

The Electronic Brigadier

A Computer Moderated Wargaming System

by: Allan 'AJ' Wright



Battle Procedures Guide

Preface

Thank you for your interest in The Electronic Brigadier. This system of battle procedures and computer programming has been a project of mine for more than 15 years. This time has been spent developing the software, rules and procedures for playing games with The Electronic Brigadier system as well as an extensive amount of private and convention playtesting. Bridging my interest in tabletop wargames, board games and computer gaming into a single homogeneous system that could produce fun, fast-paced, and historically accurate miniatures games has always been the driving force behind creating this system.

I hope you enjoy your games in whatever historical period you are passionate about. I'm always willing to discuss your thoughts and opinions about The Electronic Brigadier system. Please feel free to email me with your comments at allanwright.aj@gmail.com.

Sincerely,

Allan 'AJ' Wright

Credits

I'd like to thank several friends and members of my local wargaming club, The Northern Conspiracy (<https://www.facebook.com/groups/1085997335712727>) who have been play testers and have provided a vast amount of expert information about tactics, procedures, troop types, weapon systems and battles that were used in the development of this rule system. These include, but are not limited to: Ralph Gero, Charlie Galemme, Byron Champlin, Ed Mueller, George Zanni, Mark Nichipor, Phil Hammond and Rob Zwiercan. In addition I'd like to thank my coworker and friend Phil Collins for both his technical assistance and inspiration in regards to programming the mobile friendly web application software for The Electronic Brigadier. Without the assistance, encouragement, and inspiration of all of these people, this system would not have been possible.

Copyright

All documents, software, and procedures included in The Electronic Brigadier are original creative works and are copyrighted by Allan Wright, 44 Stocklan Circle, Dover, NH 03820 © 2025.

Version Information

This guide documents rules and software version 0.945 - May 81, 2025

Table of Contents

1. Introduction

- 1.1. Why create a computer moderated rule set?
- 1.2. Periods covered by Electronic Brigadier
- 1.3. Ground scales
- 1.4. Figure scale and basing
- 1.5. Time scale
- 1.6. Measuring, arcs and line of sight
 - 1.6.1. Measuring
 - 1.6.2. Pre-measuring
 - 1.6.3. Arcs
 - 1.6.4. Line of sight
- 1.7. Terrain

2. Units

- 2.1. Unit Characteristics
 - 2.1.1. Unit ID, Name, Quality, Number of Soldiers, Starting Cohesion, Starting Formation
 - 2.1.2. Training
 - 2.1.3. Weapons

3. Morale & Cohesion

- 3.1. Morale states
- 3.2. Morale checks
- 3.3. Mandatory moves as a result of deteriorated morale
- 3.4. Cohesion

4. Entering Turn Information Into The Computer

- 4.1. Turn sequence
- 4.2. Issuing orders to units
 - 4.2.1. In Reserve
 - 4.2.2. Hold / Defend
 - 4.2.3. March, Quick and Double
 - 4.2.4. Formation Change
 - 4.2.5. Attached Superior Officers

5. Tabletop Procedures

- 5.1. Starting a turn
- 5.2. Officers
- 5.3. Turn Sequence
- 5.4. Units with In Reserve or Hold / Defend orders
- 5.5. Units with March, Quick and Double orders
 - 5.5.1. Distances for each order type
 - 5.5.2. Wheels
 - 5.5.3. About face
 - 5.5.4. Passage of lines
 - 5.5.5. Movement to melee contact
 - 5.5.6. Terrain effects on movement
- 5.6. Units with Formation Change order
 - 5.6.1. Legal formations
- 5.7. Combat
 - 5.7.1. Ranged (shooting) combat

- 5.7.1.1. Eligible targets
 - 5.7.1.1.1. Line of sight
 - 5.7.1.1.2. Shooting lanes in close proximity to friends
 - 5.7.1.1.3. Overhead shooting with artillery
- 5.7.1.2. Measuring ranges
- 5.7.1.3. Determining target disposition
- 5.7.1.4. Determining target terrain
- 5.7.1.5. Shooting at enemies engaged in melee combat
- 5.7.2. Melee contact resolution
 - 5.7.2.1. Determining target disposition
 - 5.7.2.2. Determining target terrain

6. End of turn processing

- 6.1. Reading the results screen
- 6.2. Conducting mandatory movement
- 6.3. Game Master Tools
 - 6.3.1. Involuntary interpenetration
 - 6.3.2. Dispersing units that have left the table
 - 6.3.3. Game Statistics

7. Glossary of terms

8. Version Change Notes

9. Designer's Notes

10. Index

1. Introduction

"Soldiers usually win the battles and generals get the credit for them." - Napoleon Bonaparte

1.1. Why create a computer moderated rule set?

I've been playing wargames with board game tokens, miniatures, and computers for more than 35 years. Each system has its pros and cons. Miniatures games have unparalleled aesthetic beauty, board games allow for massive quantities of units, and computer games can track the many variables that control the game while retaining the ability to reveal some information only when it is appropriate for the player to know it. This last feature allows for "fog of war" realism to be added to the game. Augmenting tabletop miniatures games with computer moderation allows you to combine the best of all three worlds. Until the availability and affordability of mobile computing platforms such as smartphones and tablets, the only way to integrate computers into a miniatures game was to require a game master to enter all of the appropriate information for each turn into a single computer. Using this method requires each player to wait their turn to move their troops and interact with the game master. Using multiple networked mobile devices to allow players from the opposing side to simultaneously participate in the data entry process removes these problems while also keeping the nonmoving players fully engaged in the game. The data entry load is spread across all players and works just as well for a ten-player game as it does for a two-player game.

The Electronic Brigadier has been created primarily as a tabletop miniatures game. At every step of its design I've held this to be the first and most important design factor. I wanted to ensure that adding computers to the mix didn't detract from what I consider are the most important factors in a good tabletop wargame. These are in approximate order of importance:

- It must be fun to play.
- It must not hinder the social interaction and engagement between the players.
- It must maintain as much historical accuracy as is practicable in regards to:
 - outcomes of battles and engagements
 - tabletop representation of the historical units, tactics, terrain, and formations
 - casualty rates
- It must allow battles to be played to conclusion in a reasonable amount of time.

Each of the significant design decisions that were made while making The Electronic Brigadier were made in support of this goal: the computers should add value and enjoyment to the miniatures game, not get in the way of it.

1.2. Periods covered by Electronic Brigadier

The Electronic Brigadier has been designed to allow battles to be fought for any historical period in which the primary infantry weapon is a firearm that loads from the muzzle. This is sometimes called the "horse & musket" or the "black powder" period and includes some of the most popular wargaming periods. These include the American War of Independence (AWI), The Seven Years War (7YW), The Napoleonic Wars (NAP), and the American Civil War (ACW) as well as many others. More modern weapon systems are available to be added to units in order to support periods where the muzzle loader is the predominant infantry weapon but a small number of units may be armed by these more modern weapons. A primary example might be the use of repeating rifles in the ACW. Later periods such as the Franco-Prussian War

where the primary firearms are breech loading or cartridge-based are not intended to be covered with this system.

The time span covered by The Electronic Brigadier spans several historical periods with very different weapons, formations, tactics, and troop training types. When a scenario is designed, the game master selects the appropriate period for the battle and the troops for the battle. This allows the computer moderation software the ability to make decisions appropriate to the period, weapons and troop types for the scenario. For each historical period, there will be an appropriate quick reference sheet (QRS) available to download and print from our website. With The Electronic Brigadier, an American War of Independence game should play and feel significantly different than one for the American Civil War or the Napoleonic wars.

1.3. Ground Scales

The ground scale for 25mm or 28mm figures is approximately 20 yards per inch. For 15mm figures you can use $\frac{2}{3}$ sized rulers without having to change any of the game distances, or alternatively, halve all of the measurements in the rules. Ground scales are approximate, and can be more or less accurate depending on the figures and basing methods used. Artillery ranges have been reduced from their theoretical maximums to account for battlefield conditions such as visibility, small terrain variances, etc.

1.4. Figure Scale and Basing

Each unit represents a company, battalion, regiment, gun section, etc. Each unit is an independent maneuver element within a historical brigade for the period. For the AWI a unit would typically be a battalion or regiment of anywhere from 150-550 men; for the ACW a unit might be a regiment of anywhere from 200 to 1000 men. Units will not be allowed to “break down” into smaller formations during a game. If a regiment typically allowed its light company to fight separately from the rest of the battalion, then the light company should be assigned its own unit number and will be a separate unit in The Electronic Brigadier. Particularly large units can be represented as two smaller Electronic Brigadier units if desired by the game master. A large regiment could be represented by two separate battalions for example.

The Electronic Brigadier tracks the individual casualties in each unit. Each unit will have a starting strength in number of soldiers including NCOs, and unit-level officers. As casualties are accrued, the computer will record the losses as an actual number of men lost. Casualties include any soldier that is no longer fighting with the unit including soldiers killed, wounded, missing, or fled. After the battle a portion of these would in most cases be returned to the ranks. Figures and stands are not removed due to casualties during play. The casualty rates in The Electronic Brigadier are much closer to historical rates than most wargaming rule sets. Casualty rates large enough to significantly reduce a unit's frontage were rare enough to not need to be modeled in this system. Entire units may be removed from play if they are dispersed due to morale collapse, or if they are forced off the table due to mandatory movement.

Figure basing is left as a choice for the game master. Whatever basing is chosen, it should be consistent for both armies, allow for the figures to represent each of the distinct formations allowed for the scenario's historical period and as should approximate a frontage consistent with the historical period modeled. As an example, for AWI a 300 man battalion in 28mm I use a frontage of 6", but the same number of men in the ACW could use a basing system that might span only 4"-5" due to the higher soldier density in line formation for this period. For most periods, a minimum of four bases per unit is recommended, but units

composed of more or sometimes less bases also are acceptable. When using individual bases, each inch of base frontage should represent approximately 100 infantry or 50 cavalry.

Units relative size should also be considered when basing your models. A unit of 500 men should be as close as possible twice as wide as a unit of 250 men, representing the scale frontage for each unit. A separate base and model should be used for each section of two guns. The frontage for a two gun section would be 1.5" if using 100 infantry per inch as recommended above. For batteries of multiple sections these multiple bases will receive orders, maneuver and shoot as a single unit. Artillery unit sizes should be set to 15 men per gun, 30 per section. The Electronic Brigadier will calculate casualties based on this. Artillery crew includes gunners, officers and limber crews. Undersized crews may be fielded and will suffer a proportional reduction in combat effectiveness.

Units composed of multiple bases always must have all bases remaining in contact with each other in a legal formation. Disordered formation should be represented by a "jumble" of touching bases. For units able to expand their frontage using open-order formations, an additional base or bases, or an appropriate figureless spacer or sabot stand should be used to keep all bases of a unit in contact with each other. See section **5.6.1 Legal Formations** for more information.

1.5. Time Scale

Alfred Hitchcock said, "Drama is life with the dull bits cut out." The Electronic Brigadier is a dramatic representation of battlefield actions represented in a you go, I go system. Each turn represents approximately 10-15 minutes of important battle activities for the active side within a 30-minute time period that is represented by the turn. Considering the segmented nature of you go, I go systems, the time scale is approximate and includes some of what many wargame rules authors describe as "variable length bounds." A turn is about the amount of time for a unit to perform a militarily significant action: conduct a tactical march across about 120 yards of open terrain and fire a single volley, perform a charge, hold and conduct sustained musketry or cannonade, change formation, limber or deploy a battery, rest & reform, etc.

Occasionally things may happen on the tabletop which may seem incongruous with the time scale or sequence. When this happens, remember that a turn is representing only the dramatic portion of 30 minutes of time each side is using to their best advantage. We keep each side's turn separate to increase clarity and simplify the game's mechanics, sometimes to the detriment of time scale or sequence accuracy. I feel the value gained by the clarity and simplicity of the "you go, I go" system more than outweighs the shortcomings.

