Edward Grabowski's

THE BLUE & THE GRAY

Technical Supplement and Tutorial

Impressions

Committed to Excellence in Strategy Entertainment
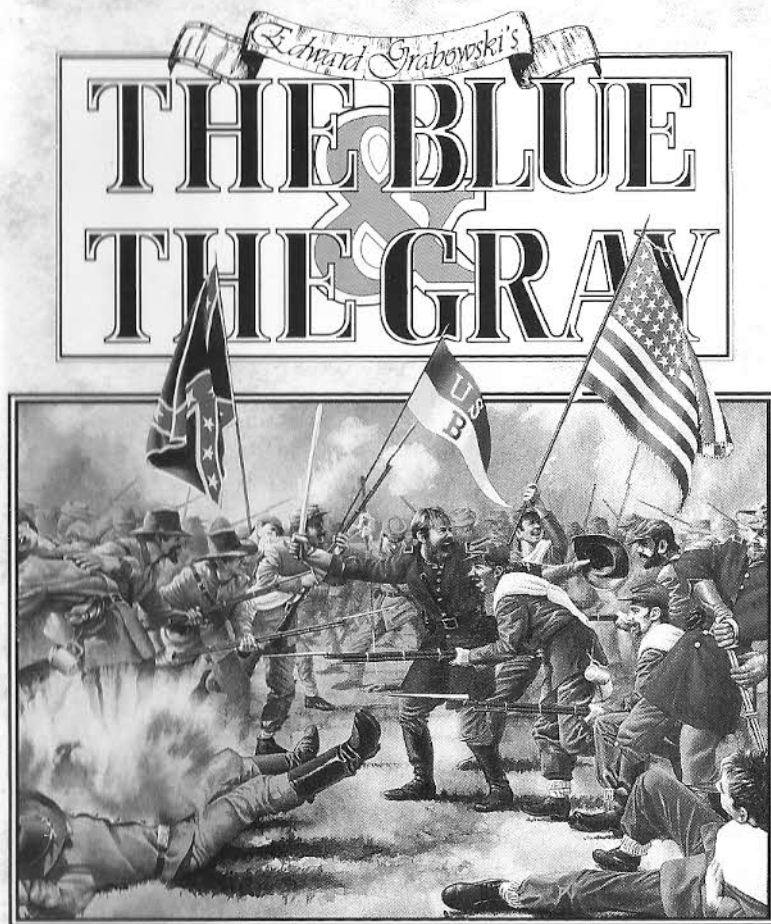
Edward Grabowski's

THE & BLUE
THE & GRAY

Technical Supplement and Tutorial

Congratulations on your purchase of Edward Grabowski's *The Blue and The Gray*, CD-ROM version. Our goal is to produce strategy games of the highest quality, and to that end we are always working to our improve our products. This CD-ROM version contains several revisions to *The Blue and The Gray* since its initial release in disk format. The revisions are highlighted in gray boxes in this Technical Supplement and Tutorial. You may see discrepancies regarding game play between this tutorial and the other game manuals in *The Blue and The Gray*. In this case, you should treat the Technical Supplement and Tutorial as the most up-to-date source.

Technical Difficulties?

If you have problems installing or running any of our games, please consult the back of this manual. If problems persist, call our Technical Support Line at (617) 225-0848, and a member of our support staff will assist you. Hours are 9 a.m. to 5:30 p.m. E.S.T., Monday through Thursday and 9 a.m. to 5 p.m. E.S.T. Friday.

On-Line Technical Support

Information about Impressions can be found on several of the major on-line services. If you have questions about installing or running any of our games, or want to find out about our latest releases, try the following:

CompuServe:	Type "GO GAMEPUB" and look for the Impressions section
GEnie:	Type "M805;1" and watch Category 9 — "Strategy & War Games" for the IMPRESSIONS topic.
Prodigy:	JUMP to "GAMES BB" and look in "Strategy/War Games" topic

Impressions can also be contacted directly through the following addresses:

CompuServe:	71333,463
GEnie:	IMPRESSIONS
Prodigy:	BCFP34A

If you are not a member of any of these services, these are the numbers to call for more information:

CompuServe:	Dial 1(800) 524-3388 and ask for operator #417 to receive a free introductory membership, $15 usage credit, and a month's worth of basic services free
GEnie:	Dial 1(800) 638-9636 for a service representative from 8 a.m. to 12 midnight Monday thru Friday, and from 12 noon. to 8 p.m. weekends
OR	use your modem between 8 a.m. to 6 p.m. to connect GEnie directly at 1(800) 638-8369
Prodigy:	Dial 1(800) 776-3552 and ask for extension 518

Installation and Loading — IBM PC

DOS Installation

To play The Blue and The Gray, you must first install a small portion of the program onto your hard drive. This will require 3 MB of RAM.

1. Turn on your PC, and wait for DOS prompt (C:\ etc.) — **exit** Windows or Dos-Shell if they run automatically on startup.

2. Insert *The Blue and The Gray* disc into your CD-ROM drive (usually **D**:).

3. Access that drive by typing the drive letter, a colon, and <Enter>. For example:

      D: <ENTER>

4. Type **INSTALL** and press **<ENTER>**.

5. Follow the on-screen instructions. The procedure is self-explanatory.

Windows Installation

(Note: This game is not designed to be a windows product. We recommend that you install it from DOS.)

1. Insert The Blue and The Gray disc into your CD-ROM drive.
2. Run windows.
3. Select **File... Run** from the Windows Program Manager.
4. Run the setup program included on the CD by typing the CD-ROM drive letter, colon, backslash, then **install**. For example, **D:\install** where the CD-ROM drive letter is **D**.
5. Follow the onscreen instructions to complete the installation.

Playing from the hard drive

To play *The Blue and The Gray*, you must first have installed a portion of the game to your hard drive. Turn your computer on and place the game disc in your CD-ROM drive. From the DOS prompt, access the directory on your hard drive where you installed the game. You would type **C:**<*path name*> if your hard drive is **C**:. The <*path name*> is the directory you established when installing the program. For example, **C:\CIVIL**.

Then type CIVIL**<ENTER>** to begin.

Changing your Soundcard Setup

If you change your computer's sound setup after installing the game, you can reconfigure your computer by accessing the directory where the game is stored and typing

      SETUP <ENTER>

This configuration program works identically to the one you used when installing the game.

Sound and Soundcards

With the proper sound setup installed in your computer, this game can produce a variety of sounds (including music and digitized sound effects). However, if you intend to use your computer's internal PC speaker instead of a soundcard, you may find the game's sound effects to be garbled or inaudible. If this is the case, you can turn them off by toggling the **Sound FX** command on the Options menu.

Memory Requirements

The memory requirements for running this game will be listed in the text file README.TXT included with the game. For instructions on viewing this file, see "Additional Features and Documentation," below.

If you cannot run this program on your machine, you may not be fulfilling the game's memory requirements. You can check this by running either of the utilities included with DOS; **CHKDSK** or **MEM**. Both will display the amount of **available** conventional memory you have. To run one of these utilities, just type its name from the DOS prompt or consult your DOS manual.

If you require more memory, the first thing to do is try modifying your AUTOEX-EC.BAT and CONFIG.SYS files. (**NOTE:** Copy them to a floppy disk before making any changes, so you can undo them if you make a mistake.) If you have any unnecessary Terminate-and-Stay-Resident (TSR) programs loaded by these files, try removing them. If you have DOS 5.0 or higher, make sure that you have loaded DOS and as many drivers as possible into high memory. See your DOS manual for more information on these items.

After you have done this, reboot the computer and try to run the game. If it still does not run, the next step is to make a **boot disk** which you will use to start the computer "clean" of all extraneous programs and drivers. For information on making a boot disk, see your DOS manual.

Additional Features & Documentation

Some game features have been added or modified since this game's documentation went to press. Information on these new features has been included in the text file "README.TXT." To access this file, load it into any text editor (like Windows' NOTEPAD or Dos 5's EDIT utility), or access the directory where this game was installed and type

TYPE README.TXT | MORE <ENTER>

The character before the word "MORE" is a **vertical bar**, which is generated by holding down the **Shift** key and pressing the **back-slash** key. This text can also be read directly from your game disks.

Game Setup

When you start the game, the first thing that appears is the game's title screen; click the mouse to skip past this. The campaign screen will then appear, and on top of that will be an **options panel** with the following three choices:

Play Standard Game Begin a game at the start of the Civil War.

Load Saved Game Resume a game started earlier.

Historical Battle Play a self-contained **Micro Miniatures** historical battle. You will then need to choose a panel from the **Directory** panel that appears; see the chapter on **Game Options** in either manual for information on using the Directory panel.

Click on the choice that you wish to play. Another panel will appear, letting you choose to play either the **Federal** and **Confederate** side of the conflict. After you click on your choice, the panel will clear and the game will begin.

NOTE: If you chose "Historical Battle," then you should look to the **Micro Miniatures Manual**, for information on how to fight a battle. Otherwise, look to the **Campaign Manual** for guidance.

Controlling Difficulty

There are a few ways that you can control the difficulty level of this game:

Federal vs. Confederate — Because the North had more resources to work with than the South, you will find the game **easier** to win if you play the **Federal** side.

Conversely, if you are looking for a **harder** fight you should play as the **Confederates**. Therefore, we recommend that you play as the Union (sorry, Southern enthusiasts) until you get the hang of the game.

Fog of War & Supplies — You can add to the challenge of this game by switching on and off these two difficulty options; the game works the same as before, except that you will also have to contend to issues of visibility and maintaining supply lines for units deep in enemy territory. See the **Difficulty Options** chapters in both the **Micro Miniatures Battle Manual** and **Campaign Manual** for details.

New in CD-ROM:

Victory Conditions — You have full control over the system that will determine victory in your game. Adjust the conditions by clicking on the word **Options** on your menu bar and selecting **Victory**. Under **Success Points**, you can change the points awarded for a battle victory, for the first taking of a city, for recapturing a seized city, for capturing an enemy city a second time, and for taking a capital city.

