

Musket & Pike

User Manual



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1. Introduction

Musket & Pike is a series of games that cover the battles and campaigns associated with the era where musket and pikes, or sometimes just muskets, dominated the fighting. Each game can be played alone versus the computer, or against a human opponent using Play-By-E-Mail and Network Play (over a Local Area Network or the Internet). Each game is turn-based with each side moving and firing in their designated phase. A series of battles can be played in turn forming a complete campaign of the war.

The documentation for Musket & Pike is divided up into several parts:

- The Getting Started Help File covering the basics of play.
- This User Manual covering the general game (This file).
- The Main Program section covering issues specific to the main game engine (Details on Menus, Dialog Boxes, Commands, etc.) - the second part of this manual.
- The Summary Info document providing charts for quick reference.
- The Scenario Editor Help File covering issues specific to the scenario editor (Creating new scenarios or editing existing ones) and various supporting files.
- The Campaign Editor Help File covering issues specific to the campaign editor (Creating new campaigns or editing existing ones). All Documentation is in PDF format. A note on terminology: Throughout several of the games in this series the terms "Side A" and "Side B" are used in reference to the two sides. This is due to the shifting coalitions of forces and wide time periods covered in several games from this series. It is also worth noting that each game in the series will have a variety of supplemental documentation in the \Manuals folder in the directory where the game was installed.

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2. Game Overview

This section provides a quick overview to playing the game and the functions of the main program. For more information, see the various sections on the Phases, Menus, Dialogs, and Other Features found in the help Contents.

2.1 Sides

A Musket & Pike battle is played by two sides which will vary depending on the topic being covered. A battle may be played by one person against the computer, or by two persons using a variety of modes such as Two-Player Hot Seat, Play-By-E-Mail (PBEM), or Network Play. See the Modes Menu in the Main Program section for more information on these modes.

2.2 Hexes

Each battle is played on a map made up of hexagons (hexes). Each hex measures 100 meters across, or in the case of Company Scale actions, 40 meters. Elevations are given in meters. Each hex contains terrain which effects movement and combat in that hex. See the Hex Info Area in the Main Program section for more information on terrain and its effects.

2.3 Turns

Each battle is conducted in turns each of which typically represents 15 minutes of real time, although this may vary by scenario and may be 5 minutes depending on the game in the series being played. Each player has a number of units under their control, some of which are on the map at the beginning of the battle, while others arrive as Reinforcements. See the Units Menu in the Main Program section for more information.

2.3.1 Play Mode

The "Mode" of play is determined by the selection, or not, of three specific optional rules: Manual Defensive Fire, Automatic Defensive Fire & Optional Melee Resolution. If Manual Defensive Fire is Not selected the game will operate in Turns. If it is selected then the game will operate in Phases. If in phases and playing against another person the Automatic Defensive Fire optional rule becomes important. If it is Not selected then a file will be required to be sent to the opposing player to conduct just their defensive fire. If it is selected however, the computer will conduct their defensive fire for them. This means the difference between 2 files exchanged to complete a PBEM turn and 4. Effectively cutting the time in half required to complete a game.

2.3.2 Turns vs. Phases

Each battle can be fought in one of two modes. In the default Turn-based mode, each player moves, fires, and melees using units under his control in his turn. There are only a few restrictions on this:

- After firing, most units cannot move for the remainder of the turn but may melee in that turn. Some units are flagged as "can fire after moving", but generally this is reserved for Horse Archers or other such units that fought with these tactics.
- After meleeing, a unit cannot move or fire for the remainder of the turn. The purpose of these restrictions is to help ensure that the resulting battles are fought in a manner similar to historical doctrine and with less flexibility than would be found in more modern combat. As each player performs actions in their turn, Defensive Fire is possible by the opposing side under the control of the computer. Note: This is called "Opportunity Fire" and may cause units to fire multiple times during a turn based on the activity taking place within their range. To offset this the fire is conducted at 50% effectiveness. The "triggers" for this fire are undocumented and randomized on purpose - in order to prevent people from "gaming the system". By default, Optional Melee Resolution is selected as an optional rule when you start a new scenario. When it is, a separate sub-turn is executed once all movement and fire takes place. This prevents "Blitzkrieg" tactics where a gap is opened up through melee and units are able to pour through the gap in the same turn.

2.3.3 Phases

Under the Manual Defensive Fire Option, each turn of the battle is divided into Phases. A Phase will be under the control of one side or the other. A complete turn is made up of a total of 8 phases. For example, if the Side A player is the first player in each turn, the phases will be:

- Side A Movement Phase
- Side B Defensive Fire Phase
- Side A Offensive Fire Phase
- Side A Melee Phase
- Side B Movement Phase
- Side A Defensive Fire Phase
- Side B Offensive Fire Phase

- Side B Melee Phase At the beginning of each Phase (under Local Control) the Phase Dialog is displayed. In each phase only certain actions are possible. Movement is restricted to the Movement Phase and firing is restricted to the Fire Phases, Defensive and Offensive. The Melee Phase allows hexes containing enemy units to be assaulted and possibly captured. See Movement, Defensive Fire, Offensive Fire, Cavalry Charges, and Meleeing for more information.

2.4 Units

Typically, each unit is a battalion of Infantry, a battalion of Cavalry, or a battery of Artillery. Each Infantry and Cavalry unit has a strength value in increments of single men, while each Artillery unit has a strength value in number of guns. In addition, there are specialized units such as Leaders and

Supply Wagons. Infantry, Cavalry and Artillery units are capable of firing on enemy units, and each has a range value indicating the number of hexes that unit may fire. See the Hex Info Area in the Main Program section for more information on these values. Note: If a Company Level scenario (5minute turns), the infantry will be in companies, cavalry in squadrons.

2.5 End Of Game

As each player finishes their turn or phase, they advance the battle to the next turn or phase by using the Next Turn or Next Phase function of the Turn/Phase Menu. This continues until the turn limit specified in the scenario at which point the win, lose, or draw outcome of the battle is determined. Winning and losing are determined by a calculation based on the ownership of certain Objective hexes and the relative losses of the two sides. See the Victory selection of the Info Menu (in the Main Program section) for more information on victory conditions.

3. Game Mechanics

3.1 The Screen Interface

The game screen contains several parts of the interface that allows you to play the game.

3.1.1 The Menu Bar

Along the top of the screen is a Menu Bar that contains the various game commands you will need to access from time to time while playing. Under each menu is a list of commands, each of which is discussed in detail in the General Help section. Some of the Menu Bar commands are available in the Toolbar and many have shortcut keys. These are also covered in the General Help section.

3.1.2 The Toolbar

Directly under the menu bar is a series of buttons. These buttons provide quick access to many of the commonly used game features. If you place your cursor over a button and pause for a moment a "Tooltip" will be revealed. You can "sort" which group of buttons are displayed at any given time by clicking the larger rectangle buttons labeled Unit, Combat, etc.

3.1.3 The Map

Most of the game screen is covered by a map. The map has three views in 2D, two views in 3D and a Jump Map allowing a view of the entire map. The default view is 2D Normal, but this can be changed using the View Menu. The Map can be scrolled using the Windows scroll bars on the right and bottom of the screen. Alternatively, selecting Auto Scroll in the Setting Menu allows you to scroll by moving your mouse pointer to the window edge.

3.1.4 Hex Info Area

On the left side of the screen is the Hex Info Area (the location of the Hex Info Area can be changed from the Settings Menu). As you click in a hex on the map the specific info about that hex is displayed in this area along with the artillery ammo for both sides if not using Fog of War. When the hex contains units, information about them is also displayed in this area. If there are more units in the Hot Spot hex than can be displayed in the available Unit Boxes, then scroll arrows that appear after the list of units can be used to scroll down to the additional Unit Boxes. If you hold the right mouse button down you can see more information on the units as well as information on the hexsides terrain of the hex. For more information, see the Hex Info Area in the General Help file.

Note: Pressing the Shift key and right-clicking will "lock" this secondary information display. To remove this lock right-click again in the Hex Info Area.

3.1.5 Status Bar

Located at the bottom the main window, the Status Bar displays information about the current battle or information about other commands you are accessing. The default view when a map hex is selected shows the time and date, the current turn and numbers of turns in the current scenario along with information about visibility and weather conditions where applicable together with the current selected hex coordinates (on the far right). When using the mouse on the menus or Toolbar icons the Status Bar displays information on those. In the event of an error, it will display information on what the error was.

3.2 Map Views

There are a number of ways you can view the map. These can be accessed through the View Menu, the Toolbar, shortcut keys or use of the mouse zoom wheel depending on your Settings Menu choices.

3.2.1 2D Extreme Zoom-Out View

This view shows little detail associated with units but a much larger area. While you can play the game in this view, most of the time you use it to give yourself some overview of the situation to help you make a decision, or to survey the situation before going on. (Hot Key 1)

3.2.2 2D Zoom-Out View

This view shows more area on the screen while giving you less detail. This view is playable especially if you are looking at ranged fire situations or using indirect fire. (Hot Key 2)

3.2.3 2D Normal View

This is perhaps the most common view used in the game. It presents a top-down two-dimensional view of the map showing the various terrain features and units on the map. In this view, you use the Hex Info area quite a bit to determine specific data associated with the units and terrain. (Hot Key 3)

3.2.4 3D Zoom-Out View

A Zoomed Out View of the 3D map and units. (Hot Key 4)

3.2.5 3D Normal View

This view shows the game similar to a miniature battlefield with the units shown as figures. (Hot Key 5)

3.2.6 Jump Map View

This view is most useful for quickly changing your view from one part of the map to another. You can get this view using the Jump Map on the Tool Bar, the "J" key or the View Menu. With this view, you can click on any part of the map and have your view moved to that location. (Hot Key J)

3.2.7 How to Change Views

You can change your map view using your mouse wheel, the Tool Bar, or - + keys at the top of the keyboard or the Hot Keys listed next to each picture above.

3.3 Selecting Units

Most actions require that units first be selected. Clicking on a hex on the map with the left mouse button causes that hex to become the current Hot Spot. The units in the current Hot Spot are displayed in the Hex Info area. When a unit is selected the background color of its unit card will be brightened so that it can be distinguished from other units in the Hex Info Area that might not be selected. These units may be selected by clicking on their pictures in the Hex Info Area with the left mouse button. Alternatively, all units in a hex may be selected by double clicking on the hex with the left mouse button. Once selected, units may be moved in the Movement Phase by right clicking on the adjacent hex to move to. Double-click to deselect all units in a hex if any have already been selected. See the Movement section of this manual for more ways to conduct movement. Selected units may fire in a Fire Phase by right clicking on the target hex.

4. Units

Typically, each unit is a battalion of Infantry, a battalion of Cavalry, but can also be companies, or a battery of Artillery. Each Infantry and Cavalry unit has a strength value in increments of single men, while each Artillery unit has a strength value in number of guns. In addition, there are specialized units such as Leaders and Supply Wagons. Infantry and Artillery units are capable of firing on enemy units and each has a range value indicating the number of hexes that unit may fire.

4.1 Unit Types

This section describes many of the various unit types that are in the game. Understanding the various unit types, their abilities and their restrictions, is key to successfully mastering period tactics. Further detail on these unit types can be found in the succeeding sections of this manual. Also, each game includes a Design Notes document (Notes.pdf) that will often have further details to consider.

4.1.1 Leaders

Leaders represent individuals that command the various forces. Leaders are used to improve the effectiveness of the forces under their command and to support other commanders subordinate to them. In general, the presence of commanders improves the Morale of units and thus increases their fighting abilities. Leaders can dismount and when they do they pay Column movement cost and have a -50% modifier applied to their chance of being wounded or killed from combat. An example of a 2D Leader icon is displayed at left as well. The letter representing the level at which a leader commands will vary depending on the leader being represented. This letter is displayed both on the lower left of the Leader Card and on its 2D icon on the game map. Below are examples of Army, Wing, Corps, Division, Brigade & Unassigned:

Note: You can change between the three styles of 2D icons within the game by going to the "Settings" menu and selecting "Unit Symbols". Then select either "Graphical" (default), "Nato" or "Block". A sample of all three 2D Icon styles are included with each unit type below. The top is Graphical. 2nd is Nato and 3rd is Block. If a Leader is lost due to combat (wounded/killed/captured) or is removed from play by a Withdrawal order, then they will be replaced on the following turn during the command check cycle. For higher echelon leaders one of their subordinates is promoted from a lower command level, and they in turn

are also replaced down to the lowest level. That bottom tier leader will be replaced by an anonymous leader with relatively low command and leadership ratings. If a Secondary Leader exists in the command structure then they will be used to fill the command vacancy.

4.1.2 Infantry

Infantry units have a strength measured in number of men. They have a Quality value which affects their effectiveness in combat. In general, they have a weapon that allows them to fire at enemy units, but some troops only have weapons which increase their effectiveness in melee. Note: In this first sample the unit is in Line formation. Other Infantry entries will be in Column.

4.1.3 Cavalry

Cavalry units have a strength measured in number of men. Depending on their weapon, they may be able to fire on enemy units while mounted. Dragoons can dismount and use their weapons while on foot. Most cavalry can effectively attack enemy units using melee attacks, especially cavalry charges, although dragoons and irregular cavalry are primarily used to screen and scout.

4.1.4 Field Artillery

Field Artillery units have a strength measured in number of guns. They can be either Limbered or Unlimbered. When Limbered, they can move but cannot fire. When Unlimbered, they can fire, but not move other than to change their facing. Some types require a setup period before firing.

The images at left are limbered icons for the three symbol sets.

4.1.5 Skirmishers

Skirmisher units represent detachments of Light infantry from a main Infantry unit. Skirmishers are often used to shield a main position against an enemy attack or to hold obstructed terrain or possibly to screen an advance. It is possible for a Skirmisher unit to be independent in a scenario (no parent unit). The label Can Deploy will be displayed if a unit can detach a Skirmisher company. Light and Guard units can break down fully into Skirmish companies.

4.1.6 Squadron/Platoon Units

Squadron and Platoon units represent detachments from a main Cavalry unit. They can be used for scouting, delaying actions or escorting supplies, etc. When stacked together they can conduct effective charges. The Squadron was the main unit of operations for cavalry, so some games may have the units already broken down this way in the OOB and further breakdown might not be possible.

4.1.7 Supply Wagons

Supply Wagons are used to resupply Infantry units that become Low or Out of Supply. For each unit of strength, they can resupply 10 men. They have no ability to attack the enemy, but they can be captured by the enemy.

4.1.8 Ships

Ships are represented in the game for historical completeness, as naval support often played key roles in many battles. With that said, they are there to provide fire support to the land troops or conduct limited naval engagements. This is not meant to be a robust handling of naval warfare. The same 2D icon is used for both the Nato and Block symbol sets. They have the following limitations:

- Are limited to 1 ship per hex.
- Are not able to enter Shallow Water.
- May not be involved in Melee combat.
- Changing direction requires 1/3 of their full movement point allowance for that turn.
- They may not perform an "About Face" maneuver.
- They may move in the forward direction only (2 front hexes). Fire is conducted by the broadside and is scaled at 50% effectiveness to replicate the fact that only half the total guns a ship has are able to be brought to bear at one time. Ships can Move - Fire - Move. In the image at right, the orange arrow represents the direction of travel, the red arrow is the field of fire for the Port broadside. Note: it is only a single hex wide.

4.1.9 Shallow Water Ships

This style of "ship" is really representing gun boats, barges and the like. They differ from Ships in a few ways:

- They may enter shallow water hexes.
- They fire fore & aft, rather than at the broadsides. Note: Ships use 4x the height of a man (value in the PDT) and Shallow Water Ships use the height of a man value for LOS purposes.

4.2 Special Units

In addition to the standard unit types of Infantry, Artillery, and Cavalry, there are special unit types that apply. These units have special or restrictive rules that apply to them that are described in detail in subsequent sections of this manual.

4.2.1 Light Infantry

While a normal Infantry battalion only had a single Light Infantry company, certain Infantry battalions consisted entirely of Light Infantry. These battalions can deploy entirely into Skirmisher units, but a percentage will remain as the parent unit. Depending on the values in the PDT file this can be 25% or some smaller amount.

4.2.2 Guard Infantry

Guard units are usually the best units and generally have a higher Quality rating than other units. Like Light Infantry, a Guard unit can deploy entirely into Skirmisher units. The same PDT values will apply.

4.2.3 Restricted Infantry

Restricted Infantry is the opposite of Light Infantry in that Restricted Infantry cannot deploy any Skirmishers or form Block. This is the most common Infantry designation in the pre-Napoleonic age.

4.2.5 Heavy Cavalry

Heavy Cavalry units have increased ability in Melees. They can effectively melee against any other unit on the battlefield and as such are good for breaking apart defenses. They are unable to break a Block though, but teamed with artillery, they can make short work of those defenses as well. They are vulnerable to both formed infantry volleys and artillery, however.

4.2.6 Irregular Cavalry

Irregular cavalry does not have an increased effectiveness against formed units during a Cavalry Charge. Best used for scouting.

4.2.7 Lancers

Lancers are Cavalry equipped with Lances instead of Swords or other weapons. Ideal to be used in a Charge against all unit types. Primarily an offensive, shock weapon. They have special rules applied to them in Melees.

4.2.8 Dragoons

Dragoon refers to a type of cavalry that can dismount during the battle. They remain in Line formation while dismounted. Usually, they have a Carbine weapon type which allows them to perform fire combat. While mounted they fire with a diminished capability. This can vary from title to title if the scenario designer chooses not to give them the ability to fire while mounted. Dismounted Dragoons fire & melee at 75% strength, to account for the loss of horse handlers.

4.2.9 Light Artillery

Light Artillery refers to Artillery units which are small in caliber and in turn highly mobile. These are often Battalion guns assigned to work with the Infantry. This is in contrast to Field Artillery, where the crews have horse teams to move the artillery pieces while the crews march. Light Artillery units can fire after moving, unlike normal Field Artillery.

4.2.10 Heavy Artillery

Heavy Artillery are batteries of higher caliber, usually 12 pounders or above, but it can vary based on the game.

4.2.11 Emplaced Artillery

Emplaced Artillery refers to Artillery units which can not change formation or move from their starting location. They may change facing however, movement points permitting. If they change facing in a turn they may not fire within that turn.

4.2.12 Pioneers

Pioneer units represent units capable of engineering functions. They can be used to repair bridges (see Movement). Like Light Infantry, a Pioneer unit can deploy entirely into Skirmisher units. The same PDT values will apply.

4.3 Unit Formations

This section describes the various formations that units may have. Each formation has a purpose, strengths, and weaknesses in the game. Further details on these formations and rules that apply to them can be found in subsequent sections in this manual. Below is a list of the icon and description you will see in the Unit Box when a unit is in the corresponding formation. See the Design Notes (Notes.pdf) for a further explanation of how formations work in each particular game in this series as there is some variation due to the breadth of time periods covered.

4.3.1 Line Formation

Line formation can be used by Infantry units. It has increased firepower over other formations and is less vulnerable to enemy fire. It is a good defensive formation but is vulnerable to enemy Cavalry charges.

4.3.2 Column Formation

Column formation can be used by Infantry units. It has increased mobility over other formations, but has less firepower than Line formation, or none at all depending on the time period being modelled. It is a good offensive formation for some time periods and weapon types but also is vulnerable to enemy Cavalry charges. For some periods, especially the age of Linear Warfare, this formation primarily represents a Column of Maneuver and is therefore a poor combat formation in most cases. Units must be in Column to cross bridges, fords and pass through gates. Note: When CoM rules are in effect While standard Column formation no longer receives Road Movement bonuses, they can still cross bridges at double the normal movement cost for Column of March. Also, units in Column may move through obstructed terrain at 3x the normal cost for Pike and Road and 2x for Path without Disorder. See section 4.3.12 for further details.

4.3.3 Block Formation

Block formation is the best defensive formation against cavalry charges but has poor mobility. This is generally a better attack formation than column, which is usually assumed to be primarily marching. It conforms to the Line Movement Effects optional rule and all restrictions on movement the Line formation is impacted by. This formation is also capable of initiating a melee against cavalry, which will force the Cavalry unit to retreat one hex. A Unit must have at least a 100-man strength in order to form Block.

4.3.4 Mounted Formation

Mounted formation is the standard formation for Cavalry. The formation has good mobility and can be used to conduct Cavalry charges. Dragoon Cavalry and Leaders can dismount by selecting the "Change Column" from the Command menu or selecting the "Change Line/Column" button from the toolbar. While dismounted they can only be in Open Order formation.

4.3.5 Limbered Formation

Limbered formation is used by Artillery units and represents Artillery ready to be moved. While this is the formation you must use to move Artillery, it cannot fire in this formation.

4.3.6 Unlimbered Formation

Unlimbered formation is used by Artillery units and represents Artillery ready to fire. While in this formation, Artillery units cannot move between hexes but can change Facing within the hex. Artillery cannot unlimber within forests or villages unless they have a clear (non-Forest or Village) hex in any direction.

4.3.7 Emplaced Formation

Emplaced formation is used by Artillery units and represents Artillery that is unlimbered and secured into a fixed position. Emplaced units cannot limber but can change facing.

4.3.8 Skirmish Formation

Skirmish formation is used exclusively by Skirmisher units. In this formation, Skirmishers can move and fire in any direction.

4.3.9 Shortened Line Formation

Shortened Line formation is the name in this game given to Infantry and Artillery units in Line formation that have sufficient strength to go into Extended Line Formation.

4.3.10 Extended Line Formation

Extended Line formation is used by large Infantry or Artillery units to extend their formation over more than one hex. When a unit is in Extended Line formation, it will consist of two counters in adjacent hexes.

4.3.11 Open Order Formation

Open Order formation is used by certain troops in certain terrain and certain theatres of operations. Only Two-rank Light (U), Guard (F), Line Infantry (T), Irregulars (Displays as Restricted+) (O) and Dismounted Cavalry are allowed to use this formation. Dismounted Cavalry always uses this formation. Units must be in good order and in Command to move in/out of Open Order. Open Order pays line cost to move as well as the same formation change cost. A unit can go from Column directly to Open Order. Frontages will be increased by 2x when deployed to represent the wider spacing between men. Offensive fire against an Open order units is reduced by 20%. A unit in Open Order engaged in Melee will do so at a -20% effectiveness. A "O" will be displayed on the 2D icon when a unit is in this formation. Unit designations will have a + to denote the ability to form Open order. Light+, Guard+, etc. If the Can Deploy label is present a + will indicate Open Order capable, a - means it cannot.

4.3.12 Column of March Formation

Column of March (CoM) formation is designed for long distance movement of troops and takes advantage of the Trail/Road/Pike movement costs. It is very vulnerable to combat and as such should not be used in close proximity to enemy combatants. The Command "Change Column of March" (hotkey Ctrl+K) is used to change from Line or Column to CoM. This can be done by a single unit or an entire command - if the Leader is included in the selection. The entire command change is limited to the Divisional level and below. Formation change costs are 1/3 of original movement points. When the change is made, and the unit meets specific size thresholds, based on the PDT settings, a second counter will be spawned. The lead unit will be designated as MARCH, the trailing unit as March. Orders can only be issued to the lead unit.* If an About Face command is issued it will switch which unit is the lead. Once it begins moving the trailing unit will follow behind and will always remain in an adjacent hex. When the command is issued to change out of CoM the trailing unit will be pulled in and rejoin the lead unit and the unit will assume Column formation. This formation applies to all unit types. Only Infantry and Cavalry have PDT values set to control the value at which a second counter is spawned. Artillery will always generate a second counter, splitting the battery between the two counters if it is comprised of more than 2 guns. Supply will never generate a second counter. A icon with an "M" will be displayed on the 2D icon when a unit is in this formation. Units in Column may move through obstructed terrain at 3x the normal cost for Pike and Road and 2x for Path without Disorder, when CoM rules are in effect. Note: This formation is PDT controlled and not always active. The menu is grayed out if not active. The values for CoM will also be zero in the Parameter Data Dialog. * If the trailing unit becomes separated for some reason: Hold the Shift key down while selecting the unit card and it can then be selected and moved to a hex adjacent to the parent unit. You may also wish to move in into the same hex as the parent, to clear a roadway for other traffic, for example.

4.4 Unit Values

Units can have special values and attributes which determine which functions they can perform or how they are rated in the game.

4.4.1 Range Value

The range at which the units' assigned weapon can be effective. This applies to weapons with an ability to "project" their lethality, i.e. a bow, javelin or firearm. Weapons than cannot be "fired" will have no value displayed and their only effect comes into play when they are used in melee.

4.4.2 Armor Value

The rating given to a unit to represent any body armor the men of that unit normally wear. It is used to determine the lethality of fire against that unit and to modify melee losses of that unit.

4.4.3 Melee Value

Used to determine how effective the unit will be in melee combat.

4.4.4 Can Block

The unit can change into Block formation. A Unit must have at least a 100-man strength in order to form Block.

4.4.5 No Line

The unit is unable to change into Line formation.

4.4.6 Assault Pen

This unit will only have half effectiveness when meleeing into hexes that contain Trenches or out of hexes that contain Abatis.

4.4.7 Victory Value

Determines how many victory points are associated with losses of that unit in determining the win/lose outcome of the battle.

5. The Essentials

5.1 Battlefield Assessment

5.1.1 Selecting Units

Most actions require that units first be selected. Clicking on a hex on the map with the left mouse button causes that hex to become the current Hot Spot. The units in the current Hot Spot are displayed in the Hex Info area.

These units may be selected by clicking on their pictures in the Hex Info Area with the left mouse button. Selecting a unit will result in its background color becoming brighter. Alternatively, all units in a hex may be selected by double clicking on the hex with the left mouse button. Double-click to

deselect all units in a hex if all have already been selected. Once selected, units may be issued various orders dependent upon the phase of play you are in.