1.6. Measuring, arcs, and line of sight

1.6.1. Measuring

Measurements for movement and shooting ranges are all done using imperial inch rulers. For those using the metric system you may substitute 25mm for 1 inch. For ease of data entry shooting ranges are grouped into bands defined by colors. All historical periods use the following range bands:

Table 1 - Range Bands

Color	Minimum Range	Maximum Range
-------	---------------	---------------

N.A.	Melee Contact	N.A.
Red	>Contact	6"
White	>6"	12"
Blue	>12"	18"
Yellow	>18"	24"
Green	>24"	36"
Orange	>36"	45"
Grey	>45"	56"
Black	>56"	90"

Shooting range sticks with these range bands marked in the appropriate colors will speed play but are not required. If making range sticks, I recommend making several with red, white, and blue bands on them for use with infantry and one or two longer ones for artillery with appropriate colors on them.



Range measuring sticks - made from wooden dowels

1.6.2. Pre-measuring

Pre-measuring is allowed at all times. It is considered good sportsmanship to inform your opponent when moving your units if the terrain or figure placement might make a later re-measurement ambiguous. An example might be informing your opponent, "I had enough movement to move these further but stopped just within six inches so I can be in short range."

When units are entering or leaving area terrain, all distance measurements and decisions about if the unit's movement should be counted as in or crossing such terrain will use the center of the front edge of the unit. If a unit performs an about face in or near such terrain, the front of the unit changes when the about face is executed, and all such measurements and decisions use the new front for the remainder of the turn. This may cause units that conduct an about face to either avoid or to have to count a terrain piece twice in a turn depending on the orientation of the unit and terrain.

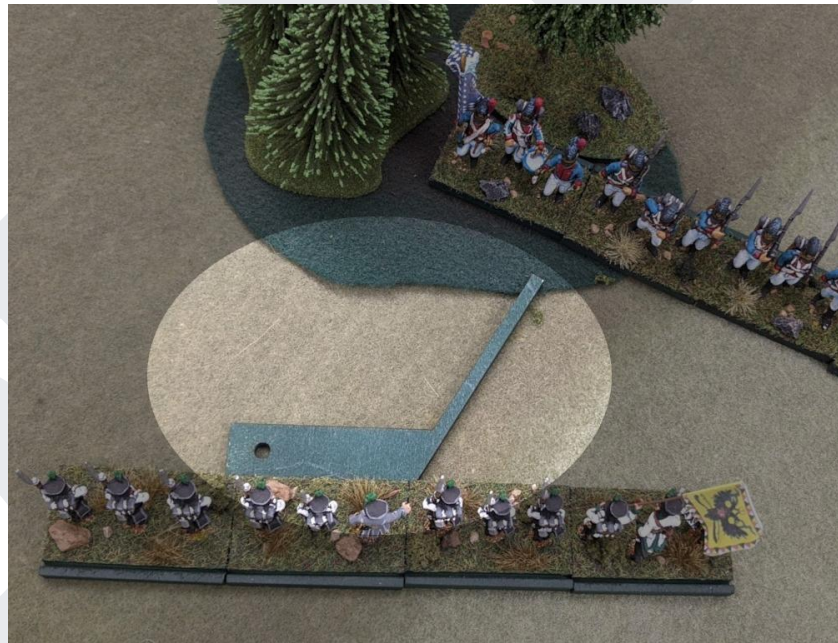
1.6.3. Arcs

All units other than artillery have firing arcs of 45 degrees each side of center. All firing distances are measured from the center of the firing unit to the closest point of the enemy unit that is within the firing arc and is visible to the firing unit. In the case of units with an odd number of stands in a

unit, it may be convenient to mark the center of each stand with a visible mark to aid in determining the center of the unit.



You may find it helpful to have an arc measuring tool similar to the one pictured below to aid in both firing and maneuvering your units. These can be made from cardstock, balsa wood or other materials. As oblique movement is also a maximum of 45-degrees this tool can also be helpful for measuring oblique movement.

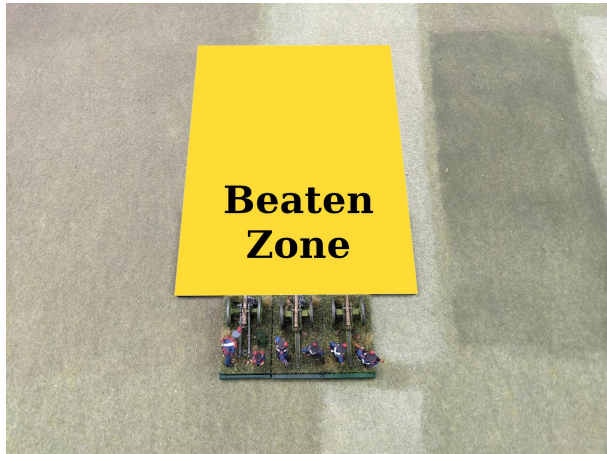


Arc Measuring Tool

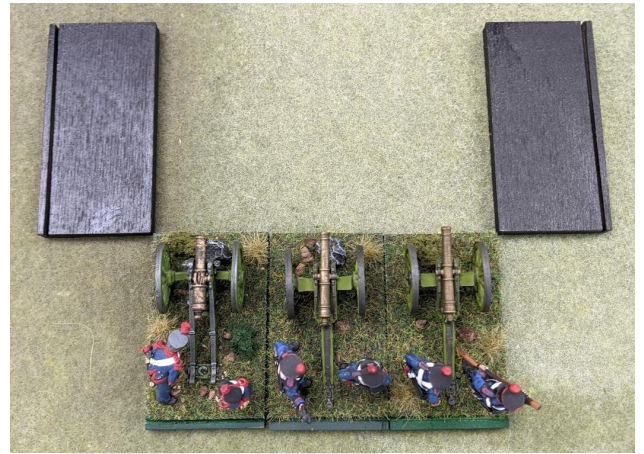
All regular units are allowed to perform forward movement at an oblique angle of up to 45 degrees. Such movement is considered normal forward movement and does not require additional recognition within the computer system.

Artillery units fire directly ahead. They have a 'beaten zone' that is directly ahead of the battery and one gun section wider to each side of the battery. More information about the beaten zone can be found in section **5.7.1.1.2 Shooting lanes in close proximity to friends**. The easiest way to measure this beaten zone is to have two extra empty artillery base sabots to aid in measuring. Note

that the area directly to each side of the battery is not in the beaten zone and may be occupied by friendly units without hampering the battery's ability to fire.



Beaten zone illustration



Sabots to measure the width of the beaten zone

1.6.4. Line of sight

A unit has line of sight if a line can be traced from the active unit's center to any point of the target within the active unit's legal firing arc, unit without crossing any terrain that blocks line of sight. If this line of sight passes through a terrain feature that has less than infinite visibility, the line must not pass through more terrain than the visibility limit stated in the terrain table below in section 1.7.

Terrain

1.7. Terrain

The table below describes the terrain types used in The Electronic Brigadier:

Terrain

Description	Movement Inf / Cav Art	Ranged Cover	Melee Cover	Visibility	Cavalry Allowed?	Artillery Allowed?
Gentle Hill	Normal	No	Up Hill	Unlimited	Y	Y
Hasty Works	Normal	Yes	Yes	0	Pass Through	Y
Open	Normal	No	No	Unlimited	Y	Y
Redoubt / Breastworks / Buildings	-2" / -4" *	Yes	Yes	0	Pass Through	Y / Y / N
Roads	1.5	No	No	Unlimited	Y	Y
Linear Obstacle	-2" / -4"	No	Yes	Unlimited	Y	Y
Orchards / Open Woods	-2" / -4"	Yes	Yes	8"	Y	Y
Brush/Scrub	Normal	No	Yes	Unlimited	Y	Y
Soft/Broken Ground	Normal	No	No	Unlimited	Y	Y
Standing Crops	Normal	No	No	4"	Y	Y
Forest / Dense Woods	1/2	Yes	Yes	4"	Y	Y
Steep Slope	1/2	No	Up Hill	Unlimited	Y	Pass Through
Stream Bank	1/2	No	Yes	Unlimited	Y	N

Town / Urban	1/2	Yes	Yes	4"	Pass Through	Pass Through
Swamp / Marsh	1/2	No	Yes	8"	N	N

* Units moving through or around redoubts, breastworks or buildings count as moving through light terrain, and should be marked accordingly in the computer.

Units moving in a turn in which they enter, leave or pass through terrain with a $\frac{1}{2}$ speed movement penalty **will move $\frac{1}{2}$ speed for the entire turn**. Units crossing moving in or passing through terrain with a -2" / -4" penalty will deduct that amount for each terrain piece crossed, moved in or passed through.

If a unit doesn't have enough movement to clearly cross, or enter a terrain piece it will be required to stop short of that terrain piece and wait for its next turn to enter or cross it. In many rule set's it's common to "pay for" a terrain penalty in one turn and move unpenalized through it in the following turn. This is not allowed in The Electronic Brigadier. For example, an infantry unit that is 6 inches from a dense woods may march up to the wood edge but not enter the woods as entering the woods would reduce its march movement from 8 inches to 4 inches, which wouldn't reach the woods. The same unit could choose to move at the double, giving the unit a 16 inch move, halved for the woods, which would result in an 8 inch total move. They could enter the woods moving 2 inches into them.



This infantry is 7 $\frac{1}{2}$ inches from the light woods. Since the light woods cost two inches to enter, the unit would have to stop at the edge of the woods under a March order, unable to pay the full two inch entry cost using the 8" infantry march move distance.



The same unit with a quick order can issue a quick order and advance 10" and enter the light woods having paid two of its 12" quick movement distance to enter the light woods.

2. Units

"Where some states have an army, the Prussian Army has a state!" - Voltaire

Each army in a battle fought with The Electronic Brigadier will be created by the game master using the online scenario editor. The scenario editor and all game master features are covered in a separate document: the *Electronic Brigadier Scenario Creation Guide*. At the beginning of each game, the game master will provide the players on each side an order of battle for their forces. This order of battle will list each unit and its characteristics, which brigade it belongs to, the brigadier's name as well as a list of superior offers. Each player will command one or more brigades and will be represented on the tabletop by their brigade's brigadier figure.

2.1. Unit Characteristics

Each unit in a brigade will be defined using the following characteristics:

2.1.1. Unit ID, Name, Number of Soldiers, Quality, Starting Cohesion, Starting Formation

Unit ID # - unique unit ID number. This will be used to quickly refer to a unit instead of using the unit's full name. Brigades will typically be identified by their 'hundreds' digit, for example units 101, 102 and 103 would be in one brigade and 201, 202 and 203 in another. Game masters may also choose to number opposing armies by using numbers greater than 500 for one army and less than 500 for another. Larger battles may use more than three digits for unit numbers. Unit numbers are unique, i.e. each number can be assigned to only one unit.

Unit Name - The historical name of the unit or a suitable abbreviation. Examples: Moran's Rifles, 20th Maine, 15th Line Infantry Rgt.

- Number of Soldiers - The number of combatants in a unit. This includes soldiers, NCOs and unit-level officers such as majors, colonels. etc. For artillery this includes all crew of the gun including limber drivers, etc. Artillery at full strength should be crewed with 15 men per gun regardless of national doctrine.
- Quality - The elan of the unit from 1-100. For average quality units 50 should be used. Quality will affect the morale and combat effectiveness of a unit. Units above 50 will receive a positive effect and units below will receive a negative effect. Some examples might be Napoleonic French old guard might be rated at a quality rating of 90, where Austrian line troops might use a quality rating of 45. For the American Revolution British Grenadiers might be rated as a 75, British line as 60-65, American Continentals 60-65, State troops 45-55 and loyalists & militia anywhere from 20-45. Additional guidelines for each historical period are given in the *Electronic Brigadier Scenario Creation Guide*.
- Starting Cohesion - For most units this will be 100%. For some historical battles a unit may start with some lost cohesion to represent fatigue from force marching, disorganization due to surprise, etc. For example, the German forces at the AWI battle of Trenton for example might start with a cohesion of 80% to represent their relative surprise. Some militia and irregular troops may also start a scenario at less than 100% cohesion to represent their lack of formal organization on the battlefield and their unwillingness to remain on the battlefield in good order under sustained fire.
- Starting Formation - Each unit's starting formation will be determined by the GM when the scenario is created. Surprised units and units in camp can be given a starting formation of Disordered. Units marching to the battle and arriving at the start of or during the battle can be given a starting formation of march column. Other units can be given an appropriate battlefield formation such as open order, line, attack column or square.