Under **End Conditions** you can decide what will determine victory in the game. Turn the **Success Bar** option to "yes" to end the game when you reach a pre-scribed number of victory points. Adjust **Max Points** to determine the point value required for victory. With the **City Capture** option, you can determine whether the South can win by capturing a specific Northern city. The **City** bar gives you several Northern cities to choose from if **City Capture** is turned to "yes." The **End mid-April 1865** option determines whether your war will end automatically on that date, or continue indefinitely.

For this tutorial, you may leave the Victory Conditions on their default settings. Select "**OK**" to continue.

Note: When your game ends, you will have the option to continue the game. If you choose to play on, all victory conditions will be switched off.

Campaign Tutorial

*This section will guide you through the major features of the campaign level of this game. If you would like to learn about the Micro Miniatures level of the game first, skip to the next chapter titled **Battle Tutorial**. While you can continue the game you start in the tutorial, we recommend that you begin a new game once you have a grasp of the concepts covered below.*

To start your tutorial, you must first install and/or load the game on your machine; PC users should read the **Installation and Loading** chapter of this manual for instructions, while users of Amigas and other types of machines should look to the **Installation Card** included in your game package. Start the game using the instructions you find there; the title sequence should appear, and after that you will be brought to the main game screen.

> **NOTE:** Get the **reference card** from your game package now, so you will have it handy.

Setting Up a Game

At this point you can see portions of a map, menu bars and icons filling the screen, but what we're interested in right now is the gray panel located right in the middle of everything. This panel allows you to **setup** a game, and has three options: **Play Standard Game**, **Load Saved Game** and **Historical Battle**. We have prepared a special saved game for this tutorial, so you should select the middle option, **Load Saved Game**.

Selecting Items with the Mouse

If you move your mouse, you'll see a **white arrow** mimicking your movement on the screen; for users unfamiliar to computers this is the **mouse pointer**. You will use this throughout the game to select items and press buttons on the screen. To do this, simply move the mouse so that the arrow points to the item of your choice,

then press the **left** mouse button. When you release the button, the item will be selected.

Do this now to select the **Load Saved Game** selection on the Game Setup panel. In general, do this whenever this tutorial (or the game manuals) tells you to "select," "press" or "click on" something.

Loading a Game

A new panel should appear, with the name "Directory." We'll use this to select the prepared tutorial game, but you can also use it to save or load games while you're playing.

Look at the white window in the middle of the panel; this is the **File Window** which lists the names of saved games that are available for loading. If this is the first time the game has been played since you loaded it, there should only be a couple of names in this window. The name you are looking for is **TUTORIAL.SAV**; if you can't find this in the File Window, press the **up arrow** and **down arrow** buttons next to the window to see more names.

When you've found the file you want, simply **select** it with the mouse; it should appear in the box below the File Window. Then press the **Load** button at the bottom of the panel. A small panel will appear, asking you to confirm; click on **Yes** to actually load the game. One last panel will then appear to tell you that the load was successful. Soon all of the panels will disappear and you will be shown the **Campaign Screen**.

> **NOTE:** Generally speaking, if a text message like this one appears on the screen like this, you can **clear** it quickly by clicking the left mouse button.

In this game, you will be playing as the **Federal** side (also known as "The Union" or "The North"), and the computer will play the Confederates (or "The South"). Historically, the North had the advantage of men, industry and technology in the Civil War; and this simulation reflects that advantage in the levels of recruitment and weapons available to either side. Therefore, it is better to play as the North when you are learning the game.

Campaign Screen

The screen you see now is divided into four sections: the **menu bar** at the top of the screen, which lists the names of menu that you can access; an **information bar** just below the menu bar, which identifies which unit you have selected and the current weather; the **display window** on the left side of the screen, which shows a scrolling view of the game's main map; and the **control panel** on the right side of the screen, through which you access most of the game's commands. By the time you finish this tutorial, you'll be familiar with most of the features on this screen.

Take a look at the **date** located at the right end of the menu bar. This saved game begins on August 1, 1861, approximately one month after a regular game begins. Some of your troops have been moved, and some new recruits have been made available to you; but you'll learn about all that later.

Accessing a Menu

There are a couple of game options that can be used to make the game more challenging to play; we should check to make sure that they are currently turned "off." To do so, move the mouse pointer over the **menu bar** at the top of the screen, and select the word "Options." When you click on this, a small white menu will appear below it. Look for the entries on the menu called **Fog of War** and **Unit Supply**, and make sure that they are set to **Off**. If an entry is set to on, change it by clicking on it. The menu will disappear when you make the change, so you will need to access the menu again if you need to change more than one option.

Also, there is an option here called **Quickfight** that allows Micro Miniatures battles (covered in a separate tutorial) to be resolved more quickly. Make sure that this is turned **off** as well.

> **NOTE:** The campaign level of this game is turn based, so time is not passing while you look around and make changes. Therefore, don't feel rushed to complete the tutorial quickly; take your time.

Reviewing Overall Stats

Let's start by taking a look at the overall stats for both sides of the war. Move the mouse pointer onto the menu bar and click on the word "**Stats**". There is no menu associated with this command; it will jump you straight into the **Campaign Statistics Screen**.

This screen shows you the number of men fighting for both sides of the war, listed in a table on the left side of the screen. Take a look at the figures now. You can see how troops are divided into three separate types: infantry, cavalry and artillery. **Infantry** are your basic footsoldiers, armed with rifles. **Cavalry** are faster troops on horseback, which carry rifles but are much deadlier when wielding their sabres. **Artillery** are slow-moving cannons, which are fewer in number than the other types but are devastating when bombarding the enemy at long ranges. These are the three categories of soldier in the game.

You can see how there are two different statistics next to each troop type. The larger number represents the number of men you have of that type, but a much smaller number indicates the number of **divisions** in that category. The large mass of soldiers that you have of a given type are **divided** into a number of units called divisions. You can move and give orders to each division as a single unit, without worrying about the individual soldiers within it. Nearly all of the strategic actions that you take in this game are done by manipulating divisions. (However, you'll learn about another kind of unit called **transports** later.)

If you compare your **active** statistics (those troops which are alive and fighting) to those of the Confederates, you'll see that they currently have more soldiers than you. But don't worry; you have some new recruits available this turn, and as time goes on you will eventually have more men than they do (unless you lose too many of them in battle).

Before we leave this screen, you should note the **Losses** statistics on either side; these will track the total number of fatalities in the war due to battle and disease. They start at zero now, but the game has just begun.

We're ready to leave this screen now, so click on the **Finished** button at the bottom

of the screen to return to the Campaign screen.

Divisions and Transports

Now let's see how your forces are represented on the campaign map. If you take a look at the **display window** on the left side of the screen, you will see a bunch of blue and gray markers scattered on the map. These are called **units**; they are the pieces that you move and give orders to throughout the game. The blue units are the North's (yours), and the gray ones are the South's (the enemy's). There are five kinds of units in the game, which are separated into two categories; we'll locate each type of unit now.

The first category are **divisions**, which are the same divisions you saw on the Campaign Statistics screen. There are three types of divisions, one for each type of soldier; each has its own distinctive markings. Look for a unit with an "X" in it; that is an **infantry** division. Find another unit with single slash across it; that is a **cavalry** division. Then find a unit with a square and a dot centered on it; that is an **artillery** division.

The second category of units is **transports**, which are units that can carry your divisions around faster than they can move alone. There are two types of transports: **trains** and **ships**. You should be able to find one train and one ship on the map; they are marked with small train and ship symbols, so they are easy to recognize.

Selecting Units

While all divisions of the same type look the same, they have many differences; so there are ways of finding out more information about a division. The simplest way is with the **information bar** and **control panel**, which (as you can see) displays a lot of information about one division.

See the one division that is outlined with a **white rectangle**? This is the **currently selected** unit. The control panel always shows information about the currently selected unit, whether it is a division or transport. Let's try this out; find the

infantry division located just south of Pittsburgh, then point to it and press the **right** mouse button.

> **NOTE:** Do **not** press the left mouse button when selecting units, or else you will end up giving movement commands to units by accident. If you make this mistake, press the **U** key on the keyboard to **undo** the move.

When you select the infantry division, information on the screen will change. First of all, the **information bar** will show the name of the division, including its **division number** (1), **corps number** (3) and **army name** (Army of the Potomac). Each division can be assigned to one of twenty armies, can join a corps within that army, and has its own unique division number within that army; however most of this is optional. The computer will assign division numbers, and you can put everyone in one army if you want to. (For more information on army organization, see the **Campaign Manual**.)

Secondly, the **control panel** has several displays that show information on your selected division. At the top of the panel (next to the small micro-map) is the **type** of unit selected (in this case, Infantry). Below that is the type of **terrain** that the unit is on; your Pittsburgh infantry is standing on a clear **field**. Terrain affects how quickly your units can move.

Below the terrain display is the number of **movement points** the unit has to spend. Each type of unit has a certain number of movement points to spend each turn by moving; it either spends all of them in the current turn (moving as fast as it can), or it loses them at the end of the turn. The campaign map is divided into squares, and each square of a particular type of terrain costs a certain number of points to follow. This infantry unit has not moved this turn, so it has its maximum number of points, which is **four**. (See the table in the **Selecting and Moving Divisions** chapter of the Campaign Manual to see the costs of each type of terrain, and the number of movement points that each unit type has in a turn.) There is an option to order divisions to go on **forced march**, which gives them more movement points but kills some of their men; for more information, see the Campaign Manual.

Below movement points is the **quality** of the men in the division. This rating measures the skill of your troops at combat, and is affected by their training and battlefield experience. (**Note:** This rating only applies to divisions and ships.) This

division's quality rating is **poor**. Below that is the **number of men** that the division represents; this number will go down when men fall in battle or to disease, and will go up when you assign the division new recruits. (**Note:** Ships and Trains do not have this rating.) This division represents **7,000** men.

