed eye with the flat of his hand.
4. Chest measured.

If he satisfies requirements in these respects, and appears to be otherwise eligible, the general examination will be proceeded with as follows:

He is directed to walk up and down the room smartly two or three times.

Hop across the room on the right foot, and back on the same foot.

Do the same with the left foot (the hops should be short and upon the toes).

He is then halted, standing upright with his hands extended above his head, while the medical officer walks slowly round him, carefully inspecting the whole surface of the body. In this way, estimate is formed of his general physique—the formation and development of the limbs, the power of motion in joints, especially in the feet and hips; flatness of the feet, formation of the toes,

skin disease, varicose veins, cicatrices or marks of ulcers, marks of external medical treatment or any congenital marks, or whether ruptured or has varicocele. The various organs in the chest are next examined. This being satisfactory, special examination of the various joints are made as follows :

Stand on one foot and then on the other.

Bend the ankle joint and toes of each foot alternately backward and forward.

Kneel down on one knee ; then spring up.

Do the same with the other knee.

Down on both knees, and up from that position with a simultaneous spring of both legs.

Turn round, separate the legs, touch the ground with the hands. During this examination the condition of the spinal column is observed.

Stretch out the arms with the palms of the hands upwards.

Bend the fingers backward and forward.

Bend the thumb across the palm of the hand.

Bend the fingers over the thumb.

Bend the wrists backward and forward.

Bend the elbows.

Turn the backs of the hands upwards.

Swing the arms round at the shoulders.

Note the voice and hearing, by replies given.

Examine ears, eyes, eyelids, nostrils, mouth, palate, teeth.

If the recruit successfully passes this ordeal—which takes about half an hour—he is accepted, and at once drafted to the depot of the regiment for which he has been enlisted. The desire of all military officers is to get tall men. The most favored regiments, especially the cavalry, get the tallest men. On entering the service the recruit is under a rigorous discipline, which produces a ready obedience and submission which has a decidedly improving influence over him. At the same time independence is preserved by the knowledge which the soldier has of his rights and privileges. The influence of companionship is also brought to bear on the recruit, and, to be candid, it must be admitted it is fraught with both good and evil.

Within 20 years the former has seemed to have forged its way to the front, and it is a fact beyond controversy that in many regiments the proportion of steady and even of truly good men is greater than in the analogous class in civil life.

This then is the class of men who compose our army, and upon their valor and their endurance the British Empire have always relied, and rarely in vain, though, as a matter of fact, Britain, from its insular position, has always been a greater naval power than a military one. On her own element she has for years maintained an empire more undisputed than any power has ever claimed on land. It is said that the rule of Napoleon in the height of his fame was not so haughty or despotic on the continent as was that of Britain at sea. Early in the present century the British flag was saluted by every sail that traversed the sea in any quarter of the globe, and no ship of any nation dared to pass a British man-of-war without striking its flag. It is natural, therefore, that the fame and popularity of the navy should partly have eclipsed the deeds of the army, yet the British army has a history of which any nation might be proud. If it cannot count such a list of victories as Napoleon emblazoned on the banners of France, neither has it suffered such disasters, and it may claim the longest continuous history of any European army. The French army dates its traditions from Napoleon's time. Not a trace remains of the regiments that served under Turenne, Conde and Luxemburg in the glorious days of the old monarchy, and even the banner under which they fought is proscribed. The Prussian army was almost unknown until the time of Frederick the Great, and Austrian regiments have been so often changed that it is difficult to trace their antecedents. But many British regiments trace back an unbroken history of more than two centuries, and fought under the numbers which till recently they retained, with William the 3rd in the Netherlands, and with Marlborough at Blenheim, Ramilies and Malplaquet. Their traditions are not confined to Europe.

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India conquered and permanently held; every colony in the world at one time wrested from its owners; the British flag planted on the ramparts of Cabul and Peking; her arms carried into the fastnesses of Abyssinia and the forests of Ashantee—such are among the deeds which attest the valor and the enterprise of the British army.

ENTRY ON WAR.

War having been proclaimed and entered upon, I will now proceed to enlarge upon those things which are essential for the comfort and well-being of the soldier, upon whose back will fall the brunt of that arduous work, and without which success may become doubtful.

