The Ancient Art of War in the Skies™

The World War I Strategy & Action Game

The Ancient Art of War in the Skies

The ~~Ultimate~~ Fun World War I Strategy & Action Game™

by Dave Murry, Joe Gargiulo, Barry Murry and Dee Dee Murry

MICRO PROSE™
SIMULATION • SOFTWARE

The Ancient Art of War in the Skies
Computer Simulation

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A WORD FROM THE AUTHORS

Dave and Barry Murry and Joe Gargiulo formed Evryware in 1980 to develop entertainment software for CP/M computers. Evryware developed and marketed eleven products for CP/M computers before turning their attention to the new IBM PC. After developing one IBM product, Joe decided to pursue other interests. Dave and Barry went on to create "Championship Boxing" in 1984. This was followed over the next few years with "The Ancient Art of War" and "The Ancient Art of War at Sea". Dee Dee Murry joined the team in 1987 and helped design the graphics for the popular adventure games, "Manhunter: New York" and "Manhunter: San Francisco." Joe teamed up with the Murrys again in 1988 for "The Ancient Art of War in the Skies."

The great chinese warrior, Sun Tzu, wrote the first book on strategy and tactics 2500 year ago. His book, "The Art of War" has been studied by many of the most brilliant military minds throughout history, from Genghis Khan to Napoleon to the military leaders in Operation Desert Storm. It is considered to be one of the best books on strategy and tactics and is the basis for "The Ancient Art of War" game series.

"The Ancient Art of War in the Skies" is the third in the "Ancient Art of War" series that we started in 1984. Our main goal in all three games was to create an environment which focused on the strategic and tactical aspects of war using the flavor of a more primitive period in war history. The first game in the series, "The Art of War", takes place on land sometime before the arrival of gunpowder. The wooden sailing ships in "The Ancient Art of War at Sea" predate the self-propelled metal ships that modernized naval warfare. "The Ancient Art of War in the Skies" takes place during the period of the Great War of 1914-1918 (also known as World War I), which introduced the third branch of the art of war, aerial warfare.

"The Ancient Art of War in the Skies" was designed as a strategy and tactics simulation. Instead of trying to model many specific airplanes and let the player try to learn the peculiarities of each model, we chose to focus on one fighter and one bomber for each side in the war. A green Sopwith Camel was chosen as the fighter for the Allies

The Evryware Team

because it was the most effective fighter in the war. The Central Powers fighter is the red Fokker DR. I , the triplane that the Red Baron made famous. The bombers are the British Handley-Page 0/400 and the German Gotha.

Each campaign in "The Ancient Art of War in the Skies" contains a battle front that separates the Allied side (Green) from the Central Powers side (Red). Your objective is to assess the strengths and weaknesses of your opponent and use strategic bombing to advance the battle front into enemy territory. Of course, your opponent is trying to do the same to you.

Research for "War in the Skies" included visits to the National Air and Space Museum and the National Archives, both in Washington D.C., as well as the Imperial War Museum and Hendon Air Force Base in England. We studied more than 50 books on the subject and devoted well over thirteen man-years to this project.

We hope we have achieved our goal of providing a fun and challenging game of strategy and tactics. Please let us know what you think.

Comments to the authors can be sent to: EVRYWARE, Dept WIS, Box 5204, Olympia, WA 98503.

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I:INSTRUCTION MANUAL

INTRODUCTION

Book I is an instruction manual that will take you step-by-step through The Ancient Art of War in the Skies. It consists of five parts.

1. "**Getting Started**" tells you how to set up the program.
2. "**Off to War**" guides you through the game's main features and leads you into your first campaign. Use this section as a tutorial for getting acquainted with the game play, commands and controls.
3. "**Training Session**" shows you how to practice dogfighting and bombing.
4. "**Campaign Editor**" takes you to the game generator and shows you how to make up your own campaigns quickly and easily. You will also learn how to change parts of campaigns.
5. At "**Game Options**" you can change the rules that govern the game.

The Airfield

GETTING STARTED

After starting the game, the opening title sequence will play. To skip the intro, press any key. When the intro concludes, you will be at the airfield. The airfield can be thought of as the "Main Menu" for The Ancient Art of War in the Skies. From the Airfield you can access all parts of the program by selecting from these items:

1. **Go to War**: Play one of the campaigns that comes with the game or one that you've created.
2. **Continue Saved Game**: Play a previously saved game. After selecting this, you will see a list of campaigns you have previously saved. (If this is your first time, there won't be any saved games).
3. **Training**: Dogfight and Bombing training or duel a famous World War I ace in a one-on-one contest.
4. **Game Options**:
   Adjust the volume of the music.

Make sound when the map scrolls.
Enable/Disable Mouse/Joystick.
Turn the Intro on or off.
Fight Delay Is Short/Medium/Long.
   If one of your squads comes close to an enemy squad or reaches its bombing target, an encounter is announced. You have a short time to decide if you want to take part in the dogfight or bombing. This rule adjusts the amount of time that you have to make that decision. The delays are approximately: short: 3 seconds, medium: 30 seconds, long 60 seconds.
Assign a path to your campaign files.
5. **Campaign Editor**: Make your own custom campaigns, etc.
6. **Exit**: Exit the game to DOS.
   Note: The Menu Bar has instructions on how to make your selection.

NAVIGATING THROUGH THE GAME:

Available commands and options appear on the top line of the screen. To activate a command simply press the first letter of the command displayed, or one of the designated special keys.