5.1.2 Sighting

There are limits to Visibility Range which are set in the Parameter Data file, which will change from scenario to scenario and are also subject to Weather when that option is used as well as Dawn, Dusk and Night Turn settings. You can find the visibility range for the current turn in the Status Bar at the bottom of the game screen. Line of Sight (LOS) plays heavily in the game. What you can see impacts not only how you fight, but how you maneuver and what decisions you make in your army displacement. Every hex has a height value assigned, and various map features can also impact LOS. The average height of a man is also set, so that LOS calculations can be made. The elevations for a map are designated when the map is made, but other element's height is controlled by the Parameter Data on a scenario-by-scenario basis. What you as a player can see is also determined by the options you select - Normal - or Fog of War (FOW) when you start any given scenario. If you also have the Strict Line of Sight rule selected (on by default) you will only be able to check LOS from occupied hexes.

5.1.3 Fog of War

Having Fog of War in effect will change what you see on the game screen. Only enemy units you have a LOS to will be visible, but additionally much of the unit's information will be masked. For example, you will only have a general idea of the size of the unit, a unit with 367 men would show as 3XX and no idea of their current condition relating to fatigue or supply or weapons carried, etc.. When you are adjacent to a unit its identification is revealed as well, but other data remains masked. Additionally, the 2D counters will be generic infantry, cavalry & artillery until you are within 3 hexes and within LOS, then their specialized icons will be displayed. With FOW you can only see the Visibility highlights from friendly occupied hexes. With View - Visible Hexes toggled ON; if you click on enemy occupied or vacant hexes you will see no highlighting. You can only see visible hexes from hexes your units occupy. Additionally, sizes for units in woods, towns & other obstructed terrain are completely masked with XXX so you have no idea of their size until you are within 3 hexes. LOS is recalculated for a unit each time it moves. Units within 3 hexes will be revealed, having their characteristics displayed. Units 4-6 hexes away will only be represented by a (?) icon. During night turns, or if the moving unit is a Supply Wagon or Routed unit then the range is only 3 hexes, and the revealed info will be displayed as a (?).

5.1.4 Objectives

Objectives will vary from scenario to scenario. Generally speaking, the goal is to control the map and eliminate the opposing force. The scenario designer will set victory conditions based on what they feel are reasonable goals to obtain each level, for each army. Points are awarded for causing casualties to your opponent and occupying objective hexes. Points are subtracted for the losses you incur. These calculations happen for the entire duration of the scenario and can be viewed at any time by opening the Victory Dialog. Normally an Objective Hex will be assigned to a key point on the map, such as a town or ridge that has a commanding view. These elements are used to both award the player who controls them and, in some cases, to steer the flow and focus of a battle. In many cases Objective Hexes do not have to be taken in order to gain victory. They may be included for symbolic representation of what occurred historically, for example. Each situation will be a bit different. To take control of an objective you must occupy the hex with a non-detached combat capable infantry, artillery or cavalry unit. When you take control of it the flag will turn to your nation's flag. You do not need to remain on the objective to retain control of it, but if you don't it could potentially be captured by your opponent. There is a special type of objective called an Exit Hex. To use this, you move your forces to the flag of your nation then with the units selected go to Command -> Remove from map (Ctrl + X). That will remove your units from play, and you gain points accordingly. Generally, these type of objectives will be along a map edge. The status of the unit has no bearing on removal and points awarded.

5.2 Movement

Movement involves moving units under the control of the current player as well as performing certain functions such as changing facing and some changes of formation (see the Command Menu in the Main Program section). No combat occurs during the Movement Phase. Each unit is allocated a certain movement allowance at the beginning of the player turn. Each unit may use some, all, or none of its movement allowance during that turn. Unused movement allowance points are not accumulated. Depending on the scenario, certain units may be Fixed which prevents them from being moved.

5.2.1 How To Move

Units must be selected before they are moved. Once selected, units may be moved to an adjacent hex by clicking on that hex with the right mouse button. Alternatively, it is possible to move the selected units to a nonadjacent hex by clicking the starting hex with the left mouse button, dragging the mouse to the ending hex while holding the mouse button down, and then releasing the mouse button. This will cause the computer to calculate a minimum-distance path from the starting hex to the ending hex and automatically move the selected units according to that path. Additionally, you may select a unit and then right-click a distant hex and the unit will move as far as the available movement points permit. Both the Drag-and-Drop as well as Auto-Move (right clicking on a distant hex) will yield the best results in unobstructed terrain and away from opposing forces. You *can* use them anywhere, but

the path the A/I selects to use and what you would want them to use may differ. Consider that the closer enemy forces are, things like "threat zones" come into play. Or you may want to pass through a town to then deploy on the other side, but the A/I might pass around the town on the flank, for example. Additionally, you can choose the path your unit will take when using the Drag and Drop method to plot your desired movement. First, go to the Settings menu and select "Drag Path". Then select the unit(s) by left clicking on them, then hold the left mouse button and drag over your desired movement path. As you do so arrows will appear tracing the route. Release the mouse button and the unit will move as far as it is able. If during the plotting process you are not happy with the route simply return to the starting hex and release the mouse button - no action will be taken. Please note that this method is not "validating" the path you have selected as possible nor if you have points to move the entire distance. Note: Not all moves are possible depending on the terrain and movement allowance of the selected units. Also, Leaders cannot be moved within 4 hexes of enemy units within LOS unless stacked with friendly units or if friendly units are closer to the enemy units. Movement costs vary depending on the terrain being moved into and any hexsides being crossed. In general, it is not possible to cross a Creek hexside except at a Ford or Bridge unless in Frozen conditions.

5.2.2 Formation

Infantry units may move either in Line, Open Order, Column, Column of March or Block formation although movement is more efficient in Column or Column of March. The formation of Infantry, Artillery, and Dragoon units may be changed using the Change Formation function of the Command Menu. Some particulars to consider when attempting to change formation:

- A Disordered or Routed unit may not change formation.
- A unit may not change into Block formation in restricted terrain.
- Artillery units must be Limbered in order to move.
- Pioneer units may never form Block.
- Non-Light Artillery cannot fire in the same turn that it unlimbers or changes facing.
- Non-Dragoon Cavalry are always Mounted.
- When dismounted, Dragoons are always considered to be in Open Order.
- When a unit is in extended line both half-units can form into column formation.
- To re-join from Extended Line or Column of March, the unit halves must be in adjacent hexes.
- A Unit must have at least a 100-man strength in order to form Block.
- Units in Open Order pay same movement costs as Line formation.

Formation change costs are 50% of the original movement allowance available to a unit. For example, an infantry battalion starts with 16 movement points. It moves forward 2 hexes in Line formation for a cost of 6 and can still change formation at a cost of 8, with 2 points remaining.

5.2.3 Stacking & Stacking Limits

There is a limit to the number of men, cavalry, and guns that can be placed in any one hex at one time. This limit is given in the Parameter Data and can be viewed using the Parameter Data Dialog from the Help Menu (F2).

The Max Stacking value determines the number of men that can be placed in any one hex. When a hex contains guns, then each gun counts as 125 men for the purpose of stacking. Thus, if the Max Stacking value is 1250 men, then a hex can contain no more than 10 guns. For Cavalry, each mounted man counts as 3, so again using the Max Stacking value of 1250, then a hex could contain no more than 416 troopers.

There is also a Max Counters value in the Parameter Data; this limits the total number of counters regardless of whether or not the number of men is below the Max Stacking. Officer Units do not count towards the Max Counter total. Artillery counts as 2 counters per battery. There are a variety of conditions to be considered when stacking units in the same hex:

- If multiple units in all Line formation are stacked together in the same hex they must face in the same direction. Thus, if a unit in Line enters a hex with another unit already in Line formation the new unit will assume the facing of the existing unit.
- If several units in column formation in the same hex simultaneously change formation to Line they will take the orientation of the top unit in the stack.
- If two units simultaneously attempt to change formation from Line to Column or vice versa and one of them fails its morale check and fails to change both units will become disordered, since stacking of a Line & Column formed unit in the same hex is not permitted without disorder.
- Whenever both cavalry & formed infantry exist in the same hex, they will both become disordered. Any infantry unit not in skirmish mode is considered formed.
- When skirmishers and mounted cavalry are stacked together only the skirmisher unit will become disordered, as long as there are less than 1/8 total stacking limit of skirmishers in the hex. If that number is exceeded all units in the hex will be disordered.
- 2 supply units may not stack together.
- There is no stacking limitation on a map border hexside when troops are arriving as reinforcements. Once the units have moved away stacking rules are enforced.
- When using the Top of Stack or Bottom of Stack functions a unit will pay 1/2 of its total movement points to complete the action, or all remaining points if less than 1/2 remain. However, units in Block formation or unlimbered artillery cannot change position in a hex. No position change in stack allowed if any unit has already fired. And finally, if 6 or more artillery pieces are unlimbered in a hex then they "mask" the units behind them, similar to an infantry Line formation. See section 5.3.9 on Stack Firing for further discussion.
- If two infantry units in Line formation exist in a single hex, the Front value becomes important. This is the percentage of the available space this unit occupies. See section 5.3.9 on Stack Firing for further discussion.
- Different nations may not stack together regardless of allied affiliation in most cases. However, if the OOB has been coded to support it, it is possible (as of 4.05) for Allied nations to stack together in some cases. This is called Combined Commands and it applies when a portion of a command is filled by a detached unit from an Allied army. For example, a Division may have a Brigade assigned under it from an Ally. The shared stacking only applies to the units within those specific command structures - not the two armies as a whole.

5.2.4 Zone-of-Control

The two facing hexes in front of a unit as shown in the illustration are called its Zone-of-Control. The unit faces the hex spine, so the hex to the left & right of that spine are its ZOC. However, Leaders, Skirmishers, Routed units, Limbered Artillery, Uncrewed Artillery, and Supply Wagons do not have a Zone-of-Control. When a unit enters the Zone-of-Control of an enemy unit, its' movement points are expended and cannot move anymore in that Movement Phase or Turn. Under normal rules, a unit cannot retreat through an enemy Zone-of-Control. Also note that while a Block unit has two forward facing hexsides it will exert a Zone-of-Control over all 6 surrounding hexes. A Zone-of-Control is not exerted beyond a High Wall hexside.

5.2.5 Obstructed Terrain and Hexsides

Any terrain other than Clear, Building, or Field is considered Obstructed. Likewise, the hexsides Hedge, Stone Wall, Embankment, Stream, Gate, and Fort are considered Obstructed hexsides.

- Infantry units in Line or Block formation that enter Obstructed terrain or cross an Obstructed hexside become Disordered.
- Cavalry units that enter Obstructed terrain or cross an Obstructed hexside become Disordered.
- Units in Open Order will not be Disordered when moving through Forest or Orchard terrain.
- An infantry unit must be in column or column of march formation (or as a skirmisher) to cross a gate hexside. A cavalry unit must be in mounted formation to cross a gate hexside. High wall hexsides are impassable without a gate.
- Artillery and Cavalry may not enter a chateau hex at any time.
- With the optional rule Column Movement Restriction selected infantry in Column formation will become Disordered when moving in forest, town or marsh terrain.

5.2.6 Disordered Movement

When a unit is Disordered, it has a reduced movement allowance. Normally this will be 2/3 of the normal movement allowance, but the actual value is determined by Parameter Data. ****Note:** Disordered infantry can't move adjacent to enemy cavalry in the open (clear or field) if the adjacent hex is empty or only has leaders/skirmishers in it.

5.2.7 Road Movement

Depending on the scenario, there will be roads, paths, and main roads (pikes) on the battlefield. These facilitate movement under certain circumstances. To take advantage of Road Movement, the unit moving must be in Column formation (for Infantry and Cavalry), Limbered (for Artillery). In addition, no more than one non-Leader unit may move through the hex containing the road, path, or main road at one time. If Column of March (CoM) rules are in effect, then units must be in CoM to receive road movement rates. Skirmisher and Squadron units are exempt from this rule due to the smaller size of their formations. For this same reason most Company Level scenarios do not use CoM rules. To verify if a scenario is using CoM, open the Parameter Data dialog (F2) and view the appropriate section. If not in effect all CoM values will be 0. For further information on CoM see section 4.3.12.

5.2.8 Abatis

A hex may contain Abatis. A unit moving into a hex containing Abatis automatically becomes Disordered unless it is using Road Movement. In addition, the unit pays a movement penalty and may suffer a fire modifier when fired upon depending on the value of the Parameter Data.

Note: Abatis/Trenches/Breastworks/Stakes are subject to Line-of-Sight visibility rules.

5.2.9 Trenches

Trenches may be placed in a scenario using the Scenario Editor. A unit moving into a Trench hex from a non-Trench hex automatically becomes Disordered unless it is using Road Movement. A unit pays a movement cost to enter a Trench hex, determined by Parameter Data. While in a Trench hex, a unit receives a fire modifier when fired upon determined by Parameter Data. There is no penalty when moving from one Trench hex to another Trench hex.

5.2.10 Breastworks

Breastworks can be built during game play in scenarios that have a non-zero Breastworks Building Parameter Data value and can also be placed in the Scenario Editor during initial scenario creation. To build Breastworks during game play, an infantry unit must be in Line formation and the hex must not have Archer Stakes on any of its hexsides. Use the "Construct Breastworks" option of the Command Menu. This will invoke the Breastworks Dialog, where you can choose a single hexside from your two forward facing hexsides, to perform the action. If multiple units are in a hex they can attempt to build Breastworks on the same hexsides; each unit will check for its own completion. The unit(s) will have "Breastworks" displayed on its Unit portrait. Selecting "Construct Breastworks" again will toggle the construction off for the selected unit(s). A unit cannot have moved or fired in the current turn if it wishes to perform this operation. Construction is not affected by terrain in the hex. Once begun, if the unit moves it will disrupt the operation, and it must be restarted on the following turn. A unit is also able to fire but does so at -50% effectiveness and the breastwork operation is then halted. Whether or not the construction is completed is determined by the Breastworks Building Parameter Data value and the number of men in the unit building them. Breastworks only apply to a given side of the hex, and they are displayed on-map in both 2D and 3D views. They will show up in the hexside view in the Terrain Info Box. When a unit is fired upon or meleed across that hexside, then a combat modifier applies as given by Parameter Data. This modifier is cumulative with other terrain modifiers. In Melee if one unit attacks across the breastworks and another unit doesn't the breastworks modifier is still applied.

5.2.11 Bridges

Normally movement into Water hexes is prohibited. However, depending on the scenario, Bridges may be present that allow Water hexes to be crossed. In order to move onto a Bridge, the unit must be in Column or Column of March formation and no more than one non-Leader unit may attempt to enter or leave the Bridge hex at one time. Artillery must be in Column of March formation if in effect for that scenario. Movement costs are the same as Paths for each unit type. The rules to cross a Ford are the same as those for a Bridge crossing. Infantry and Cavalry in Column formation will be double the movement costs to cross a bridge, representing the congestion that takes place. For a unit to cross a bridge that has been damaged, the bridge must have a minimum strength value. This minimum strength value depends on the type of unit trying to cross according to the following:

- For leaders and infantry, the bridge must have a minimum strength of 50.
- For cavalry, the bridge must have a minimum strength of 100.
- For artillery and supply wagons, the bridge must be minimum strength of 150. If a bridge is too weak or damaged to support the unit type attempting to cross it the following message will be displayed in the Status Bar, along the bottom edge of the game screen: "Bridge too weak to support movement".

5.2.12 Has Boats

It is possible in some scenarios for units to be flagged as Has Boats. When this occurs, the movement value of the unit is followed with the letter B. When a unit has boats, then it can move into a water hex and move a total of 2 water hexes per turn. Leaders without the Has Boats feature can still move into water hexes if they move with units that have boats and do not leave those units while crossing the water hexes.

5.2.13 Formation Movement

It is possible to move several units at a single time using Formation Movement. There are a variety of ways to do this, so we'll break that down here. The two basic styles are Travel Movement and Attack Movement.

Travel Movement - This entails moving units long distances, along roads or just generally in a long line with the intent of traversing long distances. The units to be moved should all belong to the same organization and should be lined up one hex after another, or in an arrival hex, etc. To execute, single click on the head of the column to select the hex but not the units contained therein. Then right click in an adjacent hex while holding down the Alt key. This will move the first unit in the column towards the destination hex while moving each unit in turn along the same path.

Note: Travel Movement is applied to units based on their organization and that organization is determined by the top unit of those being issued orders. For example, if a unit from a particular Brigade is at the head of the column, then Travel Movement will move all other units of the Brigade in the same hex or in hexes leading from that hex. Likewise, if a higher-level leader is at the top, the Travel Movement will move all units from the leader's organization starting from the first hex. In this way it is possible to easily bring larger organizations on the map as reinforcements and march them towards the battle with minimal effort. You can also use this command on multiple units in a hex, having them all move at the same time, if movement does not take place on a Road. If on a Road, it will use single file in order to take advantage of the reduced Road movement rates if the units are in Column of March. Note: It is worth taking time to manage your supply wagons - they have a slower movement rate normally, so best to not have them mixed into your main force when using this style movement. The same applies to Disordered units. Attack Movement - This is the second type of Formation Movement within the engine, but this style is designed for managing your forces once they are deployed for battle. While there are several differences in how this command is executed by the program, the biggest difference for the player is how the command is issued to your troops. You do this by using the Shift + right-click command. In this style of movement, you are able to move a deployed command all at once. In the example at left an entire brigade is advanced 2 hexes with a single Shift + right-click command. The highlighted unit was selected and then the command was issued. There are several nuances to consider with this command: The formation of the selected units determines what troops will move. If in Line and all adjacent units are in Line then they will all move. Conversely, if in Column and all adjacent units are in Column they will all move. An additional consideration is facing. All units you desire to move need to be facing in the same direction. This command can also be executed on Skirmishers and Cavalry, again, with the same cohesive command limitation. It is also applicable to higher levels, so an entire Division or Corps could be moved in this fashion if the terrain permitted it.

5.2.14 Night Turns

Units which attempt to move in Line, Extended Line or Open Order formation during Night turns automatically become Disordered.

5.2.15 Rear or Flank Movement

Movement to a rear or flank hex for units has some special characteristics:

- A unit in column, column of march or mounted formation automatically changes its orientation while moving.

- When a unit is in block, line, dismounted or extended line formation it keeps its orientation while moving.
- To change the orientation of a unit that is in block, line, dismounted or extended line formation, the player must use the counterclockwise or clockwise or about face buttons of the toolbar (or the corresponding hotkeys).
- A unit in line, dismounted, block or extended line formation must pay a rear movement penalty that can be found in the parameter data.

5.2.16 Overruns

In the event that a Leader, Supply Wagon or combination thereof is left alone in a hex without supporting troops it stands the risk of being overrun. If an enemy Infantry or Cavalry unit enters the hex the Leader will be considered captured and removed from the map. The Supply Wagon will also be captured but remain on the map at 50% of its current strength and now available to the capturing army for its use. Movement points are cut in half for the captured turn.

5.2.17 Routed Units

Routed units retain their full movement point allowance however they may not move towards any enemy unit that is within 5 hexes & in the Line-of-Sight of a friendly unit unless a friendly combat capable unit is in between them. A routed unit is considered in column / mounted formation for movement point calculation purposes. A routed unit may only increase the distance between itself and the nearest enemy unit when behind enemy lines. This check is based on LOS. This will occasionally result in the routed unit not being able to move.

5.2.18 Fixed Units

Certain units may start a scenario as Fixed. Fixed units may fire and may change formation but may not move until they are Released. This can occur in one of several ways:

- Units that are fired upon, or meleed against, are automatically Released.
- Depending on the scenario, there may be Releases of Fixed units built into the scenario which will release the units at specified times.
- If a Fixed unit is spotted by an enemy unit that is 9 hexes away or closer, then it automatically becomes Released.

5.2.19 Skirmishers

Skirmisher units are small detachments you deploy from larger Infantry units, or sometimes they are in the OOB as independent units. Skirmisher units have no facing and can move and fire in any direction. In general, an Infantry unit can deploy only a single Skirmisher unit, representing the light company of the battalion. However, units designated as Light, Guard, or Pioneer can deploy their entire unit into Skirmisher units. Skirmisher units can only be deployed or recalled in the Movement Phase. An Infantry unit must be designated as Can Deploy (or be a Light or Guard unit) to be eligible to deploy a Skirmisher unit. To deploy a Skirmisher unit, select the main Infantry unit and select the Change Skirmisher/Squadron command from the Command Menu. Before a Skirmisher unit can be recalled, it must be stacked in the same hex as its parent Infantry unit. To recall the Skirmisher unit, select it and choose the Change Skirmisher/Squadron command from the Command Menu, Toolbar button or the Ctrl+S hotkey combination.

Skirmisher units pay the same movement costs as Column formed units but are not subject to any of the disorder rules that apply to formed units. Skirmisher units may not move adjacent to hexes containing only cavalry or hexes containing a mix of cavalry, leaders & supply wagons.

Other restrictions apply to Skirmisher units and their deployment or recall:

- A Disordered or Routed unit cannot deploy or recall Skirmishers.
- Irregular and Restricted units cannot deploy Skirmishers.
- Non-Light units which are below the strength required to form a Skirmisher unit with at least 25 men cannot deploy Skirmishers.
- Skirmisher companies may only move 3 hexes away from their parent unit unless they are from Light or Guard units. Independent skirmishers do not have this restriction. If a Skirmisher unit becomes Routed this restriction is removed allowing them to navigate back into their parent Regiment's sphere of influence.
- When recombining with their parent unit, the fatigue of the two units will be dispersed proportionately. o Example: 100 skirmishers (fatigue 200) merging with their 400 strong parent unit (fatigue 50) will result in a 500 strong unit with a fatigue of 80. $((100 \times 200) + (400 \times 50)) / 500$ Formed infantry can push skirmishers during the move phase if the "Push Skirmishers" optional rule is selected and:
 - The attack strength of the units exceeds the skirmish limit (225). This strength is modified to 1/3 if a unit is Disordered.
 - The skirmishers are in clear or field hexes.
 - The skirmishers are not exceeding the skirmish limit. With the following costs and impact:
 - The act of pushing requires triple the normal movement costs.
 - In phased based games the skirmishers will fire once for each push.
 - In turn-based games they will fire according to standard opportunity fire rules.
- If Pushing unit will become Disordered by the push move, then their effective push strength is reduced to 1/3. Note: If a Push is attempted (In phased play) and the pushing unit does not meet the criteria, for example they don't have enough movement points, it will return a message about Melee only being possible in the Melee Phase, displayed in the Status Bar. In the melee phase skirmishers will be pushed instead of fighting using the same rules. The message displayed if a push does occur will be "Skirmishers will evade melee". Push applies to Formed Infantry only. Non charging cavalry is too fast for skirmishers to evade so there will be a combat which will take place in the Melee Phase but: The cavalry will get a +80% strength modifier, and the skirmishers will receive a 66% strength penalty as if they were flank charged. Both modifiers only apply when the skirmishers are in clear or field hexes. These modifiers will be applied regardless of the Push Skirmisher rule being active or not.

5.2.20 Bridge Repair

Pioneer units can be used to repair bridges. When repairing a bridge, the Pioneer unit is shown as Repairing. The Repairing state of a Pioneer unit can be toggled using the Toggle Bridge Repairing option of the Command Menu. (Ctrl+R hotkey) To perform repair functions, a Pioneer unit cannot be Disordered or Routed. At the beginning of each turn, a Pioneer unit restores 1 strength point to the bridge for each 25 men in the unit (A Pioneer unit with less than 25 men cannot repair a bridge). A Pioneer unit cannot repair a bridge so that its strength is above 200, but it can "improve" a bridge, if its initial strength was less than 200. A Pioneer unit that is repairing a bridge cannot recover Fatigue. Firing is at 50% effectiveness while repairing. To repair a bridge, the Pioneer unit must be facing so that the Bridge hex is forward of the unit, either to the left or right as indicated in this graphic. The Bridge hex being repaired cannot be occupied by the enemy but can be occupied by friendly forces.

5.2.21 Threat Values

Any attempt to change formation, by any non-Artillery unit, may fail based on a certain chance computed at the time the change is attempted. Also, if the Movement Threat Disorder optional rule is selected these parameters will apply to standard movement, with some exceptions (noted at the bottom of this section). The probability depends on several factors, one of which is the Threat Value. The Threat Value is a value determined by the presence of enemy forces. The Threat Value is the sum of all individual Threat Values determined by enemy forces within a certain range of the unit attempting the formation change. The Threat Value exerted by an individual unit is based on the unit type as follows:

- The Threat Value exerted by an Infantry unit of strength S is $(2 * S) / 100$ at distance of 1 hex and $S / 100$ at a distance of 2 hexes.
- The Threat Value exerted by an Artillery unit of Strength S is $2 * S$ at distances up to 2 hexes and S at distances up to 4 hexes.
- The Threat Value exerted by a Cavalry unit of strength S is $(3 * S) / 100$ at distances up to 2 hexes, $(2 * S) / 100$ at distances up to 4 hexes, and $S / 100$ at distances up to 6 hexes.
- Limbered Artillery as well as Routed and Disordered units do not exert a Threat Value. Units only exert a Threat Value in hexes they are Facing. The total Threat Value on a given hex can be found by right-clicking in the Hex Info Area. The Threat Value is the second value in the center of the Terrain box (the first being the total stacking value in the hex). In the example displayed here, the Threat Value in the current hex is 7. Supply Wagons are not subject to any Threat impact.

When a non-Artillery unit attempts to change formation, then the Threat Value in its hex is used to determine whether the change succeeds. If the change fails, then the unit becomes Disordered and must perform a second morale check and failing that it becomes Routed. If the unit is already Disordered, the unit becomes Routed. Given a unit with Morale Value of M and a Threat Value in its hex of T , then the probability that a formation change will succeed is given by: $25 * M / (25 * M + T)$ When this probability is not 100%, then its value is displayed in the Unit Box area when you right-click on the Unit Picture. In this example at right, the unit has a probability of a successful formation change under the current conditions of 90%. See the section on Morale for a discussion of Morale Values. When using the Movement Threat Disorder optional rule to following variables apply:

- Charging cavalry is exempt from movement threat checks.
- The fail probability check is halved, so effects will be less frequent from this rule than for the standard formation change check.