2.1.2. Training

A unit will be defined by its training. Formations available to units will be restricted appropriately based on a unit's training. Training types are listed below:

- Line Infantry - Regular infantry not trained in or expected to use skirmish or open order formations or tactics.
- Light Infantry - Regular infantry that are also able to fight using open order formation and tactics.
- Irregular Infantry - Infantry not trained in volley fire or disciplined battlefield maneuvers, may only use march column, open order and mass formations.
- Mounted Infantry - Infantry that use horses for mobility but are expected to fight on foot as line infantry above. Most cavalry in the American Civil War would be rated as mounted infantry.

- Line Cavalry - Battle cavalry with a primary role to fight on horseback using massed charge such as Napoleonic cuirassiers or dragoons.
- Light Cavalry - Lighter weight battle cavalry able to use massed charge or open formations such as Napoleonic hussars, uhlans, most AWI dragoons, etc.
- Irregular Cavalry - Lesser trained irregular cavalry, may use mass or open order formations. Less effective in melee charge combat such as Napoleonic cossacks.
- Field Artillery - Artillery with limbers intended to be used in the field. Able to limber, move and deploy as needed.
- Horse Artillery - Field artillery intended to accompany mounted troops, typically with more horses per limber and lighter weight cannon. May limber, move and deploy as needed.
- Siege Artillery - Immobile or fixed guns without limbers, typically placed in fortified positions. These will be placed at the beginning of a scenario and will not be able to move. Also appropriate for pre-placed artillery in early periods where civilian or nonprofessional artillery train crews are used.

Note: Not all training types will be appropriate or available in all historical periods.

2.1.3. Weapons

The following weapon types are allowed by The Electronic Brigadier. When a specific weapon type for your scenario is not shown, choose the closest weapon type from this selection.

- Artillery - 4.6" & 12 lb Howitzer
- Artillery - 5.5" & 24 lb Howitzer
- Artillery - 6" & 32 lb Howitzer
- Artillery - H-6.5"+ Howitzer
- Artillery - Mountain Howitzer
- Artillery - Mechanical (Gatling Gun, Organ Gun, Mitrailleuse, etc.)
- Artillery - Rifled 2.5" & 6 lb.
- Artillery - Rifled 3" & 10 lb.
- Artillery - Rifled 3.6" & 20 lb.
- Artillery - Rifled H-4.6" & 30 lb.
- Artillery - Smoothbore 3-4 lb.
- Artillery - Smoothbore 6 lb.
- Artillery - Smoothbore 8-9 lb.
- Artillery - Smoothbore 12 lb.
- Artillery - Smoothbore H-18 lb.

- Caplock Musket *
- Flintlock Musket *
- Fusil *
- Matchlock *
- Metal Breech Loader *
- Mineball Rifled Musket *
- Paper Breech Loader *
- Late Breech Loader *

Roundball Rifle *

Infantry Pike **

AWI Cavalry w/Sword **

Light & Irregular Cavalry w/Lance **

Light & Irregular Cavalry w/Sword **

Line & Heavy Cavalry w/Sword **

* Infantry firearms can also be specified as carbines and with or without bayonets.

** Melee weapons do not have the ability to conduct ranged fire and will be restricted to combat in melee contact only.

Not all weapon types are available in all historical periods.

3. Morale & Cohesion

“The first virtue in a soldier is endurance of fatigue; courage is only the second virtue.” - Napoleon Bonaparte

3.1. Morale States

Each unit will always be in one of the following morale states, in order from best to worst:

Confident - Fresh, willing and eager to fight.

Cautious - Fully combat effective, but aware of the dangers of combat and their own situation.

Shaken - Deteriorated morale state due to casualties, cohesion loss or melee loss.

Routed - Unit is actively running to the rear, highly reduced combat effectiveness and morale.

Dispersed - Routed units that fail morale or leave the playing area are removed from play and considered hors de combat. Dispersed units will not return to play during the current game.

Players should mark units that are shaken and routed with an appropriate yellow or red marker respectively. Players may optionally mark cautious units with a black marker at the owner's or game master's discretion. Marking cautious units is recommended for beginner games. Omitting cautious markers for experienced players may provide a more challenging and rewarding game.

Units that retreat or rout during mandatory movement will stop at their own rear table edge (called their 'baseline') unless they started that retreat or rout touching their rear table edge. Units contacting a table side other than their own baseline while conducting mandatory movement will slide along that table edge towards their own baseline. Units starting a mandatory movement at their baseline will be removed from play and dispersed by the game master in the computer system. Units conducting mandatory movement that are blocked by enemy forces with no gap of at least half the moving unit's frontage within 12 inches of the moving unit's center will be dispersed as captured troops.

Units that are shaken or routed may only issue the following orders: In Reserve, Hold/Defend or Retreat. If the unit issues Hold/Defend orders, it may not conduct ranged combat. Retreat movement may be used to extract routed or shaken units from danger, but since this is uncontrolled movement, it follows the same procedures as mandatory retreat moves with the two exceptions that units may oblique around friendly formed units the minimum amount necessary to avoid interpenetration and units voluntarily retreating may

stop their movement at any distance along the retreat path. Unlike mandatory retreats, they do not have to move the full distance.

3.2. Morale checks

Morale checks will be automatically performed by the computer for each unit as needed and at the end of each turn. Passing an end of turn morale check will allow a unit with cautious, shaken or routed morale to improve one level. Passing morale checks at other times will allow a unit to follow its given orders. Failing any morale check will cause a unit to drop one morale level and in most cases conduct mandatory movement at the end of the turn. It is important to note that units check every turn, not only in turns they receive casualties. It's quite common for a unit to pass morale after a significant event, then later in the battle fail a subsequent end of turn morale check.

The charge procedure has several morale checks that are conducted for all of the involved units. Units that lose a melee will suffer an automatic loss of one morale level as a result of the melee loss. Units that suffer a significantly bad melee loss may lose more than one morale level. Failing morale when checking to stand to an opponent's charge will, in most cases, cause formed units to lose two morale levels.

The results of all morale checks and mandatory moves from them are reported to the GM and players at the end of each turn on the turn results screen.

3.3. Mandatory moves as a result of deteriorated morale

During the end of turn mandatory movement phase, units that drop in morale to Cautious will be required to conduct a fall back move if they were in melee contact with the enemy. Shaken units will always conduct a retreat move and routed units will always conduct a rout move. The procedure for these mandatory moves is described in section **6.2 - mandatory moves**.

Units conducting Shaken or Routed mandatory moves will be doing so without regard to maintaining their combat formation and will therefore also degrade into the disordered formation. This should be represented on the table by placing the individual stands of the unit in an unorganized clump of bases that are still touching each other and facing the appropriate way: forward for retreating troops, rearward for routing troops.

Disordered troops may return to a more effective combat formation by executing a formation change in subsequent turns. Units in disordered formation conduct all combat at significantly reduced effectiveness and also suffer a negative modifier to all morale checks.

3.4. Cohesion

Cohesion is a measurement of a unit's ability to sustain itself in combat. It takes into account the physical and mental fatigue of the unit, the condition of their weapons and ammunition supply, the condition and number of NCOs and lower level officers and the level of organization, and control those officers are able to impose among the rank and file of the unit. In The Electronic Brigadier, cohesion measures any factor that will reduce a unit's combat effectiveness or willingness to fight that isn't directly related to casualties taken or the unit's current morale state. The cohesion level of a unit directly affects the unit's combat effectiveness as well as its ability to pass morale checks. The lower a unit's cohesion, the less effective it will be in all types of combat and the less likely it will be to pass morale checks.

Units will normally start with 100% cohesion at the beginning of a battle, but can start with reduced cohesion to represent specific scenario situations such as surprise, fatigue due to force marching, or to match other historical parameters. During the course of battle, most actions will cause a unit to lose some of its cohesion: movement, ranged combat, melee combat, mandatory movement due to morale loss, etc. The more significant an event, the more cohesion lost. For example, conducting a charge causes significantly more cohesion loss than performing a march. For movement, a double move is twice as far as a march move, but incurs more than twice the cohesion loss due to the disorganizing nature of a double-time move.

Units may also recover cohesion under certain orders. This is covered in sections **4.2.1 In Reserve** and **4.2.2 Hold/Defend** below.

4. Entering Turn Information Into The Computer

“Never interrupt your enemy when he is making a mistake.” - Napoleon Bonaparte

4.1. Turn Sequence

During each turn the moving player will be issuing orders and moving his units on the tabletop. His opponent or the game master will enter into the computer information about what each unit does for him. Communicating the unit number, order and associated information to the data entry person is required by the moving player. The non-moving player will be able to help list the available options and required choices from the unit screen:

Each player on the active side may issue orders to each of his units in any order he wishes:

- Choose a unit - announce its unit number and (optionally) name.
- Declare the order for that unit to your opponent or the game master so that it may be entered into the computer (In Reserve, Hold/Defend, March, Quick, Double, Formation Change).
- If the order is Hold/Defend or Move, the player may optionally declare a target for combat and the target's terrain, and disposition.
- If the order is Formation Change, the player must choose a new formation.
- The player may optionally elect to have his brigadier or higher level officers personally lead his unit.
- Move or reposition the unit on the table top according to the orders given. Full information on how to do this is described in section **5. Tabletop Procedures**.

After the moving player is done issuing orders to and moving all of his units, his opponent will give the moving player the mobile device. The moving player may review the data entered. Although their opponent will initially input the information into the mobile device, the moving player is responsible for the accuracy of the data, and should review it fully and correct it where needed. Once the move is reviewed, corrected if needed and confirmed, the moving player will click the “End Turn” button. They will then wait until all players are done and the game master has ended the turn. Once this is complete, the end of turn screen will be displayed with any combat and morale results as well as any required mandatory moves. The latter will be executed immediately using the procedures explained in section 6.

At any time in the turn sequence the moving player may move any of the officers in their command once per turn. Officers move at the double rate appropriate for infantry or cavalry depending on if they are on foot or mounted. Officers ignore terrain movement distance reductions but may not cross impassable terrain or pass through any enemy.

4.2. Issuing orders to units

Detailed information about the computer interface for each order is given below.

4.2.1. In Reserve

In Reserve represents pulling a unit out of the line and allowing it to physically rest, resupply ammunition, eat and drink, recover stragglers and otherwise recover from the toils of battle.

The screenshot shows a user interface for 'The Electronic Brigadier' during 'Turn 1 - British Forces'. It displays information for the '#101 - Light Infantry Battalion', including 'Current Formation: Line', 'Casualties: 0/300', and 'Morale: Confident'. Under the 'Orders:' section, there are six buttons: 'In Reserve' (highlighted in green), 'Hold/Defend', 'March', 'Quick', 'Double', and 'Formation Change'. Below these buttons is a checkbox for 'Superior officer present'. A section labeled 'Click all that apply:' contains a checkbox for 'Unit occupying or protected by terrain'. At the bottom are three buttons: 'Save', 'Undo Changes', and 'Cancel'.

Units in reserve do not move or conduct combat. Units under In Reserve orders will recover a portion of their cohesion. The longer they are in reserve, the more cohesion they may recover. This order also has a significant positive effect on morale checks so it can be a good order to give to units that need to rally from shaken or routed status.

A unit that is on In Reserve orders will suffer a significant negative penalty to its morale if it suffers casualties as a result of ranged or melee combat. Units put on In Reserve orders will remain under In Reserve orders until issued a different order. This means they will be in reserve during their opponent's next turn. It is recommended to only use this order when a unit is in a protected area where the risk of casualties is low.

Units In Reserve that are directly behind or protected by terrain will receive an additional positive modifier to their morale checks. A terrain feature doesn't need to provide cover to be used as a rally point for a unit in reserve. Units often reformed their ranks on edges of a road or path, a low stone wall, or an insignificant creek. To use terrain features as a rally point, the unit in reserve must be touching the feature's border with its front edge. To be considered protected by terrain that a unit is not touching, the terrain must either provide cover or block visibility to the unit from all enemy units within charge or ranged combat range. This includes fire from artillery.

4.2.2. Hold / Defend

Hold / Defend represents a combat ready stationary stance on the battlefield. This may be standing and delivering sustained fire, conducting an active defense, or simply holding in place in a battle-ready condition.

