Siege artillery in the Peninsular War

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INTRODUCTION

The Napoleonic Wars are of enormous interest to military historians, and there seems to be no end to the number of books dealing with the various campaigns. This is especially true of the War in Spain and Portugal. However, I have found that artillery —despite its importance on the field of battle— is not as well covered as one might expect, and that seems to be particularly so for the heavy guns.

The support of infantry and cavalry on the battlefield gives the field batteries their more glamorous image. But while most people are familiar with pictures showing the storming of a fortress —stirring images, whether the defenders or the attackers are the heroes!— the technicalities of siege operations are less well-known.

Yet siege operations were arguably the most common and well-defined elements of warfare up to the end of the 19th Century. No commander could afford to leave a strong enemy garrison in his rear when he was maneuvering, and —like a castle on a chess-board— a well-provisioned fortress was a valuable asset to the defender and a powerful deterrent to an attacker.

AIM

The aim of my presentation is to look briefly at the role of artillery in siege operations in the hope of identifying further prime sources of

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information. The UK has a lot of historical material on artillery, but the history is of course seen mainly from the British point of view. At the Royal Artillery Institution, we have the papers of Alexander Dickson, an artillery officer who commanded the Siege Train and who rose to become Wellington's principal artillery commander. These papers are immensely detailed, and I have drawn almost exclusively on them in preparing this short presentation. I would like to know whether my colleagues in IAMAM_particularly, of course, in France, Portugal and Spain_have additional artillery material, from a different aspect? At the same time, perhaps I can also interest those among you who have until now been more concerned with other aspects of the battlefield!

THE ROLE OF ARTILLERY IN SIEGE WARFARE

Even today, the roles of artillery and engineers in war are little understood outside the specialist's field. I have to say that this appears to hold true even among soldiers, so it is not surprising if these operations are not clear to civilians. Certainly it seems to be particularly true for the majority of writers on the Peninsular War, and I have not found many authors who treat the artillery aspects of siege warfare with any depth of understanding. However, it is too detailed a topic to deal with fully in such a short presentation, and I have elected rather to try to set the scene for those of you to whom it may be something new, with some observations which might encourage others to research more deeply into their national archives.

Since there may be some amongst this audience who have no knowledge of siege operations, perhaps I should begin with an outline of the principal technical aspects of a siege:

— There would first be a detailed visual reconnaissance of the fortress by the besieging force commander, usually accompanied by his senior engineer officer. In addition to whatever they discovered from this reconnaissance, they might also have details of previous sieges at this particular citadel which they could put to good use.

— They would then select the point of attack. This had to be suitable for approach by storming parties, and also for subsequent operations within the fortress.

— Deception plans were needed to confuse the defenders and to delay the building of additional internal walls and defences. Sometimes, the guns deceived the defenders by firing on a likely point of attack whilst plans were developed for a surprise assault elsewhere.

— Good siting of the opening batteries was important to ensure that they could silence the fortress's guns whilst the work of getting other guns closer in took place. Emplacement usually took place by night in order to prevent the fortress from firing on the work of building protection for the

guns. The opening range would probably be of the order of 1000 metres_far enough to make it difficult for the fortress guns to be accurate, and close enough to suppress the defences. No attempt would usually be made at this stage to breach the walls.

— The attacking batteries needed protection from the guns of the fortress. The defenders' guns were sited to deal with just this sort of attack, and had the advantage of thick walls, often firing through narrow embrasures. For the attackers, it meant building breastworks, ramparts and covered approaches, all needing a great deal of physical labour. Much of this usually came from working parties provided by the infantry which was otherwise chiefly waiting for its turn to come when the fortress had been breached.

— It was important to ensure easy access for ammunition supply. As we will see presently, there was always a heavy ammunition expenditure during breaching operations, and this, too, required working parties. Ox-drawn carts of ammunition were very vulnerable, and could not get too close to the fortress. Mules and men were used to carry the ammunition to the guns.