In boxes below the number of men are the **Status** and **Special Orders** displays. The first shows the current status of your division, which is currently "**Ready**"; other possible status reports are "Moved" (when all movement points in a turn are spent) and "Fought" (when a division has fought a battle this turn). The second display shows which orders can be given to the current piece; orders will be displayed in black when they are valid for the selected unit. Currently, only the **Fortify** and **Forced March** orders are valid for this division.

If you want more information on your divisions, you can press the **List Divisions** button on the Control Panel to see the **Division Detail** screen; for more information on this, see the Campaign Manual.

> **NOTE:** You select divisions and transports in the same way.

Stacked Units and Men-In-Square

Now take a look at the unit on top of Washington. Notice how it has a thin black outline along its left and top sides? This means that it actually represents **several** units that are **stacked**. Select (by right-clicking, remember) the unit that you see there. A screen will appear, displaying the names of each division in the stack. This screen also tells you which army the division belongs to, and whether or not a general is traveling with the division. As you can see, you have four infantry, one cavalry, and two artillery divisions in this square on the map. To control a single division within a stack, just select it from the selection panel. The stack selection panel will only appear if you have more than two units on one square.

You may keep pieces "stacked" on the same square so that they can fight as one large mass of men; in this case, all of these units will join in to defend Washington if it is attacked.

When you have several units on the same square, it gets difficult to tell exactly

how many men they can bring to a fight; that's why there is the **Men** (in Square) button. Push this button now, located next to the Number of Men display on the Control Panel. A small gray panel will appear, showing you the total number of each type of soldier that are located in Washington. This is a handy feature when moving many "stacks" of divisions all across the map.

Viewing and Scrolling the Campaign Map

Now that you know something about divisions and transports, you should see where your forces are in relation to those of the enemy. The **display window** only shows a small portion of the entire campaign map, so we will need to **scroll** the window to see the rest. There are two ways to do this with the mouse, and we will try both of them.

First, we'll use the **scroll bars** along the bottom and right edges of the window, to see how your forces off to the west are arranged. Each scroll bar features a white **scroll box** inside it with **gray spaces** on each side, and **arrow buttons** at each end. Click on the left-hand arrow button, and the map will scroll one map-square to the left. To scroll faster, hold down the **right** mouse button instead of clicking the left, and it will scroll continuously. This is still a slow way of scrolling, so here's an alternative; click in the gray space between the left arrow button and the scroll box, and the display will scroll a half-screen to the left. Do this repeatedly (with the right mouse button if you prefer) so you can see all the way to the west end of the map; then scroll from side to side, studying the locations of your forces across the map.

> **NOTE:** As you scroll, you may notice how the names of cities near the right edge of the map aren't always visible. Whenever you want to know the name of one of these cities, just scroll the display out towards the ocean, and the names will appear.

We'll use another feature to see where your enemy forces are. Find the small map display in the top-left corner of the Control Panel; this is the **micro-map**. See the black rectangle on it? That shows what part of the campaign map is being shown on the display window. We can use this map to shift that view; point to a location on the southern part of the map and **click** the left mouse button. The black rectan-

gle will jump to center on this point, and the view on the display window will follow it. Now try holding down the **right** mouse button and moving the mouse **slowly** over the map; this allows you to scroll smoothly and continuously over the map.

Your Campaign Plan

Use these techniques to study the current situation that your forces face; scroll the map to get a larger view, and select your units to review their statistics. Look for some of the following things:

- Are there any areas on the border between your side and the Confederates where you may need to increase your defenses?
- Do you have cities that are in danger of being attacked and/or are not prepared to defend themselves?
- Does the enemy have areas close to you that are poorly defended, so you could move into them?
- Does the enemy have cities that you may be able to take from him with "acceptable risk?"
- What seems to be the estimated strength of the enemy forces in a given location?

This last point is very important, because you cannot actually find out the number of men in an enemy division without actually fighting it. At the start of the game you have an advantage, since both sides begin with divisions of approximately the same size. So if you see an infantry division moving alone, you can assume it represents about **7,000** men; a cavalry division, about **3,000**; and artillery, **75**. Don't forget that if an enemy unit has a black "shadow" along its top and left sides, then it is **stacked** with other divisions that you can't identify.

Looking at the campaign map with this in mind, several things can be found:

- Charleston (on the border between the two sides) is about to be attacked by an enemy infantry division, but it only has one Cavalry division to defend it. There is, however, another Cavalry division nearby that can be diverted to its defense.

Since there are new recruits available in the first week of every month, you can further bolster Charleston's defenses by forming a new Infantry division there.

- There is a train in Ohio that is carrying an Infantry division; it could be better used by moving it closer to the action.
- There is another train near Gettysburg, that could be used to carry a division into enemy territory. An Infantry division should be loaded onto it for movement next turn.
- The artillery division near Washington should be moved into the city, so it can defend it.
- The Confederate city of Fredericksburg is undefended except for one division nearby; you have two divisions nearby, and you can use them to capture the city **and** attack the enemy unit.

You may have found different areas to develop on the map, but these will do for now. The rest of the tutorial will show you how to get these things done.

> **NOTE:** This saved game is only provided as an example of how to fight a campaign. The situation it presents is not necessarily representative of where your war will be at the start of August; and the actions that this tutorial suggests should not be considered a definitive strategy for winning the war.

Recruitment Screen

You receive new recruits to be assigned to your army at the beginning at each month; since it's August 1, you have some troops coming to you. Press the large button labeled **Recruitment** at the bottom of the control panel, and the Recruitment screen will appear. This screen allows you to do two recruitment tasks, build new divisions and replenish all of your divisions. (It also contains other features, some of which will be noted later.) Look at the figures near the middle of the panel on the right side of the screen; you can see that you have over 50,000 fresh recruits available for assignment.

First, we'll **build** a new division in Charleston. Press the **Build Divisions** button in the center of the panel on the right side of the screen, and the **Form Divisions**

screen will appear. The display on the left lists the statistics for the next division that you will build; the statistics that you can change have **up and down arrow** buttons next to them. Our plan is to build an infantry division here, so make sure that **Infantry** is the division type that is selected. The default size of 7,000 men will suit us fine. You should note that the quality of this division will be **poor**, since they have no battlefield experience; most of your troops start out that way. The important change we need to make is to the division's **location**; use the arrow buttons next to it until "Charleston" appears as a location. When you have done that, press the **Build** button to actually form the division; then press **Finished** to return to the Recruitment screen.

Next, we'll use the rest of the available troops to **replenish** all of your existing divisions. Look at the **Available Recruits** screen again; just below it there is a percentage display. You use this display to choose the percentage by which your divisions are expanded when you replenish them. Specifically, if you replenish a division of 5,000 by ten percent, it will expand to 5,500 (because 500 is ten percent of 5,000). We have a lot of men to assign, so we can use a high percentage. Use the **arrow buttons** next to the percentage to choose **fifty** percent, then press the **Replenish Divisions** button below the display to actually assign the men. If you look at the organizational breakdown of forces at the bottom of the screen, you can see that your forces are now larger than those of the enemy.

Before we move on, there are a couple of things we should do. The first one is to change the level of **training** in your recruiting process. Remember how most of your divisions are of **poor** quality? You can raise the quality ratings of new divisions by holding them back for additional training; they won't be available for three months (and therefore you'll go through three months without new recruits), but they will be more effective in combat. To change your training level, select **Training** from the menu bar at the top of the screen; if the Level option currently says "Low," select it. The menu will disappear, and the level will change to "high." Select "**Give Orders**" to return to the main campaign screen.

New in CD-ROM:

You can also replenish a specific division, as long as the division is in your territory. (The border is an invisible line running east to west at Charleston, West Virginia.) Select **List Divisions** from your Control Panel. Click **Next** to cycle through your divisions, and find 2nd Div. 5th Corps, an artillery division.

Since you still have a pool of men available, you will have a **Replenish** button on your control panel. Select it. A panel will appear showing the current size of the division— 105 men— and the number of men you have available in your pool. For now, add five cannon to the division. Use the arrows to adjust the division size manually, or click directly on the number box and type in the new division size—110—on your keyboard.

(The maximum number of men in a division is 75,000.)

The Victory Bar

Now take a look at the section marked **Victory Bar** in the top-right corner of the screen; the bar stretched across it measures how well you are doing in the war. The **arrow pointer** marks the current state of the war; as battles are fought and cities are captured the pointer will move towards one end or the other. The "F" and "C" markers at either end of the bar show the potential **losers** in the war; in other words, if the pointer is closer to the "F," then the Federals (you) are losing. The goal of the game is to push the pointer all the way to the enemy's end of the bar; you have four years (until April, 1865) to do this.

To find out exactly what moves the victory bar and the specific conditions for winning the game, see the **Campaign Manual**. For now, press **Give Orders** at the bottom of the screen to continue.

Moving Divisions

Now it's time to actually move some divisions on the campaign map. First up is

the Artillery division located next to Washington. Find it and select it (again, with the **right** mouse button) — remember that it's the unit with a square and a dot on it. The process for moving a division is simple; point to a location adjacent to it and click the **left** mouse button. So in this case, all you need to do is point to Washington and left-click the mouse; the division will move to the top of the "stack" of units located there already. If you take a look at the Movement points display near the top of Control Panel, you will see this division has **two** points remaining out of four; that is because moving into a city costs **two** movement points for a division.

> **NOTE:** If you accidentally moved the division in the wrong direction, there's an easy way to correct your mistake. Simply press the **"U"** key on the keyboard **before** making another move, and you will **undo** the move. This can be used after moving other units.

Next, we'll move the Cavalry division that's outside of Charleston onto the city. To do that, we'll use the **long-range movement** command; right-click on the division to select it, and then left-click on the city two squares away. The division will "jump" directly to the city, but the full cost of moving through two squares will be spent. When you choose a destination that isn't adjacent to the selected division, it will move in the most direct route to that destination until it runs out of movement points (or encounters an enemy division). Therefore be careful with the long-range movement command, as the division will not avoid rough terrain as it moves.