The Electronic Brigadier

Turn 1 - British Forces

#101 - Light Infantry Battalion
Current Formation: Line
Casualties: 0/300
Morale: Confident
Orders:

In Reserve Hold/Defend March Quick Double Formation Change

☐ Superior officer present

Combat:
Combat Target: #201 - Morgan's VA Rifles

Range: Red < 6" White ≤ 12"

Target's Terrain: Brush/Scrub Forest / Dense Woods Gentle Hill
Hasty Works Linear Obstacle Orchards / Open Woods
Redoubt / Breastworks / Buildings Steep Slope Stream Bank
Swamp / Marsh Town / Urban

Target's Disposition: Flank fire/attack Rear fire/attack

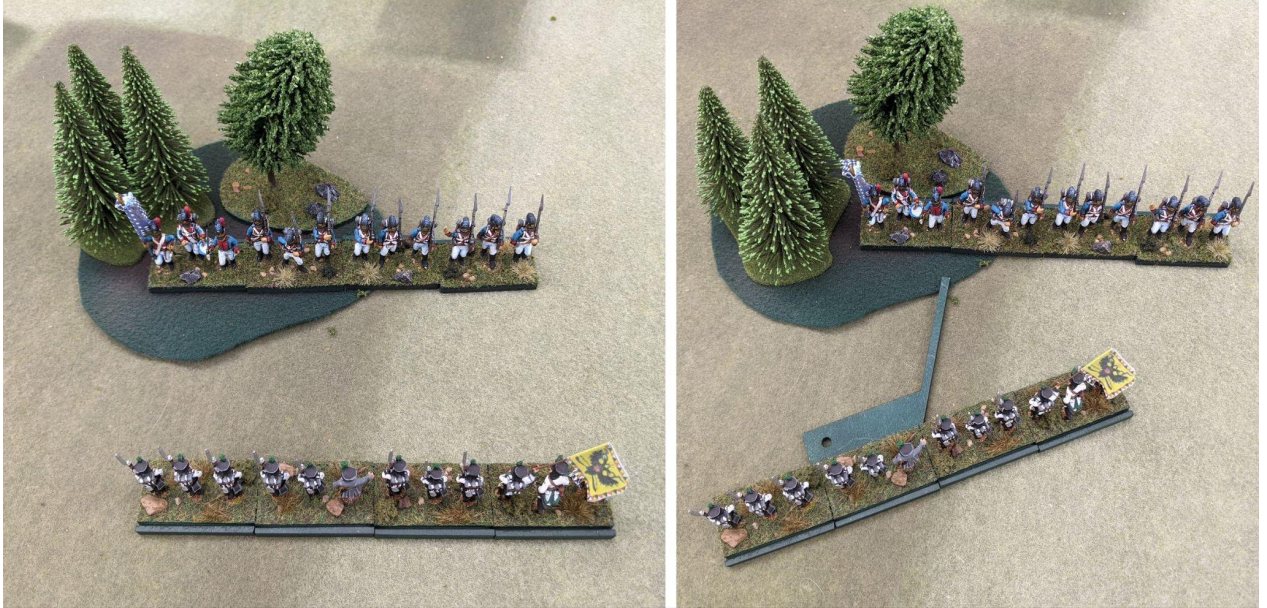
Save Undo Changes Cancel

Units on Hold / Defend orders do not move. Units that are not routed or shaken may conduct ranged combat. Units on Hold / Defend that do not conduct ranged combat are assumed to be using the time to redress their ranks, reload their weapons, and otherwise prepare an active defense. Units on Hold / Defend orders that do not conduct ranged combat will recover a small amount of cohesion.

Units on Hold / Defend that conduct ranged combat are assumed to be spending the majority of the turn conducting sustained fire. To indicate that a unit is engaging in combat activities, either ranged or melee contact, a target unit is selected in the combat section. Once the target is selected, additional combat-related options will be shown. For all combat, a range is required. Click the button that corresponds with the measured distance for the chosen target. Distances are measured from the center of the shooting unit to the nearest point on the enemy unit that is within the firing arc (see section **1.6.3 Firing Arcs**). The computer will display only ranges that are valid for the weapon used

by the shooting unit. If the range is longer than what is listed, the target is not valid and should be de-selected in the combat target selector.

The target's terrain button is selected depending on the terrain type that is appropriate for the target unit. A unit is considered to be protected by terrain if at least 50% of the unit is within cover or if the shooter's line of sight from their center to the target unit crosses defensible terrain.



Left image - the unit in the woods is considered protected by the terrain because at least 50% of it is in the light woods.

Right image - the unit in the woods is protected by the terrain because there is no line of sight in the firing arc of the shooting unit that does not pass through the terrain.

A unit may only conduct ranged combat if the target is within line of sight of the moving unit at the time the Hold/Defend order is issued.

The target's disposition is selected based on the position of the attacker as described in section 1.6.3 Arcs. The target's disposition is selected appropriately for each attacker. If only one attacker is in a flanking position, the defender's disposition is chosen only for that attacker.

4.2.3. March, Quick and Double

March, Quick and Double orders allow a unit to move on the battlefield.

The Electronic Brigadier

Turn 1 - British Rear Guard

#102 - 1st Light Infantry
 Current Formation: Open Order
 Casualties: 0/400
 Morale: Confident
 Cohesion: A+

Orders:

☐ Superior officer present

Maneuver options - Select all that apply:

Passage of lines through: --> Choose Friend <--

☐ **Moved through light terrain:** Soft/Broken Ground, Linear Obstacle, Orchards / Open Woods, Standing Crops, Brush/Scrub
☐ **Moved through moderate terrain:** Forest / Dense Woods, Steep Slope, Stream Bank, Town / Urban
☐ **Moved through heavy terrain:** Swamp / Marsh

Combat:

Combat Target: --> Choose Target <--

Each of the three movement orders, March, Quick and Double allows a different amount of movement as indicated on the QRS. For example, line infantry may march 8", quick 12" and double 16". The amount of cohesion caused by each of these movements is commensurate with the distance moved with quick and double moves being slightly more disorganizing for the distance traveled. This is due to the difficulty of maintaining formation when advancing at faster speeds. The tabletop procedures for conducting voluntary movement are described in section **5.2 - Units with March, Quick or Double orders**.

Units moving at march speed may conduct passage of lines through another friendly unit. The tabletop procedure for this is described in section **5.2.5 - Passage of lines**. When passing through another friendly unit, that unit is selected using the "**Passage of lines through**" selector.

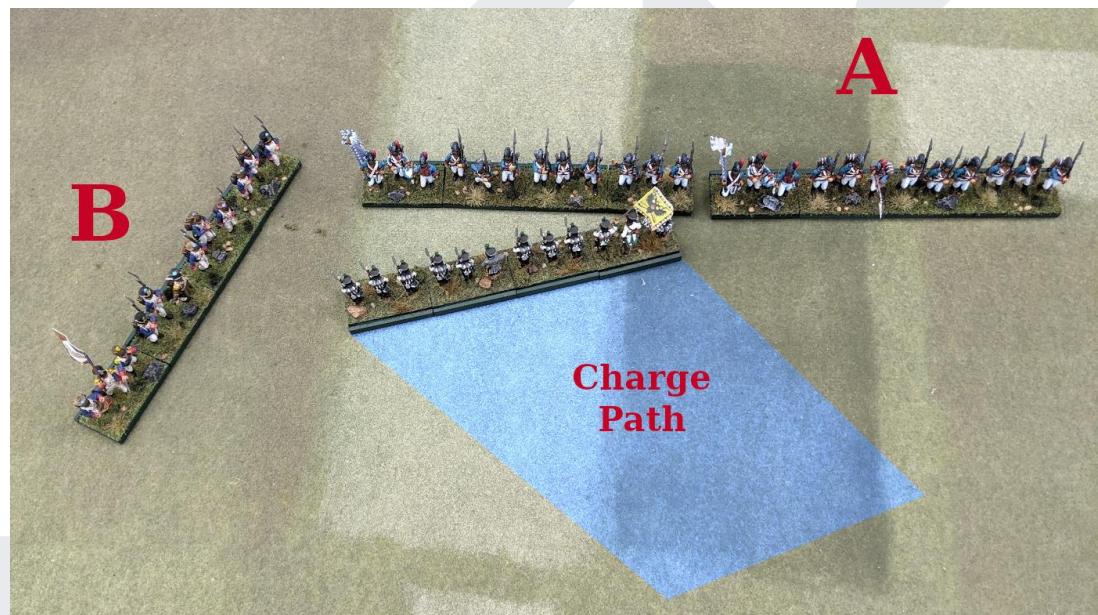
Units moving through certain terrain or crossing linear obstacles will incur an additional loss of cohesion. For each such applicable item select the appropriate checkbox labeled **Moving through**. Additional information about terrain effects on tabletop procedures may be found in section **5.2.6 - Terrain effects on movement**.

All units moving at march speed may conduct ranged or melee combat. Units moving at quick or double speed may only conduct melee combat. Units conducting ranged combat while moving are considered to be firing a short period of volley fire at the end of their movement. This shooting will incur an additional cohesion loss for the unit and will be significantly less effective than a full turn's fire while on Hold / Defend orders.

When conducting a charge (movement to melee contact) select the minimum movement rate necessary to contact the enemy. There is no benefit to conducting a charge at the quick or double rate other than the additional distance those orders allow the attacker to travel

before contacting the enemy. On the contrary, a march will be potentially more effective as it allows the attacker to arrive at the enemy's position with more cohesion than doing so at the double. The procedure for moving into contact with the enemy is described in section **5.2.5 - Moving to melee contact**.

For movement to melee contact, two additional boxes are shown: "Charger received frontal close range opportunity fire" and "Charger received flank/rear close range opportunity fire." Click all that apply. Opportunity fire is provided by other friendly units not also engaged in melee combat and able to project their arc of fire upon the attacking unit at any point along the attacker's charge path. Each defending unit can be counted only once. If it can provide both frontal and flanking, then fire flanking should be selected. All opportunity fire must occur within canister range for artillery defenders and close range for infantry defenders. Additionally, flanking fire must occur when a charging unit exposes its flank to a defender within the legal firing arc of the defender providing the opportunity fire. Opportunity fire is resolved by the computer as part of the melee calculations for the charging unit and will significantly impact the charger's willingness to close to melee contact.



Unit A will project covering fire on the attacker as the charger's path crosses unit A's firing arc in short range.
Unit B will project covering fire on the attacker for the same reason as unit A. In addition it is considered flanking fire as unit B's center is behind the front edge of the attacking unit.

4.2.4. Formation Change

Units that select the Formation Change order will be allowed to change their battlefield formation. This includes deploying or limbering artillery, mounting or dismounting mounted infantry from horseback, or entering works or buildings. Units conducting a formation change use their entire turn to do so and will not move other than as needed to form their new formation. Units using the Formation Change order may not conduct any voluntary combat during that turn. Routed and Shaken units may not conduct a formation change and will remain in disorder until they rally to the cautious morale state or better.

The Electronic Brigadier

Turn 1 - British Forces

#101 - Light Infantry Battalion
Current Formation: Line
Casualties: 0/300
Morale: Confident
Orders:

☐ Superior officer present

New Formation:

For each unit, its current formation and training type will dictate the new formations that are available. The desired formation will be selected by clicking the appropriate button in the **New Formation:** section. The tabletop procedures for conducting formation changes are described in section **5.3 - Units with Formation Change order.**

4.2.5. Attached Superior Officers

All orders allow for the moving player to indicate that a superior officer is present. Superior officers may only be attached if they are in the unit's chain of command as specified by the scenario's order of battle, or if allowed by the game master as an exception to this rule for scenario purposes. Typically this will be the unit's brigadier, and any of the brigadier's superior officers.

Units with Reserve orders receive a larger positive effect on their morale checks when an officer is present than units with other orders, although under any orders an attached superior officer will provide a positive effect on a unit's morale checks. Units conducting a melee combat that have an attached superior officer will have a positive bonus applied to their melee effectiveness. Attached superior officers have no effect on ranged combat effectiveness. That's the job of the NCOs and unit-level officers. Units with superior unit-level officers and/or NCOs can have that reflected as a higher unit quality rating.

A superior officer that is attached to a unit may become a casualty. This chance is approximately 1.5 times the percentage of men that were lost from combat during each turn. This is due to the officer leading from the front, often being mounted, or at the very least conspicuously dressed. Officers that have become casualties are removed from play and will return to duty or be replaced by a subordinate at a later time based on the severity of their wounds. The timing of this will be announced in the morale section of the turn results screen when the officer becomes a casualty.