It is of very great importance that men in the field shall not be kept too long without food. By a little arrangement and forethought men can always carry food, and the proper organization of supplies and regimental transport will always enable a commanding officer to have some food for his men. In almost all marches with large bodies of men, and in many actions, there are now and again periods of inaction of variable duration during which food already cooked could be partaken of. The effect of this upon their strength, endurance and even courage, is remarkable. You know the old but very true saying, "A man cannot fight on an empty stomach." There are instances recorded by officers in which failure resulted entirely from the exhaustion of the men produced by want of food. It is certainly useless to supply ammunition for guns if the men who are to work them have no supply of energy also issued to them.

WATER SUPPLY.

The signs of impure water are easily recognizable. It is, therefore, essential that the soldier understand simple methods of purification. When, after the Northwest rebellion of 1885, it was decided in the spring of 1886 to organize the entire permanent force into a flying column and send it through the previously disturbed districts, provision was made by means of small filters, to be issued to each officer and man, for the purification of water, if found necessary. There

are, however, simple methods of purification which should be known to every soldier. Boiling is one of the simplest of these. After boiling it should be placed in shallow vessels and poured from a height from one into another. This permits air to enter the water, and thus makes it more palatable. A lump of alum stirred through water will do much to purify it. Green tea, on account of the tannin which it contains, is an excellent purifier. An improvised filter can be made with charcoal and sand. It is most important that the soldier in the field have an adequate supply of water. As a matter of fact a soldier—in fact any one—can do longer without food than he can do without water. The soldier, in an active campaign, has to undergo a large amount of heavy work, be it on the march or in making camp after the day's march is over. In consequence, he perspires freely, and in this way the normal amount of water in the blood becomes greatly reduced, and nature, by means of thirst, loudly calls for its replenishment. You will thus see how important is a good supply of water. Military authorities calculate the amount required for a man on active service, for drinking and cooking, at 6 pints in temperate and 8 pints in tropical climates. A similar amount is just enough to allow the men to wash their bodies. In stationary camps the minimum daily allowance for all purposes, including clothes washing, is five gallons. The British army allowance for desert journeys during the summer, when hot winds prevail, is two gallons a day—during the autumn or winter only three pints. During Sir Herbert Stewart's journey across the desert during the Egyptian campaign, his allowance at times was only one gallon a day, and on several special occasions it was reduced to half that quantity, when the men suffered greatly. With a view of as much as possible diminishing the demand for water, an early start is always made in hot countries.

The following incidents show the serious consequences which may follow the exhaustion of the water supply to an army in the field:

On the 3rd and 4th of July, 1867, an escort party of 25 men of the 1st U.S. Cavalry passed over the stretch of dry, sandy country from the Sink of the Hassayampa to the Salinas River, a distance of over forty miles. They used up the water in their canteens on the evening of the 3rd, expecting to find a fresh supply in a river bed, which they would pass about midnight. On arrival the river channel was found dry. A couple of hours was spent, unsuccessfully, in digging for water, when the march was resumed. Three hours after sunrise the men began to suffer, and soon several became so bad that they had to be dismounted and placed under the poor shade of the mesquite trees, to await the return of six men who had been dispatched in advance to the Salinas River with the canteens. These returned about mid-day. In the meantime two of the exhausted men were convulsed and became insensible. Two others became delirious and wandered and some difficulty was experienced in recovering them. Those who remained quietly till the water arrived were soon able to remount and search for their missing comrades. All reached the Salinas River 22 hours from the commencement of the march. These men had two weeks before passed over the same stretch of country in the reverse direction without injury. Failure of the water supply was without doubt the occasion of their breakdown on their return. In connection with this it must be remembered that the cavalry soldier is not so likely to suffer so speedily from want of water as is the infantry man. During the march he is less called upon for violent exertion, and there is consequently less development of heat and consequent perspiration. On the other hand, the foot soldier often struggles along, with the perspiration drying on his skin, mucus sticking in his respiratory tubes, and increasing blood stagnation in his lungs, until he falls down in a faint or in convulsions. This can only be prevented by having the water supply un-failing, and giving the men certain intervals of rest, during which they may relieve themselves of the pressure of their loads. Dur-