No matter whether you choose long-range or short-range movement commands, the pattern of "right-click on unit, left-click on location" still stands. From now on the tutorial will assume you know what selecting and moving units entails.

If you push the **Men in Square** button now, you can see that you now have a more-than-adequate welcoming committee assembled in Charleston. Good job!

New in CD-ROM:
Naming Divisions

Each division has its own nickname in addition to its official name. You can give each division a nickname that reflects its fighting style or illustrates its character. Select **Map** from the menu bar on the main campaign screen. If the **Div. Name** option is set to **Yes**, divisions will be identified by their nicknames. If it is set to No, the official names (like "1st Division, 2nd Corps, Army of the Potomac") will be used.

To create nicknames, set the **Div. Name** option to **Yes**. On your main campaign screen, select the stack of units in the city of Washington. The default nicknames describe the types of the divisions: infantry, cavalry, or artillery. As you can see, you have four infantry divisions in Washington. Select any infantry division to close the stack panel.

Now select **List Divisions** on your control panel. One of your infantry divisions should be listed on your screen. If it is not, click **Next** until an infantry division is listed. Click the **Edit** button next to the division name, and type in a nickname for this division. Hit **Enter** when you have finished. You may give nicknames to all of your divisions, leave them at the default nicknames, or switch back to official names.

New in CD-ROM version:

Generals
Each of your divisions falls under the command of a general. Each general has a distinct personality and battle ability. You can decide which general or generals will command your forces, and you can set personality traits and battle skill. Hit the **Recruitment** button on the campaign screen, and select **Organization**. You will see that your forces are now consolidated in a single army, the Army of the Potomac, under the command of General McClellan.

Select **Show Personality**. Each general has a personality, and an attack and defense rating. Personalities are as follows: **Cautious, Defensive, Loss Aware,**

Determined, Loyal, Independent, Aggressive, Glory Hound, and Brash. Loyal generals will rarely disobey. Cautious generals may not attack when you order them to and Brash generals may attack even if you order them not to.

You can change your generals' battle and personality ratings. Click on the rating you wish to change and cycle through the choices until you find one you like. You can also adjust the ratings of the enemy generals. Or you may elect to **Randomize** the options so you will not know exactly what to expect from your generals. Select **Finished** to continue.

You may transfer a general from one army to another. For example, remove Gen. McClellan from command of the Army of the Potomac, and place your forces under the command of Gen. Scott. Hit **Recruitment** on the main screen, select **Organization**, and hit the **Transfer** button. From the list of generals, select Scott, and then select the Army of the Potomac. Your army is now commanded by General Scott.

Each general is attached to a specific division and travels with that division. If the general option is on (under the **Map** menu on the campaign screen) a G will appear on any stack that has a general.

You can move General Scott to a new division within his army. To do this, move the new division onto the division that currently has the general. (Remember, we moved the 1st Division, 5th Corps into Washington). Select the general's current division. If the division is part of a stack, as it is here, the one that has a G next to it in the selection panel is the one with the general. You can see that Scott is now traveling with the 1st Div., 1st Corps, an infantry division. Select this division. The **Attached** button will appear on the screen. Select it and choose 1st Div., 5th Corps. This is Scott's new division.

can, **NOTE:** You can not attach generals to trains and ships. Transport crafts of course, carry generals along with their divisions.

A general has a range of influence of three squares. If a division is near its general, the word **Near** will appear in the information bar when you select the division. If the general is within three squares, the division's performance will be

affected by the general's attack and defense ratings.

When you bring a new general into the game by placing a division under his army in the **List Divisions** screen, he will join the division at the *end* of the turn.

If a division with a general is destroyed, the general will automatically transfer to another division within his army. If the last division in an army is destroyed, the general is dead.

Using Transports

It's time to deal with the two trains mentioned in our "campaign plan." You move these transport units exactly as you move divisions; the difference is in that they can also carry other units. Each train or ship can carry **one division** at a time, and you load and unload them using the **special orders** panel near the bottom of the Control Panel.

First we'll move the train that's already carrying a division and **unload** its "cargo." **Select** the train unit; it's in Ohio on a stretch of track running from east-west. It's in a **stack** with the division it's carrying, so you may need to look for that division instead and select it so the train appears. Once you've selected the train, **move** it as far to the east (where the action is) as you can. To unload the train, select the stack with the train, so that you gain control of the division being carried. In the Special Orders display, the **Board Train** order is highlighted. Simply select this order again; the order will be turned off and the division will de-board. When you unload a division it has no movement points, so you won't be able to move it until **next** turn.

Next, we'll load a infantry division onto another train. Find **Gettysburg** on the campaign map, and you'll see a train on the tracks just east of it. Select the infantry division that's just northeast of the train, and then move it right onto the train. Then click on **Board Train** in the Special Orders box; when it is highlight-

ed, the division has boarded. However, the train will not be able to move until **next** turn.

The process of loading and unloading ships is identical; the only difference is that you have to move the ship into a river or city square so that your divisions can reach them.

Capturing a City and Attacking the Enemy

Finally, it's time to capture Fredericksburg; find it on the Campaign map. You have two divisions in a stack to the north of it. The city itself is empty, but there is an enemy infantry division adjacent to it. Therefore, the plan is to move one division into the city itself, and then attack the enemy with the other; since the city is adjacent to where the battle will take place, the division in the city can join the fight as well.

If the enemy tries to take back the city as next turn, it would be wise to have the larger of the two divisions in the city to defend it; therefore we will move the infantry unit into the city itself. Also, you need to move the infantry first so it will be in position when you attack the enemy unit. Select the infantry division from the stack, and then move it onto the **railroad bridge**. Make sure you cross the river at the bridge, or else you will spend all of your movement points crossing the water and not reach the city; if you make a mistake press the "U" key and try again. From the bridge, move the infantry unit into Fredericksburg; control of the city will fall into your hands at the **end** of the turn.

Now select the Cavalry division that you left behind, and move it onto the railroad bridge. Then move it once more onto the enemy division. A small, gray **query panel** will appear, asking you if you want to **attack**; click on "yes." A text entry panel will appear, so that you name this battle; "Fredericksburg" is the default choice but you can enter anything you want; just type in a name (remove the old one with the Backspace and Delete keys first) and press the Enter key. Query panels will then appear for every division adjacent to the battlesite; in this case, there's only one. Click on "Yes" and the infantry unit will join the fight. A battle is about to begin!

Starting a Battle

At this point, a **Battle Report** screen will appear, showing the troops on each side of the battle. As you can see from the statistics, you have a pretty good change of winning this one. You have two choices now: either fight the battle out fully with the Micro Miniatures system, or calculate the results of a battle using the Autoplay command.

If you decide to use the Micro Miniatures system, press the **Fight** button at the bottom of the screen. Then skip to the Battle Tutorial in the next chapter. When you are finished fighting, return here to find out how to continue your campaign.

If you decide to use Autoplay, press the **Fight** button at the bottom of the screen. When the battle screen comes up, find and press the **End Setup** button in the bottom-right corner of the screen. The buttons in that part of the screen will change; press the **Autoplay** button that appears just above where you clicked. A query panel will appear; click on YES and the results of the battle will be calculated. In a few moments, the screen will clear and those results will be displayed. Click on the **Finished** button at the bottom of the screen (after savoring your victory) to return to the campaign.

New in CD-ROM:
After you attack the enemy and win, you can decide which divisions will move into the territory you have taken. After the battle ends, an **Advance** panel will appear with the names of any divisions that took part in the battle. Select which ones will move in by clicking them, and changing their status from **Holding** to **Advancing**. The division that led the attack will automatically advance.

Continuing the Campaign

Now that you've completed all of your actions for this turn, it's time to press the **End Turn** button. A query panel will appear, so that you can confirm the action. Then, the Confederate player will have his chance to give orders and move his troops. As a result, you may end up fighting battles in locations of the enemy's choosing; use the instructions above to choose between fighting them out completely or using Autoplay. Also, your capture of Fredericksburg should be announced.

When the computer is finished, control of the game will return to you. Assess what the computer has done during its turn, and then decide on your plan of action. Use what you have learned in this tutorial to fulfill your plans and continue the campaign; the rest is up to you.

Here are a few suggestions for you as you continue the game. First, you may want to restart the game so that you can be in control from the very beginning of the war. Second, you should skim the **Campaign Manual** *to get a sense of the commands and features not included in this tutorial. In particular, we strongly recommend reading the* **Tips for Campaign Success** *chapter at the end of the manual. Good luck!*

Battle Tutorial

*This section will guide you through the most important commands that you will use when fighting a **Micro Miniatures** battle. It is written so that you can use it both to complete a battle started at the end of the **Campaign Tutorial** (in the previous chapter), or as a separate tutorial using a prepared battle scenario. If you want to play the Bull Run battle that was included with the game, we suggest you try this battle first.*

> **NOTE:** If you are new to using computers, we recommend you skim the following sections of the **Campaign Tutorial**: Selecting Items with the Mouse; and Accessing a Menu.
>
> **NOTE:** Keep your **reference card** (included in the game package) handy.

If you are about to fight a battle that you started in the previous tutorial, then please skip ahead to **Battle Screen**.

Loading the Prepared Battle

We have included a saved game that will take you into the battle of Fredericksburg that this tutorial is based on. To start your tutorial, you must first install and/or load the game on your machine; PC users should read the **Installation and Loading** chapter of this manual for instructions, while users of Amigas and other types of machines should look to the **Installation Card** included in your game package. Start the game using the instructions you find there; the title sequence should appear, and after that you will be brought to the main game screen.

At this point you can see bits of a map, menu bars and icons filling the screen, but what we're interested in right now is the gray panel located right in the middle of everything. This panel allows you to **setup** a game, and has three options: **Play Standard Game**, **Load Saved Game** and **Historical Battle**. We have prepared a special saved game for this tutorial, so you should select the middle option, **Load**

Saved Game.