For all officer casualties the computer will indicate when the affected officer will be returned to play. When returned to duty, officers are placed unattached but within 2 inches of the unit they were attached to when they were wounded. If this unit has dispersed, they may be returned within two inches of any other unit in the same brigade as the dispersed unit. If an entire brigade is dispersed, that brigade's officer is removed from play permanently. Higher-level officers that return to duty may be

placed within 2 inches of any unit in their command if the unit they were attached to when they were wounded is eliminated. Once returned to play, officers may move normally and be attached during the owning player's next turn.

5. Tabletop Procedures

"Victory is achieved only through the combination of courage and military art." - Alexander Suvarov

5.1. Starting a turn

At the start of each turn the computer will automatically detach all leaders for the moving side. This is so that officers do not get accidentally allocated to multiple units. For clarity, players should detach each of their officer figures from their units before he starts his turn. This detachment may be the minimum distance needed so that it is obvious that the officer is not attached, but not more than 2". This movement will not be considered part of the officer's allowed movement for the turn.

5.2. Officers

Officers are represented in The Electronic Brigadier using appropriate figures such as a single-mounted officer for a brigadier, and two or more mounted officers to represent higher command. For some scenarios or armies, it is also acceptable to depict officers on foot. When doing so the figures should be mounted singly, not as part of a combat unit. The computer system for The Electronic Brigadier does not track which officers can command which units; instead the tabletop miniatures and players should ensure that only the appropriate officers in the chain of command are used when attaching officers to combat units.

All mounted officers move at the mounted double rate. All foot officers move at the foot double rate. Officers have no formation, do not pay for wheels, and are not subject to any terrain penalties. Officers may freely interpenetrate any friendly units but may not move through enemy combat units or impassable terrain. Officers may move during any portion step 2 of the turn sequence. Officers may move only once, and may not leave a unit if that unit has indicated that the officer is attached to the unit. Officers that are attached to a unit remain attached until the start of the owning player's next turn. Attached officers may move with the unit that it is attached to, but may not exceed their maximum movement distance when doing so. The officers total movement distance may limit the total movement distance allowed for the unit they are attached to.

Any officers that are contacted by enemy troops in the opposing player's turn will be displaced to make room for the enemy troops. The displaced officer will be relocated within 2 inches of the nearest non-routed friendly unit, in a position of the owning player's choice. Officers may not be the target of an enemy charge or ranged combat. Moving combat units may not select a march path for the sole purpose of intentionally displacing an opponent's officer.

5.3. Turn Sequence

The turn sequence is as follows:

1. Detach all officer figures
2. Issue orders:

- a. Issue orders to units one at a time per player, announcing the unit number and orders to your opponent.
 - b. Units wishing to conduct a move which will result in melee contact with an enemy (aka a “charge” move), declare and measure for flank/rear attacks for each enemy before moving.
 - c. Move figures if on March/Quick/Double orders. Reposition figures if on Formation Change orders.
 - d. If conducting ranged combat, measure range and determine flank/rear disposition.
 - e. Attach a superior officer figure if desired.
3. Moving players review brigade orders and click “End Turn.”
 4. GM clicks “End Turn” and reads out combat results, morale results and mandatory movement.
 5. Players conduct mandatory movement as necessary.
 6. Repeat for the opposing army.

An important note about issuing orders to your units. A turn in The Electronic Brigadier is a large amount of time as far as military operations are concerned. It is enough time to allow several significant events on the battlefield to happen sequentially. This is represented by allowing you to issue orders to your units in any order you prefer. This gives the moving player a very large amount of flexibility in coordinating their units’ actions. It is not necessary to start with units that are charging, although many players find that most comfortable. Shooting lanes, target dispositions, and lines of sight are checked for each unit as their orders are issued. If a player “changes his mind” and chooses to change a unit’s orders during his turn, all of these factors are re-checked based on the new location of units at that time (no going back). Consider that unit “A” might fire a volley at an enemy, then a friendly unit “B” could march in front of them masking unit A’s fire. In The Electronic Brigadier, this is allowed. The following turn unit B is of course masking unit A’s fire, but during the original turn the turn sequence would allow unit A to fire. This concept is not unique to The Electronic Brigadier, but is unusual compared to many other traditional wargames. There is one notable exception to this. If you conduct ranged fire at an enemy and then conduct melee combat with it, the ranged combat from the ranged fire will be canceled due to the close proximity of the friendly units charging the enemy. Ranged combats changed this way will retain their hold/defend orders.

5.4. Units with In Reserve or Hold / Defend orders

Units that are inactive due to scenario conditions (marching to the battle, waiting to activate, etc.) do not have to be issued orders. Any unit that has not been issued orders will be assumed to be acting under a Hold / Defend order.

Units with In Reserve or Hold orders are not moved on the tabletop. They must remain stationary. Officers that wish to attach to units under either In Reserve or Hold orders should be moved into base to base contact with the unit.

Units with In Reserve orders will recover some of their cohesion, but will suffer a significant morale penalty if they receive casualties or are contacted in a melee. Units with Hold / Defend orders will recover a small amount of cohesion if they do not conduct ranged combat.

5.5. Units with March, Quick and Double orders

5.5.1. Distances for each order type

Unit Type	Fall Back	March	Quick/Retreat	Double/Rout
-----------	-----------	-------	---------------	-------------

Infantry / Foot	4"	8"	12"	16"
Cavalry / Mounted	10"	12"	18"	24"

Note: Artillery crew who have abandoned their guns move at the foot rate

Unit Type	Prolong	Limbered Move	Limbered Quick	Limbered Double
Very Light Artillery	6"	8"	12"	16"
Light Artillery	4"	8"	12"	16"
Medium Artillery	2"	8"	12"	16"
Heavy Artillery	0"	8"	12"	16"
Siege Artillery	Pivot Only	N.A.	N.A.	N.A.

Very light artillery: Mountain howitzers, Rifled 2.5" & 6#, Smoothbore 3-4#

Light artillery: 4.6" & 12 lb Howitzer, Rifled 3" & 10#, Smoothbore 6#

Medium artillery: 5.5" & 24 lb Howitzer, Rifled 3.6" & 20#, Smoothbore 8-9#

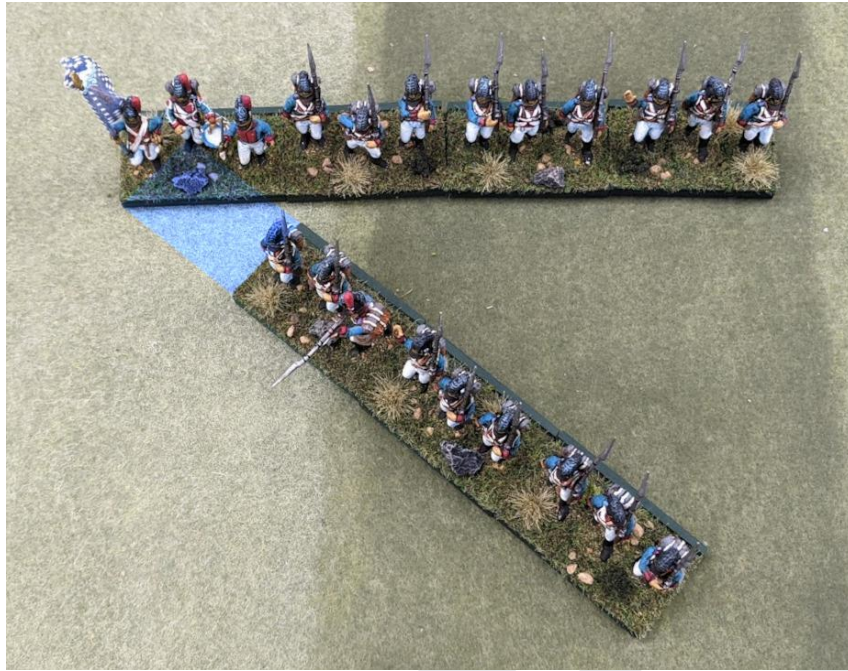
Heavy artillery: All heavier guns on mobile carriages

Siege artillery: All guns on non-mobile permanent carriages and all pre-professional artillery

5.5.2. Wheels

A wheel is conducted by keeping one of the front corners of the unit stationary while pivoting the unit forward about that corner. The distance traveled by the outer corner is measured as an arc. Wheels may be of any distance allowed by the unit's order type. Using a wheel as a portion or the whole distance of a march, quick or double movement is not tracked by the computer as it is considered a portion of the unit's march, quick or double distance.

Wheels during normal movement may not be conducted about any point other than the front corners of the moving unit. See section 5.5.5. Movement to melee contact for the only exception to this rule.



Before and after - The top unit (before) wheels by pivoting on the front corner of the flag stand. The blue area is the new location of the flag stand and the bottom unit is the location after the wheel maneuver.

5.5.3. About face

Units conducting an about face will deduct 2" for infantry and 4" for cavalry, mounted infantry or artillery. Conducting an about face is not tracked by the computer as it is considered a portion of the unit's march, quick or double distance.

Note that it is possible to conduct multiple about-faces in the same turn. A unit may about-face under march, quick or double orders. Doing so can allow a unit to perform retrograde movement while ending their turn facing the enemy.

About face may not be used in any movement which ends in melee contact with the enemy.

Note: Depending on the historic period, The Electronic Brigadier may be considered overly generous in terms of how little it penalizes an about face move. In many periods the individual soldiers do not simply "turn around" but instead conduct much more complex changes in formation to about face to ensure each company is in their prescribed place in the line. For the purposes of ease of play and game mechanics, all historic periods and doctrines are treated as defined above. Players wishing to require formation changes for all about face maneuvers, or wishing to impose stronger movement penalties or restrict the number of about-faces per turn may do so as a scenario rule, but this will not be enforced by the computer system.

5.5.4. Passage of lines

Units in open order may pass through other units and be passed through by other units freely under march, quick or double orders. Any unit may pass through deployed artillery freely under march quick or double orders. In all of these cases such movement may not contact enemy units or result in melee contact.

A unit in line or mass that wishes to pass through another unit in line or mass must conduct a passage of lines. Passage of lines may only be performed by units that are issued a March order. Units conducting passage of lines may not initiate any combat in a turn that they conduct passage of lines.

A unit wishing to conduct passage of lines through a friend may only do so if the friend they wish to pass through has not been issued an order for the turn, or the unit they wish to pass through is on In Reserve or Hold / Defend orders. The moving unit will move through the stationary friendly unit without any movement distance penalty but must indicate the unit that the passage has occurred through so it may be entered into the computer.

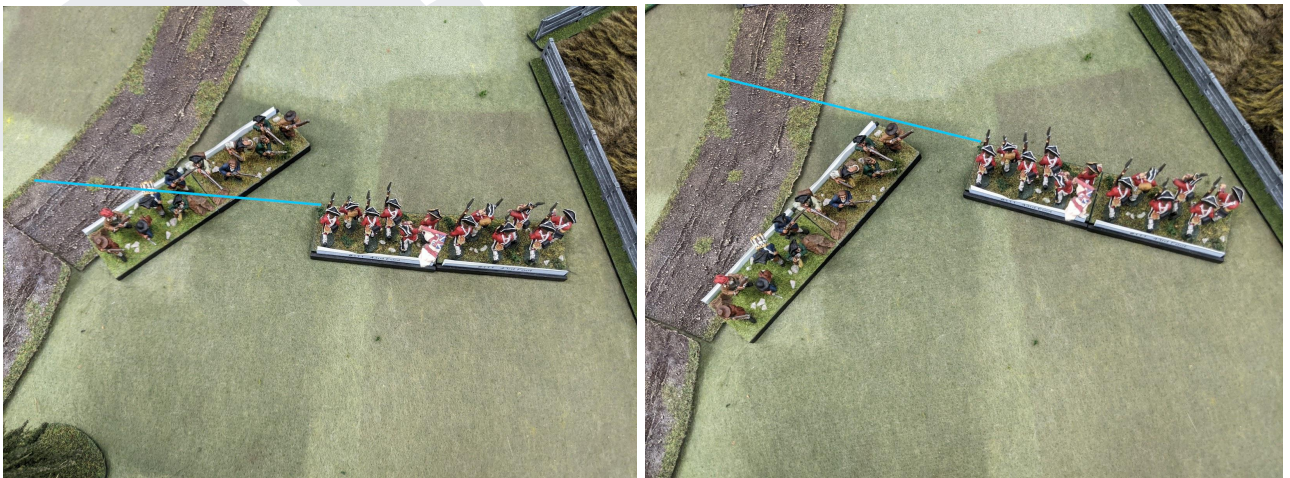
The unit that is passed through may not move or conduct ranged fire in the turn that it was passed through as it was instead performing the necessary formation changes and reformation required to allow the passage. Units that were under an In Reserve order will automatically be switched to a Hold / Defend order to reflect the activities required by the passage of lines.

