

C3 Design Notes: 01-04: Frontages and Basing

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Disclaimer

Many of the details in these notes are drawn from correspondence, discussions, chat groups, websites, clubs fanzines or other engagements on wargaming and history since the 1970s, when I started wargaming. Where I have records of a source then I have noted such. My apologies in advance if you recognise comments or information from a journal, blog or forum that you have put forward, and I have failed to make proper acknowledgement. Let me know and I will correct this.

What new in this version

This version has the following changes

- The addition of this element to summarise the changes
- Restructure of some paragraphs between the historical review and Applications sections
- Removal of notes at end of document of additional sources, and new information
- Housekeeping for a .PDF upload to C3 Napoleonic Wargames Rules to website.

1 Game design problem

The option for variations of scale required a flexible approach to base sizes. This was also influenced by many players who already had figures based to suit other rule sets.

1.1 Simulation challenge

- 1.1.1 There is a large variety in variation over the “footprint” of military units in history and even with a similar organisation, there are the compounding variations of actual strengths vs the theoretical organisation. This is further distorted as often regulations, not spacings as being based on the actual soldiers, whose own variety of size plus any mount they may use expands or contracts on the theory of the regulations
- 1.1.2 The game needs to provide for variable frontages to represent historical formations and the variability between theoretical strengths and adjustment for historical games with variable actual strengths where troops are often not of full strength and hence the frontages are variable for the same type of unit.
- 1.1.3 A standard sized unit was not viable as a long-run solution, although it may be useful for basic games and competition type gaming. This would negate the necessary flexibility for different units and the variations of the actual strengths of troops in historical battles.
- 1.1.4 With the intent of variable ground scales for games then there is a need to be able to depict the same troops as a battalion, brigade, or division.

1.2 Practical considerations

- 1.2.1 Players may need to keep troops based to a specific size to accommodate other rule sets, as the sizes were often necessary for the ruleset to function. Particularly where base sizes provide part of the mechanism of calculations – e.g. where the number of castings/bases firing etc was a parameter in calculations.
- 1.2.2 While frontages could be in scale, the depths are often out of scale and determined by what is the function for castings to fit. Also, this tended to influence rules. Such as troops, recoil one base depth or base contact is a requirement.
- 1.2.3 Base sizes provide an easy mechanism of calculations – e.g. # castings/bases firing etc.

2 Historical Review

2.1 General

2.1.1 The infantry, cavalry and artillery will be reviewed independently.

2.2 Infantry

2.2.1 The various regulations indicate that several details on spacing for infantry files and the spaces between platoons, battalions need be considered. Generally, there was defined spacing for each file and the spaces between the tactical components of the battalion (i.e. the platoons)

2.2.2 The file spacing seems to have tended more to 22" than 26" and hence that is used when making the following estimates.

Spacing type	Distance	Metric	Reference
Per file	26"	0.66m	France (1791) [in Nafziger 1996:55]
Per file	22"	0.56m	Pescalle [in Nafziger 1996:55]
Per file	22"		Lallemand, H {189x: 345-
Per file	22	0.56m	Britain (1798)
Per file (in 1790's)	18.5"	0.5m	Escalle (1912:263)
Per file (in 1809)	19"	0.51m	Escalle (1912:263)
Per file	20"	0.55m	Bardin (in Escalle 1912:263)

2.2.3 Spacing between the parts of a brigade was a less forthcoming

Spacing type	Distance	Metric	Reference
Between platoons			None identified, but space is necessary for platoon commanders so an estimate of 1-2 m would be required
Between battalions	6 -12 paces	≈3.9-7.9m	Fawcett (1792:343),
Between Brigades	6 -12 paces	≈3.9-7.9m	Fawcett (1792:343)
Between battalions	8 toises	15.56m	France, Reglement 1791 (1792)

2.2.4 From this, the following estimates of frontages were determined using a hypothetical brigade, of four battalions of eight platoons. The brigade totalling 3000 rank and file, deployed in 1000 files of three ranks. In effect excluding all file closers and supporting troops who were not in the line as such. This gives a range of approx. 558m to 688m.