— Parallels and saps provided additional protection for the attackers as they closed up on the fortress, but they had to be carefully aligned to prevent the defending gunners from being able to see along them, and it was an engineering task to get the alignment right.

— The aim was to get the guns forward to within breaching range, which —at the outset of the campaign in the Peninsula— would be as short as possible (as little as 250 m). This was because the principal guns used until this time were brass, and lacked the power of the iron guns which were just coming into service. Breaching the walls of a fortress needed either a lot of ammunition fired at long range or a lesser amount fired at shorter ranges. This was because the velocity of the ball dropped rapidly as range increased. However, the brass guns could not fire at high rates because the metal was not strong enough to stand up to the work, so the tendency was for these guns to be used closer in. The guns, howitzers and mortars would work together, sometimes using 'pick and shovel' methods-the guns' heavy roundshot breaking the stone walls, and the 'vertical fire' of the other weapons using exploding shells to blow away the rubble. But at the same time, the batteries had to beware of sorties from the fortress —especially by night— to attack the guns, perhaps 'spiking' them to gain time.

— In addition, the howitzers and mortars would attack the interior of the citadel and help to keep the defenders away from the breach. To do this they used a mixture of exploding shells and the new "spherical case"_later known as "shrapnel". By night they would fire especial projectiles made of a brightly burning compound to provide illumination, and incendiary shells called "carcases" to set fire to buildings near the breach. They would also carry out harassing fire, using "case" or grape shot to keep the defenders

away from repairing the breach. However, Wellington placed restrictions on the use of vertical fire into the citadel if there were civilians inside, especially if they were Allies_he did not wish to offend his hosts by causing unnecessary casualties among them!

— A fireplan for suppressive fire would be needed for storming the fortress, mainly to help the infantry to get as close as possible to the breach before they had to face any fire from the defences. The mortars and howitzers would meanwhile continue to attack the defenders in depth within the fortress, to prevent them from reinforcing the defences at the point of attack.

THE SIEGE TRAIN

The principal gun for breaching operations was a 24-pounder, and, until the problems experienced at Badajoz in 1811, these were mainly of brass construction. 18-pounders were also used-interestingly, one of the reasons for having a variety of guns available was the need to use whatever ammunition could be found. This often meant using ammunition collected up on the site of a previous siege, and also firing the enemy's shot back at him! The solid iron round shot of that period was almost indestructible.

The guns, howitzers and mortars required for a siege were naturally the heavy equipments, and there was a standard 'battering train' of 28 heavy weapons supplied from England, with up to 1500 rounds per gun (rpg):

Type	**No.**	**Ammunition**
24-pounder iron gun	14	1500
8-inch howitzer	6	600
68-pounder carronade	4	600
10-inch mortar	4	500

For example, three of these standard 'packages' were supplied for the Siege of San Sebastian. At the beginning of the campaign in the Peninsula, Wellington did not appear to be prepared to risk his siege guns by taking them on the long journey through Portugal into Spain, and he left them on the transport ships waiting in the Tagus, preferring to use whatever he could manage to bring together.

However, the new 24-pounder iron guns available to him at that time were immensely more efficient and powerful than the brass guns, and, with hindsight, it would have saved him a great deal of trouble if he had been able to afford the logistic penalties in bringing a good number of them with him for his attacks on Badajoz and Ciudad Rodrigo.

Large-calibre howitzers and mortars were a vital part of the armoury, with their ability to throw heavy explosive shells over the walls of the fortress. One of the major problems with all these heavy weapons was the

need for equally massive firing carriages or mountings to withstand the strain of repeated firing. If they did not survive, the guns were useless.

Artillery commanders would also make use of ships' guns (and seamen) whenever they were available, as they often were when the fortress concerned was guarding the coastline. They were certainly used to strengthen the numbers at the Siege of San Sebastian.