ing this period of inaction the circulation becomes tranquilized, and, as a result, heat development becomes moderated. If the allowance of water is scanty, it must nevertheless be used at regular intervals, but economically, lest it give out. There is much less danger with a stinted though regular supply than with full allowance for a given time, followed by a period of enforced abstinence. On the other hand, if the supply is liberal, it may be indulged in freely and with advantage, if the skin is acting well. Its temperature is never such, on a hot day's march, as to chill the stomach and shock the system. A noteworthy march in which the absence of water caused much suffering is that recorded by Capt. Nolan, 10th U.S. Cavalry, who in July, 1877, was on the Staked Plains with forty men for 86 hours without a drop of water. The men drank the blood of several horses killed on account of exhaustion. Four men were lost and twenty-two horses. Such an event is not likely to recur very often in the present day, except under very exceptional circumstances as regards place. Most wars of the future will in all probability be conducted in countries where the advance can be made parallel to railroads, along which supplies of all kinds can be forwarded as required. The length of an ordinary day's march for an army not stronger than one division and moving by one road, should be from 12 to 16 miles for five days out of six, or, at most, six days out of seven. Regular troops are treated to route marching, generally once or twice a week, so that when called to active service in the field, they are able to meet the call thus suddenly made upon them without breaking down. Even during any long halts occurring in a war it is recommended to give the men plenty of drill and route marching. Ordinary marches of 16 miles over fair roads, with well-seasoned troops, can be made with ease in from seven to eight hours, but where large forces have to be moved, 10 miles a day, continuous, is the most that can be calculated upon. It is very important that during the march the sun should, if possible, not strike on the back of the men's

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necks. When it does so it causes sickness and sunstroke. In the Canadian campaigns of 1866, 1870 and 1885, in which the Canadian militia played an important part, they proved themselves capable of great endurance. In June, 1866, a flying column, consisting of the 1st Battalion Prince of Wales' Rifles, 3rd Battalion Victoria Rifles of Canada, two guns of the Montreal Field Battery and the 1st troop of the Montreal Cavalry, was sent first to Hemmingford to guard the frontier from invasion by the Fenians. The column was two days under canvas at Hemmingford, when it got the route. The 3rd Battalion moved off at once for Huntingdon; the remainder were to await instructions. At break of the next day, about half-past two, they left Hemmingford for Havelock, a distance of 10 miles, where they arrived about 8 a.m., very good time when you consider that most of the way the troops were in heavy marching order and the road a sea of mud, the men often sinking to their ankles. In 1870 the entire Montreal Militia Brigade, after being on duty in the city from 6 a.m., left for St. Johns at 5 p.m., and thence, at midnight of May 25th by train to St. Armand, where it arrived about 2 a.m. It at once started for Pigeon Hill; it marched to less than a mile from it, when it was halted and directed to return to St. Armand, which place it reached shortly before 2 p.m. After much difficulty the men were fed and were returned by train to St. Johns, by 8 p.m., having been on the move constantly for twenty hours and marched at least 18 miles.

In the Northwest campaign of 1885, in which the force engaged consisted solely of Canadian militia, some very remarkable marches were made. That campaign is memorable in the history of Canada, as being the first in which the force engaged consisted entirely of her volunteer militia. On referring to the special report of Major General Sir Frederick Middleton, commanding the militia of Canada, who was in command of the operations in the Northwest, I find some very remarkable marches recorded. Allow me to make an extract or two.

Under date of 6th April, 1885, he says: "As this was our first regular march, and the road up the north bank of the River Qu'Appelle was very steep, and in bad order, the snow beginning to melt, I only made 11 miles. The night was fearfully cold, the thermometer at sunrise was 23 deg. below zero, and the tent pegs had to be cut out of the ground with axes. On the following day 18 miles was marched, and on the 9th 21 miles, on the 10th 23 miles, 11th 19 miles, 12th 20 miles, 13th 22 miles, 15th 23 miles, 16th 17 miles, in the face of a regular blizzard of wind and hail. These marches are very wonderful, for they were made by men untrained to military life, and often over roads covered with slush of snow and mud. While, of course, the members of this institute must be interested in the really great endurance of our volunteer militia during that eventful campaign, I believe they will be still more interested in the work which was done by one of our city battalions, the 65th, of which our esteemed president, Major Labelle, was then, and is now, an officer. I believe that that regiment had the honor of penetrating further to the north of that Northwest country than had previously any white man. They also made some remarkable marches, marches which will go down in history, and which prove the hardy character of the Canadian race. I have been furnished by my friend, Lieut.-Col. Prevost, then commanding a company in that battalion, now its respected commander, with a brief description of some of the tramps which it made. Writing to me he says: "Our first march, which I always looked upon as a very injudicious one, on account of the conditions under which it was made. After several days and nights of rail in ordinary second class cars we were landed on Lake Superior, and marched from 22 to 25 miles on ice, covered with slush, carrying arms, accoutrements, ammunition and full kit. At mid-distance hard tack and cheese was served. After a good deal of pressure the men were relieved of knapsacks and haversacks for the balance of the march, which was completed in less than ten hours, a pretty fair record