With values of

1000 files @ 0.50m per file =	510m
4 Battalions x 8 platoons x 1m spacing between platoons =	32m
4 Battalions x 4m spacing =	16m
Total	≈558

Or the values of

1000 files @ 0.56m per file =	560m
4 Battalions x 8 platoons x 2m spacing between platoons =	64m
4 Battalions x 16m spacing =	64M
Total	≈688

- 2.2.5 On review of a range of these permutations, the trend is closer to the 558m that the 688m. Hence the indication (i.e. not a precise or definitive) spacing of for infantry is approximately 0.6m per file for. Increasing or decreasing the numbers of platoons and/or battalions make little overall difference.

2.3 Cavalry

2.3.1 Reference notes

Was finding some difficulty in sourcing data so went slightly out of period to the British 1865 regulations, but don't foresee the differences in 50 years were significant.

Spacing	Distance	Metric	Reference
Per file	3 foot	0.99m	Nafziger 1996:55
Per file	3.25 to 3.5 foot	0.99 to 1.06m	Lallemand, H (1820:354)
Per file	2 toise	0.9m	Bonaparte, N (1823)
Between files	6 inches		Britain (1865:91)
Per file	1 yard	0.91m	Britain (1865:91)
Between squadrons	0.25 of squadron frontage (min 12 yards)	11m	Britain (1865:91)
Between squadrons	12yards	11m	Prussia (1757:6)
Between files	Boot top to boot top		Prussia (1757:6)

- 2.3.1.1 Based on a brigade of two regiments, each regiment divided into 8 troops. With 1200 troopers in 600 files of two ranks each. In effect excluding all file closers and supporting troops who were not in the line as such.

600 files @ 0.92 per file	553m
2 regiments x 8 squadrons x 2.5m spacing	40m
2 regiments x 4m spacing	8m
Total	≈601m

- 2.3.1.2 This gives an indication (i.e. not a precise or definitive) spacing then of approximately 1.m per file. Increasing or decreasing the number of squadrons makes little overall difference.

- 2.3.1.3 In effect, for cavalry deployed in files of two ranks the numbers of actual troops represented by a base would be as follows (i.e. if the base was 30mm wide, and the scale of 1:5000 the base would represent the frontage of approximately 300 troopers).

Base Frontage (mm)	Scale 1 :									
	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000
10	20	40	60	80	100	120	140	160	180	200
15	30	60	90	120	150	180	210	240	270	300
20	40	80	120	160	200	240	280	320	360	400
25	50	100	150	200	250	300	350	400	450	500
30	60	120	180	240	300	360	420	480	540	600
40	80	160	240	320	400	480	560	640	720	800

2.4 Artillery

2.4.1 The frontage of deployed or unlimbered batteries

The artillery poses a much more diverse range of frontages as the factor is no longer how tight a formation, but often how far apart guns can be to still operate efficiently. A range of data available is as follows;

- 2.4.1.1 Distances between weapons could be 15 yards (Franklin 2008:37, 118) to 19 yards (Franklin 2008:119 Diagram) or approximately 16.5m to 20.5m.
- 2.4.1.2 Taubert (1856), notes that the regulation intervals between guns in the Prussian service must be adhered to. However, no statement is made of what the regulation interval is. This spacing can be reduced to 10 paces or extended to 40 paces. This implies a spacing of approx. 6.5m to 26m per gun. (Taubert 1856:49). Possibly suggesting a norm of approx. 16m. Which implies a battery frontage of 140 paces (approx. 91m).
- 2.4.1.3 De Tousard notes the French 1791 regulation for battalion guns is 8 yards (1809:111) and at least 36 yards per gun for other batteries of the park (1809:114)
- 2.4.1.4 Clement (1808: 124) writing about horse artillery (ie with more horses per limber and hence a possibly wider turning circle of the limber and gun), notes that when there is a need to deploy in a "... *tighter space and when we shall want to have a distance of only 25 paces between the guns*". It appears 25 paces (approx. 16m) is seen as exceptionally narrow. I have not identified what he considers a "normal" spacing.
- 2.4.1.5 Similar information is provided by Wagner (1894:502-3) indicating distances between 10 yards and 40 yards per gun.
- 2.4.1.6 It must also be noted the battery may be split to sub-sections or pairs of guns distributed between the battalion spaces of a brigade, or on the flanks of a brigade. Where distancing is determined not by choice of the gunners or their drill norms, but their position and available spacing within a larger formation.
- 2.4.1.7 Space between each battery = 36m (Nafziger (1996:266) from Escalle).