The following results apply if a unit fails a check under the Movement Threat Disorder optional rule:

- Unit fails check once and is not disordered -> disordered.
- Unit fails check once and is disordered -> move lost.
- Unit fails check twice -> disordered & move lost.

5.2.22 Optional Line Movement Restriction

This is an Optional Rule that causes infantry units that move in Line or Block formation to have a chance of becoming Disordered. The base probability for this is determined by the Line Movement Disorder Parameter Data value for the nation of the unit moving. This probability is modified by the following:

- If the unit is Quality A, then 10% is subtracted from the probability.
- If the unit is Quality B, then 5% is subtracted from the probability.
- If the unit is Quality D, then 10% is added to the probability.

- If the unit is Quality E, then 20% is added to the probability.
- If the unit is Quality F, then 30% is added to the probability.

5.2.23 Artillery Setup

Certain artillery units require setup after they have moved before they are ready to fire. When such an artillery unit unlimbers, then it will be flagged as "SETTING UP". On subsequent turns, there is a chance that the unit will become setup and thus eligible to fire that turn. For most units, there is a 33% chance it will become setup the first turn following unlimbering. This chance increases to 66% in the second turn and 100% on the third turn. For artillery units with quality A, the first turn chance is 66%.

5.2.24 Artillery Capture

It is possible to capture enemy artillery, either as a result of melee or by overrunning the artillery with charging cavalry. While the captured artillery is stacked in the same hex with a unit of the opposing side, it can be turned and fired in the next turn. The capturing unit must have a strength of ≥ 25 men to operate each captured gun. If the artillery unit requires setting up it may not be used by the capturing army if they turn it. The fire once captured is automatically halved and the battery cannot be moved to another hex. If the artillery unit is abandoned, then the owning side can recrew the battery and use it normally. Captured artillery units count full value towards victory conditions. Note: Mounted Cavalry may only capture Artillery if they have a strength of 25 men or more and they may not fire the captured Artillery. Gun losses are displayed in the Victory Dialog as destroyed / captured. For example, in the image below 4 guns have been captured.

5.2.25 Archer Stakes

(Only available in certain games.) Any stationary archer unit deployed in line formation and labelled as "Has Stakes" can spend a turn (and their entire movement point allowance) attempting to deploy or pick up stakes. Once deployment begins the word "Stakes" will display over the Unit picture. Once deployment completes the stake images will appear on the map. Archer Stakes cover the front two hex-sides of the unit in order to provide adequate protection. In good weather conditions the probability of deploying stakes is 100%, but adverse weather can be modelled by a flag in the weather entry for the scenario PDT file which would prevent stake deployment. Disordered units only have a 50% chance of deploying or picking up stakes. If Opportunity fire is triggered while stake deployment is taking place it will be at 50% effectiveness and the operation is cancelled. If a unit is meleed during the deployment process, then the operation is cancelled as it assumes the units would stop everything to defend itself. Archer Stakes:

- Negate cavalry charge bonuses
- Add movement cost
- Disorder attacks and all movement through them.

5.3 Combat

5.3.1 Cavalry Charges

Cavalry Charges are an effective way to advance your cavalry prior to attacking with them in melee. There are several restrictions on the use of Cavalry Charges and the proper use of Cavalry in this way depends on several factors. See the section on Tactics to understand better how to use this ability to best effect.

5.3.2 How To Conduct A Cavalry Charge

If you choose to charge with your Cavalry, then start by selecting the Cavalry and any Leaders you wish to include in the charge. Using the Change to Charging option of the Command Menu or the corresponding button in the Toolbar (Ctrl+B hotkey). After that, move the units as you would normally, but within the restrictions given below. Your goal is to bring the units adjacent to an enemy position so that you can Melee against this position. It is possible for a cavalry unit to fail a morale check and become disordered instead of successfully initiating a charge. The threat value on the hex along with command status and fatigue level can all contribute to this failure. A unit must move at least 1 full hex for the action to be considered a "charge". The following rules apply to the Cavalry Charge function:

- Only un-Disordered and un-Routed Mounted Cavalry units, and Leaders in the same hex as such Cavalry, can perform a Cavalry Charge.
- Charging Cavalry and accompanying Leaders can move up to their full movement allowance during a Cavalry Charge.
- Charging Cavalry ignores the existence of roads and paths in hexes when calculating movement costs.
- Charging units must move in the direction of their facing and no changes of facing are allowed during a Cavalry Charge.
- Units which cannot otherwise move, such as Fixed units, cannot charge.
- Cavalry which becomes Disordered during their movement can continue charging.
- During a charge, Cavalry can possibly overrun enemy Skirmishers in Clear and Field hexes (see details below). They can also overrun enemy Leaders and Supply Wagons in hexes by themselves.
- At the end of the player's turn, Cavalry units which moved using the Cavalry Charge are automatically Disordered.
- Under the right conditions, Cavalry units which perform a charge are given triple strength value, by default, when melee attacking in the same turn (see Meleeing for details).
- Cavalry units gain 15 fatigue points for every hex moved during a charge. This is in addition to any points gained from ranged fire or melee. This is to reflect the extreme physical and mental exertion upon both horses and riders from a charge.
- Charging units may only continue their charge after the initial melee if the next hex is Clear or Field terrain.

5.3.3 Cavalry Overruns

During a charge, Cavalry can possibly overrun Clear and Field hexes containing only enemy Skirmishers, Leaders, Supply Wagons or Limbered Artillery. When the attempt fails, the Cavalry units are prevented from further movement in that turn (although they can melee attack in the same turn).

- Cavalry will overrun defending Skirmishers whenever their strength is equal to or greater than the strength of the Skirmishers.
- An overrun cannot occur if there is an Obstructed hexside between the Cavalry and the Skirmishers (see the Movement Phase section for a discussion of Obstructed terrain).
- Enemy leaders in hexes by themselves are automatically overrun and considered captured.
- Enemy Supply Wagons by themselves are automatically overrun. They become captured but lose half their strength.
- Limbered Artillery becomes Captured if overrun.

5.3.4 Uncrewed Artillery

If Limbered Artillery is overrun and the charging cavalry pass through the hex, the battery becomes Uncrewed. Additionally, if an Unlimbered Artillery battery is meleed by charging cavalry and the unit departs the hex or is captured by enemy units and those forces leave the hex, the remaining battery becomes uncrewed. In this state, the crew of the Artillery unit is considered to have taken shelter, either under their weapon or with friendly forces. While the Artillery unit is Uncrewed, it cannot be moved or fired. To recrew a battery, Infantry on the same side as the Artillery unit can move into the same or an adjacent hex and remain there. On the following turn the crew is considered to have returned to their guns and the unit can be used normally again.

5.3.5 Defensive Fire

Defensive Fire occurs either during the Defensive Fire Phase or when using Turns, under the control of the computer. This fire is called "Opportunity fire" and is conducted at 50% effectiveness, and it is possible for units to fire multiple times in this manner during a turn, based on the activity within the turn. Defensive fire gives the player a chance to fire on the enemy before being fired upon and being engaged in melee. It therefore represents the ability of the defender to have "first fire". No movement is possible during a Fire phase. Defensive Fire is subject to the normal restrictions of firing including facing. However, it is possible for units with Low Ammo to fire Defensive Fire (see the Design Notes for why this is true in the Defensive Fire Phase and not the Offensive Fire Phase). Units defending in Melee fire at 100% effectiveness. A unit will fire at least once if being meleed when using Turns. Note that you cannot fire from an over stacked hex. This situation may exist at the beginning of a scenario or after a large batch of reinforcements arrive at a single hex. Also note that some weapons are flagged as not being able to conduct defensive fire, and some are "single use", see the PDT file for specifics.

5.3.6 How To Fire

To fire on the enemy, first Select the firing units. As a convenience, you may include Leaders in this selection although they have no effect on fire. Then you right-click on the target hex while holding down the Ctrl (Control) key. Alternatively, you may switch to Fire Mode by using a toolbar button, in which case you simply right-click on the target hex. If there is more than one possible target in the target hex, you will be prompted with the Target Dialog to select your target. If playing in Phases then Fire Mode will be selected automatically during the Defensive & Offensive Fire phases. Another method is termed Auto Fire. You must be in Fire Mode to use this feature. Hold down the alt key and right click in the target hex. A dialog box will appear, listing the name and location of one of your units that is eligible to fire at that hex. If you select OK in the box, that unit will fire. Firing effectiveness depends on the Weapon Type of the firing unit, the range from the firing unit to the target hex, the Fatigue of the firing unit, and the Quality of the firing unit.

Some units will be flagged as "Can move after firing". This allows a unit, such as a mounted horse archer, to close within range, release a volley, then retire a few hexes - movement points permitting.

5.3.7 Facing Restrictions

A unit must be facing the target unit before it can fire. A unit faces one of 6 hex vertices represented by the facings "Up-Right", "Right", "Down-Right", "Down-Left", "Left", and "Up-Left". For each facing there are two frontal hexsides which are adjacent to the hex vertex. The target unit must be within the area determined by these two hexsides. For example, for a unit facing Right, the unshaded region in this picture indicates those hexes the unit is facing. Skirmisher and Tercios (Block) units can fire in any direction.

5.3.8 Formation Restrictions

When more than a single unit exists in a hex then the formation, size and position in the hex become important. It is possible for an infantry unit in Line formation or a unlimbered battery of artillery to "mask" the units behind them - i.e. preventing them to fire or be fired upon (unless the unit is also a Line Infantry unit fired upon by artillery - see 5.3.16 Pass Through Fire). The optional rule Column Pass Through Fire will also play a part if selected. Keep in mind the various other ramifications of mixing troop types and formations within a hex.

- Having infantry in Line and Column or Column of March in the same hex will cause both to Disorder.
- Having a formed infantry unit and cavalry in the same hex will cause both to Disorder.

5.3.9 Stack Firing

Further considerations exist for both the size of a unit and the number of units stacked within a hex. The driving consideration in this is that the game presents a 100-meter hex frontage in which all fire must pass. Naturally, only a certain number of weapons may fire through this space without running the risk of hitting friendly forces. While friendly fire might have occurred during battle, the engine handles things so this situation will not occur within a hex. When a scenario is Company Level the calculations are altered to reflect the 40-meter hex frontage. In this case a Company is considered to have 10 "files" for calculation purposes, as opposed to 10 companies in a battalion. The engine will further handle the calculations for you as to what units can fire based on their positioning within the hex, so you don't have to micromanage this aspect. The base for these calculations is 360-man frontage for 2-rank infantry and 540-man frontage for 3 & 4-rank infantry. In order to communicate to the player what is happening there are a few visual cues. The position in the hex is indicated by the Unit Info Box in the Hex Info Area. The Unit box that is next to the Terrain Info Box is the first unit in the hex, or "On Top", followed by each unit. As noted in the Formation Restrictions section above and the Stacking and Stacking Limits section,

depending on both the size and formation of the top unit other forces within the hex may or may not be able to fire. The formation of a unit is displayed on the front of the Unit Info card, with the sample above being in Line formation. If you right-click on this card, then further information is displayed relative to this section. The field "Front" displays the percentage of the 100-meter hex frontage that the unit occupies. When multiple units are in a hex then it is assumed that a 5-meter buffer exists between the units deployed there. The top unit will occupy enough of the hex frontage to bring its full fire potential into effect. Any other unit within the hex will be constrained to the remaining frontage leftover in order to fire. A unit must be able to have one Company (or 1 artillery piece) of its force able to fire to be considered. This value varies by nationality, formation and current strength. Otherwise, it is considered Masked and will be labelled as such. If a Company is 2-rank, then it will fire with all men from those companies on the Front (3-rank fire is reduced by 25% and 4-rank fire is reduced by 50%). This will result in a varying number of men being able to fire when in shortened formation. Example: A 360 man 2-rank battalion will fire with all men as all 10 companies will fit into the 100meter frontage due to the PDT value and both ranks can fire. A 720 man 2-rank battalion in shortened line will fire with the same number of men as now 5 companies occupy the width of 100 meters but are at double strength. Therefore, it fires at 50% of its effectiveness. If it extends then 5 companies will be in each hex and all men will be able to fire. Skirmishers below the 1/8 stacking threshold are considered deployed out in front of the lines and do not count against stack fire limitations. This value is determined by the PDT values. At least two companies from a battalion must be able to fit within the frontage of a hex for it to be considered able to conduct any fire combat. When it does a "Front: xx%" value is displayed. If you select a unit that is not able to fire an error message will be displayed in the Status Bar. The above criteria apply to targeting from the front as well - if a unit can shoot, it can be shot at. Additionally, Cavalry, Supply Wagons and Limbered Artillery may be targeted if not on top of stack and $\leq 66\%$ of the frontage is occupied by combat units. Note: Units in Open Order will have their frontage increased 2X to account for their loose spacing.

5.3.10 Column Firing

Columns are considered to have a 2-company frontage. The resulting fire from a Column is scaled down further based on the number of ranks (3-rank fire is reduced by 25% and 4-rank fire is reduced

by 50%). Additionally, the Column Fire Modifier PDT values are applied to the resulting fire value. A PDT value of 5 means the column will have the same effectiveness as a 2-company line. PDT values > 5 will reduce the column effectiveness. Note: A Column of March is considered to have a 4-6man frontage and so fire should only be conducted in the direst of situations.

5.3.11 Range and Line of Sight Limitations

A target unit must be within range before it can be fired upon. If you right click on a unit's picture in the Unit List display, it will show you the range of that unit. In addition, unless the firing unit is capable of Indirect Fire (see below), the target unit must be within the Line of Sight of the firing unit. The Visible Hexes option of the Display menu can be used to determine the hexes that are visible from the current Hot Spot. There is also a Toolbar icon for Visible hexes as well as the V hotkey. Note: Under FOW and with the Strict Line of Sight optional rule selected visible hexes can only be displayed from hexes with your units occupying them.

5.3.12 Indirect Fire

When you right click on a unit in the Hex Info Area, you may see the notation (I) following the unit's range. This indicates that the unit is capable of Indirect Fire. A unit capable of indirect fire can fire on any hex within its range that it is facing regardless of line-of-sight limitations. However, when an attempt is made to fire on a hex using Indirect Fire, the target hex may scatter as much as 2 hexes away from the intended location. Non-artillery units will not have their fire scattered.

5.3.13 Firing Modifiers

The following modifiers are applied to the firing unit.

- A unit has 20% is added to its fire value if it has a Quality of A or higher, and 20% is subtracted from its fire value if it has a Quality of E or lower.
- Disordered units fire at half effectiveness.
- Infantry in Block formation fires at 25% effectiveness.
- Fire from Infantry in Column formation is scaled by the Column Fire Modifier Parameter Data value for that nationality.
- Fire from Infantry in Column of March formation is scaled by the Column of March Fire Modifier Parameter Data value for that nationality.
- Skirmisher units fire at 75% effectiveness.
- Artillery fire values are based on the number of guns times 50 in addition to the normal fire value modifiers.
- Fatigue modifiers apply as described in the section on Fatigue.
- Fire from a unit that has moved is conducted at 50% effectiveness. However, if the unit has the "Can Fire and Move" flag it only receives a 25% reduction in effectiveness.
- Units conducting Breastwork construction that fire do so at 50% effectiveness and the construction process is halted. It must be manually re-started in a subsequent turn. If Opportunity Fire or Defensive Fire is triggered, construction will also stop, but the Defensive Fire will be at normal effectiveness.

- If a Mounted unit is equipped with a weapon having the ^ flag, which allows firing while mounted, then that fire is conducted at 50% effectiveness.

5.3.14 Target Fire Modifiers

The following modifiers are applied to the target of ranged fire.

- Target units which have not moved during their turn get a defensive benefit from certain hexsides. The actual benefit is determined by Parameter Data and can be found by using the Parameter Data option of the Help menu.
- Target units may get a defensive benefit from the terrain of the hex they are in. The benefit is shown in the Terrain Info box of the Unit List. However, only Skirmisher units get a defensive benefit from Building or Rough terrain. Artillery in forests/villages will not benefit from a defensive hex bonus versus ranged attacks if the attack is directed through a clear hex side. The combined total modifier for a hex may not exceed -90%.
- The target unit receives a defensive benefit when it is at a higher elevation than the firing unit. This benefit is normal for a single elevation change and is doubled for any elevation change of 2 increments or more. The value is "capped" at this doubled value. I.e. it will not increase if there is say 5 levels of difference in the height. The actual value of this benefit can be found in the Parameter Data.
- A unit in Line formation that is fired upon by a non-skirmisher firing unit that it is not facing, is subject to an Enfilade fire modifier. The value of this modifier is in the Parameter Data.
- Fire values against Supply Wagons are doubled.
- Artillery fire against Infantry in Column or Block formation is increased by 50%. Infantry fire against Infantry in Column or Block formation is increased by 25%.
- Fire against a Cavalry unit may be modified by the Cavalry Fire Modifier Parameter Data value and is scenario scale dependent. The modifier is applied normally to fire at ranges of 6 hexes or less (15 for Company Scale). At ranges of 7 to 12 hexes, half of the modifier is applied (30 for Company scale). The modifier is not applied at ranges of 13 hexes or more (31 for Company Scale).
- Fire against Limbered Artillery is increased 50%.
- When the target unit is a Skirmisher unit and the total stacking in the hex does not exceed 1/8 maximum stacking, then the fire value is 25% of normal. If stacking does exceed the 1/8 maximum then the word "skirmish" on the unit will be in yellow text to denote the loss of this benefit.
- When the stacking in the target hex exceeds 2/3 of the maximum as defined by the Parameter Data value and the Target Density Modifier Optional Rule is in effect, then the fire value is modified by X/Y where X represents the stacking value in the target hex and Y is 2/3 of the maximum stacking value as defined by the Parameter Data value.
- When the target unit is in Abatis, behind Breastworks, or in a Trench Hex, a modifier determined by Parameter Data is applied.
- Fire against units in Open Order is reduced by 20%.

5.3.15 Skirmisher Modifier

Normally units in one hex block Line of Sight and thus it is not possible to fire through one hex of units to reach another behind it. However, when a hex only contains Skirmishers (or Leaders) then it is possible to fire through that hex and hit another hex of units behind it. When this is done, 20%

is subtracted from the fire value representing the reduced visibility caused by the Skirmishers and their fire. The $\leq 1/8$ stacking limit applies to this also. Note: Depending on the terrain elevations, it may be possible to

fire over other units regardless of whether they are Skirmishers or other units. This occurs when the intermediate units are at a lower elevation than the Line of Sight between the firing and target units. In this case, no modifier applies.

5.3.16 Fire Casualties

Fire casualties are calculated using the standard Combat Results based on the effective fire value of the firing unit with a Low Combat Value of 4 and a High Combat Value of 20. Fire results against an artillery target are calculated using the Artillery Fire Parameter Data value. This value is used to convert the nominal fire result in terms of men into a fire result in terms of guns. For example, given an Artillery Fire value of 50, if the fire result against a battery is 5 men, then 10% of the time, this will be converted into a loss of 1 gun and 90% of the time, it will be converted into a loss of 0 guns. Example: Suppose an Infantry Unit of 340 men equipped with Muskets fires at an enemy infantry unit 1 hex away. The standard range effectiveness of a Musket at range 1 is 6. Thus the standard fire value for the unit would be 2040 ($=340 \times 6$). The low end combat result would be 8.16 ($= 4 * 2040 / 1000$) and the high end combat result would be 40.8 ($= 20 * 2040 / 1000$). The actual combat result would be randomly determined between these two extremes. Randomly based on the fractional part of the actual combat result, the combat result is truncated up or down. This if the actual combat result was calculated to be 23.4, then this would determine a combat loss of 23 men 60% of the time and a loss of 24 men 40% of the time.

5.3.17 Pass Through Fire

Normally fire against a stack of units in a hex only affects a single target unit. However, when Infantry in Line formation is fired upon by Artillery, all such units in the target hex are affected by the fire. This represents the ability of artillery fire to penetrate several lines of infantry. When the Column Pass Through Fire Optional Rule is in effect, this rule also applies to Infantry in Column, Column of March and Block formations.

5.3.18 Hard and Soft Fire Values

Each weapon is rated according to hard and soft fire values at various ranges. When the weapon is used to fire against targets without Armor, then the soft fire value is used. When the weapon is used to fire against targets with Armor, or against bridges, then the hard fire value is used.

5.3.19 Armor Modifier

Units with a nonzero Armor value have a reduction in casualties from fire. For a unit with an Armor value of v , their casualties as a result of fire are reduced by $v * 10\%$. Thus, a unit with an Armor value of 2 has a 20% reduction in fire casualties.

5.3.20 Bridge Damage

A Bridge that is not occupied can be fired upon by Artillery and meleed against by Infantry and Cavalry. The purpose of this is to provide a means for destroying bridges in the game. The combat results from melees are only applied to the Bridge and not the attacking forces. When the strength of the Bridge is reduced below certain values, then the Bridge cannot be crossed. See the section on Movement for more information about crossing bridges and bridge repair. Note: When in Turn mode, to melee a bridge you must do the following. Select the bridge hex and then click the "Begin Melee" button. A box will pop up saying no attacking units have been selected. Click ok, then select the unit you want to melee with and either drag & drop it on the bridge or go to the Melee menu and select "Add to melee". You can then resolve the melee and do damage to the bridge.

5.3.21 Offensive Fire

The purpose of the Offensive Fire is to allow units to fire after movement. All fire modifiers and restrictions described in the section on Defensive Fire apply to the Offensive Fire as well.

5.3.22 Offensive Fire Modifiers and Effects

- Units which fire after movement do so at half effectiveness.
- Units which are Low On Ammo cannot fire using Offensive Fire.
- Units which do not fire using Offensive Fire receive a 20% bonus to the melee strength if they attack in the same turn (see the Design Notes for an explanation).

5.3.23 Meleeing

After possible movement and firing, the controlling player may initiate melee attacks against enemy units in adjacent hexes. In order for a unit to be committed to a melee attack, they must be facing the defending hex.

5.3.24 How To Melee

You commit your units to a Melee by attempting to move them into a hex containing enemy units. You can take units from multiple locations and add them to the same melee as long as they are all adjacent to the defending hex and do not exceed the maximum stacking allowance. To add a unit to a melee select it then drag-and-drop it on the desired target hex.

If you exceed the stacking limits you will be notified and then units will not be added to the melee. Once you have added all of your attacking units, you resolve the Melee using the Resolve Melee command of the Melee Menu, or the corresponding toolbar button or the Ctrl+P hotkey. Certain restrictions apply to units that are committed to a Melee attack.

- Fixed, Routed and Detached (when the No Detached Melee optional rule is selected) units cannot Melee attack.
- Units must be Facing the hex they are attacking.
- Infantry units cannot Melee attack mounted Cavalry, except when Cavalry are in Obstructed terrain (and the Infantry in Column) or if the Infantry unit is in Block formation (see further note below). (An exception to this is in the event Cavalry are stacked with a formed infantry unit in any terrain, then the Cavalry are susceptible to melee as they are Disordered/Disorganized.)
- Artillery and Supply Wagons cannot Melee attack.
- A unit cannot Melee attack a hex they could not legally move into (it is not possible to Melee attack across an unfrozen Creek hexside for example).
- Except for Cavalry when charging, units may only Melee attack once in each Melee Phase or Turn.
- The total number and strength of the attacking units may not exceed the stacking limitations of the defending hex.
- A unit must have at least 10 men in order to initiate a melee. Note: A unit becomes detached when it is outside of its Brigade / Regimental commanders (immediate, lowest level commander, depending on the army) command radius at the beginning of a turn. If this is resolved during your turn the check at the beginning of your next turn will resolve the Detached status. If playing with On Map Results on, and with FOW on a Melee Outcome prediction will display. If expected losses are within 50% of each other it displays "Advantage defender". If reverse it will note for the attacker. Units of different nations yet allied on the same side may not melee together. Block formation may conduct a melee against mounted cavalry to displace the cavalry. No losses are inflicted on either side to reflect the unwillingness of the cavalry to

engage in melee combat with the block and the slowness of the block formation not being able to rapidly pursue the cavalry. Multiple melees are possible against a unit if the optional rule is selected, either for Infantry or Cavalry, or both. See the Main Program Help File under "Optional Rules" for more details.

5.3.25 Melee Modifiers

Melees are calculated using total number of men of the attacking side and the total number of men of the defending. Modifiers may be applied to the calculation of the participating men.

- Each defending Artillery gun has a melee strength per gun given by the Artillery Melee value in the Parameter Data.
- Isolated units have their defending strength divided by 2.
- Routed units have their defending strength divided by 3. However, units which are both Routed and Isolated defend with a strength of 0.
- Supply Wagons defend against melee with a strength of 0. Modifiers are applied to the melee strengths.
- If no attacking units have fired in that player's turn, then 20% is added to the attacking strength.
- If there are defending units that have not fired in the current turn, but the units are able to fire on the attacking units and the defender's strength is \geq the attacker's strength, then 20% is subtracted from the attacking strength. However, if the defender strength is only \geq half the attacker strength then only 10% is subtracted.
- If the attacking units have a Leader with them, then 20% is added to the attacking strength.
- If the defending units have a Leader with them, then 20% is added to the defending strength.
- If all the defending units are attacked (by a non-Leader and non-skirmisher) from a hexside they are not facing, then 40% is added to the attacking strength.
- The largest hexside modifier (most significant impact) of all the hexsides the attackers are attacking through is applied to the attacking strength.
- Melee attacks against higher elevations have a modifier equal to the elevation change (in elevation increments) times the Elevation Modifier (see the Parameter Data Dialog for this value).
- Fatigue modifiers apply as described in the section on Fatigue.
- When the defending units are in a Chateau hex, the attacking strength is reduced by 50%. However, if the Melee Terrain Modifiers optional rule is in effect, then that value is used and the default 50% value is ignored.
- Any attacking unit which is Disordered, or that is attacking over a hexside or into a hex that would cause Disorder, has its attacking strength reduced to 1/3 of normal.
- Any defending unit which is Disordered, or that is defending in a hex that would cause Disorder, has its defending strength reduced to 2/3 of normal.
- When units are carrying weapons that have no bayonets, as indicated in the Parameter Dialog for that weapon, then their melee strength is reduced to 1/3 of normal.
- Infantry not in Block which is Charged by Cavalry on the flank or rear will defend at 50% strength.
- If a unit has a non-zero Melee value of m , then $m*10\%$ is added to its melee strength.
- If the "Melee Terrain Modifier" optional rule is On, the terrain modifier of the defender's hex applies to the melee results.
- Routed units cannot overrun enemy skirmishers in a chateau hex.