LOGISTIC PLANNING

The provision of a siege train needed careful logistic planning. Sieges tended to use up guns very quickly, because the high rate of fire and heavy expenditure of ammunition wore the guns badly-particularly the brass guns. The manufacture of new equipment took a long time, and needed to be planned well ahead. In effect, this meant that it was necessary to have production of heavy equipment going on throughout a campaign, with regular shipments overseas to those doing the fighting.

One method of supplementing the numbers was to assemble guns and ammunition from Allied stores and fortresses, as well as those captured from the enemy. This could mean a very mixed array of guns, some of which were nearly 200 years old, and more suited to be antiques! It also meant that extra time had to be spent gauging ammunition to ensure that it fitted, and testing powder and fuzes. However, this was a frequent necessity anyway for gunners in those days when variations in the strength of powder and the burning rate of fuze composition could mean significant differences in performance.

A great deal of time was spent in carrying out repairs and testing of guns and carriages. The main repair to guns was at the vent, which tended to be enlarged by gas wash during firing. This reduced the power of the gun and weakened it if it was allowed to go too far. Much effort went into re-bushing the vents —not an easy operation in the field— giving the guns a new lease of life. Between sieges, the blacksmiths were kept very busy.

Carriages and their wheels were in constant need of repair, and large parties of 'wheelers' (carpenters experienced in making and repairing wheels) were necessary whenever the siege train had to move any distance. There were frequent stops to allow axles to be greased and to repair damaged wheels —the effort of doing this by the roadside for a heavy gun carriage can be imagined.

Not only guns, but ammunition in huge quantities was needed_ball, shell, powder and fuzes for a wide variety of equipment. The figures bear emphasis because they help to underline the logistic problems in supply, storage and transport. Typically, for the siege train in the summer of 1811, the ammunition being moved up for the operations against Badajoz consisted of:

Equipment	Numbers	Rpg	Total of rounds	Tonnes (x 1000 Kgs)
24-pounder	34	800	27200	296
18-pounder	4	800	3200	26
5 1/2-inch howitzer	16	400	6400	44
8-inch howitzer	2	400	800	15
10-inch mortar	8	400	3200	135
Powder		900 barrels		37
Total			40800	553

Note: these weights do not include boxes or packing, so that a further 10% should be added to give a fuller picture of the load.

Transporting a siege train was a clearly major logistic problem. In addition to the heavy burden of ammunition, there was the immense weight of the guns to be hauled, whether on their firing or travelling carriages. Wooden-wheeled, unsprung carriages with heavy, dead-weight loads had to move on difficult country roads, negotiating not only the plains but also the difficult mountainous passes between Portugal and Spain. When it was possible, the heavy stores were moved by boat, and the River Douro was certainly much used in this way. However, it is worth considering the problem of lifting and securing all these heavy items in small boats_there were no engine-driven cranes available in those days, and all heavy lifting was carried out using sheer-legs, with ropes and pulleys.

Movement became very difficult during the periods of wet weather because the roads were almost impassable to heavy vehicles. Selecting suitable routes was important, and the siege train could not always follow the same path as the rest of the Army_indeed, Wellington gave orders that long columns of artillery were not to march on the main routes used by infantry and cavalry divisions because they were so difficult to pass. Shallow gradients were needed, as were bridges on the route which could take the weight of the loads. There were frequent breakdowns as wheels were damaged, roads collapsed, and animals dropped dead in their tracks and had to be removed and replaced.

All these carriages needed draught animals in very large numbers. A single 24-pounder gun needed at least sixteen oxen (eight pairs). Imagine moving a siege train of guns and ammunition with an overall length of some five to eight kilometres_no radios, no room to pass, narrow country lanes with all sorts of potential disasters ahead and no room to turn around! It was of course possible to move the equipment by stages, returning the draught animals to pick up loads by relays, but this normally took far too long, and it was not an efficient way to move in war. As an example of the numbers, at one point in 1811, on the move up to Almeida, the siege artillery used 1100 oxen for the guns alone. All these animals needed to be fed and

watered throughout the time they were in use_unlike a modern vehicle which only uses fuel when it is moving! A lot of time was spent in finding regular supplies of food for the animals, which again points up the high logistic cost of the siege train.