- 2.4.1.8 It appears artillery was very flexible with their battery frontages. Distances between guns varying from 5m to 26m, with a norm somewhere between 15m to 20m. This suggests the following;

Battery size	Frontage (m)	1:2000 scale (mm)	1:5000 scale (mm)
4 guns	20-104	10-52	4-21
6 guns	30-156	15-78	6-31
8 guns	40-208	20-104	8-42
12 guns	60-312	30-156	12-62

2.4.2 Depths of deployed or unlimbered batteries

- 2.4.2.1 The batter needs to provide for an initial line of guns with the necessary limbers, ammunition supply and maintenance wagons arranged behind this line.
- 2.4.2.2 Franklin notes the practice is that there are 25 yards from the gun to the limber wheel and then another 25 yards to the third line where the ammunition waggons are. (2008:118-120).
- 2.4.2.3 Nafziger, referencing Escalle notes that caisson teams would be 18m from the unlimbered guns (Nafziger 1996:266) with the depth of a limbered battery of 8 guns plus caissons = 105-110m (Nafziger (1996:266 from Escalle),
- 2.4.2.4 There seems to be some consistency here in that the battery deployed in three to five lines, namely
- The first line of guns
 - The second line of limbers and teams
 - The third line of caissons or ammunition waggons
 - In batteries of 12pdrs, there may be a fourth line of caissons or ammunition waggons
 - A rear line, consisting of other waggons and/or similar equipment of the battery.
- 2.4.2.5 Generally, the distances between these lines are in the order of 25m and hence
- 12pdr batteries having five “lines” of wagons etc are approx. 125m deep (i.e. allowing for the space taken up by the guns in front and the last “line” of waggons)
 - Other batteries having only four “lines” of waggons and are approx. 100m deep. (i.e. allowing for the space taken up by the guns in front and the last “line” of waggons)
- 2.4.2.6 However, these distances could be extended or reduced depending on the terrain. Ammunition waggons or caissons would be moved to a place where they could be sheltered from enemy fire. Also, guns in defensive positions such as redoubts are unlikely to have their limbers or ammunition waggons nearby. So, the depths need to be recognised as both approximations and highly variable.

2.4.3 Length on the march of limbered batteries

- 2.4.3.1 There needs to be provision made for when the battery is moving on a road and hence only able to have a single column of guns and other transport, and where it is moving across the countryside where it may be a column of pairs of guns and associated support vehicles. Estimates of the spacing have been made using the diagrams from Franklin (2008).
- 2.4.3.2 Based on this the following indicators have been determined to allow for the horses, limbers guns and approx. 2m spaces between each.
- 6 horse crew gun and limber = 17m
 - 4 horse crew gun and limber = 14m

- 6 horse caisson, ammunition wagon or similar = 16m
- 4 horse caisson, ammunition wagon or similar = 13m

2.4.4 This then implies the following lengths of a column for the limbered batteries

2.4.4.1 A battery of 6 x 12pdr Foot Artillery, in

- a single column on a road would then give 6 x 6 horse gun teams (i.e. 6 x 17m) plus 18 x 4 horse caisson teams (i.e. 18 x 13m) = 102m + 234m = 336m
- A double column (i.e. with two guns abreast) moving across country will then have a length of 3 x 6 horse gun teams (i.e. 3 x 17m) plus 9 x 4 horse caisson teams (i.e. 9 x 13m) = 51m + 117m = 168m