- A unit has 20% added to its strength if it has a Quality of A or higher, and 20% is subtracted from its strength if it has a Quality of E or lower.
- If the optional rule "No Melee eliminations" is On, a defender that has no valid retreat path is not eliminated immediately, but rather several turns may be needed to complete the elimination. Note: The "Partial Retreats" optional rule should not be used in conjunction with NME.
- Each nation has a Column Melee Modifier value which is applied to the total strength when a unit is participating in Melee in Column formation. This is defined in the Parameter Data.
- Each nation has a Column of March Melee Modifier value which is applied to the total strength when a unit is participating in Melee in Column of March formation. This is defined in the Parameter Data.
- Units in Open Order formation will defend in Melee at -20% effectiveness.
- Non-Charging Cavalry attacking Skirmishers in clear or field terrain receive a +80% modifier, while the skirmishers receive a -66% strength penalty as if they were flank charged.

5.3.26 Cavalry Charge Rules

Certain melees are considered to be Cavalry Charges. When this occurs, the attacking strength of eligible Cavalry is increased by a factor which is by default 3 but will vary from game to game. The specific factor used is determined by Parameter Data. For a successful Cavalry Charge to occur, the following rules must hold:

- The attacking Cavalry units must have moved at least 1 hex using the Cavalry Charge procedure prior to the melee.
- The melee attack must not be into Obstructed terrain or across Obstructed hexsides.
- The defending units must not consist entirely of Infantry in Block formation with Leaders. (If only Skirmishers, Artillery, and Supply Wagons occupy the defending hex with Infantry in Block, then the charge is negated.)
- The defending units must not consist entirely of Skirmishers and Leaders in a Building hex. (Units would be shielded by the building.)
- The defending units must not consist entirely of Mounted Cavalry and Leaders. A melee may occur, but no 3x bonus to the attackers is applied.
- In the case of Irregular Cavalry units, the defending units must contain at least one Skirmisher unit, Routed unit, or Artillery unit. (It would not be common for Irregular units to charge normal good order Infantry or Cavalry.)
- When a defending unit is Charged in flank or rear their strength is reduced by 66%. So, once disordered they defend at 2/3 strength, and then receive a further 66% reduction if attacked in the flank or rear.

5.3.27 Special Cavalry Rules

The following rules apply just to Cavalry engaged in melees. These rules are in addition to the Cavalry Charge Rules.

- Cavalry cannot melee attack into Chateau hexes.
- Cavalry cannot melee attack Skirmishers within Village hexes if the Skirmisher strength is $<$ or $= 1/8$ max stacking strength as defined by the PDT file.
- When Cavalry equipped with Lances defends in melee, their strength is reduced by 25%.
- When Heavy Cavalry melee attacks, their strength is increased by 25%.

5.3.28 Cavalry Melee Continuation

When Charging Cavalry units win a Melee, they have the opportunity to continue moving and meleeing for a total of 3 additional hexes, by default. The maximum number of times that Charging Cavalry can melee is determined by Parameter Data. During this time they can move into empty hexes that they are facing and they can melee additional enemy units, including those that have already participated in a melee that turn (if the Multiple Cavalry Melee's optional rule is selected). Units that have received this bonus have the words Can Continue shown in their unit box. Charging units may only continue their charge after the initial melee if the next hex is Clear or Field terrain.

5.3.29 Melee Resolution

The final resolution of the melee is done using the standard Combat Results. The adjusted defending strength is used to calculate attacker casualties using a Low Combat Value of 40 and a High Combat Value of 160. The adjusted attacking strength is used to calculate defender casualties using a Low Combat Value of 20 and a High Combat Value of 100. The default melee resolution is that the loser is the side with the greater calculated casualties (defenders win ties). Note: these calculated casualties may be different from the casualties reported to the player. This difference is based on how the calculated casualties are apportioned to the units involved in the melee. In general, the actual losses that the player sees as a result of the melee will be related to the casualties calculated internal to the main program but will not be exactly the same. In some cases the player will see a defender retreat when the attacker takes higher actual losses. The retreat determination is then modified by several factors:

- Cavalry that is charging infantry in blocks can only win the melee if they do not suffer casualties.
- Defenders in a Chateaux hex are not subject to retreating from a melee.
- If the defenders in a melee do not lose the melee, then they cannot suffer more casualties than the strength of the attacking force. This rule is necessary because the calculated number of attacking losses can exceed the strength of the attacking force.
- If the attacking force is eliminated by the melee, it cannot win the melee.
- Defenders are allowed to retreat into a hex containing only enemy leaders, skirmishers, and/or supply wagons if that is the only hex available for retreat. When this happens, the enemy units in that hex are eliminated. The Optional "No Retreat Overruns" rule prevents enemy skirmishers from being overrun but allows overruns of enemy leaders and supply wagons. Melee fatigue losses are 50% more than normal and, in the case of the melee loser, fatigue losses are double. The melee defender is subject to normal Morale Checks based on their losses and must automatically take a Morale Check at the end of the Phase or Turn if they lose the melee. All units will automatically become disordered at the end of a melee except when the defending units consist entirely of skirmishers (below the 1/8 stacking limit), Supply Wagons and/or Leaders. Example: Suppose an infantry unit of 450 men melee attacks an enemy infantry unit of 230 men. Two combat results are determined. The attackers would determine a low-end casualty value of 9 ($= 20 * 450 / 1000$) and a high-end casualty value of 45 ($= 100 * 450 / 1000$). The

casualty loss of the defenders would be randomly determined between these two extremes. Likewise, the defenders would determine a low-end casualty value of 9.2 ($= 40 * 230 / 1000$) and a high-end casualty value of 36.8 ($= 160 * 230 / 1000$). The casualty loss of the attackers would be randomly determined between these two extremes.

5.3.30 Armor Modifier

Units which have a nonzero Armor value have their casualties reduced in Melee. Given an Armor value of v , the unit will have their casualties reduced $v * 10\%$. For example, a unit with an Armor value of 2 will have a 20% reduction in casualties in melee.

5.3.31 Special Skirmisher Resolution

When Skirmishers are defending in melee against non-Skirmisher attackers, they take losses which are 1/5 of the normal value and will always retreat if their unmodified losses (before the reduction) are greater or equal than the attackers' losses divided by 5. If their attackers also consist of Skirmishers, then the attackers take 1/5 normal losses, but the retreat resolution is calculated normally. These special Skirmisher rules only apply when there is no more than 1/8 of the maximum stacking limit in the defending hex, or respectively in the total number of attackers. If staking does exceed the 1/8 maximum, then the word "skirmish" on the unit will be in yellow text to denote the loss of this benefit.

5.3.32 Bridge Damage

A Bridge that is not occupied can be fired upon by Artillery and meleed against by Infantry and Cavalry. The purpose of this is to provide a means for destroying bridges in the game. The combat results from melees are only applied to the Bridge and not the attacking forces. When the strength of the Bridge is reduced to 0, then the Bridge cannot be crossed. To melee a Bridge hex, first select it, then pull down the Melee menu and select Begin Melee. Then select the attacking units and pull down the Melee menu and select Add to Melee. Resolve the melee using the normal procedure - either via the Melee menu or the Resolve Melee button on the toolbar (Ctrl+P hotkey). It is possible to repair Bridges in the game using Pioneers and strength values do apply to different troop types (see the Movement section under Bridge Repair).

5.3.33 Artillery Ammunition

Normally Artillery ammunition is provided in a scenario based on the number of batteries in the scenario for each nation. In the Terrain Info box, the amount of Artillery ammunition is displayed for the nation occupying the selected hex. With FOW in effect, you will not be able to see the ammo for the opposing side. As each artillery piece fires, this amount is reduced for that nation by the number of weapons in the battery. During opportunity fire, the value will decrease by one per weapon only half the time on average, however. If the Artillery Ammunition value for a nation reaches zero, no artillery fire will be available for that nation for the remainder of the scenario, unless new artillery units arrive in the form of reinforcements. When an Artillery unit arrives as a reinforcement then the ammo value will increase for the respective nation representing the ammo that arrives with each weapon, this number is set in the Parameter Data.

When an Artillery unit is captured, the capturing nation gains the amount of ammunition proportional to the number of guns in the captured unit, while the previous owner loses the same amount. This ammunition is never restored to the original owner, even if they manage to re-capture the artillery unit. Note: Supply Wagons have no effect on Artillery ammunition and are only used to provide small arms resupply to infantry and cavalry.

5.3.34 Combat Results

A common combat results calculation is used for both fire and melee results. The combat results calculation is based on four parameters: a combat value, a modifier, a Low Combat Value (LCV) and a High Combat Value (HCV). For fire combat, the combat value is the adjusted fire value of the firing units. For melee combat, the combat value is the adjusted strength of the opposing side. The given modifiers are applied to the given combat value to arrive at the effective combat value. The Low Combat Value and High Combat Value are the extreme possible casualties resulting from a base-line combat value of 1000. The effective combat value is used to scale these accordingly resulting in low and high possible casualties. Finally, a random value is selected between the low and high casualty values to arrive at the final combat result. Example: given a combat value of 400, a modifier of 25%, a Low Combat Value of 5 and a High Combat Value of 25, the effective combat value would be 500 (= 400 + 25%). This would be 1/2 of the base-line combat value of 1000. Thus, the low casualty value would be 2.5 (= 5 / 2) and the high casualty value would be 12.5 (= 25 / 2). The resulting casualty value would be randomly generated between 2.5 and 12.5 for this combat. Finally, based on the fractional part of the casualty value, it is randomly rounded up or down. For example, if the casualty value was calculated to be 3.7, then 30% of the time this is rounded down to 3 and 70% of the time is rounded up to 4. Artillery losses resulting from enemy artillery and infantry fire is calculated on the basis of 1 gun equal to the Artillery Fire Parameter Data value. Combat losses less than this value result in a probability of a 1-gun loss proportional to the value. Thus, a combat loss of 5 men applied to an artillery unit would result in a probability of $5/50 = 10\%$ that a 1-gun loss would occur, assuming an Artillery Fire value of 50. Fatigue results are calculated as random values between 2 and 3 times the casualty value. When Morale Checks are applicable, they are determined based on a probability using the given loss as: $\text{loss} / (\text{loss} + \text{base})$ where $\text{base} = \text{strength-of-unit} / 10$ but limited to be no lower than 25. Thus, a unit of 250 men that takes a loss of 25 men has a 50% chance of requiring a morale check and a unit of 1000 men that takes a loss of 25 men has an 20% chance of requiring a morale check.

When the optional rule Alternative Calculation of combat results is chosen for fire or melee results (see the Main Program section), then the resulting casualty value is based on the average of two default casualty calculations. This produces values which are more likely to be in the midrange of the casualty interval rather than uniformly distributed.

5.3.35 Move, Fire, Move

Some units may be flagged in the OOB file as being able to move, conduct fire, and then move with the balance of their Movement point allowance for that turn. These units will display "Can Fire and Move" label and fire conducted in this fashion incurs a 25% reduction in effectiveness. This feature is introduced to replicate tactics such as the caracole tactic or many nations use of hit and run tactics by Horse Archers.

5.4 Force Management

5.4.1 Command

Command refers to the influence leaders have over the state of the forces under their command. Good use of Command will result in units being better able to move and fight, while Command failures will result in reduced capabilities. Each Leader is assigned a default Command Rating ranging from A (best) to F (worst). This rating can be affected in a positive way by the Leader's commander (if he has one) provided the Leader is not Detached. At the beginning of each player's Movement Phase, a Command Test is performed for all leaders currently on the map. The Command Test begins with the highest commanding leaders on the map and proceeds downward through the command hierarchy. Each Leader's Command rating is translated into a number by converting A to 6, B to 5, and so on down to F to 1. This number is compared to a random die roll from 1 to 6. If the Leader's number is greater than or equal to the die roll, the Leader has passed the Command Test for that turn. A Leader that has failed his Command Test will have his Command rating displayed in Yellow in the Hex Info Area. A Leader which passes his Command Test will pass a +1 Command Bonus modifier down to the Command ratings of his subordinate commanders (except to Detached Brigade Leaders). If a Leader receives a Command Bonus from his superior and passes his Command Test, his Command rating will be recorded as the higher number for that turn. For example, a Division leader with a nominal Command rating of C which receives a +1 Command Bonus from his superior and passes his Command Test, will have a Command rating for that turn of B. In addition, a Leader which passes his Command Test will pass a Command Bonus down to his subordinates which is one more than the Command Bonus he received. A Leader which fails his Command Test passes no Command Bonus to his subordinates regardless of any Command Bonus he had received. Example: Suppose the command hierarchy at a battle consisted of

- Army commander: Leader 1. Command Rating of A (=6).
- Wing commander: Leader 2. Command Rating of C (=4).
- Division commander: Leader 3. Command Rating of D (=3).
- Brigade commander: Leader 4. Command Rating of E (=2).

The Command Test begins with Leader 1 whose number for the Command Test is 6. Thus, under normal circumstances, Leader 1 passes his Command Test this turn. Leader 1 passes a Command Bonus of 1 to Leader 2 which gives Leader 2 a number of 5 (= 4 + 1) for his Command Test. Suppose that the die roll is 4 and thus Leader 2 passes his Command Test giving him a Command Rating of B for this turn. Leader 2 passes a Command Bonus of 2 to Leader 3 which gives Leader 3 a number of 5 for this turn. If the die roll is 5 or less, then Leader 3 will pass his Command Test this turn and will pass a Command Bonus of 3 to Leader 4 which gives Leader 4 a number of 5 (= 2 + 3) for his Command Test. Suppose that the die roll is 6 and thus Leader 4 fails his Command Test and keeps his nominal Command Rating of E for this turn. Note: You can view the results of this series of command checks each turn by looking at your various leaders in the Hex Info Area. You must right-click on the Hex Info Area to toggle to the alternate display. In the example to the left we want to look at two things. Col. Lewenhaupt has received a command bonus from his superior officer as he now has a B rating, but his base rating is an D, shown in []. If he failed his command test his rating would be in yellow. This should not be confused with the yellow writing for Torstensson, which designates Col. Lewenhaupt as a sub-commander for the Torstensson Brigade. What this means is, he is only included for two purposes - to provide a replacement chain in the event the primary commander is taken out of action - so a Col. Anonymous is not installed, and for historical flavor/accuracy. These sub-commanders can only assist a unit in melee if stacked with them, they perform no other function as far as the game is concerned. Note: A leader that has failed his command check will have his command level letter displayed in yellow on the front of his unit card - for this example - B (for Brigade).

5.4.2 Command Range

Command Range refers to how far an officer can be from his subordinate commands and still assist them. This range can be displayed on the game map for any primary leader. Select the leader and then press "C", which is the hot key to activate this. Or go to the View menu and choose Command Range, or the button on the Toolbar. Each level of command has an assigned range to which the officer's influence will be projected. This is defined by army and command level in the Parameter Data Table. Note: Sub-commanders, mentioned above, do not have a command range, so when they are selected no hexes will be shaded.

Command range is not affected by ZOC or enemy units, if a unit is inside the Command Range of its leader it is not Detached even if it is Isolated. There are two exceptions to the displayed Parameter Data Command Range. The game uses the OOB definition of a unit to determine the range an officer must be in, in relation to the next higher command level. So, an officer who commands a unit designated a brigade (B) in the OOB File and is assigned directly to a Corps or Army commander would have to remain within Division Commander range of that officer to be in command range. Likewise, a Division attached directly to the Army commander would have to be within Corps command range. However, an individual unit that is attached to a command uses the Parameter Data command range as its effective range.

5.4.3 Unit Conditions

During the course of a game the condition of a unit will change. These states and their effect are described throughout this manual and the impact can vary widely. Some of these conditions are: Increased fatigue, different morale levels, Disorder and Rout. Fatigue is described in detail in section 5.4.11 and Morale is covered in 5.4.8. When a unit becomes Disordered the word is placed in red text over the unit portrait, as pictured to the left. A Disordered unit has its movement allowance reduced to 2/3 (controlled by Parameter Data, so may vary). Its attack strength is reduced to 1/3 and defending strength to 2/3. The unit will also receive a -1 for morale check purposes. The following situations will cause a unit to become disordered:

- Whenever cavalry and infantry (except skirmishers) exists in the same hex both will become disordered.
- Whenever an infantry column and an infantry line exist in the same hex both will become disordered.
- Whenever skirmishers and cavalry occupy the same hex, the skirmishers automatically become disordered; however the cavalry only becomes disordered if the number of skirmishers exceeds 1/8 max stacking value.
- Units moving in Line formation at Night automatically become disordered. When a unit becomes Routed the word is placed in red text over their unit portrait, as pictured at left. A routed unit may not initiate a melee. It has a morale of zero for morale check purposes. Routed units are considered in Column formation for movement calculation purposes and for determining modifiers when being attacked. Cavalry and limbered artillery do not change Formation when they rout, but their 2D icon still changes to the standard "running man" icon in 3D views to make them stand out better on the map highlighting their current condition. A routed unit may only move towards an enemy unit within LOS if a friendly combat capable unit is nearer.

Leaders and supply wagons never become disordered or routed. A routed unit will become disordered when it rallies. If a routed unit suffers another Routed result, it loses strength (as determined by a die roll made by the program); such units are termed "lost stragglers" in the Command Report that appears at the start of the next player turn.

5.4.4 Detached Units

A unit is considered detached when it is outside the command radius of its immediate superior officer, normally a Brigade commander. The Leader's detached status is irrelevant for determining this, thus allowing brigades to be assigned to guard remote locations away from the main army, but still be a fully functional command. Also, when the No Detached Melee optional rule is in effect then a Detached unit cannot take control of an Objective hex. Detached status is removed at the beginning of the following turn by having the unit within the Command Radius of its Brigade Leader. Some exceptions pertaining to a unit being labeled as Detached:

- If stacked with or adjacent to the units Divisional Commander, then the Detached state will be removed on the following turn.
- If stacked with or adjacent to an Army, Wing or Corps commander from their army, then the Detached state will be removed on the following turn.
- For Company Level scenarios the range for the above two conditions is 3 hexes.

5.4.5 Recovery From Disorder

After all Leaders have been through the Command Test, they are used to determine if Disordered units become un-Disordered that turn. A Detached unit is given a value of 1 for the Test for Disorder Recovery. A non-Detached unit whose Leader has passed his Command Test is given a value of 1 plus the current numerical Command Rating of his commander. A non-Detached unit whose Leader has failed his Command Test is given a value of 1. If a random die roll is less than or equal to this value, then the unit becomes un-Disordered. A unit that becomes Disordered due to movement will return to good order automatically at the beginning of the following turn.

5.4.6 Skirmisher Rule

In addition to the normal test, Disordered Skirmisher units of non-Light, non-Guard units are only eligible to recover from Disorder if they are within 3 hexes of their parent unit.

5.4.7 Night Turns

During Night turns, all Leaders and units have a Command value one less than normal. Thus, a Leader with a Command Rating of A would have a numerical rating of 5 during Night turns and a Detached unit would have a value of 0 in the Test for Disorder Recovery (and thus be unable to become un-Disordered). As an additional deterrent to pressing the armies too hard, players can choose to use the Night Movement Fatigue optional rule, which will add 50 points of fatigue to each unit that performs any action during a night turn.

5.4.8 Morale

Morale refers to the mental state of the fighting units and the effect leaders have on restoring that state in the forces under their command. Units with good Morale and with inspiring leaders will fight better than units with low Morale or uninspiring leaders. Often a smaller force can overwhelm a larger one if it has superior Morale.

Each unit is assigned a Quality value ranging from A+ (best) to F (worst). This Quality value is the basis for determining the unit's current Morale. Each Leader is assigned a Leadership value ranging from A (best) to F (worst). This Leadership value determines the extent the leader will be able to affect the Morale of the units under his command. When a unit suffers casualties due to combat, it may be subject to a Morale Check. This determination is based on a random number R from 0 to 1, the number of casualties taken L, and the strength of the unit S. A base strength B is calculated as: $B = S / 10$ If the base strength is less than 25, it is made equal to 25 (affecting units whose strength is less than 250 men). The Morale Check is then triggered when: $R < L / (L + B)$ For example, when a unit with 500 men takes a 25-man loss, the probability that it will take a Morale

Check is $1/3$, equal to $25 / (25 + 50)$. In addition, units with Fatigue level 900 (Maximum Fatigue) that take a Fatigue loss also are required to take a Morale Check. A unit which takes a Morale Check will become Disordered if it passes the Morale Check or Routed if it fails. The Quality value of the unit is used as the base value for Morale by converting A+ to 7, A to 6, B to 5, and so on to F to 1. Modifiers are applied to this base Morale to obtain the final Morale value for the Morale Check.

- If the unit is stacked with a Leader, then 1 is added to the Morale.
- If the unit is Low On Ammo or Out Of Ammo, then 1 is subtracted from the Morale.
- If it is a Night turn, then 2 is subtracted from the Morale.
- If the unit has Medium Fatigue, then 1 is subtracted from the Morale.
- If the unit has High Fatigue, then 2 is subtracted from the Morale.
- If the unit has been fired upon Enfilade, then 2 is subtracted from the Morale.
- If the unit is Disordered, then 1 is subtracted from the Morale.
- Skirmishers have 1 subtracted from the Morale.
- If the unit has yellow "Fanatical +2" in its information box next to its Quality rating, then it will receive a +2 to their morale for all tests.
- If there are Mixed Organizations in the hex and the Mixed Org Penalty Optional Rule is enabled, 1 is subtracted from the Morale unless the unit is a Skirmisher or Artillery.
- If the unit is flanked by friendly units on both sides and the Flank Morale Modifier Optional Rule is enabled, 1 is added to the Morale unless the unit is a Skirmisher. The resulting Morale value is compared with a random Die Roll from 1 to 6, and if the Die Roll exceeds the Morale value, then the unit fails the Morale Check. A unit that fails the Morale Check during Defensive Fire becomes Disordered, while a unit that fails the Morale Check during any other situation becomes Routed. If a Routed unit fails the Morale Check, it stays Routed but also loses a number of men based on the amount the Die Roll exceeds the Morale, times 25 for Infantry and Cavalry, which is reported as lost stragglers. Unlimbered Artillery is not subject to routing. When a unit routs, all units in the same hex as the unit and all units in adjacent hexes to the unit must also take a Morale Check. If any units in adjacent hexes fail the Morale Check, then this process is carried over into hexes adjacent to those hexes. Selecting the Rout Limiting optional rule will reduce the amount of secondary routing that occurs. The default routing rules require that units adjacent to a unit that has failed its morale check must also take a morale check (there are restrictions such as routing skirmishers cannot cause non-skirmishers to rout). This is applied recursively if those units also fail their check. While this can result in the rout of large number of units, given normal probabilities it is "self limiting", that is, it stops after a certain number of iterations based on the situation. When Rout Limiting is in effect, units in adjacent hexes undergoing a morale check receive a progressively larger modifier to their default morale. This modifier starts at 1 and is increased by 1 for each iteration based on a failed morale check. So, for example, if unit A fails their morale check, unit B in an adjacent hex undergoes a morale check with +1 added to their default morale. If unit B fails this test, then unit C in an adjacent hex to B undergoes a morale check with +2 added to their default morale. And so on. Therefore, as these modifiers increase, a point is reached where units stop routing which, in general, will be before they would have stopped otherwise. Additionally, all units in any hex the routing unit runs through will also become disordered. Flank Morale Modifier optional rule is selected to have the morale of non-Skirmisher units, with non- Skirmisher friendly units on both flanks, increased by 1 for the purpose of Rout and Disorder determination. Another way to refer to this is as "double flank elbow courage".

5.4.9 Recovery From Rout

At the beginning of a player's turn, Rally Checks are performed on Routed units to see if they Rally. Routed units which Rally become Disordered and are eligible to become un-Disordered starting with the next turn. Again, the Quality of the unit is the base value for Morale for the Rally Check. These Modifiers are applied to this value to result in the final Morale value.

- If the unit is stacked with a primary Leader of the same organization or a higher organization as the unit and if the Leadership rating of the Leader is higher than the Morale value, the Morale value is set equal to that rating. If the Leadership rating is already equal to the Morale value, then 1 is added to the Morale value.
- If it is a Night turn, then the Morale value of the unit is divided by 2 with fractions rounded up (for example 5 becomes 3).
- If it is a Day turn, then the Morale value may be affected by Corps and Army Leaders in adjacent hexes using the same process for Leaders in the same hex.

A random Die Roll from 1 to 6 is compared with the resulting Morale value, and if the Die Roll is less than the Morale value, the unit becomes un-Routed. Note: Routed units can only move towards enemy forces if a friendly combat capable unit is closer.

5.4.10 Skirmisher Rule

In addition to the normal test, Routed Skirmisher units of non-Light, non-Guard, non-Independent units are only eligible to recover from Rout if they are within 3 hexes of their parent unit. An independent skirmishing unit is one that is coded into the OOB as a Skirmisher & is not broken off from a parent unit during game play.