The following keys are available throughout the game:

Enter = Selects whatever the selector is pointing to.

Esc = Continues to next screen or backs up to previous screen. Look at menu bar at the top of screen for the current function of Esc.

Mouse / Joystick:

Left Button = Enter

Right Button = Esc

Keypad Keys:

Move selector in that direction.

Special Keys:

F1: Boss key (blanks the screen).

Press <F1> again to continue or Ctrl Q to go to DOS..

Ctrl Q: Quickly exits the game to DOS.

Ins (map level only): turns game marker on and off. When it is off, the marker disappears and you can scroll the map more quickly.

Alt S: Sound toggle.

Alt J: Joystick enable/disable

Alt M: Mouse enable/disable

A demo will automatically start after about 30 seconds. You can watch this demo to get an idea of the different features of "The Ancient Art of War in the Skies."

If this is your first time, you may want to go into training to get familiar with the dogfight and bombing aspects of the game. For more information on training, read the Dogfight and Bombing sections below.

OFF TO WAR

DOGFIGHT TRAINING

There are four types of dogfight training sessions and a one-on-one contest.

In all of these training sessions, the goal is to shoot down as many enemy fighters as you can before your green condition bar

disappears. The results of each training session will be recorded on the "Stats" and "Scores" sheets. The "Stats" keep track of how well you are doing in the basic training levels. It also keeps track of how much time you have spent training. The "Scores" sheet records your performance in one-on-one contests against the various aces and your bombing proficiency scores.

The "New Name" selection lets you start over with a new name. Type in the name just like you did at the start of training. All training scores and stats will be recorded under the name that you select when you enter training.

During dogfight training, the enemy starts out easy but gets more difficult as you shoot down more planes. New enemy fighters will arrive to replace any planes shot down. Your current score is the number of enemy plane symbols on your instrument panel. A new plane symbol will appear each time you shoot down a plane. When your plane is shot down, the symbols will turn into silhouettes to show your high score. Then your condition will reset to full strength so you can try again to beat your high score.

HOW TO FLY YOUR PLANE

During a dogfight, you can control any plane in your squad (in training, your squad only has one plane). To control the direction of your plane, press the number on the keypad that corresponds to the direction you

Training screen with options on clipboard

7

want your plane to go. Ex. <7> will cause your plane to climb to the left, <3> will cause it to descend to theright. Press <8> to pull the nose up and press <2> to push the nose down. Press <Ins> to Half Roll.

Use <+> and <-> on the keypad to adjust the throttle. The throttle lever on the control panel will move up and down as you make your adjustments.

Use <Spacebar> to shoot. Your gun will automatically adjust its aim slightly to give you the best shot at your opponent.

SPECIAL COMMANDS

All of the special commands that you can use during the dogfight are shown in the box at the lower right corner of the screen. The commands available will vary depending on if you are flying a fighter or bomber and if you are on a training flight or a real dogfight. Press the first letter of the command to use it.

View - Press <V> to alternate between a Near View and a Far View of the action. The Far View shows the whole area that the dogfight can take place in while the Near View only shows the area in your vicinity. The Far View is useful to see where the enemy is so you can get your planes into position. When the enemy gets close, you should switch to a Near View. During the Far View, a white frame surrounds the fighter you are in. The area inside the frame is the area you will see in the Close View.

New Plane - Press <N> or <Tab> to move to another friendly plane. When you are a bomber gunner , this command will be "New Post" and you can alternate between the front and rear gunner positions on the bomber.

Pause - Press <P> to pause the game. Press any key when you are ready to continue.

Leave - If you want to go back to the map level of the game and let the dogfight continue without you then press <L>.

Escape - You can try to escape from the dogfight by pressing <E> or <Esc>. All of the planes in your squad will try to fly out of the battle area. Each plane will try to escape in the direction that is closest to the edge of the screen. Be careful when you choose to escape, if the enemy is nearby then your plane stands a good chance of being shot down. You cannot escape if you are flying in a bomber.

Dogfight panel (bottom part of screen) with special commands

Rules - Press <R> to change any of the dogfight rules. If you want your rule settings to be saved to disk and used the next time that you play the game then press <S>.

Your bullets can/cannot hit your planes - When set to "cannot", then any bullet fired by a friendly plane will harmlessly pass by all other friendly planes.

Bullet range is short/medium/long - Adjust this to your preference. A long bullet range makes it easier for you to hit enemy planes but it is easier for them to hit you too.

Plane armor is thin/medium/thick - This determines how many hits a plane can take before it is shot down.

Bomber armor is thin/medium/thick - This determines how many hits a bomber can take before it is shot down.

Guns heat up never/slow/fast - Your gun heats up as you fire it. If it gets too hot, it will jam. You will then have to wait for it to cool down before you can use it again.

Your planes climb slow/average/fast - Slow is a realistic setting for the green planes (Sopwith Camel) and average setting is realistic for the red planes (The Fokker Triplane could outclimb the Sopwith Camel). The fast setting is not realistic but adds variety to the dogfights.

Enemy planes climb slow/average/fast - Adjusts the climb characteristics of the enemy planes.

Your maximum speed is slow/average/fast - Average is a realistic setting for the Sopwith Camel and Slow is realistic for the Fokker. The fast setting is not realistic but adds variety to the dogfights.

Enemy maximum speed is slow/average/fast - Adjusts the speed characteristics of the enemy planes.