In all other cases, voluntary unit interpenetration is not allowed.

5.5.5. Movement to melee contact

Units wishing to move into melee contact should first declare and confirm their starting position with the owner of the charged unit in order to verify any flank or rear attack disposition the defender may suffer. Any such determinations are made **before the moving unit is moved**. If the moving player forgets to verify this with his opponent and that opponent cannot confirm the moving unit started in a flank/rear position, no such disposition will be set for the defender. It is the moving player's responsibility to ensure this check is done before movement.

Units may only charge enemy units that are in sight at the start of the charging unit's movement. Units may only charge enemy units that are at least partially in front of the charging unit's front edge as the start of the charging units move.

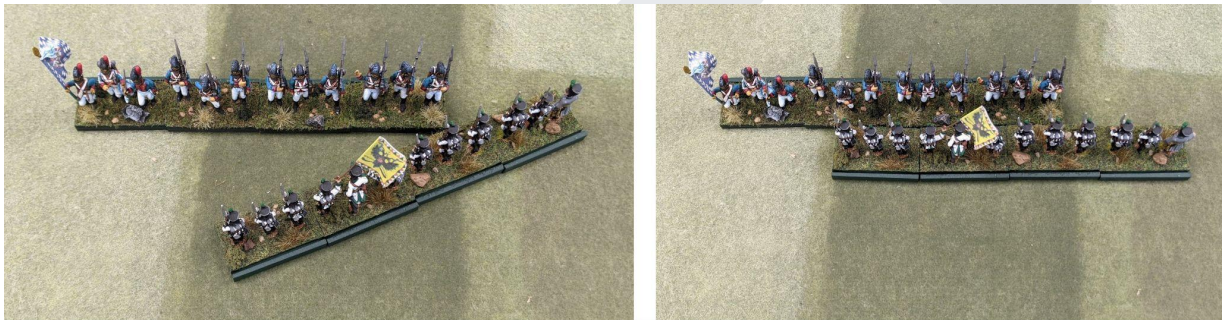


Left - Legal charge target - enemy is partially in front of the charging unit
Right - The charging unit cannot charge the unit that is completely behind its front edge

Units wishing to engage the enemy in melee combat do so using the movement allowed by the units given order (march, quick or double) by moving their unit until it touches the enemy. Movement to

melee contact may include any legal movement including wheels and oblique movement but may **not** contain an about face or passage of lines. Movement to melee contact must be by the most direct possible route although this may take into consideration other friendly units that are also contacting the same enemy unit. Two units may each take routes that may be less direct in order to allow both to contact the same enemy. In this case the combined attacking units route must be as direct as possible. Units not starting in an enemy's flank or rear must contact the enemy units front face or one of the enemy units' front corners.

It is not necessary for an attacker to conform to the enemy unit. Attackers may stop as soon as any portion of their unit contacts any portion of the enemy. This includes contact by a single corner of either unit. If an attacker has extra movement, they may choose to conform to the enemy by wheeling if they have sufficient remaining movement to do so. The attacker may wheel on either of their own corners or a contact point with the enemy even if this is not their own corner. This is the only case in which a wheel can be made that is not on the moving unit's own corner. Conforming must be done towards the defender's front unless the attacker is conducting a flank or rear attack. In these cases the attacker must conform to the flank or rear as appropriate.



Left - Legal melee contact may be by a corner of either unit. The attacker may stop at first contact.

Right - The attacker may **OPTIONALLY** conform to the defender using any remaining movement by pivoting on the contact point and moving closer to contact the front of the target (or side or rear in flank/rear attacks)

5.5.6. Terrain effects on movement

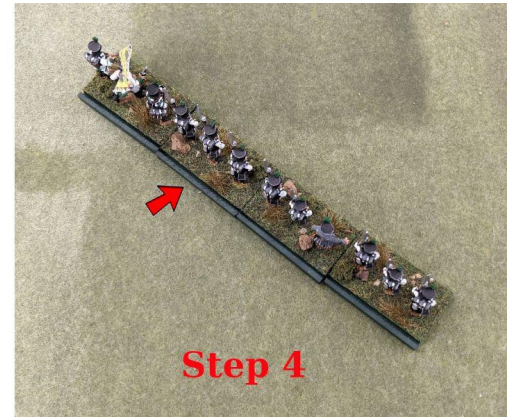
Densely formed units and all artillery wishing to pass through or around a redoubt, breastwork or building may do so. When doing so the moving unit is counted as moving across a linear obstacle. Units that are not densely formed may move through or around a redoubt, breastwork, or building without penalty.

Artillery units that are in 'Occupy Works/Buildings' formation that choose to prolong, and infantry that choose to march may only move their unit within the occupied terrain feature. This is allowed in order to allow repositioning within a redoubt or fortification. Units wishing to exit such terrain features must do so by using the formation change order.

5.6. Units with Formation Change order

A unit conducting a formation change selects one stand of their unit. The remaining stands are temporarily removed. The selected stand may be pivoted in place around any point of the stand including, but not limited to the four corners of the stand, any point on any face of the stand or any point within the inner area of the stand. After pivoting the remaining stands are placed in the new formation touching the selected stand.

The example below shows changing from a march column to a line.



Step 1 - Select a single stand **Step 2** - Remove all other stands **Step 3** - Rotate the selected stand about any point - corners or any part of the center of the base **Step 4** - Replace all other stands in the new formation

Units wishing to occupy works, redoubts, or buildings must start their turn with at least one stand of their unit in contact with the terrain fortification. During formation change any stands able to physically fit into the fortification are placed within it and any remaining stands are temporarily placed off table but are assumed to also be occupying the fortification. Any second or subsequent units wishing to also occupy the same fortification must fit completely within the model or it is assumed the fortification is already full due to the occupancy of the first unit.

Units leaving fortifications may relocate one of their stands outside the fortification, touching it facing in any direction, and all remaining stands are then placed in a legal new formation.

5.6.1. Legal Formations

In The Electronic Brigadier, most legal formations will be formed with all bases of the unit in full face-to-face contact with at least one face with abutting stands in the unit. Exceptions to this will be noted below. Players may adjust legal formation requirements as needed to accommodate their figure basing system. The formations pictured below should be adhered to as closely as possible. The Electronic Brigadier rules and computer system will only allow formations that were used in each historical period. In the case of some formations that are restricted to only armies of a particular nationality, such as battalion mass for Austrian Napoleonic armies, limiting their use to only those nations is left to the game master.

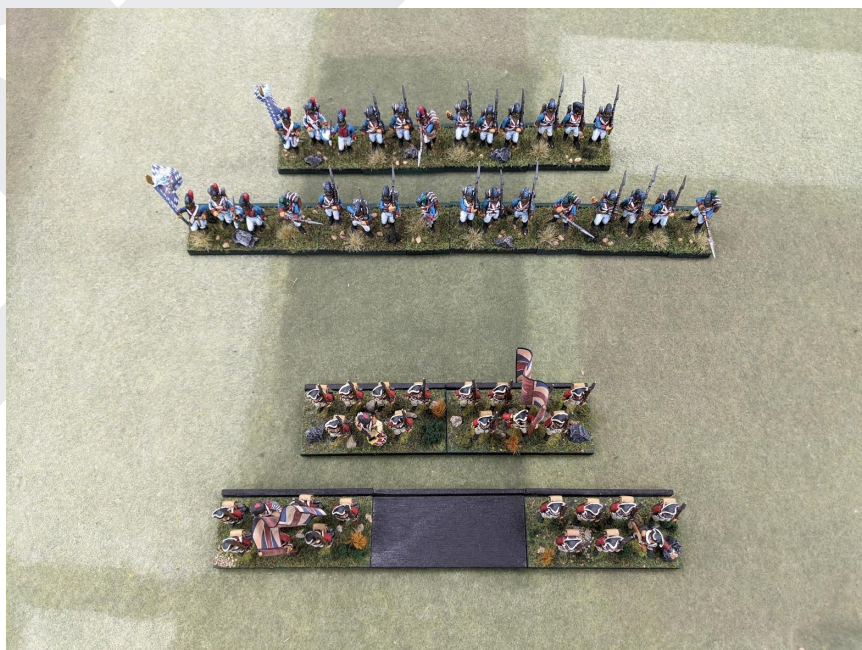
Legal Formations:

Line, Dismounted Line - All bases in full side-to-side contact. May bend stands to allow a line to conform to a linear terrain feature or the edge of an area terrain feature.



Open Order - All bases in full side-to-side contact. Additional stands or sabots are added to expand the unit's frontage by 50%. May bend stands to conform to linear terrain features or the edge of a terrain feature.

Open order troops do not wheel. They may move freely up to their full movement in any direction as long as no single stand moves more than their maximum allowed distance. Terrain distance penalties do apply to open order troops. Troops in open order have significantly less cohesion loss due to moving through terrain. Open order troops may pass through and be passed through by any other formations using normal movement. Open order troops are less likely to stand when charged and will often fall back when charged. When doing so they often will incur a less significant morale penalty than other formations.



Top - Unit's frontage expanded by adding a number of 50% sized bases equal to the number of bases in the unit
Bottom - Unit's frontage expanded by adding appropriate number of sabot bases

March Column - All bases in full front-to-rear contact, one base wide. May bend stands to follow a road, terrain feature or during a wheel. Any march column conducting its entire move on a road may increase their movement distance by 50%. Such an increase is only a tabletop procedure and is not tracked by the computer. The unit simply marks the move as a march, quick or double and multiplies the standard distance by 1.5.



Attack Column - All bases in full side-to-side contact, two bases wide. Formation will have two or more ranks as needed depending on the unit size. May bend stands during a wheel.



Battalion Mass - All bases in full side-to-side contact, two bases wide. At least one rear stand facing rearward.



Square - All bases in full side-to-rear contact, forming a square. For those armies able to form both battalion mass and square, players should agree upon a recognizable difference between the two that suits their basing convention.

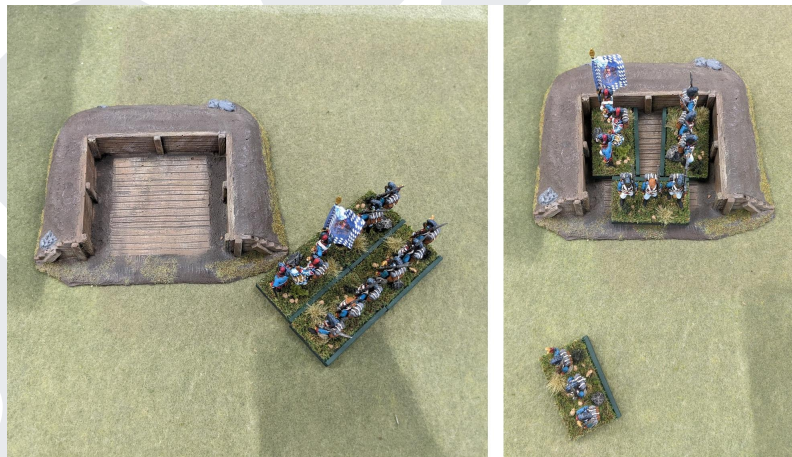


Mass - All bases in full side-to-side contact, at least 2-bases wide. Should be as deep as it is wide, or as close as possible. Irregular troops should be based more sparsely than regular troops (two figures per stand instead of three, etc.) Mass formations do not need to be in corner-to-corner contact but should be in front-to-back contact when the formation requires multiple rows.