5.4.11 Fatigue

Fatigue refers to the detrimental effects combat has on the physical condition of the fighting units.

Fatigue values range from 0 (none) to 900 (highest). Within this range, they are further divided into Low Fatigue (0 to 299), Medium Fatigue (300 to 599), and High Fatigue (600 or higher). Leaders do not suffer from Fatigue. Fatigue values represent the Combat Fatigue of the unit and are not intended to represent the simple physical fatigue of being winded (see the Design Notes for more discussion on this distinction).

When units are fired upon, they may suffer a Fatigue loss as a result. Furthermore, units participating in Melee also suffer Fatigue losses as a result of combat. Units with a Fatigue level of 900 cannot have their Fatigue value increased further, but whenever a Fatigue loss is suffered by such a unit, they must take a Morale Check at the end of the Phase.

If a unit has Medium Fatigue, then:

- 1 is subtracted from its Morale value during Morale Checks.
- 10% is subtracted from the melee strength when the unit participates in a Melee attack.
- 10% is subtracted from its fire value when the unit fires.
- After each combat loss check from ranged fire, and additional check is made for artillery units for disorder equal to the combat loss value. If a unit has High Fatigue, then:
 - 2 is subtracted from its Morale value during Morale Checks.
 - 10% is subtracted from the melee strength when the unit defends in a melee.
 - 20% is subtracted from the melee strength when the unit participates in a Melee attack.

- 20% is subtracted from its fire value when the unit fires. If a unit has Maximum Fatigue, then:
- 20% is subtracted from the melee strength when the unit defends in a melee.
- 40% is subtracted from the melee strength when the unit participates in a melee attack.
- 40% is subtracted from its fire value when the unit fires.

5.4.12 Recovering Fatigue

A unit may be eligible to recover Fatigue at the beginning of a player's Turn provided it has not Moved, Fired, participated in Melee, or been Fired upon with any effect from the time of the player's previous Turn. For each such unit a random value from 0 to twice the applicable recovery rate, determined by Parameter Data associated with the current battle, is subtracted from the unit's Fatigue value. See the Parameter Data Dialog in the Main Program section for the recovery rate values.

5.4.13 Supply

Supply refers to the ammunition that units have available to fire during the battle. A unit may become Low On Ammo or Out Of Ammo during the battle reducing or eliminating their ability to fire their weapons. Supply Wagons are used to maintain supply levels for the forces on the map. Each unit of strength of a Supply Wagon represents enough ammunition to resupply 10 men. Units must be within a 5 hex radius to be resupplied.

Each time an Infantry (or Cavalry) unit fires, there is a certain probability that this will result in a reduction in the unit's ammunition level (see the Design Notes for a discussion of why this can result in reduced ammunition levels early in a scenario). The ability for Artillery units to fire is based on the Ammo Level for their side. If the Isolation Effects Optional Rule (see Section 9.20) is being used, then Artillery units can also become Low or Out Of Ammo when Isolated.

Note: There will be no check for ammo loss for the first 4 turns of a scenario. The probability chance that a unit will suffer a loss of ammo while firing is determined by Parameter Data. This probability is halved when the unit is firing Defensive Fire under the control of the computer. A unit that is Out Of Ammo cannot fire again until it is resupplied. A unit that is Low On Ammo can only fire during the Defensive Phase (see the Design Notes for why this is the case). Being Low or Out Of Ammo affects the Morale of the unit. Units can become resupplied at the beginning of the player's Turn provided they are not Routed and they can trace a path no longer than 5 hexes long which does not go through enemy units or empty hexes in their Zone-Of-Control to a friendly Supply Wagon. This resupply will reduce the Strength of the Supply Wagon by 1 unit for every 10 men in the Unit. Supply Wagons that are reduced to a Strength of 0 are automatically removed from the map. If a skirmisher/squadron unit that is low on ammo recombines with its parent unit that is not low on ammo it is considered to be replenished by the parent unit. If the situation is reversed the skirmisher/squadron would then become low on ammo as the remainder of the parent unit is.

5.4.14 Supply Sources

In a scenario, there may be one or more Supply Sources for a given side. These are used for the optional Isolation rules (see below) to determine if units of that side are Isolated. Supply Sources are only valid if they are not occupied by enemy units, but if those enemy units are eliminated or displaced, then the Supply Source becomes valid again. Supply Sources cannot be destroyed and are never used up.

5.4.15 Isolation

Isolation is an Optional Rule that can be used to simulate the effects of units being surrounded and cut off. Under this rule, if a unit cannot trace a line of hexes free of enemy units or their Zone-of-Controls to either the edge of the map or a friendly Supply Source, then they are considered Isolated. When a unit is Isolated, the following effects apply:

- Isolated units to have their strength divided by 2 when defending in a melee.
- Isolated leaders receive no benefit from their commanders during command checks.
- When an Isolated Artillery unit fires, it may become Low or Out-Of-Ammo. The Artillery unit will become resupplied when it becomes non-Isolated, unless the Artillery ammo level for its side is zero.

5.4.16 Reinforcements

The Scheduled Dialog displays a list of reinforcements scheduled to arrive in the current scenario. Each reinforcement entry has an arrival time, an arrival probability, and an arrival hex. If Fog of War is in effect, then the reinforcements of the opposing side are not shown and the arrival probabilities of friendly reinforcements are not revealed. If the arrival probability is not 100%, then there is a chance the reinforcement will not arrive at the exact arrival time. At the arrival time, and on each subsequent turn if necessary, the arrival probability will be applied to the reinforcement until it is determined that the reinforcement has arrived. For each failed attempt on arrival check 1% chance is added up to an additional 10%. Clicking on a reinforcement scrolls the map to the arrival hex.

With FOW in effect the percentage chance of arrival is masked. A rating will be displayed to the player to give some idea of the confidence they can place in the reinforcements being accessible to them. The rating will be listed as - 'Low' (1-33%), 'Med.' (34-66%) and 'High' (67-100%).

Each reinforcement in general consists of several units. Double clicking on a reinforcement entry displays a list of the individual units in that reinforcement.

If a Reinforcement has Protection Value assigned (Default 5) then any enemy unit stacked within 5 hexes of the arrival location when the unit is brought on the map immediately routs. If a unit is sitting on the arrival hex itself then it is eliminated when the reinforcement is brought on. If the Protection Value is set to 0 then none of these effects will apply. This value is set in the Scenario Editor at the time of creation.

There is no stacking limitation on a map border hexside when troops are arriving as reinforcements. Once the units have moved away stacking rules are enforced.

6. Additional Features

6.1 Weather and Conditions

There are two ways that weather and ground conditions are implemented in the game. The first way is through the use of ground Conditions. There are three ground Conditions: Normal, Snow, and Frozen. Under Frozen conditions, streams creeks and rivers are frozen and can be crossed as though they were clear terrain. Ground Conditions are established by the scenario designer on a per-scenario basis and do not change throughout the playing of a scenario. Weather can vary through a scenario and change at certain times specified in the Parameter Data. Each Weather state has a descriptive name associated with it such as Mud, Soft, Foggy, etc. Each Weather state has several parameters associated with it that affects the normal parameter data such as:

- Visibility - the maximum visibility associated with the weather, where 0 signifies no change.
- Movement - a percentage value that modifies the normal movement costs.
- Attacker Modifier - a percentage modifier, usually negative, that modifies the normal value of attackers in melees.
- Artillery Modifier - a percentage modifier that affects non-indirect Artillery fire at ranges of at least 5 hexes.

- Fire Modifier - a percentage modifier that affects non-Artillery fire.
- Each can have a flag associated with it signifying that Cavalry Charges are not possible under this weather condition.

6.2 Parameter Data

The parameter data file is a file filled with variables that the program uses to operate and execute a given scenario. This information can be accessed any time within the game by going to the Help Menu and selecting Parameter Date or by pressing the F2 key. A dialog box will be displayed with all the pertinent information. A PDT file can be created for a single scenario, or it can be used for many scenarios, depending on what the scenario designer is trying to model. Some examples of things controlled by this file are:

- Date & time information
- Maximum stacking values
- Command ranges
- Terrain values
- Weapon effectiveness
- Weather entries

This is an extremely important file, as the values included here will have a big impact on how a given situation will play out. If a scenario is not unfolding as you would expect, this would be the first place to look - possibly some values are different than what you are used to normally playing with.

Note: A guide to what each line means is in the Scenario Editor manual. Some precautions before you tinker however:

- Always use a plain text editor to open the file (Not MS Word).
- If you make changes, save the file with a new name.
- You can then alter a scenario, again in a plain text editor, to use your new file.
- If playing against another person, ensure they have a copy of the same file you have edited, otherwise problems will occur.

6.3 The Campaign Game

The Campaign Game links together individual battles and their outcomes to form a complete campaign. To begin or continue a campaign game, run the Campaign Front End from the program group of the game. A campaign consists of a series of Situations. Each Situation presents both sides in the campaign with a list of possible Choices. Based on the selections made among these choices, a particular Battle will be fought by the two sides. Depending on the Outcome of the battle, the campaign will branch to another Situation in the campaign, or possibly to the campaign Conclusion. The Campaign Front End begins by asking you if you want to start a new campaign or continue an existing one. Of course, the first time you run the Front End, you'll select that you want to start a new campaign. Depending on the game, here may be one or more campaign games included. In addition, you can create new campaigns by using the Campaign Editor. When you start a new campaign, you will be asked to specify a filename for your saved game. Note: campaigns are stored in files with the extension cpf. You should use a custom name so that you can have several campaigns going at one time and keep track of them.

When you start a new campaign, you will be prompted by the Situation Dialog to pick the side you want to play and other settings. There are three possible Modes you can select. If you select A/I (Conservative) then

you will play against the computer and the computer will be making optimal choices during the campaign. If you select A/I (Reckless), you will also be playing against the computer, but in this case, the computer will be making random choices during the campaign. Often this results in more interesting results, although not necessarily the most competitive play. If you select Play-By-E-Mail, then you can play the campaign against a human opponent using e-mail to send the turns back and forth. During the campaign, you normally will be transferred to the Main Program to fight battles. The victory outcome of these battles will determine the next situation you encounter in the campaign. If you select Use Expected Values, then instead of fighting each battle using the Main Program, an average victory outcome will be used to immediately branch to the next situation in the campaign. You will use this option, when you want to very quickly jump from situation to situation in the campaign without having to fight each battle in detail. Finally, you can select from a list of situations in the campaign. Normally you will select the first situation, as this is the starting point for the campaign, but you also have the option of selecting an intermediate one if you wish to start the campaign somewhere in the middle. Each campaign begins with an overview. This overview will describe the campaign setting and displays a map of the area over which the campaign will be fought. When a campaign game is played by two human players, both players get to see this screen.

At the beginning of each Situation, a screen is displayed identifying the Situation, showing the various forces involved, and describing the Situation. Both sides of the campaign get to see this screen.

The Decision screen is where you make your choice about how to conduct the campaign. You will be given a list of choices at the top of the screen. As you click on each choice, a description of that choice is displayed and the map is updated to illustrate that choice. You should keep in mind that in general, no situation has a "best" choice. The best choice will be determined by the corresponding choice made by your opponent, something you won't know until both sides have decided. So, you should weigh the possible outcomes you feel are associated with each choice, and decide which one you wish to pursue in that situation. Note: Each side in the campaign sees a different screen at this point. Each side only sees the choices for their side and will be unaware of the choice made by the other side. Once both sides have made their choices, the resulting battle is determined, and each side will get a message describing the battle. When Use Expected Values is selected, this message will have a Cancel button in addition to an OK button. If you select the OK button, then the Expected Value of the battle will be used to determine the campaign branching. If you select the Cancel button, then the game will transition to the Main Program so that the current battle can be fought in detail. Note: It is possible for no battle to result, even when playing the long form campaign. In some instances, the scenario designer might have set a decision point to not result in a battle to replicate a small rear-guard action that would not have been worth fighting, for example. In general, each battle outcome will cause the campaign to branch to the next Situation in the campaign. However, depending on the outcome and the Situation, the campaign will eventually branch to a terminating situation. Here, the overall outcome of the campaign is determined and described. There are instances where only a single battle is included in a "Campaign" this setup allows for two players to make their own deployment choices and can result in a wide variety of potential setups for the main battles - different arrival locations, variable reinforcements, etc. When you play a campaign using Play-By-E-Mail (PBEM), then you will receive messages at various times indicating that the campaign file is ready to be e-mailed to your opponent. You should mail your opponent the cpf file containing the campaign at this point. This single file contains all information associated with your game and that no other files need be included. Note: When playing the battle associated with a campaign, never use the Save or Save As... functions within the Main Program "File" menu as this will convert the file to a standalone .bte file. Rather, when you advance the turn and it tells you it is ready to send to your opponent, click the X in the right corner to close out, and then go and get the saved file to send.

6.3.1 Summary of Campaign Play Modes

There are a wide variety of ways that campaigns can be played. For the briefest possible campaign, play against the computer (A/I play mode) and select "Use Expected Values". In this way, a complete campaign can be completed in a manner of minutes. For a longer game and more detail, select "Use Expected Values", but then select a battle to fight in detail by selecting Cancel when the encounter message is displayed. The time required to finish the battle can be varied by choosing Manual or

Automatic play mode within the battle itself. In this way, a complete campaign can be completed in an hour or so. Then, for a longer campaign, skip the "Use Expected Values" option and play each battle in detail and in Manual mode. This type of campaign will require several hours to complete. Next, you can play a campaign using Play-By-E-Mail. Note that you can choose the "Use Expected Values" option when playing under PBEM if you just want to see how your campaign choices play out against a real opponent. This approach would require a day or more to complete a campaign. Again, you can choose the "Use Expected Values" option but then Cancel this option at the time of a battle to play out the battle in detail. In this way, a PBEM campaign would be about the same length of time as a normal PBEM battle if you selected a single campaign battle to play in detail. Finally, to get the longest possible campaign, you would skip the "Use Expected Values" option, which could result in a campaign lasting a very long time. In summary, a campaign can be played in a manner of minutes, days, or even years in extreme cases.

6.4 Network Play

Note: Network play on a Local Area Network (LAN) is pretty simple and straight forward. Network play across the Internet - i.e. a Wide Area Network (WAN) - is much more complex. You may wish to use a third-party application to manage connections for you if you have trouble connecting directly. There are so many variables and possible setups that we are not able to provide detailed assistance for WAN connectivity. This section describes the details associated with multi-player Network Play. Microsoft's Direct Play is used for this purpose. The TCP/IP protocol is used to connect the computers being used. If you are using a firewall to connect to the Internet, you must configure it before you can connect using Direct Play. You will want to open the following ports for UDP/TCP traffic: 47624 to 47624 2300 to 2400 6073 to 6073

The Player Dialog is displayed so that each player can specify their name and to specify if they want to be on the same side as the Host player or the opposing side.

The Caller will be prompted to enter the IP Address of the Host computer. The Host player must determine their IP Address and communicate this to the other players.

One way for the Host player to determine their IP Address is to perform the following steps:

- Click on Start, then Run, and enter cmd.
- In the window that opens, enter ipconfig.

If playing on a LAN your IP Address will likely be something like 192.168.x.x - if you want to connect over the Internet you want your external IP address. This is the address assigned by your ISP. The best place to locate this is by going into the management screen of your router. Once a connection has been established, the Comm Dialog will appear and allow both players to communicate with each other. You can type messages in the area at the bottom of the Comm Dialog and press Return to send them. All messages are displayed in the top area of the Comm Dialog prefaced by the name of the player sending the message. In Multi-Player Network Play games, you can limit the sending of the message to players of your side, by selecting the option at the bottom of the Comm Dialog.

If you are the first Caller of the opposing side, you will be prompted to specify an Encryption Key to be used to encrypt the battle file on the Host computer. This encryption will prevent your opponent from trying to

access the battle file in your absence. Be sure to remember your Encryption Key and specify it exactly the next time you open an existing battle or else a read error will occur. If you trust your opponent, it is OK to leave the Encryption Key blank.

6.4.1 Multi-Player

In general, both sides of a Network game can have more than one person assigned to them. The Host player and the first player to connect playing the opposing side, will be the Commander for their respective sides. By default, the Commanders control all units for their side. Additional players on each side can be assigned commands by the Commander. Each player can only move and fire units under their command. The Multi-Player Dialog described in the Main Program section describes the actions used to assign commands to players and to manage Multi-Player features.

6.5 Play-By-E-Mail

This section describes the details associated with Play-By-E-Mail (PBEM). PBEM is initiated either from the Campaign front-end or through the Play-By-E-Mail option of the Modes Menu. When a game starts under the PBEM option, the player starting the battle will be prompted with the New Scenario Dialog (see the Main Program section) to select the side they wish to play, the Fog of War option, any change to the Advantage value, and Optional Rules. When control of the game passes to the opposing player, the main program will save the PBEM game in a file with extension bte and notify the player that the file can now be E-mailed to their opponent. The player should send the bte file as an attachment in an E-mail. Note: It is highly recommended that you "Zip" game files when sending them. There is a built-in compression utility with Windows (Compressed Folders) or you can use a thirdparty utility such as WinZip, 7-Zip or WinRAR to name a few. Zipping your turns will go a long way to preventing file corruption when sending turns across the web. When the other player receives the E-mail, it is essential that they copy the bte file into the appropriate game folder. By default, this game folder is "C:\WDS\game_name\Saves" where "game_name"

is the name of the game, but this can be changed during installation. Once the bte is copied, the player can start PBEM mode either from the File Selection Dialog (see the Main Program section), or through the PBEM option of the Modes Menu. When the player opens the PBEM file, they will be prompted to view the battle replay. If they notice that the replay is not for the opposing side, they have opened their own PBEM file in error and should immediately select Cancel. Otherwise, they can select Yes or No to either view the replay or advance directly to their turn. During the battle replay, combat results can be reported in a dialog. Select OK to close the dialog and continue normally. If you select Cancel, the replay will continue but no subsequent combat results will be reported. If your opponent uses the On Map Results setting then no dialog will be displayed, but rather the results will be shown on the map in the hex where the combat occurs. Pressing the Escape (Esc) key will terminate the replay.

When a PBEM battle is saved with the PBEM Encryption Option enabled (see the Settings Menu in the Main Program section) or if the file has already been encrypted by the opposing player, then the player will be prompted for an Encryption Key. On subsequent turns, the identical key must be entered by the player in order to read the file. Note: A PBEM battle can be encrypted even after play has begun, but once encrypted, it cannot be converted back into an un-encrypted form.

6.5.1 PBEM Termination Bids

When playing against a human you can utilize the Termination Bid feature, located under the Modes menu, to suggest a victory condition to end the game. Either the current condition, or another. Your opponent will then have the chance to respond on their next turn. While more of a formality when playing a single battle, this is exceptionally helpful when playing a campaign. Once the bid is accepted, the engine will then move on to the next battle. This also applies for campaigns against the A/I, where the outcome is obvious and you want to move on to the next fight.

7. Design Notes

This section provides an explanation for certain game features. Q: Why can't you use the Undo Movement function of the Command Menu when Fog of War is in effect? A: If this were allowed, you would be able to send out units on multiple "scouting" missions with the option of returning them to their starting location and thereby determining unfair information on the location of enemy units. You might say that the Undo should only be disabled if the units being moved run into unknown enemy units, but even knowing that there are no enemy units in a certain direction is unfair information if the moving player is allowed to undo the move. Q: Why does it take so long for units to recover from Fatigue? A: In the game, Fatigue is used to represent combat fatigue, not the physical state of being winded. As such, the physical effects of combat fatigue are felt long term and do not wear off through simple rest. In many battles, the end of the battle was determined by fatigue and not by losses. In larger battles, commanders had to be careful to rotate their fighting units and not commit any one force too long to battle. Having higher Fatigue recovery rates would permit the unrealistic ability for commanders to rest units for short periods of time and then recommit them to battle, something that was not common historically. Q: Why aren't the Optional Rules called Advanced Rules? A: The primary reason for having Optional Rules is twofold. First, Optional Rules are intended to provide some variety to game play. As such, they are intended to put a new twist on familiar situations and keep the game interesting. Second, Optional Rules are intended to provide an outlet for disagreements over how certain issues are to be approached. That is, rather than debate an issue to death, an Optional Rule is often provided so that differing viewpoints are supported in the game, even if they are not agreed to by 100% of the user population. Given this intention, Optional Rules should never be confused with Advanced Rules which are intended to provide more realism or detail but at a sacrifice of playability or simplicity. An Optional Rule could conceivably reduce realism or detail as long as it provided some interesting variety into the game or provided a useful simplification that improved playability under certain circumstances. Q: Why isn't the Victory Points for Leader Casualties Optional Rule a default rule? Wouldn't killing an Army commander be a significant event for the opposing player? A: Every rule must be evaluated for what it motivates players to do. In this case, awarding points for leader casualties motivates the player to hide his leaders away from the battle to avoid losing Victory Points. For example, the player would never risk a good leader in the front line for fear of losing Victory Points and would keep him carefully hidden away in some safe place. Conversely, players would be motivated to focus their fire primarily on hexes containing leaders in hopes of picking up Victory Points. Having this rule as a default rule would skew the battles away from the historical

outcomes in a way that would detract from the games as learning tools. Given the tactical nature of the battles, losing a key leader for example is felt even in the absence of this rule since his replacement, and all replacements in the line of command, will generally be of lesser quality than the original leader and thus this will have a detrimental effect on the army. Q: I just had my entire army rout away! The default routing logic is bogus! A: The routing logic causes the rout of a single unit to sometimes spread to adjacent units and so forth in a way that can have a major effect on a force. Establishing the correct balance in this logic is a matter of interpretation. If you have a large rout occur, check the following factors that affect morale. Did your units have High Fatigue? Were they Low or Out of Ammo? Were they of mediocre quality? Was it a Night turn? Experience has shown that game players conduct their attacks with far greater aggressiveness than was ever

shown on the actual battlefield. Historically, leaders were very cautious in the commitment of their troops and were careful not to keep units in battle for too long for fear they would not hold. If you have just had D quality units, low on ammo, with Fatigue level 900, rout during a Night turn, don't think that this was an unrealistic event. Q: Why have the Isolation Optional Rule which causes Isolated units to defend in melee at 1/2 strength? A: This rule is intended to have two effects. Commanders were always very cautious of their flanks. They often withdrew from a position before they had been overwhelmed simply because their flanks were threatened. This rule is intended to motivate the player to think in these terms. Secondly, units that had been surrounded would often surrender and not fight to the death. The 1/2 modifier to defending strength is intended to reflect the tendency of the Isolated units to surrender when pressed. Q: Why isn't the Partial Retreats Optional Rule a default rule? A: Retreats from a hex by units that have just lost a melee are necessarily very chaotic events. Certainly, with a breakdown in command and morale, it would not be possible to find some optimal displacement of units that would just fit in the retreating hex. A good analogy would be a burning building where quite often a large number of people perish even though there are exits readily available. The dynamics of this situation is known as "choking" and results in greatly reduced flow through openings. Based on this, there is justification for concluding that obstructions to their retreat would often result in the surrender of the defeated troops rather than some optimal reduction. Q: I had a unit lose ammunition near the start of the game. That's ridiculous! A: Having a full complement of ammunition was never guaranteed in any battle. While most often, a unit had enough ammunition to ensure the ability to fight for some time, breakdowns in command and organization often resulted in ammunition problems. Adding an ammunition level to each unit in the game would simply increase the micromanagement necessary to play the game without adding any benefit and would in fact detract from the game by including information that could hardly be known by higher level commanders. Q: I don't understand the Low Ammo rules. Why can units with Low Ammo fire using Defensive Fire and not using Offensive Fire? Do they have bullets or don't they?

A: The distinction here is based on the fact that units low on ammunition will start to save their shots and not use them unless absolutely necessary. Since Defensive Fire is the point at which defending units get to fire on their attacker, this would be a good example of when units would use their precious ammunition. Not allowing fire for Offensive Fire is the point at which the lack of ammunition is applied and thereby motivates the player to not use these units for attack. The end result in the game is a good one causing a reduction in aggressive ability by units low on ammo but retaining the ability for units low on ammo to deliver a good blast when threatened. Q: Can you explain why units that have not fired using Offensive Fire receive a 10% melee modifier in when attacking? A: Given the slow reload rate of period weapons, leaders often found that when units were allowed to fire during an advance, they were reluctant to continue advancing with their weapons unloaded. This often resulted in the order to units that they not fire during a charge but rather advance without stopping. The additional vigor with which the advancing units conduct their attack is the basis for the modifier. Q: I melee attacked an unsupported Artillery battery and was defeated. This can't be right. A: Melees have two possible outcomes. In the first, the attacker "wins" the melee and displaces the defending units from the hex. The second outcome results in the defenders retaining the defending hex. A failure of the attacking units to take the defending hex should not be interpreted so much as a "victory" for the defending units, but rather simply a failure of the attacking units to conduct a successful melee. In the case of a melee attack against Artillery, a failure to take the defending hex means that the attackers had so much trouble conducting the charge or were so ineffective in their charge, that the defending hex could not be considered taken. If you wish, you can consider the melee in this case to be ongoing, although this is not part of the game engine. The bottom line is that no melee can be guaranteed to be an automatic "victory" unless the defending hex is free of fighting units. Q: How come PBEM Encryption is just an option? Doesn't everyone want to prevent PBEM cheating? A: There's one very important thing that you should realize about PBEM cheating: it cannot be prevented. While encryption of the PBEM file and the use of PBEM passwords does deter the "casual cheater", it does not and cannot prevent all cheating. Why? The problem with attempting to encrypt the PBEM file is that the code required to encrypt and decrypt the file plus, most importantly, the encryption key is located in a very handy place to the would-be cheater: the main program. A hacker of

modest abilities would be able to determine everything they needed to know by inspecting the main program object code and very quickly come up with a program to encrypt and decrypt PBEM files. Would the person you're playing go to that much trouble? Does the person you're playing know someone who would? And finally, don't think that there is any way to prevent someone from replaying the PBEM battle until they know far more than they should about your position and have found the optimal fire and combat outcome as well. Write something to the registry? Hide a "secret" file on their hard drive? Come on, those are so obvious that even someone with only a small amount of motivation would be able to circumvent them. So, think about cheating as a layered problem: Is the person you're playing with familiar to you and someone you trust? Don't bother with encryption, it just gets in the way.