A new panel should appear, with the name "Directory." We'll use this to select the prepared tutorial game, but you can also use it to save or load games while you're playing.

Look at the white window in the middle of the panel; this is the **File Window** which lists the names of saved games that are available for loading. If this is the first time the game has been played since you loaded it, there should only be a couple of names in this window. The name you are looking for is **BTLTUTOR.SAV**; if you can't find this in the File Window, press the **up arrow** and **down arrow** buttons next to the window to see more names.

When you've found the file you want, simply **select** it with the mouse; it should appear in the box below the File Window. Then press the **Load** button at the bottom of the panel. A small panel will appear, asking you to confirm; click on **Yes** to actually load the game. One last panel will then appear to tell you that the load was successful. Soon all of the panels will disappear and you will be shown the **Battle Screen**.

> **NOTE:** Generally speaking, if a text message like this one appears on the screen like this, you can **clear** it quickly by clicking the left mouse button.

In this game, you will be playing as the **Federal** side (also known as "The Union" or "The North"), attacking a division of Confederate (a.k.a. "Southern") Infantry with Cavalry and Infantry divisions, on a field just outside of Fredericksburg, Virginia.

Battle Screen

Now you are looking at the Battle Screen, which where you give orders to your troops. It is broken into four sections: the **menu bar** at the top of the screen, which lists the names of menus you can access; the **information bar** just below it, which identifies the name of the battle and the weather; the **display window** on the left side of the screen, which shows a scrolling view of the battlefield; and the **con-**

trol panel on the right, through which you access most battle commands.

If you look at the display window, you will see rows of **soldiers** along the top of it. These are called **pieces**. Though they look like individual men, each of them actually represents several soldiers. You control your forces in a battle by giving orders to these pieces, either one at a time or in groups. There are three types of pieces: **infantry** (men on foot), **cavalry** (men on horses) and **artillery** (men with cannons). However, there are no artillery in this battle, and your enemy does not have cavalry.

To that end, there are three levels of control by which you can move and command your troops. In **single** mode, you control only one piece at a time. In **group** mode, you control a group of pieces that share the same group number; the computer predefines a set of groups at the start of a battle, but you can change them if you want. In **all** mode, you control the entire army. These control modes do not apply to every order you give — mainly to movement commands and orders to engage or fire rifles. (All of these are explained later.)

Here's an illustration of the three modes. Find the "Mode" box in the lower-left corner of the Control Panel; you can see it has indicators for all three control modes. Click on **Single**, and you'll see that one of the horses (i.e. Cavalry pieces) is surrounded by a white rectangle. This is the only piece that will listen if you give a movement order. Now select **Group**, and you see that several other horses are surrounded with **gray** rectangles. If you gave the same movement order now, all of these pieces (which share the same group number) would move **in sync** with the original piece; if they are standing in a row now, they would move as a row. Now select **All**, and the gray rectangles go away. If you gave the same order to the selected piece, **all** of your forces would move in sync with it.

> **NOTE:** From now on, if this tutorial tells you to make sure are in a particular "**mode**," it is referring to the setting in this "Mode" box.

Viewing the Battlefield

There's a lot more battlefield to see, so let's use some of the commands that let you view the rest of it. The first option is **Overview**; this shrinks the entire battlefield so that it all fits on the screen at once. Find the button marked "**Over**." near the top of the Control Panel, and click on it. This displays one of two Overview maps: the **Small** (which is only a couple of inches across), and the **Large** (which fills half the screen). If the small map is showing, press the **Magnify** button below it to display the large one. You'll notice that the map is rectangular; however, it measures 100 map-squares by 100, so technically it is "square" for game purposes.

Looking here, you can see the terrain features and pieces on the map. You can see some **brown dots** which represent trees, and **orange rectangles** which represent hill crests. Take note of where these are, because terrain has an effect on how pieces fight. Specifically, a piece in the same space as a **tree** will move slower, but is better defended; while a piece on a **hill crest** is slower, but is better at attacking **and** defending. (See the **How the System Works** chapter of the Micro Miniatures Battle Manual for the rest of the terrain rules.)

With this in mind, is there a place on the battlefield where you'd like to engage the enemy (perhaps with your forces on a hill side, and the enemy in front of it)? If you think of a location, remember it for later. Press the **Done** button when you want to exit the Overview map.

There are two other ways to see the rest of the battlefield. First, you can use the **scroll bars** along the bottom and right edges of the display window. Each scroll bar features a white **scroll box** inside it with **gray spaces** on each side, and **arrow buttons** at each end. Click on the left-hand arrow button of the bottom scroll bar, and your view map will scroll one map-square to the left. To scroll faster, hold down the **right** mouse button instead of clicking the left, and it will scroll continuously. Alternatively, you can click in the gray space between the left arrow button and the scroll box, and the display will scroll a half-screen to the left. Naturally, the right-hand scroll bar works identically.

Second, you can use the small green rectangle in the top-left corner of the Control Panel; this is called the **micro-map**. See the white rectangle on it? That shows what part of the battlefield is being shown on the display window. We can use the micro-map to shift that view; point to a location near the bottom of the rectangle and **click** the left mouse button. The white rectangle will jump to center on this point, and the view on the display window will follow it. If your aim was lucky, you may be looking as some graycoated enemy soldiers. Now try holding down the **right** mouse button and moving the mouse **slowly** over the rectangle; this

allows you to scroll smoothly and continuously over the map.

Use these techniques to get a good close-up look at the entire battlefield. You'll see that your troops are arranged at the top of the battlefield, while the enemy's forces are at the bottom. You'll also notice (with relief) that neither side's forces are moving. That's because whenever the control panel, scroll bars and so forth are displayed, time on the battlefield is **paused** so you can give commands; therefore this is called **command mode**.

Setup Mode

Because this battle has just started, you are in a special version of command mode called **setup mode**. In this mode, you can arrange your forces in any way that you want **on only your end** of the battlefield, without time passing. When you tell your pieces to do so, they will immediately jump to their destinations; this lets you setup your forces as quickly as possible. Setup mode uses the same commands as the rest of the game for moving pieces, grouping them, creating formations and so on; so what you learn here will carry on into the rest of the battle.

Selecting Pieces

Before you can command a piece, you have to select it as the one to be controlled. Selecting a piece is simple; simply point to its **head** and click the **right** mouse button.

> **NOTE:** Make sure that you do not click the left mouse button when you are trying to select; that button is used to give movement orders.

For Cavalry and Infantry, you cannot right-click on their head, since their pieces are actually wider than an infantry piece. When trying to select one of these pieces, right-click **at head level**, but to the left side of the piece. (If you have trouble finding this spot, press the **GRID** button located at the bottom-right corner of the display window; Cavalry and Artillery pieces take up four grid-squares, and you want to click on the top-left square.)

When you select a piece, information on it will be displayed on the Control Panel; this information shows the average ratings for all the soldiers that the piece represents. At the top of the panel is the piece's **number** (from 1st to 125th) and **type** (either Infantry, Cavalry or Artillery). Below that is the **weapon** that the piece uses; there are a variety of weapons in the game, each with its own range and damage statistics. Next is the **quality** rating for the piece; this measures the piece's skill in combat, as affected by training and experience. (Right now, all your pieces are of **poor** quality — "green" recruits.) And below that is **morale**, which shows the piece's willingness to enter hand-to-hand combat, and its success when fighting.

Below the morale rating is the **number of men** in the piece. If you are in **single** or **all** control mode, this statistic shows the number of men in the piece; use this as a "health" indicator," since a piece loses men when damaged and **dies** when they are all gone. If you are in **group** control mode, this statistic shows the number of men in the selected **group**, followed by a dot, then followed by the number of **pieces** in that group.

Below the number of men rating is the piece's **group number**. When you are in group mode, you control every piece that shares the same group number as the selected piece. You can change group numbers in any way you please, creating whatever group organizations you prefer.

Below this is a box marked "ratings", which displays the piece's ratings in **Attack** (hand-to-hand damage), **Defense** (hand-to-hand protection) and **Firepower** (basic damage caused by a rifle or cannon). In another box below this one marked "Orders," there are the currently selected orders for the chosen piece regarding **firing** (shooting a rifle or cannon at the enemy) and **engagement** (walking to a nearby enemy piece and engaging in hand-to-hand combat).

You will learn more about these various statistics as they come up in the tutorial. If you like, you can select various pieces to compare their statistics. You can even select **enemy** pieces to display some of their statistics in a box over the Control Panel.

Your Battleplan

Before you start moving pieces on the battlefield, it would be helpful to decide on a general plan of attack. If you aren't experienced at playing this type of game, here is a basic plan to try out:

- Move approximately 1/3 of your Infantry troops into one row that is two pieces deep; this will be your front line (with which you will keep the enemy from getting at the rest of your troops).
- Arrange the rest of your Infantry troops into shorter rows behind the front lines, so that they are available for later maneuvers.
- Arrange your fast-moving Cavalry into two or three columns off to the side, so that they can sweep forward, attack and pull back without interfering with the rest of your forces.

The rest of the tutorial will assume that you follow this basic plan. For additional possibilities, you should read the **Tips and Tactics** chapter of the Micro Miniatures Battle Manual.

Combining and Rearranging Groups

Moving your pieces will be easier if you reorganize them into groups that are best suited for your tactical plans. The default group size is slightly too small for the cavalry groups that you need, and is far too small for your massive front line. Fortunately, we can quickly **combine** existing groups into new, larger ones that are more appropriate.

Let's start with the Cavalry. Make sure you are in **group mode**, and select (with the **right** mouse button) one of the top-leftmost cavalry pieces. You can see the entire group, highlighted with gray squares; check the **Group Number** display on the Control Panel to make sure you have Group **zero** selected. Now press the **List Groups** button, located below the micro-map near the top of the Control Panel. The **black rectangle** in the middle of the screen that appears represents the battlefield, and the **orange line** (or lines) on it shows the location of the currently selected group.