2.4.4.2 A battery of 8 x 12pdr Foot Artillery, in

- a single column on a road would then give 8 x 6 horse gun teams (i.e. 8 x 17m) plus 24 x 4 horse caisson teams (i.e. 24 x 13m) = 136m + 312m = 448m
- A double column (i.e. with two guns abreast) moving across country will then have a length of 3 x 6 horse gun teams (i.e. 3 x 17m) plus 9 x 4 horse caisson teams (i.e. 9 x 13m) = 51m + 117m = 168m
- Hence in 1:5000 scale = 67mm for single and 34mm for double column

2.4.4.3 A battery of 6 x 6pdr Foot Artillery, in

- a single column on a road would then give 6 x 4 horse gun teams (i.e. 6 x 14m) plus 12 x 4 horse caisson teams (i.e. 12 x 13m) = 84m + 156m = 240m
- A double column (i.e. with two-gun teams abreast) moving across country will then have a length of 3 x 4 horse gun teams (i.e. 3 x 14m) plus 6 x 4 horse caisson teams (i.e. 6 x 13m) = 42m + 78m = 120m

2.4.4.4 A battery of 6 x 6pdr Horse Artillery, in

- a single column on a road would then give 6 x 6 horse gun teams (i.e. 6 x 17m) plus 12 x 6 horse caisson teams (i.e. 12 x 16m) = 102m + 192m = 294m
- A double column (i.e. with two-gun teams abreast) moving across country will then have a length of 3 x 6 horse gun teams (i.e. 3 x 17m) plus 6 x 6 horse caisson teams (i.e. 6 x 16m) = 51m + 96m = 147m

2.4.4.5 A battery of 6 x 4 pdr foot artillery, in

- a single column on a road would then give 6 x 4 horse gun teams (i.e. 6 x 14m) plus 6 x 4 horse caisson teams (i.e. 6 x 13m) = 84m + 78m = 162m
- A double column (i.e. with two-gun teams abreast) moving across country will then have a length of 3 x 4 horse gun teams (i.e. 3 x 14m) plus 3 x 4 horse caisson teams (i.e. 3 x 13m) = 42m + 39m = 81m.

2.4.4.6 Estimated Battery lengths; on the march in a single column, such as along a road

Length (m)	17	14	16	13	Ground Scale 1 :									
Battery Type	6 Horse Gun	4 Horse Gun	6 Horse Caisson	4 Horse caissons	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000
6 x 12pdr Foot	6			18	336	168	112	84	67	56	48	42	37	34
6 x 6pdr Foot		6		12	240	120	80	60	48	40	34	30	27	24
8 x 6pdr Foot		8		16	320	160	107	80	64	53	46	40	36	32
6 x 6pdr Horse	6		12		294	147	98	74	59	49	42	37	33	29
6 x 4pdr Foot		6		6	162	81	54	41	32	27	23	20	18	16

2.4.4.7 Estimated Battery lengths; on the march in a double column, such as over the field of battle.

Length (m)	17	14	16	13	Scale 1 :									
Battery Type	6 Horse Gun	4 Horse Gun	6 Horse Caisson	4 Horse caissons	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000
6 x 12pdr Foot	3			9	168	84	56	42	34	28	24	21	19	17
8 x 6pdr Foot		4		8	160	80	53	40	32	27	23	20	18	16
6 x 6pdr Foot		3		6	120	60	40	30	24	20	17	15	13	12
6 x 6pdr Horse	3		6		147	74	49	37	29	25	21	18	16	15
6 x 4pdr Foot		3		3	81	41	27	20	16	14	12	10	9	8

3 Application in C3 rules

3.1 Potential Solutions

3.1.1 General Principles

The following principles have been adopted

- 3.1.2 The base or similar would not be a determinant *per se* for any calculations. Frontages will be measured according to the scale using standardised markers. This would allow the same calculation to be done for any of the standard scales. In effect, players measure per 50m of the frontage of the unit. I.e a player would be calculating the fire of 500m of infantry in three ranks, rather than # bases or castings.
- 3.1.3 In turn, the numbers of castings on a base had no relevance and players would choose what suits their finances, the practicalities of figurine scale and the aesthetics of the display.