Are you wanting to use passwords just so you don't inadvertently open the file during your opponent's turn? Sure, use encryption for this. Are you playing a good-natured competition with someone who is probably not sufficiently motivated to hack the encrypted file? Encryption will work here too. Are you playing someone you don't trust and need some way to stop them from any form of PBEM cheating? Don't bother. You'll drive yourself nuts trying to figure out if they've somehow hacked the encryption to get a win.

7.1 Extending Play

So, you've mastered the game mechanics and your army has won the battle against our computer opponent. Congratulations! Achieving this level of skill is quite an accomplishment. However, many players of the WDS family of wargames will argue that the greatest enjoyment and challenge is found through the games' Play-by-Email (PBEM) and Internet Play options, which enable you to play against other human opponents. In fact, PBEM and Internet Play have become such a popular way of playing WDS games that the Internet now boasts several clubs devoted to the specific historical periods covered by our games. For a listing of a variety of clubs and sites which support our games visit our website under the "Support" page, then under the "General Resources" section.

7.2 Credits

Original Developer: John Tiller Further programming: Andy Edmiston Henrik Schmidt Carlos Anllo Robert "Berto" Osterlund

MicroPather - A* by Lee Thomason <https://github.com/leethomason/MicroPather>

Further Graphical Enhancements/Development: Graphics Coordinator: Nick Ferry Artist, Units.png: Manuel Krommenacker - <https://www.artstation.com/manu67> , Mitchell Nolte, Joe Amoral, Jan "Jison" Johansson, Adrian George Artist, map elements: Nick Ferry, Paul Hill Artist, 3D Units: Rolf Hall, Mitchell Nolte, Frank "Old Banshee" Mullins Artist, Covers: Nick Ferry, Mitchell Nolte - <https://www.mitchellnolte.com/historical> Artist, Cover & Units: Don Troiani - <https://artofdontroiani.com/>

American Revolutionary War Scenario Design: Mike Cox Project Coordinator: Rich Hamilton Playtest Coordinator: Carlos Anllo Maps: Mike Cox, Ash McLeod (game maps) Gustav Ståhlberg (Overview maps) <https://www.deviantart.com/imperialmaps> Graphics Team: Nick Ferry (Coordinator+), Don Troiani (Cover, Unit portraits), Luciano Bassotti, Rolf Hall (3D Units), Thomas Wulfes (Leader portraits), Manuel Fernholz (3D Buildings), Mitchell Nolte (Ships) Audio Coordinator: Philippe Gensou Playtesters: Andrea Galliano, Ashley McLeod, Bart Power, Fred Schnee, Lucas Kling, Max Wunderlich, Simon Patrick, Thomas Wulfes, William Treuting, Gary McClellan, Rich White War of the Austrian Succession Scenario Design: Andrew Bamford, Gary McClellan Project Coordinator: Rich Hamilton Playtest Coordinator: Carlos Anllo Maps: Nick Bell (game maps) Gustav Ståhlberg (European maps) <https://www.deviantart.com/imperialmaps> Graphics Team: Nick Ferry (Coordinator+), Mitchell Nolte Audio Coordinator: Philippe Gensou Playtesters:

Nick Bell, Lucas Kling, Rich White, Andrea Galliano, Fred Schnee, Jac Lorenzini, Mike Davies, Simon Patrick, Jim Pfluck, Bart Power, David Michas, Larry Gallagher Vienna 1683 Scenario Design: Gary McClellan Project Coordinator: Rich Hamilton Maps: Nick Bell Graphics Team: Nick Ferry (Coordinator+), Rolf Hall, Manuel Krommenacker Playtesters: Fred Schnee, Andrea Galliano, Larry Gallagher, Rich White, Mark Nelms

Thirty Years War Scenario Design: Rich White Project Coordinator: Rich Hamilton Playtest Coordinator: Tim Schoen Maps: Nick Bell Graphics Team: Nick Ferry (Coordinator+), Frank Mullins, Manuel Krommenacker Playtesters: Nick Bell, Mike Cox, Mike Davies, Lucas Kling, Simon Patrick, Fred Schnee, Stephen Bodtman, Andrea Galliano, Larry Gallagher

Great Northern War Scenario Design: Rolf Hall, Atle Jenssen Project Coordinator: Rich Hamilton Playtest Coordinator: Tim Schoen Maps: Atle Jenssen Graphics Team: Nick Ferry (Coordinator+), Adrian George, Rolf Hall, Mitchell Nolte Historical Background Document: Michael Fredholm von Essen Playtesters: Carlos Anllo, Nicholas Bell, Mike Cox, Mike Davies, Drew Franz, Lucas Kling, Claes Melbro, Cédric Monget, Mark Nelms, Simon Patrick, Peter Russell, Tim Schoen, Rich White

The Seven Years War Scenario Design: Gary McClellan Project Coordinator: Rich Hamilton Maps: Nick Bell Graphics Team: Steve Trauth (Coordinator) and Jan "Jison" Johansson Playtesters: Rich White, Steve Trauth, Atle Jenssen, Set Karlsson, Jim Owczarski, Doug Miller, Mike Cox, Cris Ash, Ray Liberto, Claes Melbro, Klaus Khulmann

The Renaissance Scenario Designer: Rich White Project Coordinator: Rich Hamilton Graphics Team: Mark Adams (Coordinator), Joe Amoral, Steve Trauth, Dean Beecham Scenario Maps: Rich White & Atle Jenssen Playtesters: Steve Trauth, Kevin Killeen, Doug Fuller, Andrew Moss, Gary McClellan, Ken Miller

Main Program Section

8. Menus

Note: The values to the right of each entry in the menus are the Hotkey combos that can be used to activate each given command using the keyboard.

8.1 File Menu

The File Menu is used to start new battles, save battles, and open existing battle files. Selecting New... will display a File Open dialog so that a new battle can be started by opening an existing Scenario file. Note that Scenario files have the extension scn by default.

Selecting Open... will display a File Open dialog so that an existing battle can be opened. Note that Battle files have the extension btl by default.

Selecting Save will cause the current battle to be saved to a Battle file. If the current battle does not already have a filename, you will be prompted with a File Save dialog to specify one. Note that the use of the Auto Save option from the Settings Menu greatly reduces the need to use this function.

Selecting Save As... will display a File Save dialog so that a new filename can be specified for the current battle. Use this function if you want to avoid overwriting an existing Battle file.

Selecting Selection... will display the File Selection Dialog so that a new scenario can be started. Note: All of the above commands are not accessible when the AI is active.

Selecting Snapshot... will cause a copy of a portion of the current map to be saved as a Windows BMP file. This snapshot will show the map and the units on the map that are currently visible. You will be prompted with a File Save dialog to specify a filename for the snapshot. Note that BMP files have the extension bmp by default. After you have saved the snapshot, you can view it at any time by opening the file with a graphics application such as the Windows Paint program.

Selecting Replay... will display a File Open dialog so that a Replay file can be read in and the replay in it run. Replay files are created using the Record Battle option of the Modes Menu. By default, Replay files have the extension btr.

Selecting Exit will close the main program. If the current battle is unsaved, you will be prompted to save it.

8.2 Turn/Phase Menu

The Turn/Phase Menu is used to advance the current battle to the next turn or phase. Selecting Next will advance the current battle to the next turn. If the Auto Save option of the Settings Menu is set, then the battle will be saved before advancing

the turn. If no filename has been specified for the current battle, this will also cause a File Save dialog to be displayed so that this filename can be entered. Note that since the Auto Save option saves the battle before advancing the phase, it is possible to back-up to the previous turn by using Open from the File Menu and opening the Battle file after declining to save the current battle. When the Manual Defensive Fire Optional Rule is in effect, then the Turn Menu becomes the Phase Menu and is used to advance the current phase.

8.3 Command Menu

The Command Menu is used to perform certain functions on units such as changing formation or facing. Selecting To Top of Stack will move the currently selected units in the current Hot Spot to the top of the stack.

Selecting To Bottom of Stack will move the currently selected units in the current Hot Spot to the bottom of the stack. Selecting Turn Clockwise will turn the currently selected units clockwise.

Selecting Turn Counterclockwise will turn the currently selected units counterclockwise. Selecting About Face will turn the currently selected units about face.

Selecting Change Formation will change the formation of the currently selected units. For Infantry units, this will change the formation of the unit between line and column formation. For Artillery units, this will change the formation of the unit from limbered to unlimbered.

Selecting Change Column of March will change the selected unit into or out of Column of March. If the unit meets the required threshold value for strength a second counter will be spawned. If an organization's leader is also in the selection a dialog will appear to change the entire command (up to Divisional level) into this formation at once. See section 4.3.12 for further information.

Selecting Change Skirmish/Squadron will either deploy or recall Skirmishers and Squadron units. To deploy Skirmishers, select full-strength Infantry units and select this function. To recall Skirmishers, select the Skirmisher unit and select this function. Likewise for Squadrons and Cavalry units.

Selecting Change Block will change the formation of the currently selected Infantry units to and from Block formation. Selecting Extended Line will change certain Infantry and Artillery units to Extended Line formation and back. When units are changing into Extended Line, the Flank Dialog appears to prompt for the flank where the new Extended half will be deployed. Choose this flank relative to the facing of the unit. Selecting one of the Extended halves of a unit and selecting this function will rejoin the unit in the hex of the

selected half. Required strengths are determined by Parameter Data.

Selecting Change Open Order will change certain Infantry units to Open Order formation. If selected again the unit will change to Line. If the Change Formation command is used on a unit in Open Order it will change to Column formation.

Selecting Change to Charging will attempt to put the selected Cavalry units in the Charging state (see Cavalry Charges in the User Manual).

Selecting Construct Breastworks will change the selected units to and from Breastwork construction state. This is a PDT controlled function, and it is possible the probability will be set to 0 (prevented) for a scenario or a whole game, if the scenario designer chose to.

Selecting Use Archer Stakes will change a Stake capable unit to either Deploy Archer Stakes, or if already deployed it will cause the unit to collect Stakes. This is a PDT controlled function, and it is possible the probability will be set to 0 (prevented) for a scenario or a whole game, if the scenario designer chose to.

Selecting Repair Bridge will change the selected Pioneer units to and from the Bridge Repairing state so that they can repair Bridges (see Movement in the User Manual).

Selecting Remove From Map will remove the selected units from the map. This can only be done from a boundary hex on the map. This function is most often used in conjunction with Exit Objectives.

Selecting Artillery Dialog... causes the Artillery Dialog to be displayed. Note that this can only be done during a Fire phase.

Selecting Undo Last Movement will undo the last move made and return the units that were moved to their starting location. Note to avoid information leaks, this function is not available when Fog of War is in effect (see the Design Notes above for an explanation).

8.4 Melee Menu

The Melee Menu is used to perform functions relative to melee attacks against enemy hexes. Selecting Begin Melee will tell the program that you wish a melee to take place on the target hex. You can then add attacking units to the melee from one or more locations before you execute the melee.

Selecting Clear Melee will reset any melee which has been partially setup but not yet resolved. Use this function when you change your mind about a melee and want to try something else.

Selecting Add to Melee will add the currently selected units to the current melee. Alternatively, you can add units to a melee using drag-and-drop by dragging the mouse from the hex containing the selected units to the target hex and releasing it.

Selecting Resolve Melee will resolve the current melee and display the results. If using the "On Map Results" option in the Settings menu then a graphic will be displayed on the map such as 35/65.

Selecting Show Melee Odds will display the strengths of the two sides in the current melee plus any modifiers that apply.

8.5 Units Menu

The Units Menu is used to view and place reinforcements and to view Releases. Selecting Scheduled displays the Scheduled Dialog which shows the reinforcements scheduled for the current battle.

Selecting Arrived displays the Arrived Dialog so that units that have arrived as reinforcements can be placed on the map.

Selecting Releases displays the Release Dialog so that Releases of Fixed units can be viewed. Selecting Withdrawals displays the Withdrawal Dialog so that units scheduled to be removed from the battlefield during the scenario can be viewed.

8.6 Info Menu

The Info Menu is used to view certain status information about the current battle such as leader casualties and victory conditions.

Selecting Strength displays the Strength Dialog showing the total strength of each organization on the map. Selecting Show Organization displays the Organization Dialog and the command structure for each army involved in the given scenario.

Selecting Find Leader or Units displays the Find Unit Dialog which allows you to search the existing scenario for specific Leaders or Units.

Selecting Leader Casualties displays the Leader Casualty Dialog showing every leader that has become a casualty. Selecting Removed Units displays a list of units that have been removed from the map in the current battle.

Selecting Objectives displays the Objectives Dialog showing the ownership and points for each Objective in the current battle.

Selecting Supply Sources displays the Supply Source Dialog showing a list of the Supply Sources in the current scenario. Selecting Victory displays the Victory Dialog showing the current Victory conditions.

Select Locations to display the Location Dialog. This displays a list of all the map locations. Select Name of Music to see the name of the background music currently playing.

Select Weather Forecast to see a forecast of the current weather in the scenario.

8.7 View Menu

The View Menu is used to control how information is displayed on the map and other places such as dialogs. Select Units Off to hide the units that are currently on the map. This is used when you need to see map details that are hidden by the units.

Select Leaders On Top to ensure that leader counters are always displayed on the top of the stack in 2D graphics mode. Otherwise, leader counters are only displayed in 2D mode when they are in a hex by themselves or other leaders.

Select Unit Bases to display the unit bases that are drawn in 3D graphics mode. Select Leader Flags to display the flags that are drawn in 3D graphics mode for each command level.

Select 3D Carnage to display the unit casualties on the 3D map where combat has occurred. Select Objectives to toggle the display of Objectives on the map.

Select Supply Sources to toggle the display of Supply Sources on the map.

Select Visible Hexes to toggle the display showing all hexes visible from the current Hot Spot. Hexes which are not visible will be marked using shading. When using FOW setting this feature will only work from a hex your forces occupy. Note: this feature does not consider the presence of units in this determination. That is, a hex may be shown as visible, but because of units in the way, the Line-Of-Sight may be currently blocked.

Select Command Range to toggle the display showing all hexes within the command range of the currently selected primary leader. Note: Secondary leaders do not have a command range, see the 5.4.2 Command

Range topic in the User manual for more information.

Select Reachable Hexes to toggle the display showing all hexes the unit may reach in their current formation and status.

Select Fire Range to toggle the display showing all the hexes the selected unit may fire into, highlighting both facing and range. A distinction is made between Ranged fire and Indirect as well.

Select Map Labels to display the text labels on the map for various important locations.

Select Full Screen Map to toggle the display of the Hex Info Area. When the Hex Info Area is hidden, more of the map is displayed.

Select Hex Outlines to toggle the display of the outlines around each individual hex on the map. Select 2D Map Slopes to toggle the display of the "slope" graphic along the end of hexes at an elevation change point.

Select Map Contours to toggle the display of contours on the map that show elevation changes. This can be used to see elevation changes more clearly, especially in 3D graphics mode.

Select Map Elevations to toggle a numerical value displaying on each hex representing it's elevation value. These are game values - i.e. 4, 5, 6, etc. and not actual elevation values which are displayed in the Hex Info Area.

Select Map Coordinates to toggle the two point value of each hex - i.e. 16,12 - which is also displayed for the selected hex at all times on the farm right corner of the status bar.

Select Map Combat Modifiers to display the value of any terrain features within a hex that impact combat calculations. Select Map Unit Strength to display the total number of men/guns in all hexes on the map.

Select Jump Dialog to display the Jump Dialog which enables you to quickly go to any location on the map. Select AI Orders to display the current orders generated by the A/I on the map. Each order is drawn as an arrow from the current location of the organization to the destination hex for the order. As a special case, if the current location and destination hex are the same, then the order is drawn as a circle. Highlighting an organization causes only the orders for that organization to be drawn. Orders for Allied organizations are displayed in red while French orders are displayed in blue.

Select Division Colors to display a small patch of color associated with each unit on the map corresponding to the Division that the unit is in.

Select Highlight to display the Highlight Submenu (described below). Select 2D Extreme Zoom-Out View to display the map in reduced size 2D graphics mode.

Select 2D Zoom-Out View to display the map in normal size 2D graphics mode. Select 2D Normal View to display the map in magnified 2D graphics mode.

Select 3D Zoom-Out View to display the map in reduced size 3D graphics mode. Select 3D Normal View to display the map in normal size 3D graphics mode.

Note: Normally the screen is re-centered on the Hot Spot hex when you change zoom modes. If you hold down the Alt key when you change zoom modes, the screen will retain the current view. The Highlight Submenu displays a list of unit types and status values that may be selected to Highlight certain units on the map. Selecting any of these modes turns off any other highlighting mode that has been set. Selecting a mode that has already been set turns that mode off.

Select Fixed Units to Highlight units on the map which are currently Fixed. Select Spotted Units to Highlight units that are currently Spotted by enemy units.

Select Low on or Out of Ammo, or Uncrewed to Highlight units on the map that currently have reduced ammo status or are uncrewed Artillery units.

Select Fired/Fought Units to Highlight units that have Fired or fought in Melee. Units with no ammo or uncrewed will also be highlighted with the alternate color.

Select Moved Units to Highlight units that have moved in the current turn. Fixed units will also be highlighted with the alternate color.

Select Routed Units to Highlight units that are currently routed. Disordered units will also be highlighted with the alternate color.

Select Disordered Units to Highlight units on the map that are currently Disordered or Leaders that have failed their Command Test.

Select Detached Units to Highlight units that are Detached. This can be either individual units that are beyond the Command Radius of their leader, or it can be a Brigade Leader that is beyond the Command Radius of their commander.

Select High Fatigue Units to Highlight units on the map that have a Fatigue value of 6 or more. Select Extended Line Units to Highlight units on the map that are currently in Extended Line formation.

Select Isolated Units to Highlight units that are currently Isolated. Select Non-Full Strength Units to Highlight units on the map whose strength value is less than their nominal full-strength value.

Select Supply Wagons to highlight all Supply Wagons currently on the map. Select Organization to highlight all units of the same organization as the top selected unit in the Hot Spot. For example, selecting an infantry unit in a Brigade and then choosing this Highlight option will cause all units in the same Brigade to be highlighted. Selecting a leader and then this

option will cause all units under the command of the selected leader to be highlighted. Holding the Alt key while making this selection causes the next higher organization to be highlighted. Further, when a unit is selected it will be highlighted with the alternate color, while the rest of the organization will use the default color. The alternate color will also apply to skirmishers/squadrons/extended parts of the unit as well as the higher-level commanders of the organization. Additionally, the unit/leader name will be changed to yellow text for all units within that organization. This is helpful when you have units from multiple organizations in the same hex.

Select Commanded Units to Highlight units that are under your command in Multi-Player Network play.

8.8 A/I Menu

The A/I Menu is used to control the Artificial Intelligence settings of the current battle.

Each side can be set to one of four possible A/I settings. Select Manual to turn off all A/I for a side. This mode is used if you want to perform all of the movement and combat for the side. Select Commander Control if you want to have some control over decisions made by certain leaders in the battle. For example, in this mode you can give orders as the Army commander or you may want to take command at a lower level such as Division or Corp. If you make this selection, the Leader Selection Dialog will be displayed so that you can select the leaders you wish to command. Select Automatic to turn on the A/I for a side. In this mode, the computer will perform all movement and combat for that side. Select Automatic with Fog-Of-War to establish Automatic A/I with Fog-Of-War for a side. Under this selection, enemy units not in your line-of-sight and other information about the enemy will not be displayed.

Select Set Advantage to display the Advantage Dialog so that the Advantage value for the current battle can be viewed and possibly modified.

Select Adjust Auto Defensive Fire to open the Auto DF Dialog and adjust the values for range at which the A/I will fire your units when under its control.

Select Activate A/I to resume the A/I after it has been stopped. This is also used to resume A/I processing after a battle that was in the middle of an A/I controlled phase has been reopened. Note that attempting to advance the Phase during an A/I controlled phase will also cause the A/I to resume.

8.9 Modes Menu

The Modes Menu is used to select special modes such as Network Play and Play-By-E-Mail (PBEM). Select Direct-Play Host to initiate Network Play as the Host player.

Select Direct-Play Caller to initiate Network Play as the Client player. See the section on Network Play in the User Manual for more information on this feature.

Select Play by E-Mail to place the main program in a mode for Play-By-E-Mail (PBEM). See the section on Play-By-E-Mail in the User Manual for more information on this feature.

Select Two-Player Hot Seat to place the main program in a mode where two people can play a game on the same computer with each playing under Fog of War. In this mode, the main program will prompt before changing sides so that the appropriate person can take their place at the computer while the other looks away.

Select Record Battle to begin recording the turns of the current battle. You will be prompted with a File Save dialog to specify the filename of the recording. By default, recorded battles are stored in files with the extension btr. After you are through recording a battle or portion of a battle, you can terminate the recording by reselecting the Record Battle option. Once you have recorded a battle, you can replay it by using the Replay feature of the File Menu. Note that when you replay a battle, the perspective of the replay is that of the opposing side. That is, if you replay a battle that has been played using Automatic A/I with Fog-Of-War, you will see the battle from the perspective of the computer player. A battle replay can be paused by pressing the Escape key and can be resumed by using the Restart Replay feature described below.

Select New Encryption Key if you are the Caller in Network Play and you want to specify a new encryption key to be used for the current battle.

Select Resync with Remote if you are using Network Play and you suspect that the two computers have become out of sync with respect to the current battle. The player that chooses this option will cause their copy of the battle to be copied to the other computer. Note: since the current implementation of Network Play uses Microsoft's Direct Play technology, this feature should rarely be necessary.

Select Restart Replay to restart a battle replay that has been paused through the use of the Escape key. Select Place PBEM or AI Termination Bid to display the Termination Bid Dialog. This can be used to place a Victory Level bid for termination of the current PBEM or AI game.

Select Respond To PBEM or AI Termination Bid to display the Bid Response Dialog. This is used whenever you receive a PBEM termination bid from your PBEM opponent.

Select Communication Dialog to redisplay the Comm Dialog if it has been closed. If you are the Modem Host, then select Set Multi-Player Timer to display the Timer Dialog. This allows you to establish a timeout value during Network Play to ensure that everyone completes the phase in the specified number of minutes. After the specified number of minutes, the phase will automatically be advanced. To disable this feature, set the timeout value to 0. While the timer is running, the timeout status will be displayed in the Status Bar. When the indicator is green

there is still at least a minute left in the current phase. When the indicator turns yellow there is less than 1 minute left. The indicator will turn red when control passes to the other side. When the indicator turns orange

there is less than 1 minute left in the opposing side's phase.

Select Multi-Player Dialog... to display the Multi-Player Dialog. This is used to see who is participating in the current Network Play game and to see and change their current assignments.

Select Scroll to View Enemy Action to toggle the setting that causes the window to scroll whenever an enemy unit moves, fires, or melees. This feature is on by default, but automatically turned off whenever there is more than one enemy player in Network Play.

8.10 Settings Menu

The Settings Menu is used to select certain settings that are saved when the main program is exited and restored the next time the main program is run. These options are stored in Windows Registry.

Selecting the Prompt for Scenario option causes the main program to prompt you for a new scenario using a File Open dialog when the main program has not been invoked from the front-end.

Selecting the Ask Before Advancing option causes the program to prompt you to confirm that you want to advance when you advance the phase or turn.

Selecting the Auto Save option causes the main program to automatically save the current battle when the phase is advanced, except when the phase is under the control of Automatic A/I. Note that the battle is saved just prior to advancing the phase, so it is possible to reopen the battle file and restore the battle to the previous phase when the phase is inadvertently advanced.

Selecting the Blink Hot Spot option causes the red outline in the Hot Spot hex to blink. Selecting the Auto Scroll option puts the map in a mode where moving the mouse cursor to any edge of the screen will automatically scroll the map in that direction. When this option is turned off, normal Windows scroll bars are displayed when the map is larger than the screen area.

Selecting the Smooth Scroll option causes the map to scroll smoothly from one part of the map to another whenever the Hot Spot is relocated. With this option turned off, the map display will immediately relocate resulting in faster operation.

Selecting the Wheel Zoom option causes the map to zoom using the mouse wheel. Selecting the Drag Path option causes the Drag and Drop functionality to use your plotted movement course rather than the path finding routines in the engine. See section 5.2.1.

Selecting the Toolbar option causes the sub-menu to open, which also has a further sub-menu: The first sub-menu controls the size of the buttons displayed, or if there are any Toolbar buttons displayed at all. The second sub-menu controls which grouping of buttons are displayed at any given time and coincides with the large grouping buttons on the top row - "All", "Unit", "Combat", "Report", "Map" & "Highlight". Additionally, there is a "Static" option which displays a Toolbar with all buttons and no grouping buttons.

Selecting the Cursor option causes a sub-menu to be displayed allowing one of three different sizes to be selected. Selecting the On Map Results option causes combat losses to be displayed on the map rather than in a separate dialog box.

Selecting Map Contours option causes a sub-menu to be displayed allowing one of three different colors and/or widths to be selected.

Selecting Unit Symbols displays sub-menu for you to choose between three sets of 2D unit graphics for the game. Graphical (Default), NATO or Block.

Selecting Alternative Outline Color changes the default hex outline color from gray to white. Selecting Alternative Highlighting Color changes the default highlighting color from yellow to orange.

Selecting Alternative Labels causes the program to display labels on the map and in the Unit Boxes using an alternative style (no white border).

