

local and under exceptional circumstances. In great operations it could not be supposed that any mere handful of Mounted Infantry could be of use in holding an enemy in check. It is true they might be utilized to hold a pass bridge head or any other post of advantage for a short time, but in nineteen cases out of twenty there would be no place for them in field operations and they would only add to the difficulties of an advance by increasing the transport. If trained to ride well and to fight on foot as well as on horseback, as one of our most talented officers advocates, we could train a large force for service in this country and could utilize them; but the idea of what is known in England as car-borne Riflemen could not be entertained in Canada at all.

The whole subject, notwithstanding what has been gained by personal or other experience, is one for close calculation; and the best thing we have seen on it yet is taken from the *Volunteer Service Gazette* of the 15th March, as follows:—

To the Editor of *Volunteer Service Gazette*.

Sir,—This question was much debated at Hythe in 1861. Major Calley of the Wilts Yeomanry proposed it with much zeal to General Hay, and it met with, from him, that qualified approval which the mixture of responsible official with advancing investigation was likely to beget.

The great opposition to carriages was to the length, the weight, and the danger of encumbering roads of advance and retreat. These might be met, I think, by making them short, but holding men four deep. Place the seats over the wheels, and have three men facing three others in the channel between the wheels, and three on each facing outwards. The driver and non-commissioned officer on the box, and the whole to be drawn by three horses abreast, the centre one bearing shafts. If the way is likely to be blocked, I conceive the hind carriage could be unlimbered and the front limber trotted off, when the party could unship the hind wheels and raise the body on end out of the way at the road side.

Still, the objection is weight. Good roads are the exception, not the rule in warfare, and these vehicles ought to go anywhere and do anything like a horse artillery gun. Three horses to fourteen men, weighing with arms and kit 200 lbs. a man, are rather over weighted; and, unless the men are in sufficient numbers on the cars, the train would be too long for rapid use, and utility in action, and four horses with drivers are only equal to three horses without, and you get two useless mouths.

Eight cars and twenty-four horses, therefore, will carry eight drivers, eight officers, non-commissioned officers and buglers, and ninety-six fighting men, and might be designated a car troop.

Let us now take a troop of Mounted Infantry. There can be no doubt of the much greater elasticity, rapidity, and general utility of these. Let them be able to scramble anywhere on small Cossack, or Welsh cobs, and you get the most harassing body imaginable. Hardy animals, ready to browse any where, and stand exposure; small cars of men bright, bold, and intelligent; sharp clever commanders, and there is a very pretty thorn for the enemy's side, and no bad assistance to the new intelligence officer. Well, now, let us put them together; we have

given precedence to carriage folks, and we will ask how to put the same number of fighting men and officers in the field as on the cars.

If properly trained, 4 horses might be held by one man beside his own, or even more if he dismounts, and the horses are brought heads together in a circle, like a Welsh drove at a fair: but let us take it that one man holds 4 horses. Ninety six men and eight officers, non-commissioned officers, and bugler will require 104 horses and 26 horse-holders, total, 130 horses. Consequently, we have to compare 24 horses and 9 non-combatants with 130 horses and 26 non-combatants. On this comparison certainly cars are cheapest and most efficient on paper, while Mounted Infantry are most active, most far-reaching, and most convenient in the field and its approaches. I should decide in favor of the latter.—Yours, B. W. H.

P.S.—Since writing, I have seen a short resume of Colonel Wood's lecture. I suppose his distribution of 150 men would be somewhat as follows: Mounted—1 captain, 2 lieutenants, 4 sergeants, 1 bugler, 65 privates, 2 farriers; total 75 horses. Dismounted—I captain, 1 lieutenant, 4 sergeants, 1 bugler, 1 assistant surgeon, hospital ordinary, 8 drivers, 58 privates; total, 75.

So eight carriages or cars, with ambulance, conveying ten men, a driver, and an officer—non-commissioned or non-combatant—would need 24 horses; and allowing, at least, four horses for "spare," and two for ambulance, we should mount and convey our 150 men on 105 horses. I think I adhere to the view of 120 men on 120 horses as more available and trustworthy, even if they require two light four-horse or three-horse Army staff waggons with them: 75 horses will take 15 men to hold them, leaving, all told, 60 per company of all ranks combatant of the mounted branch, and there will be 65 of the dismounted ranks. So we shall get 125 less active men than 120 mounted men, less 24 horse holders, equaling 96 more active men. I must leave the deduction to be drawn to the profession.

B. W. H.

Our readers will remember that it is an error of the gravest kind in *Logistics* to increase the number of animals which should properly belong to an army. General BACON brought the greatest disgrace upon the Military reputation of Great Britain that it has ever suffered—by disregarding this plain axiom—he would persist in transporting a train of artillery out of all proportion to his force or its possible necessities, and the disaster of Saratoga followed.

Our contemporary's correspondent puts the whole case in its proper light—it is a question of transport alone—and he has given it in full without circumlocution.

In the Fifth volume of the *VOLUNTEER REVIEW*, at page 820, will be found an article on *Field Fortifications*, in which a modification of the angular or right lined system was advocated, by substituting for the ordinary fleches segments of circles on the ground that it would provide better flanking fire and entirely overcome the difficulties offered to defence by dead angles as well as affording protection from ricochet fire. Since then a volume of the *United Service Journal* for 1831, has showed us that the principle was recog-

nised at the Military Academy at Addiscombe, England, and that Mr. BORDWINE, Professor of Fortifications and Artillery at that institution, lectured on it at the annual examination of that year.

The *Journal* says—"Upon that occasion plans illustrative of the system were produced. Mr. BORDWINE attaches to the angular system of permanent fortification four principal defects.

"1st. The liability to enfilade unless constructed under peculiarly favorable circumstances of locality.

"2nd. The want of direct fire from their most exposed points; the salients.

"3rd. The want of direct fire for defence of the re-entering angles; and

"4th. The want of co-operation between their fronts when the besiegers have attained the counterscarp and the consequent isolated condition of the attacked.

"All these evils may be considered as materially vitiating the existing methods of fortifying, and so inherent in them that they cannot be removed, while the same form remains to the body of the place or to the detached works. Mr. BORDWINE, therefore, proposes to make his works circular; by giving them this form he preserves them from the effects of ricochet and obtains both a direct and flanking fire upon every portion of ground which the enemy must pass over. Whereas in the existing systems the salients are only defended by auxiliary fire, which being silenced by ricochet or direct batteries the ground is occupied by the enemy at little risk and trifling loss.

"All the flanking defences in the existing system may be silenced without the enemy being put to the necessity of attacking them directly, that is without getting possession of the works in which such flanking defences are placed. In the proposed system no such effect can be produced on the flanks; they cannot be seen from any ground out of the works in which they are situated, and their strong casemated condition renders them invulnerable to vertical fire, so that the besieger must carry them before they will cease to operate upon his advance to the body of the place.

"Those flanking batteries are placed in works which are so disposed as to allow them not only to defend the front to which they are attached, but also the collateral fronts, and thus, contrary to what is the case in the right lined system, the front against which an enemy would particularly direct his attack is not left to its own resources only but derives powerful assistance from the adjoining fronts. Hence the assault of the body of the place entails the necessary capture of five principal works either three bastions and two demi-lunes or two bastions and three demi-lunes. The enemy will thus find himself engaged in a widely extended course of attacks which are subjected to greater disadvantages than can be experienced against the angular systems. The