Stick ahead and back are normal/reversed - Set this to your preference. Normal means pushing forward on the stick (8 on the keypad) tips the nose up, pulling back on the stick (2 on the keypad) tips the nose down.

You maneuver your plane/Your plane maneuvers on its own. This rule lets you just shoot and not bother with flying your plane. You can maneuver your plane while this option is turned on although some of your commands may be overruled as the plane is issuing its own commands.

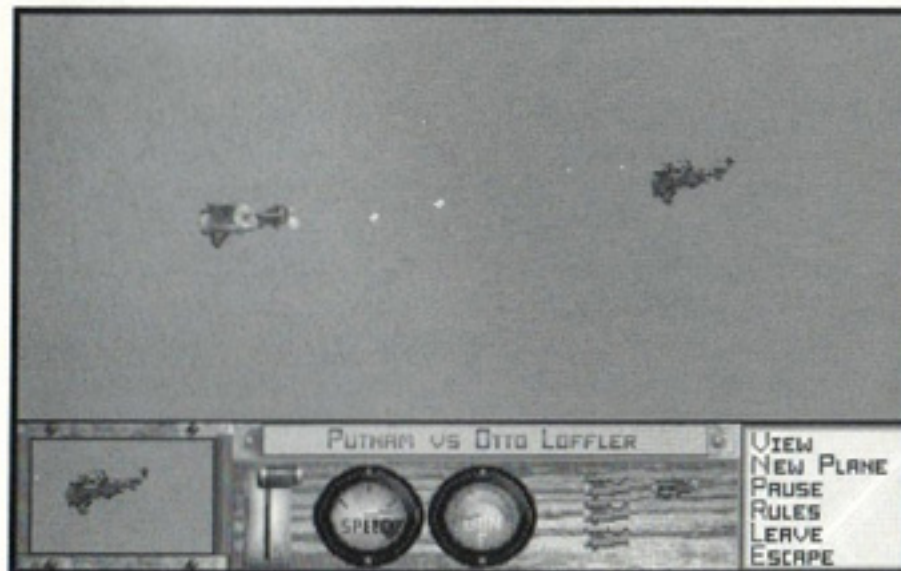<ENTER> shoots/changes View - The <Enter> key can either shoot or be used the same way as the <V> key.

Quit - Press <Q> to quit dogfight training.
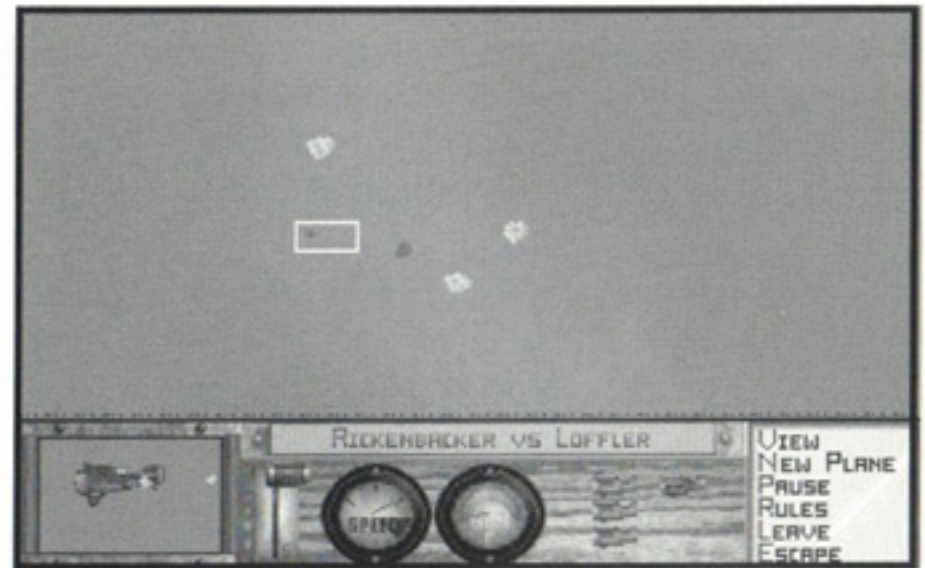
THE DOGFIGHT SCREEN

View Windows

The Main View Window takes up the top two-thirds of the screen. Usually you will use the Far View to see where the enemy is and to get into position. When the enemy gets close, switch to a Near View for battle.

Far View: The dogfight takes place within the boundaries of the Dogfight Battle Area. When in Far View, the Main View Window shows the entire battle area. The bottom of the battle area is the ground. If any plane approaches any other edge of the battle area, the plane will automatically turn around so that it will stay in the battle area. A white frame follows the fighter you are in. The area inside the frame is the area you will see in the near view. If there is more than one friendly fighter, the others will fly and fight on their own.

Dogfight screen: far view

When the view is set to Near (If you don't see a close-up of your plane in the Main View Window, press <V>) this window will always show your plane and any other planes close to you. Your plane will be trailing white smoke to indicate that you are controlling it. Black smoke indicates damage.

If the nearest enemy plane is not on screen, then your plane will move to the side of the window away from the enemy plane. For example, if the enemy plane is above and to the left of your plane, then your plane will be in the lower right corner of the Main View Window. A small ball will also appear on the screen opposite your plane on the edge of the screen. To fly towards your nearest enemy, fly towards the ball.