for green soldiers under such difficulties. The second march was from Michipicoten across Thunder Bay to Red Rock, eleven miles, starting at 9 o'clock at night, after traveling all day in cars and sleighs. A hundred and fifty miles was also made in one day—14 miles on foot, 22 in sleighs, and the balance on platform cars, not easy riding, as the road was built on snow. The distance from Calgary to Edmonton—about 220 miles—was marched in 10½ days, an average of about 13 miles a day, and should be looked upon as good work, as the trail was bad—rivers had to be forded or bridged—our baggage, provision and ammunition waggons having very often to be pulled out of swamps, thus occasioning much delay. Our longest march during those ten days was 35 miles. This was done on the ninth day; the men by this time were getting in trim. On the 4th of June 25 miles was marched, over very bad roads, having to go through several swamps. The last march of the campaign in which we were engaged was made on the 24th of June, when 45 miles was covered. Had it not been that the men got little or no time to cure their sore feet, even better records might have been made. What I always found a great help on the march was placing a few singers in front, who by lively songs made us forget the tediousness of the march. We seldom entered a camp at night without singing." Being at Aldershot, as I have already mentioned, in September, 1885, I had an opportunity of talking over the Northwest campaign with many officers, among them Col. Robinson, of the Rifle Brigade, who is a Canadian, and was adjutant-general of the camp. Others had served in Canada, and the universal opinion was that the campaign the Canadian militia had proved itself to be composed of men capable of doing work, and enduring hardship, which could not be excelled by any soldiers in the world.

ACTUAL SERVICE IN WAR.

BIVOUACS.

Napoleon preferred the bivouac to tents for men, and there can be no doubt that in fine weather and a waterproof sheet, and

especially in a wooden country where fires can be easily maintained, it is quite healthy. The rubber sheet is, in my opinion, a necessity, for the ground cools rapidly during the night and abstracts heat from the body. Tents not being used adds greatly to the mobility of an army. Wolseley says that Englishmen rather shudder at the notion of life without any protection from wind, rain and dews, but adds, "after the first few days' experience most soldiers like it." In Europe it is quite certain that armies when moving cannot have tents; they must either be billeted in the towns or villages or bivouac. In selecting a site for a bivouac, wood and water, as for camps, are the great requisites. Wood is, however, the most essential, for it is robbed of half its enjoyment unless the men can have a fire to sleep near. This is all the more essential if the nights are cold. In cold weather woods are the warmest place for a bivouac. In warm weather or in tropical countries it is pleasanter to bivouac in the open. In selecting a site for a bivouac, if in a hilly or undulating country it must be remembered that the actual cold is greater in the valley than on the side of the hill; half way up a slope is generally the best site for comfort as well as for military reasons—it screens from the observation of the enemy. Cavalrymen should sleep in front of their horses. Infantry should pile arms and sleep as they stand in the ranks, officers in both instances sleeping on the reverse flank. Artillery should always bivouac in line, the men sleeping opposite to their horses. If the enemy is so far distant as to preclude the possibility of a night attack, all horses should be unsaddled and unharnessed, the saddlery, harness, arms, helmets, accoutrements and kits of mounted corps being placed in front of each horse as he stands at the picket ropes. Infantry should hang their helmets and accoutrements on their rifles as they stand filed, but each man ought to retain his water bottle, haversack and valise. When in the immediate presence of an enemy, or when it is necessary to begin an attack early next morning, the men must remain accoutred