Press the **Transfer** button at the bottom of the screen; you can then look for another group to combine with group zero. Press the **Next** button to select the next group on the field, group one. The orange lines will shift on the black rectangle to show its location. When you have selected group one, press the **Yes** button at the bottom of the screen to order the transfer. A small, gray **query panel** will appear asking you to confirm the command; click on **Yes** and the transfer will occur. If you look at the black rectangle, you can see that the orange lines from the two groups have been combined. The transfer command puts all of the pieces into the second group you choose, this new group is group **one**.

Using the above steps, make the following additional transfers:

- Transfer both groups 2 and 3 into group 4, to create a second cavalry group.
- Transfer groups 11, 12 and 13 into group 14, to create the large "front line" group.

When you have finished reorganizing your groups, click on **Finished** to return to the main battle screen.

Moving Pieces

Now that you have created your groups, you should separate them into different locations on the battlefield. This lets you get a sense of the sizes of each group, and helps you figure out where they should be located in relationship to each other.

For our purposes, the best control mode to do this in is **group mode**. Select a piece in what was either group zero or group one; you will notice that all the mem-

bers of both groups are now highlighted, since they are all in group **one** now. Find a location south of the other cavalry pieces, and slightly further to the right than where they are now. Click with the **left** mouse button on that location, and a group of "X's" will appear there. These mark the destinations of the pieces in the selected group, with the white "X" marking the destination of the selected piece. These "X's" are arranged so that the pieces in the group will stay in the same relative positions as they had to each other before the move. If you don't like these destinations, simply left-click somewhere else until you find the ones you like. (You can see that the pieces aren't arranged in a straight line, but we'll fix that later.)

> **NOTE:** While in setup mode, you will only be able to select destinations on **your end** of the battlefield.

When you have picked the right location, find the **Move Pieces** button in the bottom-right corner of the Control Panel and press it. Any movement commands that are pending in Setup Mode will be immediately carried out, so your group will "jump" to its destination. You don't have to press this button after every move, but if you do you'll have less to keep track of.

> **NOTE:** If you try to move a group too close to the edges of the battlefield, you may find that some of your pieces don't go to the locations you expect. If this happens, just select a destination further away from the edges and try again.

Now, select group 14, which is the large Infantry group located along the bottom of the current "block" of soldiers. Move it to a location about five map-squares south of the other infantry pieces; this gives you room to work with it, and protects the other groups from most enemy attacks.

You can use these same procedures in **single** mode, but naturally you will only move the selected piece. Or you can use it in **all** mode, but that will move the entire army at once. These control modes will be more useful after the battle actually begins.

> **NOTE:** From now on, it is assumed that you know that the **right** mouse button is used to select pieces, and the **left** button is used to choose destinations.

Creating New Formations

As you move your groups around, you'll notice that they are no longer arranged in straight lines or "blocks" of pieces. However, there are **formation** commands that allow you to arrange each group in a variety of tactically useful ways. We'll use these now to "clean up" your groups and prepare them for battle. The formation commands only work in **group mode**, so make sure that it is selected before continuing.

Select group 14, the large infantry group set aside from the rest. Make sure you select the left-most piece in this group, because most formations you order will appear to the **right** of (and below) the selected piece. Now, take a look at the three icons in the "Formation" box near the bottom of the Control Panel. Each of these controls one aspect of a group's formation: the first one sets the **direction** in which the formation will be arranged; the second one sets the **thickness** of the line that the formation creates; and the third sets **facing** of the pieces in the formation, i.e. which direction they should face. You alter each icon by pressing the small **up and down buttons** next to each of them.

The best way to learn what these icons do is through experience. Make sure that the first (**direction**) icon is set with a horizontal **row** in it; this will create a formation that stretches from east to west on the battlefield. Change the second (**thickness**) icon so that it displays two unbroken lines (not two dotted lines); this will create a formation that is two rows of pieces deep. Finally, make sure that the third (**facing**) icon is an arrow pointing south; this orders that the pieces in the formation should face south, towards the enemy.

If you click on the empty space around the formation icons now, several "X's" will appear on the battlefield to indicate where the formation will appear. If you press the **Move Pieces** button, the group will actually move into that formation.

> **NOTE:** The **facing** icon only works after the pieces in a group are in their proper locations in a formation, so you should set the facing icon **again** after moving your pieces (by pointing the icon in any direction other than south, and then pointing it **back** to south). Click in the empty

space surrounding the formation icons, and the pieces will turn around.

Now use these icons in same way with your Cavalry groups, so that they are arranged in straight lines. We recommend that you arrange the top group into a **row** running east-to-west, and the bottom group into a **column** running north-to-south. For simplicity's sake, you can leave the **reserve** infantry groups (the ones behind the front line) in their original formations.

Changing Firing and Engagement Orders

Each piece has its own specific orders regarding how and when it should **fire** at the enemy, and when it should **engage** in hand-to-hand combat. Each of these orders is shown in a display near the middle of the Control Panel; to change an order, simply click on the **arrow button** near it repeatedly until the order you want is shown. This change may affect one piece, one group, or every piece depending on which **control mode** you are in.

All of your pieces are currently set to fire **at will** (i.e. at anyone within weapons range in any direction), and to engage **on command** (i.e. at anyone one or two map-squares away). Since we want our cavalry groups to sweep into the enemy for fast attacks, we should make them as aggressive as possible; to do that we will set their Engage orders to **At Will** (which means "attack any pieces within five map-squares"). Make sure you are in **group mode**, then select one cavalry group. Click repeatedly on the arrow button next to the **Engage** order display so that "At Will" appears. The order is automatically followed by everyone in the group. Select the other cavalry group and repeat this action.

Ending Setup Mode

Now that every is prepared and in position, it's time to end setup mode and start the battle for real. Press the button marked **End Setup**, located in the bottom-right corner of the Control Panel. On the surface, the only thing that changes is that the Move Pieces and End Setup buttons are replaced with the **Autoplay** and **Play** buttons. You can even give the same orders and commands that you used in setup

mode. However, there is a big difference; now when you order your pieces to move or to create new formations, they will actually cross the battlefield in **real-time** — and the enemy's pieces will be moving at the same time. Now, you must keep the enemy's location and movement in mind when you issue new commands.

What you do you do now? The simplest first step you could take is to move your entire force towards the enemy. To do this, make sure you are in **all mode**, then select a piece in the front line group. Then choose a location more than a third of the way down on the map, keeping in mind that your forces will take up places behind and to the sides of this spot.

Battle Mode

Now we're going to let the game run in **real-time** for a little while, so that your pieces can move to their new destinations. Find the **Play** button in the bottom-right corner of the Control Panel. Before you press it, here is an explanation of battle mode so you know what you are getting into:

- Battle mode is a full-screen view of the battlefield; it has no menus or icons.
- Pieces move in real-time, taking the positions you ordered them to take.
- To change your view of the battlefield, simply **move** the mouse in the direction you want to scroll the view. Then move the mouse in the **opposite** direction to **stop** the scrolling.
- If your pieces encounter enemy pieces (which shouldn't happen this time), they may start to **fire** at each other, and possibly break ranks to engage in hand-to-hand combat. Gunfire (for Infantry and Artillery pieces only) is marked by small puffs of gunsmoke; Cavalry pieces fire, but do not show gunsmoke.
- To exit battle mode and return to command mode, simply click the **left** mouse button.

Press the **Play** button now. Move the mouse to follow your troops as they march south. Wait until they have all stopped moving, and then **click** the mouse button to return to command mode.

NOTE: If pieces seemed to move at an uncomfortably or unrealistically fast speed, you should turn down the **Game Speed** setting on the **Options** menu.

What Do I Do Now?

You're just a step away from really getting the battle going. However, that one step could be one of a variety of things:

Charge! — You could move all of your forces even closer to the enemy, so that they will most likely come forward as well and attack.

Use your Cavalry — You could move one cavalry group right up to the enemy, and slash at them with your horsemen's sabres. Don't leave them there too long, as they are vulnerable to enemy gunfire. Hopefully, the maneuver will provoke the enemy to move within striking distance of your front line's rifles.

Lure the Enemy Closer — This would be the same maneuver, but instead it would use one of your reserve infantry groups. The disadvantage is that the infantry could not pull back as quickly as the cavalry; however there are more infantry pieces so they are more "disposable" (as unpleasant a thought as that may be).

Wait for the Enemy — Cautious players can simply inch their army closer a few map-squares at a time, waiting for the first move by the enemy. Then you can choose the best response to that move and perform it.

Feel free to choose the "opening gambit" which best appeals to your sense of tactics. There are certainly other options that aren't even considered here; in particular you should keep in mind the terrain features you were studying earlier.

Once you start "mixing it up" with the enemy, you'll gain your first experiences involving morale, gunfire, hand-to-hand combat, and all the other facets of the Micro Miniatures system. For an explanation of what these things mean and how they function, you should read the **How the System Works** chapter in the **Micro Miniatures Battle Manual**. Also, the **Tips and Tactics** chapter in the same book-

let will help you decide how to respond to and exploit the enemy's actions. With these two sources (and perhaps a good scanning of the rest of the manual), you should be on your way to mastering the art of Micro Miniatures battles. Good Hunting!

> **FINAL NOTE:** Remember that the **goal** of the battle is to eliminate at least **fifty percent** of the enemy's forces. Alternatively, if it feels particularly threatened the computer may **retreat** before that point; this becomes more likely after you have eliminated **twenty-five percent** of its forces. Select the **Stats** option on the Menu Bar to see the number of troops currently active and lost in the battle.

New in CD-ROM:
Civil War History

A history of the Civil War can be accessed from the **Recruitment** screen and the main campaign screen. To read the history, select **Events** on the **Recruitment** screen and then select **Civil War... a History**. Or select **Map** on the main campaign screen. You can leaf through the history by using the **Next** button to move to the next page, and the **Previous** button to move back a page.