Given its strategic importance, finding a secure base for the train was vital. When Ciudad Rodrigo fell to the Allies, the French commander —Masséna— lost the siege guns which he had kept stored in the fortress, and these had then to be replaced from France.

Sometimes it was possible to keep elements of the train on ships and move them around by sea (eg for the attack on San Sebastian). However, the bulk of the siege train was kept in the rear of the Army, and moved from secure base to secure base. Storage was always a problem, especially for gunpowder, for obvious reasons! It was usually kept in churches and chapels as the most likely buildings to have space and good weather protection!

In all this we must not forget the manpower needed to man the guns and to protect the column on the move. All artillerymen at this time were capable of manning siege guns, whatever their normal duties, and when a siege was in progress, a number of field batteries would be added to the besieging force to provide men for the heavy guns.

THE SIEGE OF SAN SEBASTIAN

Finally, let us take a brief look at the Siege of San Sebastian. In fact, there were two sieges in the period from July to September 1813, but this is not the time to deal with them in any detail. I want to use them only to highlight some of the points I have been making.

Let us look at an outline of the problem:

— San Sebastian was a strong, natural fortress, on an isthmus with outworks defending the landward approaches. The Allied armies could not afford to leave it in their rear while continuing to push eastwards towards the Pyrenees. It therefore had to be taken.

— There was no way of attacking the citadel except on a very narrow front, which made it impossible to conceal the direction of attack.

— It was at long range from the surrounding arms of the bay, making it difficult to bring enough power to breach the walls. Remember that the power of a cannonball drops significantly as range increases, which is why it was important to get the more powerful iron guns which were being sent out from England. There was little natural protection available to the attackers, who were subjected to a very accurate bombardment from the fortress, especially on the breaching batteries.

— The fortress was well-defended by a redoubtable garrison under an experienced commander, and the French were renowned for their excellent gunnery (Napoleon was, after all, an artilleryman!). There were many

casualties amongst the Allied batteries, and it was fortunate for them that the French were short of ammunition.

— There was a constant threat from the rear of the attackers that a relieving force would appear_the first siege had to be raised in order to deal with that threat.

— There were enormous logistic problems in putting together a strong enough force to deal with the citadel. A vast amount of ammunition was required, as well as a very powerful force of guns, and it took a lot of time to get them all into position. The second siege was better provided with heavy guns, and as a result was successful.

— Ammunition expenditure during the course of the two sieges was as follows:

Equipment	**Numbers 1st attack**	**Numbers 2nd attack**	**Tonnes (x 1000 Kg)**
24-pr round shot	15350	28017	472
18-pr round shot	5034	4269	76
24-pr grape & case	718	1376	23
24-pr spherical case	1434	496	21
18-pr spherical case	150	2	
10-in common shell	503	3252	158
8-in common shell	2836	4930	141
8-in spherical case	1676	522	40
8-in common case	168	2	
12-in common shell	100	6	
Powder barrels (90 lbs)	2095	3484	228
Total			1,169 tonnes

This represents only the ammunition which was fired, and there was much more at the batteries when the siege ended. Even so, it would have taken some 5,000 ox-carts to transport it, and it had then to be cross-loaded to mules and off-loaded at the batteries by manpower.

CONCLUSION

I have tried to give you a brief outline of the subject of siege artillery in the Peninsular War, but I am very conscious that I have leaned heavily on the British material available in the Library of the Royal Artillery Institution in Woolwich, where I work.

It is a fascinating subject, not least in the immense degree of self-reliance and determination of the gunners in those days. Nothing seemed too much trouble for them, and they showed enormous skill in overcoming problems which would be difficult even today, with all our machines, improved roads and powerful weapons.

But the more I read, the more I realise that there is much more to know. I would therefore be very interested to hear more of the history of siege artillery from any other point of view, including that of our Allies at that time —Portugal and Spain— and, particularly of course, the views of our gallant opposition, the French.