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and the horses saddled and harnessed. The men with horses must sleep as best they can, taking it in turns to lie down, whilst the comrade holds the two horses. A few logs of wood, sods of grass or turf, or stones piled to windward afford good protection and add greatly to comfort. In the event of war in this country, and there is time, a backwoodsman's shelter can be made by driving into the ground forked sticks and resting a pole between them. Branches should then be laid against it to the windward side, being placed with the thick end uppermost, the leaves being, as it were, upside down; they will throw off the rain better if placed in that way. With a good fire at one's feet, such lean-to's are exceedingly comfortable places to sleep in, as I am sure some of my audience can testify. Too much attention cannot be paid to making the sleeping places as comfortable as possible. Unless men get good, refreshing sleep they cannot sustain continued work. On waking in the morning a smart run will make the blood circulate and remove stiff limbs. It is better than to crouch over a fire. The great object of officers should be to keep those committed to their charge in good health. Without it nothing can be accomplished. Change the position of camps or tents as frequently as possible. If the man is not well fed it will soon tell on his disposition and his temper. See that the men have something to eat and drink before beginning work, no matter how early. Try and get the rations varied as much as possible, and lose no opportunity of getting vegetables for them. When possible get the men hot meals. If preserved or cooked rations have been served they should be warmed or made into soup or bouilli before being eaten. This is a matter of great importance after a long march or a day of hard fighting. Save your men when you can, as you would your horse. They will be all the more fitted for a great effort when you require them to make it. Wolseley says: "We are prone to regard our soldiers as machines, requiring merely a certain amount of bread and beef, washed down by a gill of rum, to keep them not only

in motion, but in perfect order. We are only now awakening to the necessity of developing their moral qualities. A man without hope makes an indifferent soldier; but one without good spirits and cheerfulness is worse than useless. Strive by all possible means to develop—to create if necessary—the high moral qualities of human nature in those serving with you. The powers of a weak man, endowed with hope and lofty courage, are always of greater value to the State than those of a great strong fellow who is discontented and desponding. Employ officers to superintend all large fatigues, and associate them with the men in all their work. Often have I blushed for my profession when I have seen officers sitting down under some shelter reading a book whilst their men were working—or rather supposed to be working. When men see that their officers do not take at interest in what is going on the men soon follow suit."

CLEANLINESS.

In war a fertile source of disease is want of cleanliness. With a view of meeting this difficulty bathing parades are held as often as possible. If a camp is stationary, even for a few days, endeavor should be made to provide a washing place for the men where there shall be abundance of water. The men should be encouraged to wash their entire body. It is of the utmost consequence that the feet should be washed frequently. If the camp is near a river, certain precautions are required. Under the direction of the Engineer Department a safe place should be marked out, and bathing only allowed there. If this is not done men may be lost by drowning. At all times certain precautions are necessary regarding bathing. Early morning bathing is best, but if indulged in during the day it ought to be avoided for two hours after a meal, or when the men are very fatigued or in profuse perspiration. A short bath of a few minutes is best; never remain long enough to feel chilly. Unless the greatest care is exercised, vermin are very apt to make their appearance, helped by the inner clothing becoming im-

pregnated with perspiration. As washing clothes is really an art, in many countries the soldier is taught this in the rude fashion he must practice during war. But it is a difficult matter during a campaign, and with care can be dispensed with for a long time. Neither linen nor cotton shirts should be worn while on service; two good grey flannel shirts, if worn day about, are ample for all ranks. When the shirt is taken off it should be shaken well, then well beaten with a stick, stretched out, hung up and exposed to the sun and wind. The same rule applies to trousers and drawers, when the latter are worn. The soldier ought at all times to keep his hair cut short. In the field no man's hair should exceed half an inch in length, and officers should set the example. None except those who have worn their hair after such a fashion can appreciate the luxury it confers on service. No man can have that smart bearing, which is the outward mark of the soldier, who allows his hair to be so long that he can part it. A well-cropped head is the first great step towards cleanliness. The beard or whiskers should be cut close about once a week, for on a campaign a soldier cannot count on the luxury of shaving. Hair is the glory of a woman, but not of man. A little more attention to this matter of hair cutting among our militia battalions would greatly enhance their appearance on parade.

The foot gear of the soldier requires close attention; their boots and their socks must be frequently inspected so as to be certain that they are always in a fit state for marching. If this point is carefully attended to your men will go into action fit for work. The Germans use what is called the "German foot powder" to preserve the feet of their soldiers on the march. For the last three years it has formed part of the medical stock issued at our brigade camps. My little experience of it is favorable. Another method is to smear the feet with lard. Unless the closest attention is given to the feet, and more especially if the boot does not fit well, corns are apt to form on the sole, necessitating the discharge of the soldier. In my

twelve years' connection with the Royal Regiment of Canadian Infantry I have had many instances of this.