Dogfight screen: near view

A portion of the instrument panel with speed & gun temperature guages

The Small View Window in the lower left corner of the screen shows a close up of the nearest enemy plane when view is set to Near and a close up of your plane when view is set to Far. The small view window will show you what the nearest enemy plane is doing even if he cannot be seen in the Main View Window. If you are attacking an enemy bomber, the Small View Window shows a close up of the nearest enemy bomber gunner.

The name of your nearest opponent is at the top of your instrument panel along with the name of the pilot whose plane you are currently controlling.

On the left and right side of the Small View Window are the green and red condition bars. They show the condition of your fighter and your nearest opponent. As a plane takes hits, its condition bar will decrease. When the condition bar disappears, the plane is defeated.

FLYING

The planes in "The Ancient Art of War in the Skies" have most of the characteristics of their real counter parts although some flight aspects have been simplified so that you can concentrate on the dogfight rather than trying to fly your plane. Here are some things to keep in mind:

Gun Temperature: As you fire your gun, the gun barrel will heat up. If the gun temperature reaches the red area of the temperature gauge, your gun may jam. You cannot shoot while your gun is jammed. Your gun will fire again once it has cooled.

Air Speed: Your plane will stall if the needle in the airspeed indicator reaches the yellow area of the dial. Your plane may suffer structural failure if the needle in the airspeed indicator reaches the red area of the dial.

BOMBING TRAINING

If you have more than one bomber in your squad at the start of a bombing mission, you will see the bomber selection clipboard. This lets you choose a bomber to make the first pass at the target area. Along with the name is the condition and number of bombs that are on that bomber. If a bomber has no bombs, you cannot select it.

After selecting your bomber, you will see a black and white reconnaissance photo of the target area. Your mission is to destroy all the circled targets in your bombing area.
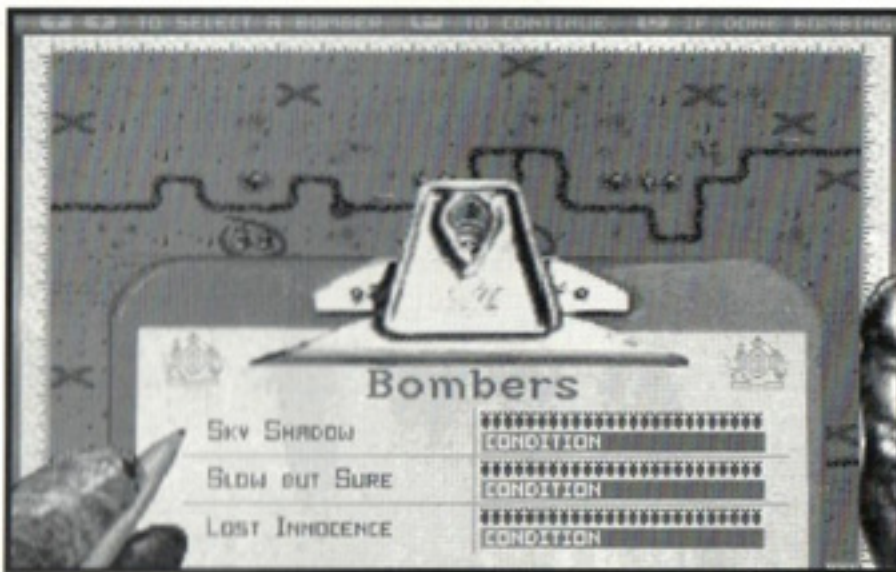
Bomber selection clipboard

The X's on the photo show you the location of anti-aircraft guns. If you fly within range of the guns, you will be fired upon.

TRAINING

In training, your targets are bull's-eyes painted on the ground. The goal of training is to drop one bomb on each bull's-eye. Aim for the center of the bull's-eye. There are no anti-aircraft guns in training except during Hostile Training and Proficiency Training.

In the Proficiency Test, your goal is to drop a bomb only on the bull's-eyes that are circled. Your score will be based on:

1. Accuracy: Your score will decrease if a bomb misses a target.
2. Efficiency: If you drop more than one bomb on a target, your score will go down.
3. Completeness: If you don't destroy all of the targets, your score will suffer.
4. Navigation: Your ability to reach the targets and stay out of range of the anti-aircraft guns is scored.
5. Tactics: The most skilled pilots can destroy all targets on one pass. Your score goes down each time that you leave the target area and make another pass.

PREPARING FOR A BOMBING RUN

The bomber symbol on the edge of the recon photo represents the point where your bomber will enter the target area. You can fly into the target area from any side. Use the arrow keys to move the bomber symbol. Your goal is to make a bombing run that will take you to the targets and avoid the anti-aircraft guns.

When you are within range of anti-aircraft guns, you will first see the flashes of the guns firing and, a few seconds later, the explosion of the shells as they burst close to your bomber.

These explosions shake your bomber and cause damage. Once your bomber becomes badly damaged, a crack will form on the upper left corner of the screen. When the crack reaches the top of the screen, your bomber will explode.