The **Find** button displays a table of contents. You may go to any section by clicking on its title in the table of contents. You may also use the **Find** button to search for any word you would like to look up in the narrative. To search for the word "Lee," for example, select the **Search** button or click on the entry box beneath the table of contents. Then type "Lee" in the entry box, and hit **Enter**. The screen will display a list of each page that contains your word. Select the heading to go to that page. When you have gone to a page after a search, the results of the search are not forgotten, so you can press **Find** again to see the other pages.

You may also do a word search by clicking any word within the history document itself. This will activate a search on that word and bring up a **Find** panel.

Use the F1 to F9 keys on your keyboard to place bookmarks in the document. The number keys, 1 to 9, move you to the corresponding bookmarks. So if you have set a bookmark with F1, the 1 key will find it. The bookmarks will be saved to your hard drive for use between sessions.

Keyboard Commands

The game features several keyboard commands, to enhance your control of the game using the mouse. Most of these commands allow you to select icons, menus and menu options simply by typing a letter key. These keys are indicated on screen in the following ways:

Menu Selection and Icons	Type the **underlined** letter in the word marking the menu or icon.
Menu Options	Type the first letter in an option as it appears on the menu.

There are some additional keys that are not indicated on the screen. They are:

arrow keys	move the display window one map-square in the direction of the arrow
page up	move the display window up half a screen
page down	move the display window down half a screen
home	move the display window left half a screen
end	move the display window right half a screen

c	center screen
g	display grid
F1	display attack data
F2	display defense data
F3	display firepower
F4	display group number
F5	display morale
F6	display overview map
F7	display number of men

New in CD-ROM:

Historical Battles

Your CD-ROM version of *The Blue and The Gray* includes three new historical battles to play out in Micro Miniature. For information on fighting the historical Micro Miniatures battles, consult your Micro Miniatures Battle Manual. For your reference, below is a brief description of the three new battles: Cedar Mountain, Chancellorsville, and Vicksburg.

Cedar Mountain
August 9, 1862

In the summer of 1862, Southern hopes were high. Confederate forces were on the offensive and the Federal side suffered from disarray within its highest levels of command. In Virginia, Confederate Gen. Robert E. Lee commanded a defensive force around Richmond. And Union forces under Generals John Pope and George B. McClellan were preparing to combine and march on the Confederate capital.

In an effort to unite the forces of McClellan and Pope, the Union command ordered both units back to Washington. But the move left Pope's forces vulnerable to attack, and Lee seized the opportunity. Lee sent a detachment under Stonewall Jackson after Pope, and Jackson's troops met a detachment of Pope's army at Cedar Mountain, near the town of Culpeper.

The confederate victory was minor in itself, but it spurred Lee to attack the isolated Union army before Federal reinforcements could mobilize.

Chancellorsville:
May 1, 1863

In the spring of 1863, the North's superior manpower and technology had begun to weigh heavy on the Confederacy. But the battle-hardened Southern forces had not lost their resolve.

Maj. General Joseph Hooker, smug and confident in command of the North's Army of the Potomac, marched into the Virginia countryside. Hooker set his sites on Gen. Robert E. Lee's thinning Confederate force positioned in and around Fredericksburg. With Hooker's troops outnumbering Lee's by more than 2 to 1, a Union victory seemed imminent.

Hooker set out to surround the rebel division and strangle it into submission. But Lee had yet to play his hand. With a shrewd use of the Southern cavalry, Lee seized control of the roads around the town of Chancellorsville, blocking Hooker's advance to Fredericksburg. Bewildered at the apparent setback, Hooker positioned his troops in a temporary fortification near Chancellorsville, just miles short of the open country he had set out for.

With help from the stolid Stonewall Jackson, Lee hit Hooker's vulnerable troops from two sides. For three days, the confused and desperate Union soldiers were pounded by a Confederate force half its size. In the end Hooker retreated, having lost more than 17,000 men.

The unlikely tactical triumph energized a Confederate army that had begun to cling to every ray of hope the war afforded it.

Vicksburg
Spring, 1863

For months, Union General Ulysses S. Grant had held a position at Milliken's Bend a dozen miles North of Vicksburg, Mississippi. Vicksburg's location along the waterway to the Gulf of Mexico made it strategically vital to the Confederate war effort, and Grant aimed to take it.

But the area's watery terrain and a thick network of rivers and creeks hindered Grant's advance. The general persisted, and with the onset of spring managed to amass a formidable force around the riverfront city. In Vicksburg, Confederate Lt. Gen. John C. Pemberton found himself in a fix. On May 16, he marched east to find Grant, and engaged in battle on Champion's Hill, about halfway between Vicksburg and Jackson. Grant's forces trounced the rebel detachment, and drove

it back into the Confederate enclave at Vicksburg.

Grant tried twice without success to take the city before he resorted to siege war-
fare, drawing a tight blockade around Vicksburg with more than 75,000 Union
soldiers. On July 4, Pemberton surrendered to Grant, and Vicksburg fell to
Northern control. The defeat ceded the Mississippi Valley to the Union, a blow
that would prove fatal for the Confederacy.

💻 Technical Tips 💻

**We have found that many of the common problems our customers
experience with their machines have simple answers. If you are hav-
ing one of the problems listed below, the solution provided should be
tried first before you search any further for answers.**

1. Why does it say "Abnormal Program Termination" when I type in the game command?

The "ABNORMAL PROGRAM TERMINATION" error usually indicates
that a program cannot run because the system has not been configured to
free up enough conventional memory. Under DOS, conventional memory
is limited to 640 Kilobytes (K) total (regardless of how much RAM is
installed in the machine) and is reduced by DOS and various Terminate
and Stay Resident (TSR) programs. Most of our games will comfortably
run with 585K or better of free conventional memory, though some config-
urations might need more.

To find out which version of DOS you are using, type "VER<enter>" at
any DOS prompt; this will return a message that says "MS-DOS version
n.nn" where "*n.nn*" refers to some number, "6.20" for example.

To find out how much conventional memory is free:
Type "CHKDSK<enter>" and find the value of "BYTES FREE".
If the free memory value is less than 585k, the system configuration needs
to be changed to increase the free conventional memory.

Three methods to increase free conventional memory:
a. For DOS 6.0 or higher, run MEMMAKER (If the drive is compressed
in some way, make sure the device driver is loaded in the CONFIG.SYS
file so that it can be properly placed in upper memory). If this doesn't free
up enough memory, create a boot disk, as described below.

b. After your CONFIG.SYS and AUTOEXEC.BAT files to load DOS, device drivers and other TSRs into upper memory at boot up (consult your DOS manual for specifics on how this is done).

c. Create a Game/Boot Disk. If you don't know how to do this, consult the following Tech section on making a Game/Boot Disk.

2. *How do I make a Game/Boot Disk?*

These instructions will work best with an 80386 or better computer with two megabytes or more of total system memory running DOS version 5.0 or better. If the CPU, memory or DOS version recommendations are not met, the instructions below should still work, but will most likely result in error messages that can, for the purposes of a game/boot disk, be ignored.

Creating a boot disk from DOS:
Format a floppy disk in drive A: by placing a blank disk into A: and typing "FORMAT A: /S"; follow the instructions onscreen; if an error message is encountered, be sure the disk is the correct density for the drive (high density is necessary for current machines). If further errors are encountered, try another disk. Leave the formatted floppy in drive A:.

At the DOS prompt, type "C:" then press the <enter> key, then type "CD \" and again hit the <enter> key (assume when the following text says "<enter>" that you should hit this key). The prompt should now read: "C:\>".

Start your text editor by typing "EDIT C:\CONFIG.SYS<enter>" (the example used in this case is the MS-DOS EDIT utility that comes with MS-DOS 5.0 or later; the command to run the editor and the commands to save and exit may be different depending on what program you use, the important thing is to open the editor with the file named after the example EDIT command). You should now see the editor screen, which is a blue

screen that says "FILE EDIT SEARCH OPTIONS" in the upper left corner of the screen. "CONFIG.SYS" should be displayed in the center top of the screen.

Find the line in the file that loads in your CD-ROM device driver. It probably starts with something like:
"DEVICEHIGH=C:\CDSTUFF\MYCD.SYS" (this will not be the actual name of the path and filename, you need to either figure these things out or consult the technician or documentation for your CD drive to find the name and syntax of this device driver) and may include more text on the line. Copy the whole line down on a piece of paper, including any other text that comes after the .SYS filename; if possible, print the file out and underline the appropriate text. Exit out of the EDIT utility (you can do this by holding down the <alt> key and typing "f", then when the file menu drops down, type "x" or, if your mouse is working, just click on "File" in the upper left hand corner, and then "Exit" in the file menu).

Now open your AUTOEXEC.BAT file, by typing "EDIT C:\AUTOEXEC.BAT<enter>".

Find the line in the AUTOEXEC.BAT file that contains the following letters "MSCDEX"; Again there will probably be more information on the line than just the program location and name. Either write it down, letter for letter, or print it out. Exit the editor and return to DOS.

Change the current drive to drive A: by typing "A: <enter>". The prompt should now look like: "A:\>". Open your editor by typing "EDIT A:\CONFIG.SYS". Type in the following file ignoring the stuff between parentheses ("(" and ")"):

```
DEVICE=C:\DOS\HIMEM.SYS
DEVICE=C:\DOS\EMM386.EXE NOEMS
DOS=HIGH
DOS=UMB
```

DEVICEHIGH=C:\CDSTUFF\MYCD.SYS /D:*drivername* (Replace this line with whatever the CD-ROM driver line is in your C:\CONFIG.SYS file and remember to include all the information that comes AFTER the SYS filename on the line. If any other information is found between the "DEVICEHIGH" and the "=", it should be ignored; you may not encounter this, so don't worry if you don't.)

If the hard drive is configured with auto-compression software, such as Stacker or DoubleSpace, refer to that package's manual for instructions on loading the driver into upper memory and include the appropriate line before the CD driver in this file (Note: device drivers cannot be loaded into upper memory unless the CPU is a 386 or better).