3.1.4 Uniform base frontage

- 3.1.4.1 This is the most common practice and players base all troops on uniform frontages. As a purely administrative exercise, these are generally in uniform multiples of 10mm, which can easily be calculated into frontages of 50m, 100m or 200m frontages to fit the variability of the ground scale.
- 3.1.4.2 It is noted that some players would have most of the castings based in standard frontage bases for most of the Unit, with a selection of one or two narrower bases in. This was done to adjust the frontage more easily for historical games. However, in practice, the problems of finding accurate strength return probably created as many distortions as the rounding up or down of the data available to the nearest base size.

3.1.5 Unit sabot bases / Movement trays

- 3.1.5.1 An alternative is to create a standard brigade or division-sized base. The frontage of this sabot base then representing the frontage of the brigade or division in a linear formation for that game. Castings are not fixed permanently but only placed on this base.
- 3.1.5.2 For example, a sabot unit base with a 120mm frontage and 30mm deep is made using magnetic sheets. The castings are glued individually or in pairs onto washers or similar metal bases. These bases are then placed on the "unit" base to depict the troops in line, columnar or square formation. Players then can select a wide variety of these bases each unit depending on the game.

3.1.6 Historical sub-unit frontages

- 3.1.6.1 In this case, players would divide the frontage of the historical full-strength units by the number of platoons they have. For example, in a 1:5000 scale, an infantry battalion would be;
- French 1812 = 6 companies = 6 bases x 42m frontage (±8mm wide)
 - French 1812 = 3 divisions = 3 bases x 83m frontage (±16mm wide)
 - Russian 1812 = 8 platoons = 8 bases x 31.25m (±6mm wide)
 - Russian 1812 = 4 company bases = 8 bases x 62.5m (±12.5m wide)
 - Prussian 1806 = Battalion in Line = 1 base x 150m (±30mm wide)
- Cavalry squadrons can be dealt with similarly, taking a Squadron of
- 300 troopers in two ranks = 150 files x 1.0 m = 150m (±30mm)
 - 200 troopers in two ranks = 100 files x 1.0m = 100m (±20mm)
 - 100 troopers in two ranks = 50 files x 1.0m = 50m (±10mm)

3.1.6.2 The players than use a distance marker or ruler to determine the frontage when combat occurs.

3.2 Infantry

3.2.1 Given the data above the rules will adopt a principle that the total manpower of the infantry unit would be used and the assumption that formed on three ranks each file would be 0.6m wide. If on two ranks, then a file would be 0.9m.

3.2.2 Using this for infantry deployed in files of three ranks, the numbers of actual troops represented by a base would be as follows. (i.e. if the base was 30mm wide and using the scale of 1:5000 the base would represent the frontage of approximately 750 infantry).

Frontage (mm)	Ground Scale is 1 :									
	1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000
10	50	100	150	200	250	300	350	400	450	500
15	75	150	225	300	375	450	525	600	675	750
20	100	200	300	400	500	600	700	800	900	1000
25	125	250	375	500	625	750	875	1000	1125	1250
30	150	300	450	600	750	900	1050	1200	1350	1500
40	200	400	600	800	1000	1200	1400	1600	1800	2000
50	250	500	750	1000	1250	1500	1750	2000	2250	2500
60	300	600	900	1200	1500	1800	2100	2400	2700	3000

3.2.3 However, for infantry deployed in files of two ranks the numbers of actual troops represented by a base would be as follows (i.e. if the base was 30mm wide and using the scale of 1:5000 the base would represent the frontage of approximately 500 infantry).

Frontage (mm)	Ground Scale is 1 :									
	1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000
10	33	67	100	133	167	200	233	267	300	333
15	50	100	150	200	250	300	350	400	450	500
20	67	133	200	267	333	400	467	533	600	667
25	83	167	250	333	417	500	583	667	750	833
30	100	200	300	400	500	600	700	800	900	1000
40	133	267	400	533	667	800	933	1067	1200	1333
50	167	333	500	667	833	1000	1167	1333	1500	1667
60	200	400	600	800	1000	1200	1400	1600	1800	2000

3.2.4 Examples of Infantry

A brigade of approx. 4000 troops in three ranks, in a single line. The images of troops are indicative of castings.