A BOMBING RUN

When you are ready to begin your bombing run, press <Enter>. You are now looking down through an opening in the bottom of the bomber as it flies over the target area. To turn, use the arrow keys on the keypad. For example, press <1> if you want your flight path to go down and left, <8> to turn towards the top of your screen. When you start a turn, a square bronze marker will move along the edge of the opening to indicate the selected direction. Your bomber is not very maneuverable and takes time to make turns.
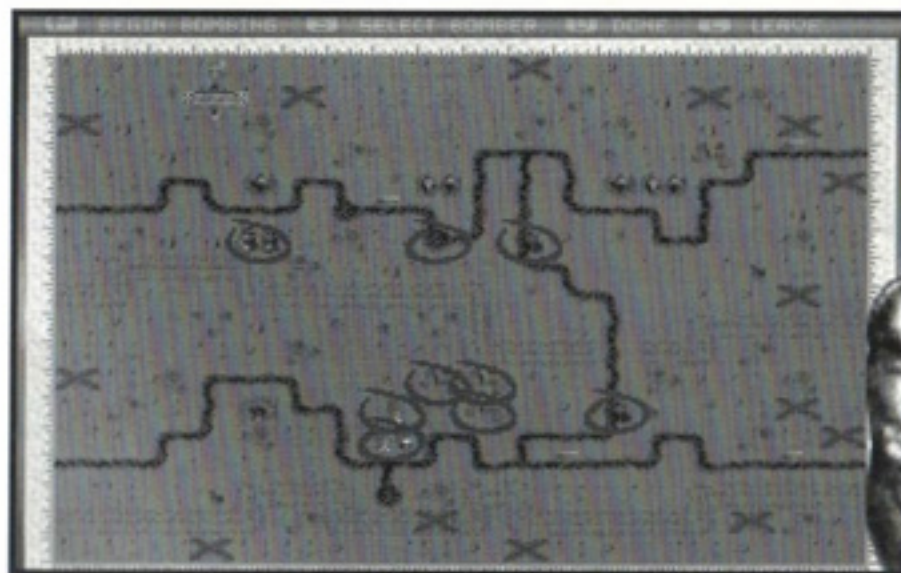
Recon photo with bomber

Bombing panel

Your current position over the ground is at the center of the opening in the bottom of the bomber.

You can press <Enter> at any time during the bombing run to look at the recon photo. A dotted line drawn on the photo shows the path your bomber has taken so far. A cross at the end of the path indicates your current position. When looking through the opening, your current position is the center of the opening. Bombs you drop will land ahead of your current position.

DROPPING BOMBS

Press <Spacebar> to drop a bomb. A small red marker on the edge of the opening shows you where your bomb will be dropped from. Your bomber can hold up to 25 bombs. The gauge at the right side of the screen indicates the number of bombs remaining. You will never run out of bombs in training. When a target is destroyed it will make a large explosion. It may take more than one bomb to cause a target to explode so it is a good idea to drop several bombs on each target, except during Proficiency Training where you are graded on efficiency.

In World War I bombs were not very accurate. As they drop, you will see that they may drift. Bombs do not drift in training.

Anti-aircraft guns can also be bombed. In some situations the best tactic may be to bomb certain anti-aircraft guns to clear a path.

Any targets or anti-aircraft guns that you destroy will be marked off on the recon photo.

The amount of damage you do to the target area depends on how successful you are in destroying the circled targets. If you only destroy half of the circled targets the target area will be half destroyed and you will have reduced its ability to help the enemy at the front by 50%. It is not necessary to destroy the anti-aircraft guns to destroy a target.

Press <P> at any time to pause the action.

LEAVING THE TARGET AREA

Whenever your bomber flies past the edge of the target area, you will return to the screen with the recon photo. A dotted line will show the path your bomber took during the bombing run. Press any key and you can select another bomber to make another run at the targets.

If you have finished bombing, press <D> and your squad will end the bombing phase and continue to its next destination.

Press <L> if you want to leave this zoom and let the bombing continue without you.

The bombing phase will automatically end if all of your bombers run out of bombs, you destroy all targets, or if you have no bombers left.

A damaged target will frantically try to repair its damage (at a rate that depends on the Rules setting). Areas damaged by one bomber squad may be repaired by the time another squad arrives to bomb the same target. The second bomber squad may also be assigned different areas to bomb than the first squad.

GoToWar

CHOOSING A CAMPAIGN

Campaign: A series of military operations that form a war.

After selecting Go to War, You will be asked to type in a word from the manual. Next, you will see a list of campaigns. There are several pages of campaigns to choose from. The campaigns with a year in front of them are based on historical battles of World War I. The rest are fictional. If you are not at the last page of campaigns, the top selection will be "Next Page". Select this to see the next page of campaigns. If you are not on the first page, <Esc> will back you up to the previous page.

When you decide on a campaign, point at it and press <Enter>.

First page of campaigns

The campaign clipboard will appear and you have four choices
1. **Begin the Campaign**

    Select this to play the campaign.

2. **Read the Story**

    Select this to read a short description of the campaign.

3. **Look at the Rules**

    Select this to look at or change campaign rules. Any changes you make here are only temporary and will only affect the campaign this time that you play it. The War Rules are for the strategic map level of the game. Though the rules have been preset for each campaign, you can adjust them to make the campaigns easier or more challenging.

    Computer Plays Red/Green

    You usually play the green side (Allies) and the computer plays the red side (Central Powers). Use this rule if you want to change sides.

    Enemy Is Seen When Close/When Far/Always.

    The enemy squads are normally seen as soon as they take off from their airfields. For a more challenging and realistic game, set this rule so that the enemy is not seen always. Then, you will only see enemy squads on the map when they are near your squads.

Aircraft Repair Rate Is Slow/Medium/Fast.
When aircraft land at airfields, it takes some time for repairs to be made. This rule determines how fast these repairs are made.