Once the file is finished, save it and exit the editor. (To save a file in the MS-DOS editor, either use the mouse, if working, to choose the "File" menu, then "Save", or hold down the <alt> key, type "f" to drop the menu, then "s" to choose "Save").

Start up the editor again from the A: drive by typing: "EDIT A:\AUTOEXEC.BAT". Type in the following file:

```
PROMPT $P$G
PATH C:\DOS
LH C:\DOS\MSCDEX.EXE /D:drivername (you must remember to
```
change the driver name according to the one you wrote down from your C:AUTOEXEC.BAT file, and include all the other letters and numbers that come after it on this line)
```
LH C:\DOS\SMARTDRV
LH C:\MOUSE\MOUSE.COM (alter this line depending on the path and
```
name of your mouse driver *.COM file. If you have DOS 5.0 or higher, you can type "LOADHIGH" and a space before this line. If there is already an "LH" (or "LOADHIGH") and slashes, numbers and letters between the "LH" and the "C:\..." you should ignore the slashes, numbers

and letters, replacing them with only a space. Refer to the following section on "Why doesn't my mouse work?" for more information.)
C:

Save the file and exit the editor.

To boot from this floppy disk, leave it in drive A: and restart the computer. Change to the directory that holds the game, then type in the command appropriate to run the program (then have fun).

3. *Why doesn't my mouse work?*

If your mouse does not work at all:
-Is the mouse installed for DOS? Windows uses its own drivers, and therefore works without a properly installed DOS mouse driver, so you cannot assume that because a mouse works with a Windows system that a mouse driver for DOS programs is currently installed.

To find out whether or not such a driver is installed:
-enter a DOS application that supports a mouse, such as the EDIT utility (DOS 5.0 or later) or a DOS word processor (or anything else, besides Windows, that loads from the DOS prompt and uses a mouse). If the mouse does not respond at all in such a program, then the DOS driver is not properly loaded. Check the disk or manual that came with your mouse for instructions on how to install it.

-Do you have enough conventional memory free? Some programs incrementally sacrifice sound or mouse functionality when sufficient memory resources are not available. Refer to your DOS manual for instructions on how to increase free conventional memory.

If the mouse works sporadically (jumping around, not clicking properly, etc.):

-You may not have a 100% Microsoft compatible mouse driver (This has nothing to do with hardware, only software). Check your hard disk for a file called MOUSE.COM, as some upgrade versions of DOS include this Microsoft mouse driver (type "dir mouse.com /s<enter>" at the C:\ root directory prompt). If not already on your system, such a driver can be obtained from either the vendor or manufacturer of your computer.

4. *How do I set up my sound card?*
Setting sound card parameters:
To use a sound card with an Impressions program, it is sometimes necessary to set a number of parameters using the setup utility located in the game directory.

The significant values are the I/O Address, the Interrupt Request Channel (IRQ) and the Direct Memory Access (DMA) values of the relevant sound card. These can sometimes be found on a line in the AUTOEXEC.BAT file, which is found in the root directory of the main hard disk (C:\); if, for example, you own a Sound Blaster or compatible the line might begin with something like: "SET BLASTER" (if the card is something other than a Sound Blaster, it might be something else, "SET PROAUDIO" for example) followed by a sequence of letter/number combinations including: Annn, In, Dn (where n represents a numerical digit); Annn is the address, In is the IRQ and Dn is the DMA value.

The setup program allows for specification of the type of sound card as well as the Address and IRQ values of the installed card (DMA is usually assumed to be 1 which usually cannot be changed in the setup utility); If any of these are incorrectly set, sound will not work with the program.

If no SET BLASTER, or similar, line is found in the AUTOEXEC.BAT file, consult either the sound card manual or the technician who installed the device to obtain the Address, IRQ and DMA values.

Sound card emulation:
If you are using a card that is not listed as an option in the setup program, it probably emulates something else. It is usually a good idea to use the oldest version of whatever card your system is emulating (ie. choose SoundBlaster over SoundBlaster pro), as the older cards are usually better documented so that emulation of those works better.

5. *Memory Managers*
Third party memory managers, such as QEMM, 386Max, etc. sometimes cause problems. They make certain assumptions about memory use which are not true of many high performance graphics intensive programs. If you are using one of these memory managers and encounter graphics distortions, try temporarily disabling third party memory managers.

To temporarily disable third party memory managers:
Boot up from a system disk whose CONFIG.SYS and AUTOEXEC.BAT files load only the memory management utilities included with MS-DOS (HIMEM.SYS and EMM386.EXE). To free conventional memory use the DEVICEHIGH and LH instructions, with the DOS memory managers, to load TSRs and device drivers into upper memory.

If you don't know how to create a system disk, consult either your DOS manual or the previous Tech section on making a Game/Boot Disk.

6. *Why is my CD-ROM game running so slowly?*
CD-ROM drives are much slower than hard drives. When running a program from a CD-ROM, if you don't run a disk caching utility, the program will probably run slowly. A disk cache program sits between the physical disk drive and the program, reserving an area of memory that stores the information most recently read from, or sometimes written to, the drive. This speeds the system by keeping data that a program might need to look at more than once in memory instead of on the disk; for a computer, looking at memory is much faster than looking at the disk.

Some CD drives come packaged with caching software, but the most common such utility is MS-DOS Smartdrive (C:\DOS\SMARTDRV.EXE), which also caches other disk drives. All versions of Smartdrive that come with or after MS-DOS version 6.2 (file date 9/30/93) can cache CD-ROM disks.

MSCDEX (C:\DOS\MSCDEX.EXE) is a program that comes with DOS and is packaged with some CD-interface or drive hardware. Along with a properly loaded CD-ROM device driver, it lets DOS see the CD as a disk drive; without MSCDEX, you cannot access a CD-ROM drive through DOS or Windows.

To make sure Smartdrive and MSCDEX are set up properly, check your AUTOEXEC.BAT file. So long as your CD drive has been properly installed, there should be a line that loads in MSCDEX and possibly a line that loads in Smartdrive, or some other cache program that might have come with your drive. Make sure the line that loads in the caching program comes after the line that loads in MSCDEX; if you don't do this, the caching software will not work.

The line in the AUTOEXEC.BAT file that loads MSCDEX looks something like: "C:\DOS\MSCDEX...", and usually includes other things after the "MSCDEX" such as the DOS name of the CD device and a number of other things; assume all these things after the "MSCDEX" are necessary if you are going to cut and paste between configuration files. The line that loads in Smartdrive should look something like:
"C:\DOS\SMARTDRV.EXE". If using a version of DOS later than 5.0, you should add "LOADHIGH" and a space at the beginning of the line

If you have changed or moved lines in your AUTOEXEC.BAT or CONFIG.SYS files you should rerun MEMMAKER, and be sure to specify no EMS when asked about it. If running DoubleSpace or Stacker with DOS 6.0 or higher, always be sure that a DEVICE or DEVICEHIGH line loads it in the CONFIG.SYS file or MEMMAKER will ignore it and it will certainly load low, wasting valuable conventional memory.

●⁎Still Having Problems? Before You Call...●⁎

In order to allow us to help you more effectively, please try to follow the suggestions below before you call for help. This will assist us in finding the answer to your problem as quickly as possible so that you can begin playing and enjoying your new game.

1. *READ AT LEAST THE FIRST FEW CHAPTERS OF YOUR DOS MANUAL.* The more you know about the operating system your machine is running the easier it will be for any technical support to help you solve any problems. You should at least be familiar with how DOS commands work, what disk files and directories are and what utilities are available on your machine for editing text files.

2. *FIND OUT AS MUCH AS POSSIBLE ABOUT HOW YOUR MACHINE IS CONFIGURED.* What version of what brand operating system is running on the machine? (At the command prompt, type "VER" and hit enter to find out what version of DOS is running) What kind of chip is running your machine? ('486? '386? '286? 8086?) How much memory is in the system? How much conventional memory is free? (Free conventional memory should be above 590k or so) How much hard disk space is free? What kind of video card is in your machine? (SVGA? VGA? EGA? Brand name?) What kind of sound card, if any, is in your system? Do you have a CD-ROM drive? Are you using Stacker, Doublespace or some other kind of disk compression? Are you using QEMM or some other third party memory manager? If Windows 3.1 is installed on the machine, you can run Microsoft Diagnostics to find out some of these things, if you do not already know about them (type "MSD", then hit <enter> at the command prompt). If neces-

sary, call whomever it was that originally configured your system to answer these questions. It's also a good idea to print out your CONFIG.SYS and AUTOEXEC.BAT files (usually in the root directory of C:) and keep the printouts handy.

3. *SET UP THE COMPUTER NEAR THE PHONE WITH THE PROGRAM INSTALLED ON THE HARD DRIVE.* It is very difficult for technical support to troubleshoot a computer problem over the phone without having access to the machine in question while it is running. If this is not an option, list every detail about the occurance of the problem, including all pertinent system configuration information (such as that described in the previous paragraph), and keep this list handy when calling tech support.

4. *DEFRAG YOUR HARD DISK.* Non-contiguous files on a hard disk can sometimes cause strange and mysterious things to occur. While in the game directory, type "CHKDSK *.*", then hit <enter> at the DOS prompt to find out if all the game files are contiguous or not. A hard disk can be *defragmented*, or defragged, by using a disk utility program such as SPEEDISK, which is packaged with Norton Utilities, or DEFRAG, a program included with MS-DOS version 6.0 or above. This reorders disk space, making stored files contiguous. If a hard drive has not been defragged for more than a month, and has been used even moderately, it is likely that many of the files on the disk have become non-contiguous.

5. *CHECK FOR VIRUSES.* Viruses can mess up even the most carefully configured system. Use a memory-resident virus checker (such as VSAFE, a utility that comes with MS-DOS version 6.0 and above) whenever you insert new disks into your machine, and run an anti-virus utility (such as MSAV, another utility that comes with MS-DOS v.6.0 and above) before you call.