Select Night Shading to have a visual indicator placed over all map tiles during Night, Dawn & Dusk turns. The shading will be softer during Dawn and Dusk than Night to indicate the differences.

Selecting the Introduction option causes the main program to play the introduction including splash screen, introduction video, and game cover art.

Selecting the PBEM Encryption option causes the main program to prompt for and verify passwords associated with Play-By-E-Mail games. See the Design Notes in the User Manual for why this is not the default.

Selecting the PBEM File No Save option in conjunction with the PBEM Encryption option will prevent PBEM games from being saved by the user during a turn. The intent of this is to prevent a player from replaying a turn and thereby obtaining an advantage.

Selecting the Beep on Error option causes the main program to generate a beeping sound whenever you perform an invalid operation.

Selecting the Sound Effects option causes the main program to play sound effects during combat. Selecting the Background Music option causes the main program to play background music during each player's turn.

Selecting the Background Sounds option causes the main program to play background sounds during each player's turn. Selecting Initial View displays the Initial View Submenu described below.

Selecting Hex Info Area displays the Hex Info Area Submenu described below. Selecting Optional Rules causes the Optional Rules Dialog to be displayed so that Optional Rules for the current battle can be reviewed. Note: these rules can only be set at the beginning of a new battle.

Selecting Clear Settings... will initiate a reset of all game settings back to initial install defaults. The Initial View Submenu is used to establish the initial map view that is displayed when the main program is run.

Selecting Last View causes the main program to come up in whatever map display mode it was last in. Selecting 2D Extreme Zoom-Out View, 2D Zoom-Out View, 2D Normal View, 3D Zoom-Out View, or 3D Normal View causes the main program to come up in that view.

The Hex Info Area Submenu is used to determine the location of the Hex Info Area on the screen. Selecting Left, Right, Top, or Bottom causes the Hex Info Area to be displayed in the corresponding location on the screen.

8.11 Help Menu

The Help Menu is used to display various information about the main program including this help file and copyright information.

Selecting General Help displays the Summary Information file, listing Hot Keys, and other data useful for game play. Selecting Parameter Data displays the Parameter Data Dialog.

Selecting Design Notes displays the help file containing information about the development notes for the specific project.

Selecting Users Manual displays this help file covering the core of information needed to play the game. Selecting Getting Started displays the initial help file that is displayed when the game is first installed.

Selecting Changes File displays the file cataloging the various changes to the game since its original release. Selecting About displays information about the main program such as version number, serial number for the

current installation and copyright information.

9. Dialogs

9.1 File Selection Dialog

The File Selection Dialog is displayed when the main program is run if the Prompt for Scenario Option has been selected (see the Settings Menu).

The File Selection Dialog allows you to select the mode of play and associated game file. Select New to start a new scenario, or Old to restart a previous battle. Select one of the given play modes such as Normal for play against the computer. Finally, select one of the displayed files either by double clicking on the filename, or selecting the filename and clicking on OK.

Selecting the "PBEM Folder..." will open a File Explorer window displaying the games \Saves folder so that new PBEM files can be added.

Note: when Direct Play Caller is selected, no files are displayed since file selection is the responsibility of the Direct Play Host in this case.

9.2 Phase Dialog

The Phase Dialog appears at the beginning of each Phase or Turn (under Local Control). Clicking anywhere in the Phase Dialog with the left mouse button will close the dialog and start the Phase or Turn. Clicking with the right mouse button will close the dialog and also cause the dialog to automatically close thereafter after a short delay. Right clicking again will toggle this mode off.

The Phase Dialog reports the controlling side and optionally the current Phase. It also reports the current turn and the total number of turns in the current battle.

9.3 A/I Selection Dialog

The A/I Selection Dialog is used to select the A/I settings for each side in a new battle and other values. The A/I settings for the French and Allied sides correspond to the A/I settings described in the A/I Menu. The slider under the A/I settings is used to establish the Advantage for the new battle. The side you move it towards will have combat results slanted in its favor. This can be useful when playing against the computer if you desire a "stiffer" challenge, you can move the bar a couple of notches in its favor. Select Rules to display the Optional Rules Dialog so that the Optional Rules for the new battle can be established. Click on OK to begin the battle.

9.4 New Scenario Dialog

The New Scenario Dialog is used to establish starting conditions for two-player games such as Network Play and PBEM. Select one for the Local Side. The other player will be the remote side in the battle. If desired, select the Fog of War option. The Rules button will display the Optional Rules Dialog. The slide bar above the buttons is the "Advantage Slider". The side you move it towards will have combat results slanted in its favor. Click on OK to begin the battle.

9.5 Artillery Dialog

The Artillery Dialog provides a convenient way to select and fire artillery batteries on the map. The Artillery Dialog is only available during Fire Phases (the Defensive Fire Phase and Offensive Fire Phase) when playing in Phase mode.

The Artillery Dialog displays a list of artillery batteries on the map for the current side. Batteries which are unable to fire in the current phase are not listed. The map location of each battery is listed with its name. Selecting Find will cause the map to scroll to the location of the currently selected battery. An entry which is dimmed, or greyed out, and has no artillery icon on the left indicates a battery which currently has no possible target to fire at. As each entry in the list is selected, the units on the map which may be fired at by the battery are shown Highlighted. Clicking on a hex with the right mouse button will cause the battery to fire at this hex. If there is more than one target in the selected hex, this will cause the Target Dialog to be displayed.

9.6 Target Dialog

The Target Dialog is displayed whenever a hex that has more than one possible target is fired upon. Each potential target in the target hex is listed. Individual leaders in a hex cannot be targeted but will still be affected by fire into the hex. Uncrewed artillery units are displayed dimmed. Unless FOW is in effect, units which are low or out of ammo are also displayed dimmed. Selecting a unit in the list and clicking on OK, or double clicking on a unit in the list, will close the dialog and resolve the fire against that unit. Clicking on Cancel will cancel the fire.

9.7 Scheduled Dialog

The Scheduled Dialog can be used to view the reinforcements defined for the current scenario. The Scheduled Dialog displays a list of reinforcements scheduled to arrive in the current scenario. Each reinforcement entry has an arrival time, an arrival probability, and an arrival hex. If Fog of War is in effect, then the reinforcements of the opposing side are not shown and the arrival probabilities of friendly reinforcements are not revealed. If the arrival probability is not 100%, then there is a chance the reinforcement will not arrive at the exact arrival time. At the arrival time, and on each subsequent turn if necessary, the arrival probability will be applied to the reinforcement until it is determined that the reinforcement has arrived. For each failed attempt on the arrival check 1% chance is added up to an additional 10%. Clicking on a reinforcement scrolls the map to the arrival hex.

With FOW in effect the percentage chance of arrival is masked. A rating will be displayed to the player to give some idea of the confidence they can place in the reinforcements being accessible to them. The rating will be listed as - 'Low' (1-33%), 'Med.' (34-66%) and 'High' (67-100%). Each reinforcement in general consists of several units. Double clicking on a reinforcement entry displays a list of the individual units in that reinforcement. When an asterisk (*) precedes the Scheduled entry, it indicates that the unit(s) did not occur on the time and date specified and so have less than a 100% arrival probability. These entries will remain each turn until the Arrival Check passes so those units can enter play.

9.8 Arrived Dialog

The Arrived Dialog is used to display units that have arrived as reinforcements and to place these units on the map.

Selecting an entry in the list of arrived units and clicking OK will place the units on the map and close the dialog. Alternatively, double clicking on an entry will place the units on the map and keep the dialog open if there are more units to place.

The Arrived Dialog is automatically displayed whenever there are units that have arrived that have not been placed and the phase has been advanced. Clicking Cancel will close the dialog and advance the phase. If units remain they may be brought on the map at a later turn.

9.9 Release Dialog

The Release Dialog is used to view Releases defined for Fixed units.

Selecting an entry in the list of Releases will Highlight the affected units on the map. When an asterisk (*) precedes the Release, it indicates that the Release did not occur on the time and date specified. Double clicking an entry or clicking OK will close the dialog and leave the units Highlighted. Clicking Cancel will close the dialog and remove the Highlighting.

When the word FIXES appears in the list, then the release will cause the units in the specified organization to become Fixed rather than releasing them.

9.10 Withdrawal Dialog

The Withdrawal Dialog is used to view any Withdrawals associated with the current scenario. The Withdrawal Dialog displays a list of the Withdrawals associated with the current scenario. Each Withdrawal shows a time, date, probability that the Withdrawal will occur on that time and date, and the organization the Withdrawal applies to. When an asterisk (*) precedes the Withdrawal, it indicates that the Withdrawal did not occur on the time and date specified. Selecting an entry in the list of Withdrawals will Highlight the affected units on the map. Double clicking an entry or clicking OK will close the dialog and leave the units Highlighted. Clicking Cancel will close the dialog and remove the Highlighting.

9.11 Strength Dialog

The Strength Dialog is used to review the current strengths of the on-map units in the current battle. The Strength Dialog displays the current strengths in number of men for each organization using the number of troops currently on the map. Under Fog of War, the strength of the enemy forces will not be shown.

9.12 Objectives Dialog

The Objectives Dialog is used to display the current ownership and value of Objective Hexes. Each Objective is listed together with its current owner, location, and value. Exit Objectives are shown with an X following their value. When Fog of War is in effect, the value of enemy Exit Objectives is displayed as ??.

9.13 Leader Casualty Dialog

The Leader Casualty Dialog is used to display a list of the leaders that have fallen as casualties during the current battle. Next to each entry is a code representing the type of casualty that occurred for that leader. A "K" indicates that the leader was killed. A "W" indicates that the leader was wounded. A "C" indicates that the leader was captured. Selecting an entry in the list will scroll the map to the location where the leader became a casualty.

9.14 Victory Dialog

The Victory Dialog is used to view the current victory conditions. Each scenario has a First Side determined by the Parameter Data of the current scenario. Victory conditions are always calculated relative to that side resulting in a victory level for that side. The victory level for the other side is the opposite result. For example, if the French side is first and gets a Major Victory, then the Allied side suffers a Major Defeat, and so forth. The total number of Objective Points for the first side is displayed. For each side, the Losses of each side in terms of Infantry, Cavalry, Artillery, and Supply are listed together with the Point Loss corresponding to each type of loss. The point range associated with each victory level is displayed in the Victory Values field. The total points awarded to the First Side is based on the Objective Points held by that side, minus the Point Losses for that side, plus the Point Losses for the enemy side. This calculation results in the Total Points value. This value is compared to the Victory Values to determine the victory level. If the Total Points is less than the Major Defeat value, then the First Side suffers a Major Defeat. If the Total Points is greater than the Major Defeat value but less than the Minor Defeat value, then the First Side suffers a Minor Defeat. If the Total Points is greater than the Minor Defeat value but less than the Minor Victory level, then the battle has resulted in a Draw for both sides. If the Total Points is greater than the Minor Victory value, but less than the Major Victory level, then the First Side has won a Minor Victory. Finally, if the Total Points is greater than the Major Victory value, then the First Side has won a Major Victory. If the Optional Rule awarding Victory Points for Leader Casualties is selected in the current battle, then these points are included in the Losses display and included in the calculation for Total Points. The points assigned for a Leader Casualty are calculated as follows:

$A = (\text{Leader Moral} + \text{Strength}) * 4$. $B = (\text{Major Victory Value} - \text{the Major Defeat Value}) / 15$ $C = A + B$

C is divided by Army Leader : 1 Wing Leader: 3 Corps Leader: 4 Division Leader: 8 Brigade Leader: 16 C is multiplied by Wounded: .5 Killed: .75 Captured: 1 Example: Charles is captured at Poltava.

$A = (5 + 5) * 4 = 40$ $B = (300 - -300) / 15 = 40$ $C = (40 + 40) / 1 * 1.0 = 80$

A value of 1 point at minimum will always be awarded for a Leader loss. In the case of Replacement leaders, or secondary leaders, victory point awards are cut in half.

9.15 Location Dialog

The Location Dialog is used to display a list of all the map locations and to allow going directly to any of these locations. Each map location is listed with its label description and hex coordinates. Selecting a location causes the map to scroll to the location's hex coordinate. Double clicking on a location also causes the dialog to be closed.

9.16 Organization Dialog

The Organization Dialog is used to highlight an organization on the map. All organizations in the scenario Order of Battle are displayed in a Windows Tree Control. Selecting an organization causes the on-board units in that organization to be Highlighted and the map to scroll to view those units. Additionally, the higher commanders are highlighted with an alternate color. Clicking OK closes the dialog while keeping the organization highlighted on the map. Clicking Cancel closes the dialog and cancels the highlighting. You may interact with the map while this dialog is open, if desired.

9.17 Find Unit Dialog

The Find Unit Dialog can be used to find any given unit or leader that is on the map. Enter the name to be searched for in the Enter search field. Note: the search is case-sensitive so you must enter your name with the proper capitalization (King Charles not king charles for example). If you are confident that your search will produce a single result, you can hit return after typing the search name. Otherwise, click on the Search button. This will display a list of results in the Search results list. Select the result you want and click on OK, or double click on the result you want, to close the dialog and find the result. In the case of an organization, the organization will be Highlighted on the map. In the case of an individual unit, the map will be scrolled to the unit's location on the map.

9.18 Jump Dialog

The Jump Dialog displays a reduced version of the entire map and allows the user to jump directly to any part of the map. The visible on-map units are displayed on the reduced map using the colors for each army. Due to the wide variety of armies covered in this series, it will vary from title to title. The dots used on the jump map will coincide with the 2D bases for each army. The visible portion of the map on your screen is shown using a red rectangle. The current Hot Spot hex is shown as a red outline square. Clicking on the reduced map area causes the dialog to be closed and the regular map to scroll to the selected location. If the Highlight Org command is active a black circle will be placed on the jump map encompassing all the area the selected organization is deployed in currently. In the above example this command is very dispersed, with elements acting as scouts to monitor the approaching enemy force. During Network Play, the position of the units on the Jump Dialog is automatically updated once per second.

9.19 Advantage Dialog

The Advantage Dialog is used to view and modify the current Advantage setting. Moving the slider to one side or the other gives that side a better Advantage value for the current battle. Note that Advantage values cannot be changed after the battle has started in two-player games.

9.20 Optional Rules Dialog

The Optional Rules Dialog is used to view and select the Optional Rules for a new battle. Optional Rules can be set at the beginning of a battle, but not changed once the battle has started. The Optional Rules selected in the Optional Rules Dialog are saved and become the subsequent default for new battles. See the Design Notes in the User Manual for why Optional Rules are not called Advanced Rules.

If you select Manual Defensive Fire, then each turn will consist of a number of Phases rather than two player turns. The game rules under this option are described in section 2.3.

Select Victory Points for Leader Casualties to have Victory Points awarded for enemy leaders that are killed, wounded, or captured. See the Design Notes in the User Manual for why this is not a default rule. Note: With the 4.01 update the point values awarded have been increased, with Army

and Corps level leaders receiving an increase in point value. Details on the calculations can be found in the Victory Dialog section.

Select Rout Limiting to reduce the amount of secondary routing that occurs. The default routing rules require that units adjacent to a unit that has failed its morale check must also take a morale check (there are restrictions such as routing skirmishers cannot cause non-skirmishers to rout). This is applied recursively if those units also fail their check. While this can result in the rout of large number of units, given normal probabilities it is "self limiting", that is, it stops after a certain number of iterations based on the situation.

When Rout Limiting is in effect, units in adjacent hexes undergoing a morale check receive a progressively larger modifier to their default morale. This modifier starts at 1 and is increased by 1 for each iteration based on a failed morale check. So, for example, if unit A fails their morale check, unit B in an adjacent hex undergoes a morale check with +1 added to their default morale. If unit B fails this test, then unit C in an adjacent hex to B undergoes a morale check with +2 added to their default morale. And so on. Therefore, as these modifiers increase, a point is reached where units stop routing which, in general, will be before they would have stopped otherwise. See the Design Notes in the User Manual for why this is not a default rule.

Select Isolation Rules to simulate the effects of units being surrounded and cut off. This is noted by assigning a state of Isolated to units that cannot trace an uninterrupted path to a map edge or a friendly Supply Source. Isolated units have their strength divided by 2 when defending in a melee. Also Isolated leaders receive no benefit from their commanders during command checks. When an Isolated Artillery unit fires, it may become Low or Out-Of-Ammo. The Artillery unit will become resupplied when it becomes non-Isolated, unless the Artillery supply level for its side is zero. See the Design Notes in the User Manual for an explanation of the Isolation melee effects.

If you select Optional Fire Results, then the resulting fire casualty values are based on the average of two default fire calculations. This produces values which are more likely to be in the midrange of the casualty interval rather than uniformly distributed.

Select Melee Terrain Modifiers to have the terrain modifier of the defending hex applied to melee results. Select Column Pass Through Fire to have Artillery Pass-Through fire effects apply to Infantry in Column and Block formations as well as Infantry in Line formation.

Select Target Density Modifier to have the fire value affected by the total number of men in the target hex. When the target hex has more than 2/3 total stacking value of men in it, then the fire value against units in this affect is multiplied by Total/value where Total is the total number of men in the target hex and value is the 2/3 stacking value. Example: 1800 men in hex. Max stacking is 1800 => 2/3 value = 1200; Multiplier is $1800/1200$ (total/value) = 1.5

Select No Retreat Overruns to prevent the defenders of a melee from retreating into hexes containing only enemy skirmishers.

Select Movement Threat Disorder to cause units that are moving to be subject to a similar disorder check due to threat as when units attempt to change formation. Depending on the strength of the facing defending units and the morale of the moving units, this may cause disorder or rout to the moving units. See the User Manual under Threat Values for more details.

Select Auto Defensive Fire to have the Defensive Fire Phase of Play-By-E-Mail (PBEM) games conducted under the control of the computer. This rule greatly facilitates the playing of PBEM games in Phase Mode as it allows play with only one file transfer per turn. Using this rule allows the range of fire generated by ADF to be adjusted using the Auto DF Dialog which is displayed from the A/I Menu. Used in conjunction with the Manual Defensive Fire optional rule.

Select Optional Melee Resolution to have a separate melee phase added to each sides turn. So, all movement and fire takes place, the turn is advanced and then melee's are conducted. This only pertains to Turn based play, since Phased based play already as discrete sections defined.

Select Night Movement Fatigue to have units that move, melee, or are fired upon during night turns accrue Fatigue at the rate of 50 points per turn.

Select Push Skirmishers to be able to displace a skirmish line in Clear or Field terrain. See section 5.2.19 for further details.

Select Weak Zone-Of-Control to allow units to move one hex through enemy Zone-Of-Control per turn and to allow units to retreat one hex through enemy Zone-Of-Control.

Select Partial Retreats to allow some units to retreat from a hex after being defeated in melee even when there is not enough room for all of the units to retreat. See the Design Notes in the User Manual for why this is not a default rule.

Select Line Movement Restriction to cause infantry units that move in line formation to have the chance of becoming Disordered. The details of this are explained in the User Manual in the section on Movement.

Select Flank Morale Modifier to have the morale of non-Skirmisher units, with non-Skirmisher friendly units on both flanks, increased by 1 for the purpose of Rout and Disorder determination. Another way to refer to this is as "double flank elbow courage".

If you select Optional Melee Results, then the resulting melee casualty values are based on the average of two default melee casualties. This has the effect of reducing the variation in casualty values.

Select Multiple Cavalry Melees to allow cavalry units to melee attack units that have all already been meleed against. Select Multiple Infantry Melees to allow infantry units to melee attack units that have all already been meleed against.

Select No Opportunity Fire Against Skirmishers to prevent opportunity fire from being targeted against hexes that only contain skirmishers with a strength $\leq 1/8$ stacking limit.

Select No Melee Eliminations to prevent defenders in a melee that have no valid retreat hex from being eliminated. Select No Detached Melee to prevent units not in the command radius of their immediate commanding officer from initiating melee attacks. This does not apply to Leaders who are detached from

their next in command. Also, when the No Detached Melee optional rule is in effect then a Detached unit cannot take control of an Objective hex.

Select Mixed Organization Penalty to have a -1 morale modifier applied to units in the same hex with units from different brigades.

Select Column Movement Restriction to have infantry in column formation become disordered when entering obstructed terrain (forest, towns, marsh).

Select Strict Line of Sight to have visible hex shading be displayed only from hexes with occupied by friendly forces. Note: As mentioned, once you select the optional rules you wish to use they remain your default for each new battle you start. You can click the "Default" button to return to the suggested optional rules as defined for the series at any given time when starting a new scenario. When playing another person - the side who actually starts the scenario is the one which determines the optional rules being used.

9.21 Leader Selection Dialog

The Leader Selection Dialog is used to select leaders to command when a side is set to Commander Control A/I. Select one or more leaders from the list to command. Leaders which are displayed dim do not participate in the current scenario and should not be selected. The list of leaders is a standard Windows List Box control and the standard list selection features can be used. For example, if you make a selection while holding down the Shift key, then all list entries between the previous selection and the current one will be selected. If you make a selection while holding down the Ctrl key, the selection will be added to the existing selections. After you have selected all of the leaders you wish to control, click on the OK button.

9.22 Order Dialog

The Order Dialog is used to view and establish orders for selected commanders when using Commander Control A/I. The Order Dialog displays a picture of the leader and lists his organization plus each of the subordinate organizations. If you click on one of these organizations, it will be highlighted on the map and the current order for the organization, plus status information, will be displayed in the Order Dialog. The Location is the current hex coordinates of the leader of the selected organization if he is currently on the map. The Size value is the number of men of the organization currently on the map. The Health value is a percentage based on the total effective strength of the organization. Units in the organization of no Fatigue or Low Fatigue are counted full strength towards the total effective strength. Units in the organization of Medium Fatigue are counted half strength towards the total effective strength. Units in the organization of High Fatigue do not count towards the total effective

strength. The Health value is the total effective strength as a percentage of total Size. If the selected organization currently has an Order, the type of order is indicated in the Order Type field and the hex coordinates of the objective hex are displayed in the Objective field. The A/I logic of the main program will establish a default order for the Leader's organization. This order may be overridden by the player. Furthermore, it is the responsibility of the player to establish orders for each of the suborganizations based on the order for the Leader's organization. To establish a new order for an organization after it has been selected, first select the Order Type and then click on the map with the right mouse button to establish the Objective for the order.

9.23 Selection Dialog

The Selection Dialog is useful when the game is in Full Screen mode (see the View Menu). The Selection Dialog allows the units in the current Hot Spot to be displayed and selected. The Selection Dialog is displayed by pressing the Space Bar. You can make extended selections in the list of units displayed using the normal Windows list selection features. For example, by holding down the Shift key and clicking with the left mouse button, you can select a range of units. By holding down the Control (Ctrl) key and clicking with the left mouse button, you can select arbitrary units.

9.24 A/I Action Dialog

The A/I Action Dialog is displayed as the A/I is taking action during a Phase under A/I Control. The dialog allows you to control the A/I while it is running. Click Step to have the A/I continue to the next step in its action. Click Run to have the A/I run continuously without stopping until the end of the Phase is reached. Once clicked, the Run button becomes the Pause button which is used to stop the A/I actions. Alternatively, to stop the A/I and close the dialog, you can click on the Cancel button or press the Escape (Esc) key. If you close the dialog, you should start the A/I again by selecting Activate A/I from the A/I Menu or the A/I button in the Toolbar.

9.25 Multi-Player Dialog

The Multi-Player Dialog is used to display the players that are currently participating in a Network Play game and their assignments. The dialog shows a list of players on each side of the current battle. Next to each list is a display of that side's organizations (when Fog-Of-War is in effect, you will not see the other side's organizations). At the bottom of the dialog are four buttons used to manipulate the player lists and the assignments (Note: only the Modem host will have all four buttons enabled). The

top player on each side is the Commander of that side. The Commander is responsible for making org assignments for the other players on their side and for advancing the phase. By default, the Commander is in

control of all units on that side. The Commander can assign other players specific organizations by selecting the player from the list, selecting the organization from the organization display, and clicking the Assign button. The player's color will appear next to the selected organization. This indicates that the player has control of every unit in that organization and in any sub-organization of that organization. The Commander can remove an assignment by selecting the organization and clicking the Deassign button. The Modem Host can promote a player from either side to be Commander by selecting the player and clicking the Promote button. The Modem Host can also switch the side of any player by selecting the player and clicking the Switch button. Only the Commander can advance the phase and place reinforcements. When any other player from a side selects Next Phase, it causes their name to be displayed in red in the player list indicating they are ready to advance the phase.

9.26 Termination Bid Dialog

The Termination Bid Dialog allows you to place a Victory Level bid to terminate a PBEM game or a Campaign game against the A/I.

The Termination Bid Dialog is most often used in a Campaign Game to terminate a PBEM or A/I game so that the Campaign can branch to the next Situation without having to play the game to the last turn. It can also be used to formally end a normal PBEM game, although this has no real effect beyond both parties agreeing to the Victory Level outcome. Use the list of possible Victory Levels to place a bid relative to the current game. You can also cancel your bid by choosing the No Bid option. Otherwise, the Victory Level bid you select will be displayed to your PBEM opponent when they read the PBEM file. They respond to your bid using the Bid Response Dialog during their turn. When you place a termination bid against the A/I, it is automatically accepted.

9.27 Bid Response Dialog

The Bid Response Dialog is used to respond to a PBEM termination bid placed by your PBEM opponent. The Bid Response Dialog shows the current Victory Level of the game and the Victory Level bid placed by your opponent. If you agree to the Victory Level proposed by your opponent, click on the Accept button. This will automatically conclude the current PBEM game at the proposed Victory Level. If you click on the Decline button, then the bid will be ignored.