Target Repair Rate Is Slow/Medium/Fast.
When a target is bombed, it takes time for repairs to be made. This rule determines how fast these repairs are made.

Mountains Are Low/High.
To fly safely over low mountains, a squad must be above 6000 feet. A squad must be above 12000 feet to safely fly above high mountains. A squad with bombers in it cannot fly above 12000 feet.

Your Aircraft Range Is Slow/Medium/Long.
Aircraft range determines how far your planes can fly before they run out of fuel.

Your Factories Build Fighters Never/Seldom/Often.
Factories build aircraft and send them out to airfields. This rule affects how fast a factory can build your fighters.

Your Factories Build Bombers Never/Seldom/Often.
This rule affects how fast a factory can build your bombers.

Enemy Aircraft Range Is Slow/Medium/Long.
Aircraft range determines how far enemy planes can fly before it runs out of fuel.

Enemy Factories Build Fighters Never/Seldom/Often.
This rule affects how fast a factory can build enemy fighters.

Enemy Factories Build Bombers Never/Seldom/Often.
This rule affects how fast a factory can build enemy bombers.

4. Opponents' Names

The last selection has the names of your ground and air opponents. Select this to look at or change your opponents. There are five Generals to choose from that affect the enemy's ground strategy and seven Aces that determine the air force strategy and the dogfight tactics. Read what your opponents say carefully because they give you hints on what strategy to expect from them. The opponents for the campaigns are chosen for strategic reasons, not for historical accuracy. Consequently, your opponents may be the German Kaiser teamed with Rene Fonck, the French Ace.


Overview Map

BEGIN THE CAMPAIGN

Your goal is to defeat the enemy by capturing all his airfields, capturing or destroying all his aircraft or by capturing or destroying any enemy capital.

When the game first starts, you will see the **Overview Map**. The Overview Map shows the layout of the strategic targets and the Battle Front that seperates your side from your opponent's side. The two sides are shown in red and green.

On the left side of the Overview Map is your ground opponent and on the right side is your air opponent. The symbol below the opponent indicates which side he is playing. If it is a cross, they are the red side. If it is a Roundel, they are playing the green side. Another way to tell the sides apart is by looking at the description next to the capitals on the right side of theOverview Map.

The Overview Map is a good place to plan your strategy. From here you can see the enemy's (and your) weak spots. You can decide which targets you will want to bomb and which of your supply pieces need protection from enemy attack. It is always helpful to refer back to the Overview Map throughout the game to re-think your strategy as conditions change and to see the new position of the front. When you press <Enter>, the Overview Map disappears and the campaign begins.
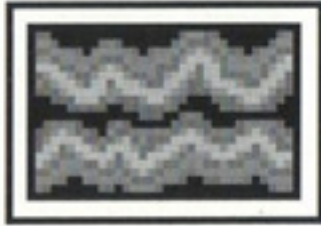
Part of the front

You can only see part of the map on the screen at one time.

To see more of the map, move the marker past the edge of the screen.

The Front: The jagged line that stretches across the map is the front. If you don't see the front, you can scroll the map to find it. The front is the border between your territory and the enemy territory. Ground troops are spread out along the front in the trenches. Each side is trying to push the front forward to capture more territory. The front will move as the battle progresses.

When troops become stronger than their enemy along any section of the front, they will attack to try to move the front forward and gain more territory. When one side is preparing to attack, the color of the front in that area will change to the strongest side's color (green or red). The front is gray when neither side is attacking. As the attack progresses you will see flashes along the front indicating intense fighting.

You will hear a series of loud explosions anytime that the front passes over a strategic target (city, bridge, airfield, etc).

You can influence the front movement by weakening the enemy positions that provide support to the front. There are two ways you can weaken the enemy position:

1. **Bomb the front.** If your bombers are successful, they will weaken the enemy in that section of the front.

2. **Bomb a strategic target behind enemy lines.** When you weaken an enemy target, you lessen that target's ability to aid its side of the front. The closer the target is to the front, the more effect it has on the nearby front.

STRATEGIC TARGETS:

Strategic Targets are the locations that you (and your opponent) can bomb during the game. The importance of each strategic target is described below. The targets on the other side of the front may vary in importance depending on your ground opponent. In addition, the campaign rules affect some of the targets.
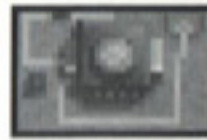
Red Capital
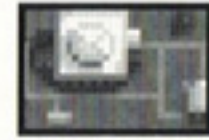
Green Capital

1. Capitals: Although Capitals do not affect the strength of the front, they are your most valuable piece. If any Capital is destroyed by bombers or overrun by the front, the war is over.
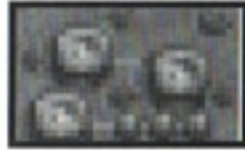

Airfield

2. Airfields: This is the only location that planes can land. Airfields don't contribute to the strength of the front.

Cities

3. Cities: Cities are very valuable since they provide badly needed supplies to the front.

Supply Depot map piece

4. Supply Depots: Supply Depots also provide badly needed supplies to the front and are very valuable.

Village map piece

5. Villages: Villages also provide supplies to the front but not as much as Cities or Supply Depots.
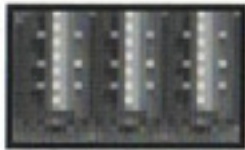
Factory map piece

6. Factory: Factories provide no supplies to the front but they build fighters and bombers and supply them to airfields. The more undamaged factories a side has, the quicker fighters and bombers are built for that side. All airfields can receive aircraft no matter how far away they are from the factory.