DISCIPLINE.

This is the very life blood of an army, and it is on the field of battle that it shows its potency; it is there that the long and apparently tedious drill of the barrack square should show its result. To interfere in any way with this spirit, as it determines the power of a commander over his men in the presence of the enemy, is to blood-poison the army. Therefore, as to-day no army can hope in the presence of an enemy armed with the modern rifle, to carry out a system of manœuvres in which discipline can be maintained with the old facility and under conditions so favorable to it as those of the past, we must approach the subject, says a recent writer, with a caution proportioned to its vital importance. Strange to say, it is from a British scientific author, that a late German authority on war, sums up the essential elements common to the discipline of the past with that of the present, and which it is vital shall not be shaken or impaired. The engrained habit of mutual confidence among all ranks of a regiment, is the factor of its strength and clothes it with incalculable superiority over an armed mob.

When we come to consider what has enabled armies to acquire this engrained habit we are met by some curious experiences. In the first place, the instinctive habit of obedience to a word of command, as coming from one who has the right and the duty to give that command, has to be carried into the very limbs of a man. When cultured men of mature years entered the ranks of the British volunteers, during the early stages of the movement, some very amusing protests appeared in print, as to the dreary monotony of the mechanical contortions which represent the early phases of recruit drill. A certain pity or sympathy was expressed for the poor soldiers, who had to pass such a large portion of their lives in such uninteresting tasks. I believe that I am correct in saying that the complaints of those cultivated persons showed

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a want of philosophic acuteness, which is entirely absent from the minds of the zealous British volunteer and militiaman of to-day. No one understands better than they do the fact that in the dull, mechanical routine of recruit drill, is laid the foundation of military power. The zealous barrister, who at 35 always found himself turning by mistake to the right when he was ordered to turn to the left, who found it impossible to supple his limbs in the required extension motions, and the physical exercises, unconsciously illustrates the weakness of the most zealous untrained armed man. With the best of wishes his body was so little under the command of his own mind and will, that he could not, much as he wished it, place it at once under the command of anyone else. Much less could he cut out that disturbing element himself, so far as to obey instinctively, and without a certain element of resisting individuality, the commands he received.

Now, the capacity to act together under the orders of one man can never be dispensed with under any of the conditions of modern war. The instinctive obedience of a rank of soldiers to the order to turn "right about," even when that order sends them back to the ground where shells are bursting and where bullets are raining, has been a power in fighting too great for us to willingly throw it away. Some humorous illustrations of its effect on soldiers, and of the victory-winning power which an even apparently unintelligent submission to this authority of instinct has given to the British army, are met with in all works descriptive of the battles of our country. One or two such, will, however, suffice. During the Indian Mutiny a detachment was holding an advanced post against the attacks of a vastly superior force. The enemy gradually enveloped the post and threatened to cut off the retreat of its defenders; but the defence was maintained unshaken. At last an Irishman, with more military instincts, perhaps, than the rest, exclaimed, "Oh, Captain, Captain, we're surrounded!" The Captain's reply came sharp and stern, "What

the devil is that to you, sir? Look to your front!" And the defence was continued, and success was the result. On another occasion during the same mutiny, at Lucknow, a sentry holding an important post was urged to retire by a retreating party, hotly pursued by the rebels. His reply was, "My name is Thomas Atkins, of the 55th, and I will not leave my post till properly relieved." And he sealed his words with his life. Readers of Napier's History of the Peninsular War will doubtless recall his vivid picture of the assault of Badajos, when the troops, unable to advance and yet scorning to retire, remained in the ditches, where they were shot down by the garrison.

In proportion as men understand war they value this effect of discipline, and would be unwilling even to diminish at a given moment actual loss of life, if that diminution was secured by any sacrifice of this power. An old English battalion trained to the absolute perfection of such mechanical obedience was a splendid fighting instrument. No training, however perfect, to take advantage of ground, to seek cover, to glide on to the weak points of an enemy, will compensate, even in these days, a deficiency in that habit of utter self abnegation, of entire subordination to the one purpose of united action under assigned orders. Under the modern conditions of war, the loss inflicted within a given time by the terrible weapons now in the hands of all armies, is so great that the very formations under which, on a parade ground, the armies of the past prepared to move in actual fighting, under the orders of their commanders, are mechanically as well as morally dissolved. The din of the breech-loader, the hoarse shriek of the shrapnel shell, drowns the voice of the officers. It is not therefore with a light heart, not willingly, not as thinking that a dispersed order of fight is something in itself more powerful, or more advantageous than a rigid formation, in which ordered and orderly movement is easy, in which force can be concentrated, in which the habits of discipline can be more certainly maintained, but dire necessity, that the most experienced

soldiers of our day have come to the conclusion that only by preparing armies for fighting in dispersed order, can discipline be maintained at all. The great problem of modern tactics, in so far as it concerns actual fighting, which regulates everything else, is how to maintain the old unity under the new conditions.