Note - Separate rear rank bases or make irregular so to not be confused with an attack column

Occupy Works/Buildings - In scenarios with built-up areas, buildings, redoubts, forts or trench works, this formation may be used to indicate when troops are occupying such protective battlefield locations. To enter such an area, a unit must be touching the protected battlefield location. Conducting a formation change to this formation will allow the owner to move that unit into the protected location. Changing from this formation to any other legal formation will allow the owner of the unit to place it outside the protected area in the new formation with at least one point on the unit touching the terrain piece. Units in this formation will have increased morale, take less casualties from both ranged and close combat and have more favorable outcomes in the close combat outcome determination. Units conducting ranged fire in 'Occupy Works/Buildings' formation will have their fire effectiveness slightly reduced due to more limited fire lanes and the lack of familiarity and training of fighting from such locations.



Left - Unit starts in contact with the occupiable Terrain

Right - Put stands in the terrain - extra stands are placed to the side as needed

Deployed - Artillery models placed in side-to-side contact (if multiple stands) with all of the gun models for the unit. Stands should be placed facing the enemy. If limber models are used, they will be placed directly behind the deployed gun models.



Limbered - Artillery models placed in front-to-rear contact (if multiple stands) with gun models facing away from the enemy. If needed for clarity a suitable limbered marker may be used. If limber models are used they will be placed in front of the guns.



Abandoned - Gun models, or a suitable marker, are left at the deployed location of the gun and the gunners will be moved as required during mandatory movement. This formation is only possible as a result of a mandatory movement after a lost close combat. In subsequent turns, gunners in this formation may move normally, but may not move closer than 4" to any non-routed enemy combat units. Gunners that are able to return to contact their abandoned guns may conduct a formation change to 'deployed' to re-crew the previously abandoned guns.

A confident or cautious formed unit that spends their entire turn in contact with abandoned guns with a 'Hold/Defend' order that does not conduct ranged combat may spike the guns, removing the models/markers from play. Crew that previously abandoned those guns will be dispersed by the GM at the end of the turn.

Disordered - All bases in contact, but randomly arranged. Disordered formation can be as a result of a failed morale test, poorly-handled involuntary interpenetration or as a starting formation in some scenarios. Units may recover from disorder by conducting a formation change during their next turn into any desired legal formation for the disordered unit.



5.7. Combat

5.7.1. Ranged (shooting) combat

“Don’t throw away a single shot, my brave fellows; . . . don’t throw away a single shot, but take good aim; nor touch a trigger, till you can see the whites of their eyes.” - Israel Putnam, American General - at Bunker Hill

5.7.1.1. Eligible targets

5.7.1.1.1. Line of sight

Line of sight is traced from the center of the shooting target’s front edge to any point of the target unit within the shooting unit’s legal firing arc. If all possible lines of sight are blocked by terrain such as hills or buildings that do not allow vision to pass through them, then the target unit is significantly obscured as to make ranged combat impractical and shooting is not allowed. Likewise if all possible lines pass through more area terrain than is allowed by the terrain’s visibility (see section 1.7 terrain) then shooting is not allowed.

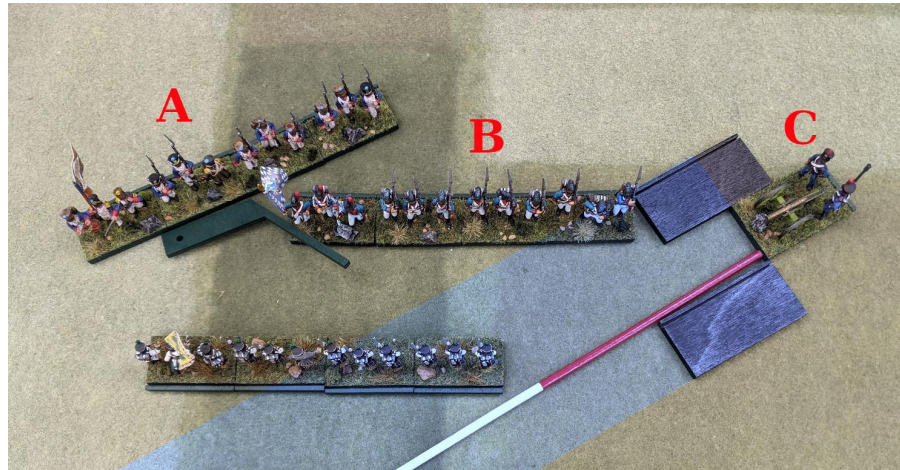
A unit is considered protected by terrain if the attacker’s line of sight passes through terrain even if the target is not in that terrain. Example, a unit that is in an area of orchards or light woods shooting through those woods at a unit in the open would be shooting at a unit in light woods due to the intervening terrain even though the target is in the open.

5.7.1.1.2. Shooting lanes in close proximity to friends

An infantry unit may not select a ranged combat target if it has any friendly units within close range and within its legal firing arc as defined in section 1.6.3, or if its firing arc passes through a gap between two or more friendly units that is less than half the width of the shooting unit. This applies to all targets, not only those within close range.

An artillery unit may not select a ranged combat target if it has any friendly units within canister range and directly in front of the battery, or one base (section’s width) to either side of this beaten zone. This applies to all targets, not only those within canister range. See section 5.7.1.1.3 Overhead shooting with artillery below for an exception to this rule.

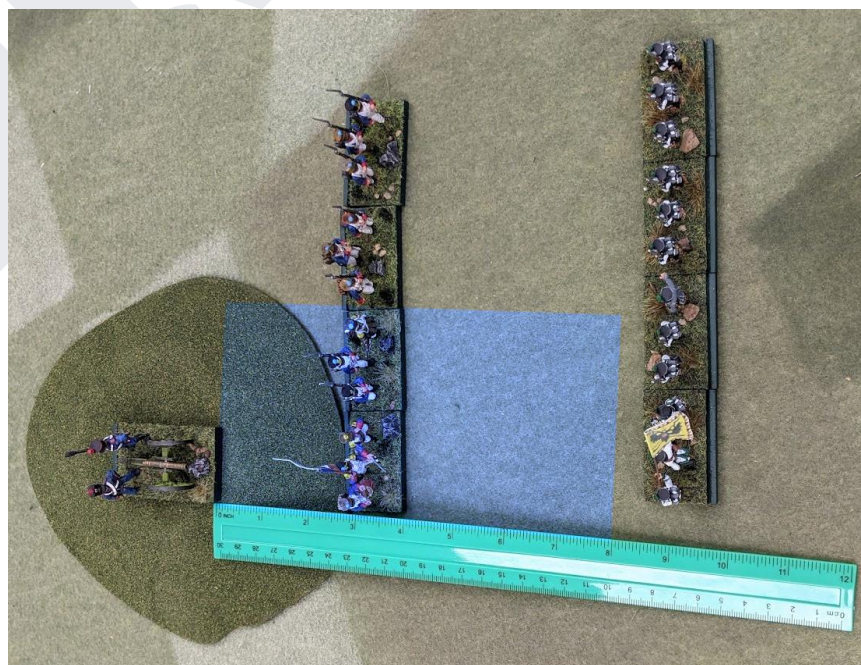
In the example below. Unit A cannot fire as unit B is in unit A's firing arc in short range. Unit B may fire. Battery C cannot fire as Unit B is in its beaten zone (marked in light blue) within canister range.



Firing lanes example photo

5.7.1.1.3. Overhead shooting with artillery

Overhead artillery fire is allowed when either the shooter or target are in an elevated position such as a hill. If either the shooter or target are at a higher elevation, any friendly troops must be closer to the elevated unit than the lower one. In this case, ranged overhead fire by artillery is allowed. In cases where the range of such shooting is within canister range, the shortest non-canister range for the firing guns must be selected when conducting overhead fire, even if the target is within canister range as overhead shooting is not allowed with canister ammunition. In this case, the target's range must be selected as close range and not canister range when overhead shooting even if the target is within canister range.



Overhead Fire Example - Since the friendly unit's front is 4" from the battery, the dead zone for overhead fire for this shot is 8" (marked in blue). As this is definitely within canister range, the shortest non-canister range band must be selected for this fire.

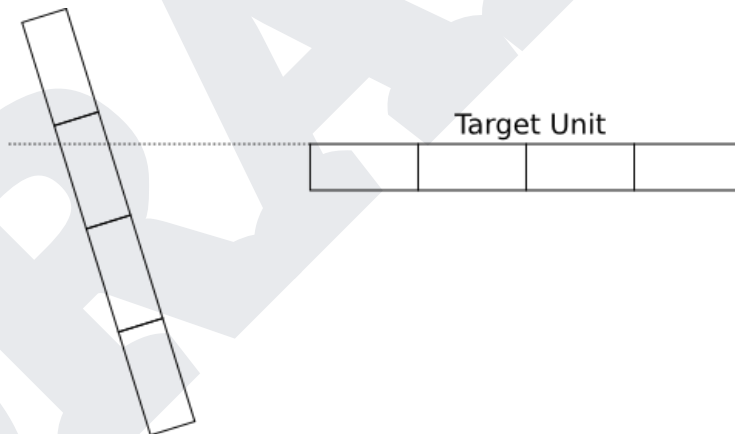
5.7.1.2. Measuring ranges

All ranges are measured in range bands as described in section 1.6.1 Measuring. Ranges are measured from the center of the firing unit to the closest point of the target unit that is within the shooting unit's legal firing arc.

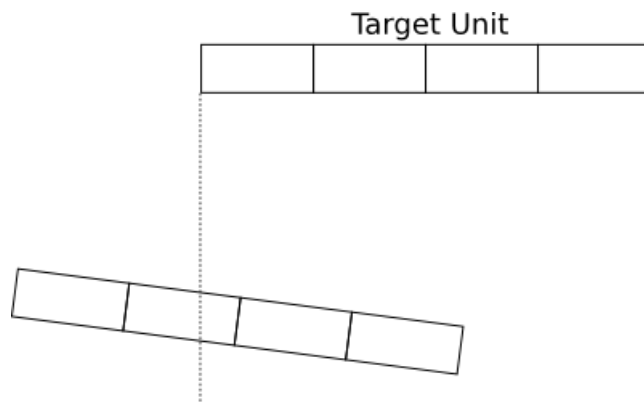
5.7.1.3. Determining target disposition

A target's disposition is determined by the attacker. Only those attackers in a flanking or rear attack position will benefit from a target disposition of flank attack or rear attack. Only those attackers in a flank or rear position should check the appropriate target disposition selectors. Those attackers attacking from a frontal approach do not select the flank disposition for their target.

A unit is considered in a flank fire/attack disposition if the center of the attacking unit is behind the front of the target unit. For melee, a flank charge also must contact the side face or the rear corner of the charge target. If only the front corner can be contacted, this is considered a frontal attack.



A unit is considered in a rear fire/attack position if the center of the attacker is beyond a line drawn from the flank of the unit towards the rear.



For purposes of flank and rear fire determination, the position of the shooting unit is measured at the time of shooting, even if this is after a march order move. For the purposes of flank and rear combat determination the position of the attacking unit is measured **before** movement. For a defending unit to be considered in a flanked or rear disposition for close combat, the charging unit must start its charge move in a flank or rear position.

Two units that are touching may 'refuse the flank' by being in contact by at least one corner of each friendly unit. If a charge is able to contact one of these two units frontally, that unit protects the flank of the other friend. Enemies wishing to charge one of these units must contact the unit that they can contact frontally. Single units may not refuse the flank themselves unless they are occupying or conforming their front to terrain as described in section 5.6.1 above.

5.7.1.4. Determining target terrain

A target's terrain is determined by the attacker. For example a target may be uphill for one attacker and not for another, or protected by a stream bank from frontal attackers but not for flanking attackers. It is, however, common that a unit in terrain will receive the benefit of that terrain for all attackers.

A unit is considered in a piece of area terrain if at least half the area of their stands are within the boundaries of that terrain piece. A unit is considered occupying a linear terrain feature if at least half of, or as much as possible of the front edge of the unit is in contact with the terrain feature. In addition to this, a unit is considered protected by terrain if the attacker's line of sight passes through terrain.

A defending unit should only be specified as occupying a gentle or steep hill if they are uphill from their attacker and the attacker is conducting a melee attack.

5.7.1.5. Shooting at enemies engaged in melee combat

Shooting is not allowed if the target is engaged in a melee combat. The proximity of allied units makes this too dangerous for even the most reckless of colonels to order. The Electronic Brigadier will automatically cancel any shooting orders against targets that are also engaged in melee that turn.