Fort map piece

7. Fort: Forts provide no supplies to the front but will not let the front pass unless it is completely destroyed by bombing.
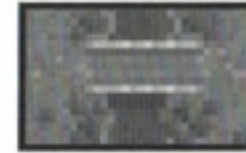
Bridge map piece

8. Bridge: Although bridges provide no supplies to the front, they let supplies from Cities, Supply Depots and Villages reach the front more quickly. Once the front begins to move, it will move farther if a bridge is nearby.

Front map piece

9. Front: Bombing the front will slow down its advance into your territory and may cause a stationary front to advance into enemy territory.

Menu Bar

On the menu bar is the game time. Press T or <Enter> to adjust the speed of the game. Usually, when you are too busy to keep up you will want to use a slow time. When you are ready, use a faster time to pick up the pace.

Press <Esc> for the game clipboard. From the clipboard, you can:

1. **Display the Overview Map (alt-O).**

   This will bring the Overview map back up on the screen. Time is stopped while you are looking at the Overview map. Press <Enter> to continue.

2. **Look at the campaign rules**

   This will show you the settings for the rules, but you can not change them while playing the campaign.

3. **Show all Flight Paths.**

   This will show you all the flight paths of your squads. Time is stopped while you are looking at the flight paths. You can scroll the map to see all the paths.

   Press <Enter> to continue.

4. **Save Campaign (alt-D).**

   This will save the game you are playing so you can continue at a later time. Follow the onscreen instructions to save your campaign. You can name it whatever you want but you may want to name it something related to the campaign's name so you can remember later what campaign you were playing

   When playing a saved game, the saved game name will be used on the Overview Map instead of the original campaign name. When you want to play the saved campaign, select Continue Saved Game from the airfield clipboard.

5. **Restart Campaign**

   This lets you restart the campaign you are playing from the beginning in case you are losing and want to try a different strategy.

6. **Display Help Window (alt-H)**

   Select this to see the Help window.

   Press <Enter> to continue.

7. **Surrender**

   If you feel your situation is hopeless, you can select surrender to concede defeat to your opponents.
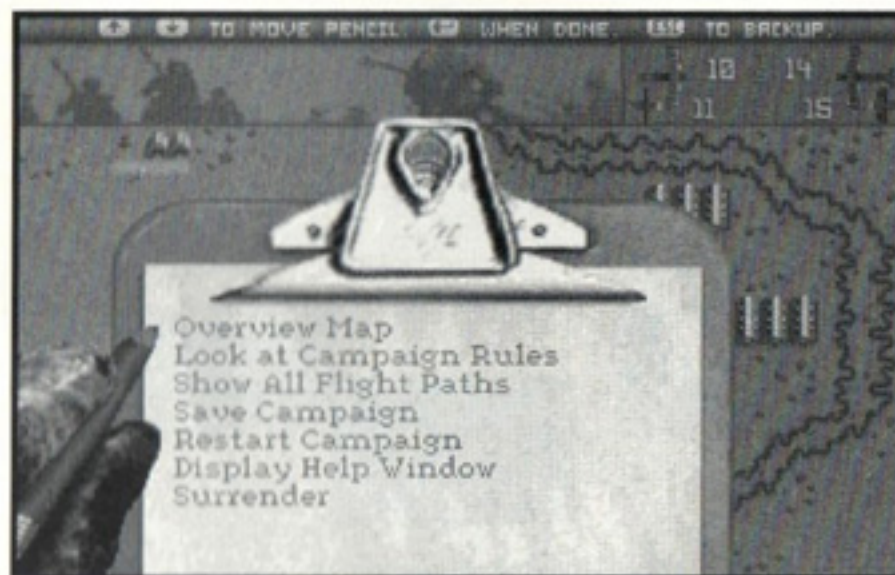
Game clipboard

Message Areas

At the upper left of the screen is a message area where you will receive news from the front. A new message will appear at the top of the message area and any older messages will be moved down one line. Notice that the picture behind the top message is related to the most recent message being displayed.

At the upper right of the screen is an information area. Usually this shows you the total number of fighters and bombers on each side. When you put your marker over a strategic target, its description and damage level will appear in this window. If you put the marker over an airfield, it will show you the number of aircraft at that airfield. If you put your marker over a squad it will show you the number of planes in that squadron. Various other messages will also appear here at times during the game.

Left and right message areas

THE MARKER

The Marker is the icon you move around the screen to interact with the game. When the Marker is over Allied territory, it is a red, white and blue Roundel. When it is over Central Powers territory, it is an Iron Cross. Use the arrow keys to move the Marker.

The map is over four times larger than what you see on the screen. Unless you are at an edge of the map, you can scroll the map by moving the Marker past the edge of the screen. You can move the map faster by pressing <Ins>. The Marker will disappear and you can scroll the map with the arrow keys. The map will scroll until you reach an edge. To use the Marker again, press <Ins>.

Move your Marker over an airfield. The Marker will turn into a magnifying glass. The menu selection will change and the message box at the upper right will tell you how many airplanes are at that airfield. A small airplane next to the hangar indicates that there is at least one airplane at this airfield. Press <Enter> to see pilot names, bomber names, and each plane's condition at that field. The bar behind the bomber or pilot's name indicates his condition. If you are over a friendly airfield, you can select a squad and send it on a mission (see below).