3.3 Cavalry

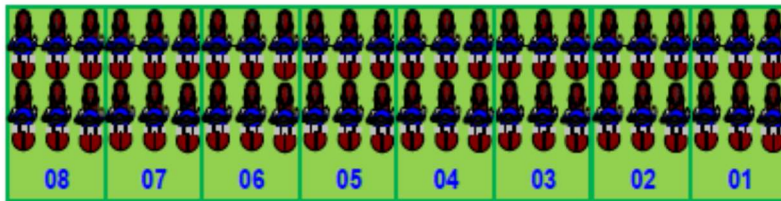
3.3.1 Given the data above the rules will adopt a principle that the total manpower of the cavalry unit would be used and the assumption that formed on two ranks, each file would be 1m wide.

3.3.2 Using this then cavalry deployed in files of two ranks the numbers of actual troops represented by a base would be as follows (i.e. if the base was 30mm wide, and the scale of 1:5000 the base would represent the frontage of approximately 300 troopers).

Base Frontage (mm)	Scale 1 :									
	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000
10	20	40	60	80	100	120	140	160	180	200
15	30	60	90	120	150	180	210	240	270	300
20	40	80	120	160	200	240	280	320	360	400
25	50	100	150	200	250	300	350	400	450	500
30	60	120	180	240	300	360	420	480	540	600
40	80	160	240	320	400	480	560	640	720	800

3.3.3 Examples of Cavalry

A brigade of 1600 cavalry in 2 lines @ 1:5000 scale The images of troops are indicative of castings.



3.4 Artillery

3.4.1 These pose a problem in that they need two forms of basing to represent when they are limbered and when unlimbered. The spacing of each has little correlation to the other. Generally, this is a combination of two bases (i.e. a limbered and unlimbered) or a split base (i.e. the horse team and limber and deployed gun teams are separate).

3.4.2 Frontages

3.4.2.1 Based on this the general rule of spacing of $\pm 16.5\text{m}$ per weapon has been proposed as a norm. This seems to fit best and may be a practical necessity as part of the reason for spacing between guns is the space needed to wheel a gun limber

Frontage (mm)	Scale 1 :									
	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000
10	.6	1.2	1.8	2.4	3.0	3.6	4.2	4.8	5.5	6.1
15	.9	1.8	2.7	3.6	4.5	5.5	6.4	7.3	8.2	9.1
20	1.2	2.4	3.6	4.8	6.1	7.3	8.5	9.7	10.9	12.1
25	1.5	3.0	4.5	6.1	7.6	9.1	10.6	12.1	13.6	15.2
30	1.8	3.6	5.5	7.3	9.1	10.9	12.7	14.5	16.4	18.2
40	2.4	4.8	7.3	9.7	12.1	14.5	17.0	19.4	21.8	24.2

3.4.2.2 In the larger games, players tended to group pairs of batteries and represent them with a single model. However, even when a standard base size was adopted there would be cases when players used half size bases for artillery. This was used for armies lacking large numbers of guns, such as the British in the Peninsula.

3.4.2.3 For example, the frontages and 1:5000 scale game equivalents are;

- 12-gun battery = 180m ($\approx 36\text{-}40\text{mm}$)
- 8-gun battery = 120m ($\approx 20\text{-}24\text{mm}$)
- 6-gun battery = 90m ($\approx 18\text{-}20\text{mm}$)
- 4-gun battery = 60m ($\approx 10\text{-}12\text{mm}$)

3.4.3 Unlimbered battery depths

3.4.3.1 Unlimbered batteries would have depths of ;

- at least 100m (20mm) for LS or MS
- at least 125m (25mm) for HS

3.4.4 Limbered batteries

3.4.4.1 Estimated battery lengths; on the march in a single column, such as along a road are

Length (m)	17	14	16	13	Scale 1 :									
Battery Type	6 Horse Gun	4 Horse Gun	6 Horse Caiss on	4 Horse caissons	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000
6 x 12pdr Foot	6			18	336	168	112	84	67	56	48	42	37	34
6 x 6pdr Foot		6		12	240	120	80	60	48	40	34	30	27	24
8 x 6pdr Foot		8		16	320	160	107	80	64	53	46	40	36	32
6 x 6pdr Horse	6		12		294	147	98	74	59	49	42	37	33	29
6 x 4pdr Foot		6		6	162	81	54	41	32	27	23	20	18	16