9.28 Parameter Data Dialog

The Parameter Data Dialog displays the Parameter Data associated with the current scenario. It consists of a text listing of the scenario values. The values are read from the PDT file corresponding to the current scenario. The Parameter Data values are: General Data

- Title: the title of the Parameter Data file.
- First Side: the first side of each turn.
- Bridge Damage: if this value is nonzero, then random bridge damage can occur in the scenario.
- Cavalry Charge Factor: the factor which is used to determine the increase in attacking strength for charging cavalry in melee.
- Cavalry Charge Multiple: the maximum number of times that cavalry can melee when charging. Time Parameters
- Dawn: the time of first light.
- Dusk: the time when light starts to fade.

- Day Turn: the length of one game turn in minutes during the day.
- Night Turn: the length of one game turn in minutes during the night.
- Hours of Twilight: the number of hours of reduced visibility after dawn and starting at dusk.
- Twilight Visibility: the distance that can be seen during twilight turns. Note: Often times weather entries are used to gradually increase or decrease visibility during dawn and dusk turns.

Stacking Parameters

- Max Counters: the maximum number of unit counters that can be placed in a single hex, even if below max stacking values. Artillery counts as 2 counters per battery.
 - Strength Point: a factor used to determine number of men in certain combat calculations.
 - Max Stacking: the maximum number of men, or equivalent strength, that can be placed in a single hex.
 - Art Max Stacking: the maximum number of guns that can stack in a single hex.
 - Cav Stacking: the maximum number of cavalry troopers that can stack in a single hex.
 - Skirmisher Fraction: determines the fraction of total strength that will be deployed as skirmishers.
 - Squadron Fraction: determines the fraction of total strength that will be deployed as a squadron.
 - Max Valid Skirmishers: The maximum number of skirmishers that can exist in a hex and still retain their Skirmisher benefits. If this value is exceeded the combined units are treated as a Formed unit for combat and movement effects. Extended Line Values
 - 2-Line Infantry: the number of men a 2-line infantry unit must have to be eligible to go into Extended line formation.
 - 3-Line Infantry: the number of men a 3-line infantry unit must have to be eligible to go into Extended line formation.
 - 4-Line Infantry: the number of men a 4-line infantry unit must have to be eligible to go into Extended line formation.
 - Artillery: the number of guns an artillery battery must have to be eligible to go into Extended line formation. National Command Distances
 - Listed by Nation/Faction:
 - Brigade: the maximum distance that a unit can be from its Brigade commander and still be in command and not Detached.
 - Division: the maximum distance that a Brigade leader can be from his Division leader and still be in command and not Detached.
 - Corps: the maximum distance that a Division leader can be from his Corps leader and still be in command and not Detached.
 - Wing: the maximum distance that a Corps leader can be from his Wing leader and still be in command and not Detached.
 - Army: the maximum distance that a Wing leader can be from his Army leader and still be in command and not Detached. Fatigue Parameters
 - Max Fatigue: the maximum Fatigue value that a unit can have.
 - Day Recovery: the average percentage of fatigue points recovered by a resting unit during the day.
 - Night Recovery: the average percentage of fatigue points recovered by a resting unit during the night.
- Movement Parameters

- Rear Move: the additional cost to move in a direction that the unit is not facing.
- Disorder Movement: the fraction of the normal movement allowance that Disordered units have. Line/Column Infantry, Cavalry, and Supply Wagon Movement Costs The movement cost for each unit in the corresponding terrain. Leaders move according to Mounted Cavalry. Change Facing Costs: The movement cost for each unit type to change its facing one hexside. About Face Costs: The movement cost for each unit type to change its facing 180 degrees. Breastwork Values
- Movement: The additional cost a unit will pay to cross over.
- Combat: The protective modifier applied to a unit holding a position behind the breastworks. This value applies to both ranged fire & melee.
- Allowed: Value to determine if this feature is active in the given scenario. Archer Stake Values
- Allowed: Value to determine if this feature is active in the given scenario.
- Movement: If active, this is the additional amount of movement points it costs to move through archer stakes. Fortification Values
- Abatis Movement: Additional movement cost to cross over abatis.
- Abatis Fire: Percentage reduction of fire effectiveness for fire crossing abatis.
- Trench Movement: Additional movement cost to move into a hex containing trenches.
- Trench Fire: Percentage combat modifier applied to defending units in a trench hex. National Ammo Loss The probability that a unit which fires will suffer a reduction in ammo level, either to Low Ammo, or from Low Ammo to No Ammo state. The artillery reduction probability only applies to artillery which is Isolated when the optional Isolation Rules are enabled. Fire Modifiers
- Enfiladed: the increase in effect of fire directed against a target unit which is not facing the firing unit.
- Cavalry: the increase in effect directed against mounted cavalry.
- Fanaticism Value: the increase in Morale that certain specified units receive.

Artillery Combat Values

- Melee: when an artillery unit is attacked in melee, this is the number of men per gun that is used to determine the unit's melee strength.
- Fire: when an artillery unit is fired at, this is the number of men per gun that is used to determine the unit's losses. Terrain Combat Modifiers For each terrain type, the value is the percentage effect that terrain has on fire which is directed into the terrain or across the terrain hexside. The Elevation modifier is the fire modifier for fire directed against targets on higher elevations. The modifier is multiplied by the number of elevations increments difference between the firing unit and target unit. Elevation increments are indicated on the map by different shading and coloring. National Leader Loss Values Fire Wound: the percentage chance that a loss check will result in a leader in the target hex being wounded. When there is a loss of x against a unit, a loss check will occur relative to every leader in the hex with the probability of: $x / (x + 10)$ Fire Kill: the percentage chance that a fire result check will result in a leader in the target hex being killed. Melee Wound: when a leader is involved in a melee that results in losses for his side, then the percentage given is the probability that the leader will be wounded as a result of the melee. Melee Kill: when a leader is involved in a melee that results in losses for his side, then the percentage given is the probability that the leader will be killed as a result of the melee. Melee Captured: when a leader is involved in a melee that results in losses for his side, then the percentage given is the probability that the leader will be captured as a result of the melee. Height Values: The height of each terrain type and the height of a man for purposes of computing Line-Of-Sight. Nation Modifiers:
- Column Fire Modifier: This modifier is applied to fire from Infantry units in Column formation.

- Column Melee Modifier: This modifier is applied to melee combat strength for Infantry units in Column formation.
- Artillery Resupply Values: When artillery units arrive as reinforcements, the value given is the number of additional artillery ammunition points added to the artillery supply for that side for each gun in the unit.
- Line Disorder Values: These values determine the base probability that an infantry unit moving in Line formation will become Disordered under the Line Movement Restriction optional rule.

Column of March Nation Modifiers:

- Column of March Fire Modifier: This modifier is applied to fire from Infantry units in Column of March formation.
- Column of March Melee Modifier: This modifier is applied to melee combat strength for Infantry units in Column of March formation.
- Infantry Threshold: Minimum strength required for an Infantry unit to spawn a second counter when placed into Column of March formation.
- Cavalry Threshold: Minimum strength required for a Cavalry unit to spawn a second counter when placed into Column of March formation. Casualty Calculation Values The values represent the High and Low values used when computing combat calculations within the game as outlined in section 5.3.34 Combat Results. Weapon Data For each weapon type, the data indicates the firing effectiveness of that weapon at each of the ranges given. In particular, the last range indicated is the maximum range for that weapon. The values listed are #/#, with the first being against soft targets, the latter against hard targets. Additionally, any weapon specific flags that have been assigned will be displayed, such as Must Setup, No Defensive Fire, etc. Weapons are displayed in the order they are listed in the weapon.dat file. For all weapons that do not have ranged fire capability the data represents attack and defense modifier values for each weapon. Weather Entries here describe the various weather conditions that are possible in a scenario. Each weather condition has a starting time and a percentage chance it will start at that time. The various parameters associated with each weather condition are described in the User Manual under Weather and Conditions. If less than 100% then a check continues each subsequent turn or until a new weather entry is encountered.

9.29 Campaign Dialog

The Campaign Dialog is used to select a level of A/I control for a campaign battle. The Campaign Dialog is displayed at the beginning of a campaign battle. The dialog allows the level of A/I control for that battle to be selected. If Manual is selected, then the battle will be played with the controlling side under Manual control. Likewise, for the other modes (see the A/I Selection Dialog for more information on these modes).

9.30 Auto Defensive Fire Dialog

The Auto DF Dialog is used to set the ranges your units will conduct fire when under AI control. This can be during "opportunity fire" during Turns or if playing in Phases with the Auto Defensive Fire optional rule selected. The default value for both types is "Medium". Medium range is max range / 2 + 1 for both types. Minimum range is fixed at 1 (infantry) and 4 (artillery).

9.31 Column of March Dialog

The CoM Dialog is used to control the process of changing an entire organization into or out of Column of March formation. This is limited to the Divisional level and below. If you select Yes all units will be changed into CoM. If you select No all units will be taken out of CoM. Select Cancel to terminate the process. Units do not need to be in adjacent hexes in order to be controlled by this command.

10. Other Features

10.1 Hex Info Area

The Hex Info Area displays a list of the units in the Hot Spot hex and information about the terrain in that hex. The Terrain Box at the bottom or right of the unit list displays information about the current Hot Spot hex. The first line of the display describes the type of terrain (in this case Clear) and the percentage benefit a unit will receive when fired upon by virtue of that terrain. In the case of a Water hex crossed by a Trail, the terrain description will be Ford. The second line of the text area shows the Elevation of the current hex in feet. The third line of the text area shows the artillery Ammo values for the units in the hex. The fourth line of the text area shows the Objective value of the hex, if any. Note: Exit Objective hexes will have the word Exit on this line. Clicking on the Terrain Box with the right mouse button causes the display to change to the Alternative display. In this display, the text area changes to show a description of the various hex sides that are present in the hex. The names of the hex sides are arranged in a rough hexagonal pattern around the center of the text area showing the position of the hex side with respect to the hex. The value in the center of this display is the number of men, or equivalent strength, in the hex and the number to the right of the / is the current Threat Value exhibited on the hex.

Leaders are displayed using a Leader Box. Each leader is displayed with his picture, his name, and his organization. When the organization name is displayed in Yellow, it indicates that the leader is subordinate to another leader in the organization.

Clicking on a leader's display with the right mouse button causes a display to appear showing the command hierarchy of the leader. From top to bottom the window lists the leader, his organization, the next higher organization, and so forth. In addition, it displays his Command Level (what organization is he commanding, in this example a Brigade) then his Command Rating (his ability to command with A being highest and F being lowest), his Leadership Value (his ability to motivate his troops with A being highest and F being lowest), and his Movement Value. When the Command Value is displayed in Yellow, it indicates that the leader has failed his Command Test.

Also, in the example to the right we want to look at Col Lewenhaupt. He received a command bonus from his superior officer as he now has a B rating, but his base rating is an D, shown in []. If he failed his command test his rating would be in yellow. The Hex Info area is filled to the right with Unit Box displays. The number of these depends on your screen resolution. The Unit Box shows a representative picture of the unit, its name, its organization, its Strength (in men for infantry and cavalry, in guns for artillery, and in resupply ability for supply wagons), its Movement Value, its Quality, and its current Fatigue Level (in values from 0 to 900). If the Strength value is displayed in Yellow, it indicates that the unit is at less than full strength. If the Quality level is displayed in Yellow, it indicates that the unit's morale is reduced for some reason such as fatigue or ammo level. For Supply Wagons, each unit of strength represents enough ammunition to resupply 10 men. For Ships, the Quality field will have two values. First a letter for their Quality and it will be followed by a number. The number is the Armor Rating assigned to the vessel. Clicking on a Unit Box with the right mouse button causes a popup window to appear showing the command hierarchy of the unit. From top to bottom, the window lists the unit name, the unit's organization, the next higher organization and so forth. In addition, in this mode, the type of unit, the unit's weapon, and the firing range of the unit are displayed.

When there are more units in the Hot Spot hex than can be displayed in the available Unit Boxes, then scroll arrows that appear after the list of units can be used to scroll the Unit Boxes. When the left or top arrow is displayed in full color, there are units to the left or top of the displayed units and when the right or bottom arrow is displayed in full color, there are units to the right or bottom of the displayed units.

Note: You can Shift + right-click the Hex Info Area to "lock" the view of the secondary info display as you move from hex to hex. To remove the lock right-click the HIA again.

10.2 Toolbar

The main program has a Toolbar which exists at the top of the main program window just under the Menu Bar. With version 4.01 the Toolbar is now "dynamic" in that it can be displayed in its entirety, or the "filter" buttons can whittle down what is shown at any given time based on the task selected. The large rectangle buttons on the top row control this filtering.

Additionally, under the "Settings" menu, "Toolbar" then "Category" is the option of "Static All" which will display this format:

How the buttons display on your system is dependent upon your screen resolution. You may have multiple rows, like is captured here, or you may have a single line of buttons (in the case of the Static option). We will be using the Standard Toolbar at the top, working left to right, to define each button below. In game, if you hover your mouse over a button a "Tool Tip" will come up displaying the name of the button. Additionally, when the Tool Tip is displayed the associated "Hot Key" will also be listed. Move/Fire Mode - used to toggle between modes when playing in Turns so that fire commands can be issued in between movement commands. Next Stack - advance the Hot Spot to the next stack of units that have not been active this phase.

Previous Stack - advance the Hot Spot to the next stack of units that have not been active this phase. Roaming Mode - click this button to start Roaming Mode which will allow you to move your mouse around the map, and as you pass over each hex the information in the HIA will be updated with the details. The end click on any hex. Jump Map - display the Jump Map Dialog so you can quickly go to another part of the map.

Activate AI - activate the A/I to complete any remaining actions with your turn. A confirmation dialog box will be displayed when this button is depressed.

Save Battle - save current battle under existing filename or prompt for filename if none.

All Toolbar - this will cause all available buttons to be displayed if filtering has previously taken place. Unit Toolbar - this will filter the second row of buttons to only display those buttons that pertain to issuing commands directly to units. Combat Toolbar - this will filter the second row of buttons to only display those buttons that pertain to issuing combat commands. Report Toolbar - this will filter the second row of buttons to only display those buttons that pertain to gathering information from the various reporting tools. Map Toolbar - this will filter the second row of buttons to only display those buttons that pertain to interacting with the map to change what is displayed. Highlight Toolbar - this will filter the second row of buttons to only display those buttons that pertain to highlighting the units based on their current status.

Slow Speed - Slows the speed of the A/I during the computer turn, the Auto Defensive Fire phase, or in a Battle Replay segment. Medium Speed - Proceeds at a moderate speed for the A/I during the computer turn, the Auto Defensive Fire phase, or in a Battle Replay segment. Fast Speed - Proceeds at an accelerated speed for the A/I during the computer turn, the Auto Defensive Fire phase, or in a Battle Replay segment. Fastest Speed - Proceeds at the top speed for the A/I during the computer turn, the Auto Defensive Fire phase, or in a Battle Replay segment. All sound and video effects are disabled to improve performance. Pause - Stops the A/I processing during the computer turn, the Auto Defensive Fire phase, or in a Battle Replay segment. Next Turn - advance the current battle to the next turn or phase.

To Top - will move the selected unit to the top of the stack.

To Bottom - will move the selected unit to the bottom of the stack.

Change Formation - change line/column or limbered/unlimbered formation of the selected units.

Change Skirmisher/Squadron - deploy or recall Skirmishers/Squadrons relative to selected units.

Counterclockwise - turn the selected units counterclockwise.

Aboutface - turn the selected units about-face.

Clockwise - turn the selected units clockwise.

Change Block - change the formation of the selected units to Block or back to line.

Change Extended Line - change selected units to or from Extended Line.

Change Charging - change selected cavalry and leaders to Charge Mode.

Toggle Bridge Repair - change selected units to or from repairing bridge operations.

Remove Units - remove the selected units from the map.

Undo Move - undo the last move, if FOW is not in effect.

Artillery Dialog - display the Artillery Dialog.

Set Auto Defensive Fire - opens the ADF dialog so that ranges can be set.

Leader Casualties - displays the leader casualties dialog box.

Strengths - displays the strengths dialog box which lists the current status of the armies.

Reinforcements - displays the reinforcement dialog box.

Releases - displays the release schedule dialog box.

Arrived - displays the reinforcement arrived dialog box.

Removed Units - displays the removed units dialog box.

Display Org - displays the organization dialog box.

Locations - displays the locations dialog box.

Objectives - displays the objectives dialog box.

Supply Sources - displays the supply sources dialog box.

Weather Forecast - displays the weather forecast dialog box.

Victory Conditions - displays the victory conditions dialog box.

Begin Melee - set the melee condition to active for the selected hex.

Add To Melee - add the selected units to the melee in the adjacent hex.

Melee Odds - displayed the odds for the current melee.

Resolve Melee - resolve the current melee.

Clear Melee - clear, or cancel, the current melee.

Zoom-In - increase the scale of the map display.

Zoom-Out - decrease the scale of the map display.

Full Screen - toggle the display of the full-screen map.

Labels - toggle the display of the map location labels.

Map Coordinates - toggle the display of the map coordinates.

Contours - toggle the display of elevation contours on the map.

Slopes - toggle the display of the slope graphics on the map.

Map Combat Modifiers - toggle the display of the map combat modifiers for each map hex.

Map Elevations - toggle the display of the map elevations for each map hex.

Objectives - toggle the display of objectives on the map.

Toggle Carnage - toggle the display of dead and wounded on the map in 3D mode.

Hex Outlines - toggle the display of hex outlines on the map.

Leaders On Top - toggle the display of leaders on top of stacks.

Toggle Units - toggle the display of units on the map.

Toggle Bases - toggle the display of unit bases on the map in 3D mode.

Brigade Colors - toggle the display of color coded markings to designate brigades.

Reachable Hexes - toggle the display of reachable hexes for the selected unit.

Visible Hexes - toggle the display of hexes visible from the current Hot Spot hex.

Command Range - toggle the display of the command range for the selected leader.

Highlight Fired - toggle the highlighting of units that have fired or meleed in the current turn.

Highlight Moved - toggle the highlight of units that have moved in the current turn.

Highlight Fixed - toggle the highlight of units that are currently fixed.

Highlight Detached - toggle the highlight of units that are currently detached from their parent organization.

Highlight Disordered - toggle the highlight of disordered units or leaders that have failed their command test.

High-Fatigue Units - toggle the highlighting of units that have high fatigue levels.

Isolated Units - toggle the highlighting of units that are currently isolated.

Low/No Ammo - toggle the highlight of units that are low or out of ammo, and uncrewed artillery.

Spotted Units - toggle the highlight of spotted units.

Supply Wagons - toggle the highlight of supply wagons.

Highlight Org - toggle the highlight of all units in the same organization as the top selected unit. Holding the Alt key while pressing this button again causes the next higher organization to be highlighted. Commanded Units - toggle the highlight of units under the command of the currently selected leader in Multi-Player Network play.

10.3 Status Bar

The Status Bar is located at the bottom the main window and displays status information about the current battle.

The Status Bar typically displays the current phase and date information together with the hex coordinates of the Hot Spot in the far-right corner. If the current phase is being played using A/I, then A/I Control will appear with the phase and date information. Day, Dusk, Dawn, and Night turns will be noted with the phase

and date information as well. If you are playing a two-player game, then Local Control will be displayed in the Status Bar when the current phase is under your control, and Remote Control will be displayed when the current phase is under the control of your opponent. Additional current weather conditions along with their accompanying modifiers are displayed when applicable. During the A/I's turn the current speed setting will also be displayed in the status bar. If you make an error during play, the main program will beep (depending on the setting in the Settings Menu) and the error message will be displayed in the Status Bar. Otherwise, as you move the mouse cursor over Toolbar buttons and menu items, short descriptions of those commands will appear in the Status Bar.

10.4 Range Tool

During game play you can use the Range Tool to grab a quick measurement of distances. For example, this can help when determining a location to place an artillery battery. To use the tool, select a hex you wish to measure from (it does not have to be an occupied hex) then press and hold the Shift key and left-click and hold on the desired target hex. The range between the two points will be displayed like the image to the left. Once you release the mouse button the information will no longer be displayed. If you keep the left mouse button depressed, you can release the Shift key and move your mouse around the map and the information will be updated as you move across the hexes.

10.5 Roaming Mode

Roaming Mode enables you to view several locations on the map without having to click the mouse on each one. To start Roaming Mode, press the R key. Thereafter, the Hot Spot will follow the mouse as you move it over the map. To leave Roaming Mode, click on any hex.

10.6 Hot Keys

The following Hot Keys are supported in the main program. Note that these Hot Keys are defined as command accelerators of the main program main window and therefore the main window must have the keyboard focus for these to work (that is, the main window must have a highlighted title bar). ` Key - toggle the display of on-map labels. Space Bar - display the Selection Dialog (useful in Full Screen mode). Tab - Display unit strengths per hex. Press again to turn off. Esc - in PBEM mode, ends the replay routine. F1 - invoke General Help (display this help file). F2 - invoke the Parameter Data Dialog. F3 - invoke the Campaign Notes help file. F4 - display User Manual. F5 - decrease A/I processing speed. F6 - return A/I processing to normal speed. F7 - increase the speed of the A/I processing. F8 - put the A/I in the highest possible processing mode. F9 - pause A/I processing, or in PBEM mode ends the replay routine.

- A - Highlight low/No Ammo units.
- B - toggle display of unit bases (Note: this only has a visible effect in the 3D graphics mode).
- C - toggle display of Command Range.
- D - Highlight Disordered units.
- E - Highlight Spotted units.
- F - Highlight Fired units.
- G - Highlight High Fatigue units.
- H - Toggle display of Reachable Hexes.
- I - Highlight Isolated units.
- J - display Jump Dialog.
- K - Highlight units that are Commanded by you in Multi-Player mode.

- L - display 2D Leader icons on top of each stack of counters.
- M - Highlight Moved units.
- N - advance the Hot Spot to the next stack of units that have not been active this turn or phase in the current move or fire mode.
- O - display the Objective marker on the map.
- P - advance the Hot Spot to the previous stack of units that have not been active this turn or phase in the current move or fire mode.
- Q - Highlight organization for the selected unit.
- R - start Roaming mode. Click the mouse to exit on a hex.
- S - Highlight all Supply Wagons.
- T - toggle display of unit flags (Note: this only has a visible effect in the 3D graphics mode).
- U - toggle unit counters.
- V - display visible hexes from selected Hot Spot. (Note: Must contain friendly units to view when FOW is in effect.)
- W - Highlight Detached units.
- X - remove the selected units from the map.
- Y - display Supply Sources on the map.
- Z - display Divisional Colors.
- 1 - display the map in Extreme Zoom-Out 2D mode.
- 2 - display the map in Zoom-Out 2D mode.
- 3 - display the map in Normal 2D mode.
- 4 - display the map in Zoom-Out 3D mode.
- 5 - display the map in Normal 3D mode.
- 0 - toggle display of Hex Outlines.
- + - increase the scale (view) of the map.
- - - decrease the scale (view) of the map.
- Backspace - toggle display of 3D carnage.
- [- toggle display of elevation contours on the map.
-] - toggle display of 2D slope graphics on the map.
- \ - toggle display into full screen map.
- / - toggle display of terrain combat modifiers.
- . - (period) toggle display of map elevations.
- , - (comma) toggle display of map coordinates.
- ; - (semicolon) toggle display of A/I orders.
- Keypad 0 - change the formation of the selected units.
- Keypad 1 - move the selected units down and to the left one hex.
- Keypad 2 - move the selected units down one hex.
- Keypad 3 - move the selected units down and to the right one hex.
- Keypad 4 - turn the selected units counterclockwise.
- Keypad 5 - turn the selected units about-face.
- Keypad 6 - turn the selected units clockwise.

- Keypad 7 - move the selected units up and to the left one hex.
- Keypad 8 - move the selected units up one hex.
- Keypad 9 - move the selected units up and to the right one hex.
- Keypad * - highlight Mixed Units stacks.
- Keypad / - highlight Routed units.
- Keypad + - highlight Extended Line units.
- Keypad - - highlight Non-Full Strength units.
- Delete - move the selected units counterclockwise.
- Page Down - move the selected units clockwise.
- Home - move the selected units forward in the Hot Spot hex (Note: this only has a visible effect in the 3D graphics mode).
- End - move the selected units backward in the Hot Spot hex (Note: this only has a visible effect in the 3D graphics mode).
- Alt + C - open Leader Casualties Dialog..
- Alt + D - open the Withdraws Unit Dialog.
- Alt + F - open the Auto Defensive Fire Dialog.
- Alt + G - open Strength Dialog.
- Alt + J - open the Scheduled Units Release Dialog.
- Alt + L - open Locations Dialog.
- Alt + M - open Name of music Dialog.
- Alt + N - open the Arrived Units Dialog.
- Alt + O - open Objective Dialog.
- Alt + P - open Supply Source Dialog.
- Alt + Q - open Organization Dialog.
- Alt + R - open Removed units Dialog.
- Alt + W - open Weather Forecast Dialog.
- Alt + Y - open Victory Dialog.
- Alt + Z - open the Scheduled Units Dialog.
- Alt + \ - open Find Leader or Unit Dialog.
- Ctrl + A - open artillery dialog.
- Ctrl + B - change Charging.
- Ctrl + C - change formation of selected units.
- Ctrl + D - change Block formation.
- Ctrl + E - change Extended Line.
- Ctrl + F - turn selected units counterclockwise.
- Ctrl + G - turn selected units about-face.
- Ctrl + H - turn the selected units clockwise.
- Ctrl + I - begin melee.
- Ctrl + J - add to melee.
- Ctrl + K - change into Column of March for selected unit(s).

- Ctrl + L - clear melee.
- Ctrl + M - construct breastworks.
- Ctrl + O - show melee odds.
- Ctrl + P - resolve melee.
- Ctrl + R - repair bridge.
- Ctrl + S - deploy/recall skirmishers.
- Ctrl + U - Undo last movement.
- Ctrl + V - change Open Order formation.
- Ctrl + X - remove the selected units from the map.
- Ctrl + Y - move selected units to top of stack.
- Ctrl + Z - move selected units to bottom of stack.
- Shift + F - toggle display of fire range.