5.7.2. Melee contact resolution

General procedures for resolving melee contacts are described in section 5.5.1 above.

5.7.2.1. Determining target disposition

Determining target disposition for melee combat works similarly as it does for ranged combat as described in section 5.7.1.3 above with the exception that all determinations are done before the start of the charging units movement.

5.7.2.2. Determining target terrain

Determining target terrain for melee combat works the same as it does for ranged combat as described in section 5.7.1.4 above

6. End of turn processing

"The regular troops, who had the keen edge of sensibility rubb'd off by strict discipline and hard service, saw the confusion (the rout of the militia) with but little emotion. They engaged seriously in the affair" - Otho Williams, American Adjutant-General at Camden

6.1. Reading the results screen

Game masters should read the results screen by section to the players from the top down. All morale outcomes should be read. For large games, it may be preferable to only read the most significant of the ranged combats. Morale results should be read for all units as well as mandatory moves. Players should conduct their mandatory moves for their units as they are read according to section 6.2 below.

6.2. Conducting mandatory movement

Units conducting mandatory movement as a result of melee contact, will move directly away from the unit(s) contacting them. Facing will be towards those unit(s) if conducting a fall back or retreat move and away from those unit(s) if conducting a rout. All other mandatory movement will be conducted directly to the unit's baseline with facings adjusted towards the baseline for rout moves and away from the baseline for all others. Units contacting the enemy baseline or a non-baseline edge of the table will follow that table edge towards their own baseline along the shortest route. Units will only involuntarily exit the table by crossing their own baseline.

Densely formed units conducting a **fall back** move will stop when contacting densely formed well handled friends as long as the moving unit has moved at least one inch. All others will pass through/around well handled units and carry units that are not well handled back with them.

Units that conduct a mandatory move will stop at their baseline table edge if they did not start the mandatory move at the baseline. Units that start a mandatory move at the baseline table edge will be dispersed by the game master during the end of turn processing. (See section 6.3.1)

Units conducting retreat and route movements ignore terrain distance penalties. Units will move around terrain that is impassible to them. Units will likewise move around enemy troops if a path at least half of the moving unit's frontage exists within one full width of the moving units frontage off of the required movement path. Otherwise, units unable to pass enemy blocking units with this procedure will be considered captured and will be dispersed.

6.3. Game Master Tools

6.3.1. Involuntary interpenetration

Any unit forced to move through a friendly unit during involuntary movement could disorder those friends. An involuntary interpenetration occurs when the center of a unit's front edge

passes through a friendly unit, or if the center of a unit's front edge passes through a gap less than 50% of its width between friendly units. For the latter case, only the one unit closest to the moving unit's center front is considered to be passed through. For any mandatory movement that causes such interpenetration, select the non-moving interpenetrated unit from the game master tools selector labeled "Unit involuntarily passed through" .

In the example below, the center unit is forced to retreat due to losing a melee. The retreating unit will retreat directly away from the unit that defeated it. The center of the retreating unit will move parallel to the range stick as shown. If there were only one friendly unit behind the retreating unit there would be no involuntary interpenetration as the retreating unit's center does not pass through any friends. Unfortunately in this case, the gap the unit is passing through is not at least half the width of the retreating unit so one other friendly unit will be passed through. In this case the unit on the right is passed through by a larger portion of the retreating unit so it's the unit that will be passed through. If there is no agreement as to which unit is passed through in this case the game master will determine which unit is passed through. If there is no game master, the opponent of the player controlling the retreating unit will choose.



Involuntary Interpenetration Example

The system will conduct an interpenetration check for the unit that was passed through and adjust the unit's formation to disordered if the unit fails the test. If the passed through unit is disordered, the game master must announce this to all players and the figures in such units will be put into a disordered formation immediately.

6.3.2. Dispersing units that have left the table

Any units that fail morale while routed will automatically be marked as dispersed by the computer and should be removed from the play area. Units that are forced to conduct mandatory movement while starting a turn touching their own baseline table edge are removed from the play area. Any units removed in this way should be selected using the game master tools selector labeled "Disperse Unit". Selecting a unit and clicking 'Ok' in the subsequent pop-up dialog box will mark the unit as dispersed in the unit in the computer.

6.3.3. Game Statistics

The game statistics section of the results screen is only displayed on the game master's device. This information gives the game master a way of judging the relative state of the two armies during and at the end of the game. This information is often useful during a scenario with variable reserves to help the game master determine which reserve units to activate when. This information is also very helpful when trying to determine which army may have won the battle and when to call that the game is over. It is left to the game master's discretion how much, if any of the game statistics to share and when to share this information.

This section also shows which unit on each side performed the best in the "Honors to:" section for each army. It is recommended that this information be saved and revealed at the end of the game as it often changes as the game progresses. Honors are earned by causing casualties to the enemy, conducting successful charges, causing enemy units to fail morale and/or disperse, repulsing enemy charges and other factors. This information is based completely on information the computer has access to and may not always accurately reflect which unit most positively affected the battle for their side.

7. Glossary of terms

"It is better to be alone than in bad company" - George Washington

7YW - Seven Years War

ACW - American Civil War

AWI - American War of Independence

Densely Formed - Any troops except those in Open order, abandoned, disordered or routed formations.

EOT - End of Turn

FIW - French & Indian War

GM - Game Master

NAP - Napoleonic Wars

OB - Order of Battle

QRS - Quick Reference Sheet

WAS - War of Austrian Succession

Well Handled - Non-disordered, non-shaken, non-routed units are considered well handled

Wheel - A maneuver where one corner of a unit is kept stationary while the unit is pivoted on this corner.

WSS - War of Spanish Succession

8. Version Change Notes

"A soldier has no time for smartness on campaign." - Kutusov in 1812

5/18/2025 – Version 0.945 - Post spring 2025 convention fixes

Administration / Diagnostics / QRS / Computer Interface

- Fixed bug where batteries with prolong orders would not display their target information in the brigade review screen if they choose to shoot when under a prolong order

Maneuver / Terrain Changes

- Added refusing the flank tabletop procedure description to this guide.

Morale Changes

- Fixed a major issue with the way the morale calculations were valuing quality. It wasn't having the desired impact. Now it is.

Combat changes

- Charges may now only be declared if an enemy unit is in the charging unit's front face. Procedural change only in this guide. No computer code needed.
- Adjustments for ACW testing - slight adjustments to rifled musket and metal breach loader factors
- Adjusted the target modifier for deployed batteries from 50% reduction to 40% reduction making counter-battery 10% more effective.
- Open Order shooting penalty reduced from 20% penalty to 10% penalty
- Outnumbering in melee - is now period specific. For linear-only periods (AWI, etc.) out-numbering attackers are capped at 150% of the defender (only so many men in a line vs. line can fight unless outflanked). For Napoleonic and ACW where attack columns are available, there is no cap. Melees with defender flank or rear attack, there is no cap.

To-Do / Idea List / Notes:

- Finish this rule book.
- Complete the *Electronic Brigadier Scenario Creation Guide*
- Remove option of flank/rear attack on disordered units in the computer interface - they have no flank/rear.
- Consider adding a negative shooting modifier for shooting downhill with muskets?
- Test with 7YW, Napoleonic, etc. periods. Revise game mechanics and programming as needed.
 - For Napoleonic period - consider allowing infantry to form a hasty square depending on the cavalry speed (march, quick, double). Longer distance charges would allow easier chances to change formation.
 - Check with Byron about squares in 7YW
 - Look into increasing casualties for melees when both parties are non-shooting (cav vs. cav mostly) since there's no closing fire.
 - If cavalry win, should they automatically go cautious to represent being 'blown'?
 - Check melee factors for Napoleonic cavalry
 - Cavalry vs. Cavalry - check defender's casualties - might be missing a calculation for them
- Possibly further limiting charges, either by charging unit's arc, or by limiting wheels to be the first part of the charge. Is 'has to be in front of the charging unit' enough?
- Movement rate enhancements to consider:
 - Line Cavalry vs. Light Cavalry - different move distances?
 - 'Slow' infantry in AWI (Germans/French) vs 2-rank - different move distances?
 - Attack column vs. Line - different move distances?
- Infantry standing to a cavalry charge - check 'cavalry fear' calculation. Currently it's based on quality difference and bayonets, but should probably add in if the melee factors for two units are very different. That would also automatically take bayonets into account so check on that as well.
- Commercialization Mods (if I go that route):
 - Add to the GM web interface 'spending' of a game between turns 3 and 4 with a confirmation screen for the GM
 - Add a free sample battle (Saragota?) for users with no games so that people can try out the rules and tablet interface for free. Limit to 4 turns.
 - Add e-commerce interface

9. Designer's Notes

The Electronic Brigadier was intended to be used for games where each player commands a single brigade of 3-6 units with a commanding brigadier officer figure representing the player on the table top. While larger games can be played with each player commanding multiple brigades, those games will take significantly longer to play and may not give as rewarding of an experience to the players. Scenarios where players command multiple brigades do not benefit from spreading the data entry work across more people. I recommend when playing with small numbers of players, selecting scenarios with smaller numbers of brigades, at least when beginning. Even the most experienced players in our group find more than two brigades much less fun to command in a single-evening game. Experienced players commanding single brigades should be able to complete a game in 3-4 hours.

Morale states in The Electronic Brigadier are more fluid than in other rule sets. Units will often oscillate between confident and cautious morale states as their turn-by-turn conditions change. Eventually they will start reaching lower morale states as they receive more casualties and lose cohesion. Shaken and routed morale states are more difficult to recover from and will eventually indicate the unit's collapse in effectiveness. The computer automatically checks morale after each turn. You may find units that won a melee may still retreat from the combat due to the cumulative casualties and cohesion losses they've suffered during the battle - a Pyrrhic victory so to speak. Likewise seemingly good units may fail morale in a turn in which they did not receive any casualties, often to recover the following turn. After playing a few games, experienced players will learn to interpret these changes and will learn the signs that a unit may be entering an unreliable state due to casualties and cohesion loss.

Militia units, even when rated in the 30-40% range seem to overperform when compared to historical outcomes. For most of these, starting the battle at 20% cohesion loss or more seems to result in them performing in a more historical manner. For particularly poor units, even 40% cohesion could be acceptable. The same could apply to some irregular units such as Seven Years War Grenzers or Napoleonic Cossacks. This also allows for lesser quality 'regulars' such as Napoleonic Austrians, to perform acceptably when facing superior quality opponents, while still offering a noticeable difference in the different units' quality. Starting units at less than 100% cohesion is also appropriate in scenarios where one side is fatigued from force march, disease or surprise such as the Hessians at Trenton.

I recommend using tablets in place of phones where possible. The game's interface has been optimized to scale to the available screen size, and will work on phones, but players will find even 7" tablets much more comfortable to use. When running my own games I've standardized on 8" refurbished tablets that I was able to get affordably used on online auction sites. In larger games, I've often asked players to "bring your own," which works provided everyone who brings a tablet is willing to share it with their opponent across the table. The computer interface can display up to four brigades on screen without scrolling when the tablets are used in vertical/portrait orientation. Larger battles are not a problem but will require scrolling to view some brigades. Those with larger 10" tablets such as an Apple Ipad will find that even these larger devices are quite acceptable for use with The Electronic Brigadier. In a pinch, especially for a two-player game a laptop or surface computer can even be used.

The computer is not completely deterministic in its calculations for morale, ranged fire, and melee. Each calculation still has a part of the calculation which is influenced by a random number "die roll." For all calculations the battlefield factors are much more significant than the random roll, but the roll does impact

the outcomes and in close affairs can be the deciding factor. For morale these die rolls are normalized to follow as closely as possible a normal statistical distribution. For ranged fire the rolls are partially normalized and for melee the rolls are even less normalized. Although not 100% correct, you can think of this as three different percentage rolls, morale as 4 x D25, ranged as 3 x D33.3 and melee as 2 x D50. The rationale is that units morale over time is fairly predictable and dependent on casualties and cohesion, ranged fire over time can have ebbs and flows but generally is usually fairly predictable within a range, and melees are more highly variable and outcomes are often more reliant on non-calculable factors.

10. Index

“Read over and over again the campaigns of Alexander, Hannibal, Caesar, Gustavus, Turenne, Eugene and Frederic. ... This is the only way to become a great general and master the secrets of the art of war.” - Napoleon Bonaparte

**** To be added last ****