3.4.4.2 Estimated Battery lengths; on the march in a double column, such as over the field of battle.

Length (m)	17	14	16	13	Scale 1 :									
Battery Type	6 Horse Gun	4 Horse Gun	6 Horse Caiss on	4 Horse caissons	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000
6 x 12pdr Foot	3			9	168	84	56	42	34	28	24	21	19	17
8 x 6pdr Foot		4		8	160	80	53	40	32	27	23	20	18	16
6 x 6pdr Foot		3		6	120	60	40	30	24	20	17	15	13	12
6 x 6pdr Horse	3		6		147	74	49	37	29	25	21	18	16	15
6 x 4pdr Foot		3		3	81	41	27	20	16	14	12	10	9	8

3.4.4.3 This results in bases with a depth for a 1:5000 scale game of

- at least 240m (48mm) for a six-gun battery of LS or MS
- at least 320m (64mm) for an eight-gun battery of LS or MS
- at least 336m (67mm) for a six-gun battery of HS
- at least 448m (90mm) for an eight-gun battery of HS
- at least 294m (59mm) for a six-gun battery of any horse artillery

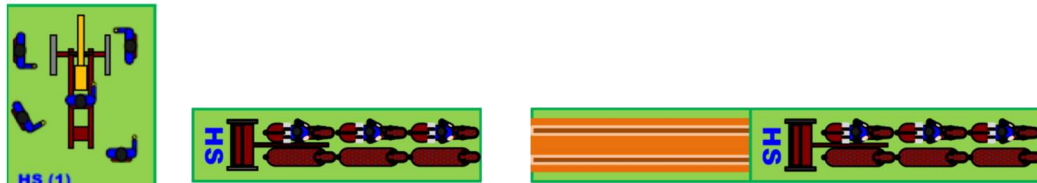
3.4.5 Examples of Artillery

3.4.5.1 Each battery would have three components to represent it during different stages of a game. Such as the following depiction of a six-gun medium smoothbore (MS) battery

- Single base with a gun model and crew to depict the gun in a deployed or unlimbered position, and
- Single base with limber, four to six horses and possibly a gun model to depict the gun in a limbered status while moving in pairs across the countryside. This is often longer than required to accommodate the castings, and
- A sabot or marker to extend the normal limbered base when moving in a single column of weapons and waggons along a road. This adjusts the “footprint” of the base with a “road” marker.



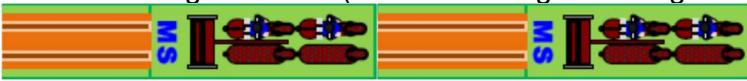

3.4.5.2 A six-gun heavy smoothbore battery, with is larger limber teams and a greater number of waggons would then be depicted as

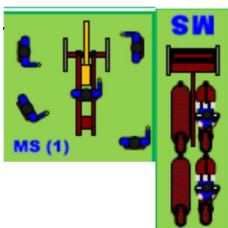


3.4.5.3 A six-gun heavy smoothbore battery, with is larger limber teams and but the similar number of waggons as the medium smoothbores would be depicted as



3.4.5.4 Twelve gun batteries can then be accommodated by combinations of this for example

- While travelling on a road (ie twice as long as a six-gun battery)
- 
- While travelling across the countryside (in pairs), again (ie twice as long as a six-gun battery)
- 
- When deployed for firing, the “gun” base representing the usual six to eight weapons, the limber then with the gun side pointing to the enemy extending the frontage.



4 References

Note these references use a convention to refer to the “author” by the name of the country where the document is a regulation, rather than the actual author. Note the absence of an electronic copy (i.e. such as Google Books) is not definitive there is none, only that it was not available at time of writing.

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