MEDICAL ARRANGEMENTS.

War means destruction of many lives—the result of skirmishes and battles, and from disease contracted on the line of march and in camps. The two latter are the most prolific causes of death. Up to the close of the Indian Mutiny the British army depended almost entirely upon regimental surgeons and assistant surgeons, and the result was that in that campaign, as well as during the Crimean War, the system was a pronounced failure. The result was the abolishment of regimental medical officers and the formation of the Army Medical Department. This department consists of medical officers now named as follows : Surgeon-Lieutenant, Surgeon-Captain, Surgeon-Major, Surgeon-Lieutenant-Colonel, Surgeon-Colonel, Surgeon-Major-General, and Director-General, and of a corps known as the Army Hospital Corps. This corps consists of 11 captains, 10 lieutenants, 264 surgeon-majors and 1,060 rank and file. They are employed entirely on hospital duties, and act under the direction and control of the medical officers. The men enlisted in this corps are selected for their general intelligence and good conduct, and volunteers from the army of this class are encouraged to join it. They are variously employed as clerks, compounders of medicine, surgical dressers and cooks, but principally as attendants on the sick in hospitals in peace and during war in field hospitals and ambulances. In peace medical officers are attached to regiments, but when war is declared they act entirely as a distinct department. Ambulances consist of light waggons specially constructed for the carriage of sick and wounded, and a large company from the corps is detailed as stretcher bearers, and is provided with stretchers. This company is charged with the immediate

removal of the wounded from the battlefield, their first dressings, under the direction of a medical officer, and conveyance to the nearest field hospital. These field hospitals consist of large tents or marquees and are supplied with beds and all the requirements of a hospital and a sufficient staff of medical officers and attendants. They are generally placed in a sheltered position, and as near the scene of engagement as is possible. This department is admitted to be a success, for it is very expensible. When the army is operating in a country of an unhealthy character it is possible to supply it with an apparently excessive amount of medical material. Such was the case in the very recently completed Ashantee expedition. In the campaigns of 1866 and 1870—during the Fenian troubles in Canada—the Canadian militia were absolutely without either medical or surgical material of its own. I was, in 1866, with the Prince of Wales' Rifles on frontier service, and my entire medical and surgical stock consisted of a medical field companion issued me from the Imperial stores, and my own pocket surgical case. In 1870 I was no better supplied. I well remember the night alluded to in the early part of my lecture, when the entire force was moved from St. John's to Pigeon Hill, when I was ordered to report to my friend and old fellow-student, Surgeon-Major Corbett, of the Rifle Brigade, then in the barracks at St. John's. He assured me that there was warm work in store for us next day—that most likely they would join us before the day was over. He then handed me a case of instruments for operations, a bundle of bandages, a tin case containing plaster, a package of lint and two bottles of brandy. This was quite an armful, and I conveyed it to the train then waiting for us. This condition of things was immediately afterwards attempted to be remedied, in a small way ; and about 1872, under the direction of Dr. Girwood, then acting as P.M.O. of the militia, tin boxes, containing drugs, were deposited in each military district. These were sent to brigade camps, and, judging by the condi-

tion in which they were returned into store—almost depleted of their contents—the demands of the sick must, indeed, have been great.

They, however, did not give satisfaction—the Department was yearly in receipt of complaints of their insufficiency from the regimental surgeons. Attempts were made, spasmodically, to increase their efficiency, with a certain amount of success. Absolute success was impossible, for one of the weak points in a militia surgeon is his apparent inability to recognize the fact that it is impossible to furnish for his use in the field a stock of medicine such as he can find in a city drug store or in his own surgery. The weak point, however, in these boxes was the almost total absence of surgical appliances. This condition of things continued till Major-General Herbert assumed command of our militia. He had not been long in the country before he appointed Deputy-Surgeons-General Neilson, Strauge and myself as a permanent committee for the medical and surgical equipment of the militia, and succeeded in getting placed in the Estimates yearly, during his command, a considerable sum to be expended for that purpose. This committee first met in Ottawa in 1893, and made a report to Government, which report was acted upon at once; and in the camps that year of certain districts was found a medical and surgical equipment fairly good, certainly far ahead of anything previously attempted. In 1894 the same committee assembled twice—once in the spring at Ottawa, and in August at the camp at Levis. At the last meeting the report adopted made full provision for the entire force of active militia. We are, therefore, to-day in the position, if war was declared and the entire force in the field, to supply it with a medical and surgical equipment, such as would accompany (excepting ambulances) a similar number of the British army going on active service. The point, however, in which we are still weak is that we adhere to the regimental system. I know it is hard, possibly impossible, to get rid of it in our militia. I have given much thought to this

subject, and although my advice has more than once been asked, I have not seen my way to advise its extinction, although fully recognizing its weakness. Our only safeguard, and it is that which has made me acquiesce in its continuance, is that our regimental surgeons would be such for only a brief period. If war should ever exist in this country we would soon have with us a full staff of the Army Hospital Corps, with its medical staff, with which our surgeons would at once be amalgamated. Surgeons, however, cannot be everywhere, on all outpost or detached duty. Hours may elapse before the services of a surgeon can be procured. It is advisable, therefore, that both officers and men should be in possession of a few useful hints, such as the following :

Bleeding from wounds is either from a vein or artery. From the former it is seldom of much consequence. It is distinguished by the darkish color of the blood. It merely requires the application of a compress and a bandage over the site of the wound; the limb should also be raised to a higher level than the body. In all cases of bleeding the first consideration is to put the wounded man in a recumbent position. A man unconscious from loss of blood will often revive at once when placed on his back, with his head on a level or a little lower than his body. The clothes around his neck should be loosened and a small quantity of stimulant given.

Bleeding from an artery is known by the bright red color of the blood and by its spurting out in jets corresponding with the beats of the pulse. Unless stopped at once the wounded man must die. To do so it should be remembered that it is only necessary to compress the injured artery against the bone between the wound and the body. Having placed the man in a recumbent posture, feel for the pulsating artery on the inside of the limb, above the wound, and when found, keep up a steady pressure with the tips of the fingers, which will control the bleeding. Two men, or at most three men, one relieving the other every few minutes, can stay it for a long time. The pressure

should be in towards the bone. If a tourniquet is to be had, apply it just above where the pressure of the fingers is found to control the bleeding. A silk or cotton handkerchief twisted tight by means of a stick passed through the slack is a good substitute, a bullet or round stone being placed over the artery. The inside seam of the coat or jacket follows the general course of the arteries of the arm. If the wound is in the leg the artery can be easiest found in the groin, whence it passes down inside of the thigh, winding round underneath to the hollow behind the knee. If wounds are below the elbow or knee the pressure should be applied above those joints. If you cannot find the artery, fill up the wound with some cotton or linen and bandage as tightly as you possibly can directly over the wound. Bleeding from gun-shot wounds is generally slight at first. Medical officers tell us that they have seen a limb carried off by a round shot, and there really be no bleeding from the stump. This is the surgical rule—that torn wounds bleed slightly. Sabre wounds should have the edges sewn together, or, if one competent to do this is not at hand, they can be brought into exact

contact by means of adhesive plaster. In removing the wounded from the field when you have no ambulance or stretchers you can make a temporary stretcher by constructing a frame work with two poles six feet long, leaving 6 inches at each end as handles; lash 3 short pieces across so as to keep the poles $2\frac{1}{2}$ feet apart, one piece to come just behind the man's head, one in the centre, and one at his feet. To this a blanket is securely fastened at each corner and along the sides. A wounded man can be carried very comfortably on this temporary stretcher.

I have now occupied your time quite sufficiently long, and I hope I have not been tiresome. War is indeed a great calamity, but if it should ever come to this country, its militia will never shirk the ordeal. As a race, we are admitted to be of material such as has produced good soldiers in the past, and can produce them in the future. We have a country worth fighting for, and imbued with a loyalty to our beloved Queen, we will, I believe, ever be prepared to spring to arms to keep our land the brightest gem in Britain's crown.



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