SENDING SQUADS ON MISSIONS

After pressing <Enter> when over a friendly airfield, you will see the Squad Roster which lists all the fighter pilots and bombers at that airfield. The horizontal bar behind the names indicates the condition of that plane. If a bomber or pilot has sustained damage or fatigue, the bar under the name will get shorter as their condition goes down. The left column lists the fighter pilots. The center column displays the medals he has earned which reflects the abilities and experience of the pilot. The more medals he has, the stronger he is in battle. To the right of the medals is the name of the bombers.

Time stops while you assign a squad a mission, so don't worry about losing the war while you are selecting a squad.

Make a Squad

Use the pencil to point at a fighter pilot or bomber that you want to put in the squadron. Then press <Enter>. The name you selected will be brighter than the others. Continue until you have up to a maximum of three fighters and three bombers selected. To remove a plane from the squad, point at it and press <Enter> again. When you have completed making your selections, select "Done" at the bottom of the window.

Flight Settings

After you select the squad planes, the next window you see is the Flight Settings window.

Altitude: Use the pencil to assign an altitude for the squad. A squad can safely fly over low mountains if flying above 6,000 feet and high mountains if flying above 12,000 feet. Bombers cannot fly above 12,000 feet. The lower the squad flies below the mountain peaks, the greater its chance of crashing. The higher a fighter squad's altitude, the more likely they will have the initial advantage in a dogfight. You will burn more fuel climbing to high altitudes which decreases your range. Your pilots will become fatigued more quickly the higher they fly.
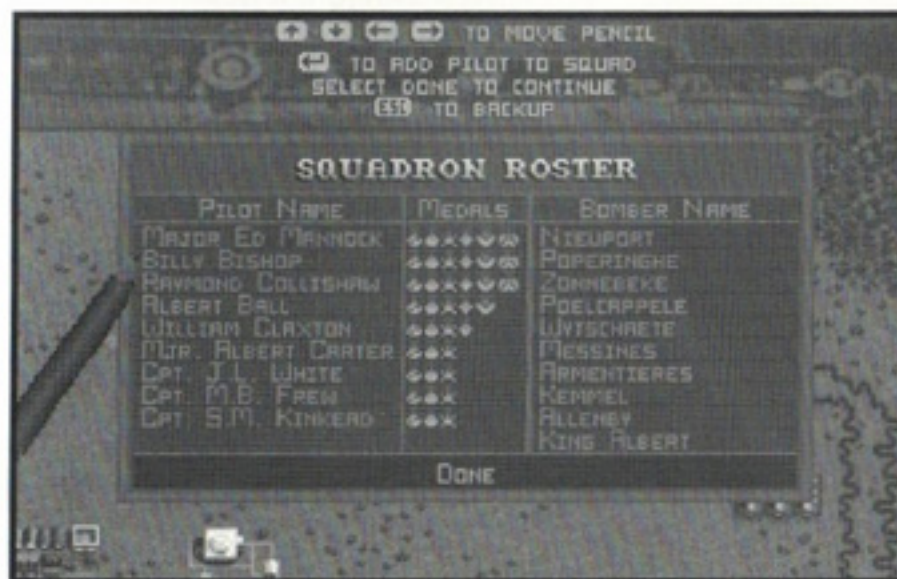
Squad Roster

The arrow points to your squad's assigned altitude and the little plane symbol points to the squad's current altitude. If your squad is currently at the airfield, its altitude will be at 0. It takes time for your squad to reach its assigned altitude. If mountains are nearby, trace a path that will give your squad time to climb high enough to fly over the mountains.

Speed: Point to the Speed area and press <Enter> to change the squad's speed. The faster the speed setting, the shorter the distance your squad can fly. If the squad has bombers in it, the squad cannot fly faster than Cruising Speed. A squad will reach assigned altitude in a shorter distance at the slower speed settings.

Formation: Point to the Formation area to change the squad's formation. A defensive formation will make your squad less susceptible to surprise attacks but reduce your squad's range. An offensive formation makes it possible for you to surprise the enemy but you are also more likely to be surprise attacked yourself. An offensive formation minimizes fuel consumption. A cautious formation makes it less likely that you will surprise or be surprised.

When a squad is surprised, it will not be able to maneuver for several seconds when you first enter a dogfight zoom. (The plane that you control can always maneuver). If you do not zoom then your squad will be at a disadvantage if it was surprised.

Orders: Fighter squads have two orders, Fixed Flight Plan or Intercept Enemy. Fixed Flight Plan means the squad will follow the path you set and then return to base. Intercept Enemy means that your squad will intercept any enemy squad you target. This option only appears when there are enemy planes visible and in the air. Bomber squads have two orders, Single Attack or Destroy Target. Single Attack means the squad will hit its assigned target(s) and return to its airfield. Destroy Target means the squad will bomb the assigned target(s), return to base to refuel and rearm and then it will automatically repeat the mission until the target is destroyed.

Done: When the flight settings are set up the way you want them, select Done.

Flight settings window

Flight Path

Once you have set up your flight plan, you are ready to give your squad their flight path. The flight path is assigned by marking a series of vector points.

To mark a vector point, move the marker to where you want the vector point and press <Enter>. Your squad will fly straight to each vector point until it reaches the last point in its flight path. If the last vector point is not a friendly airfield, the squad will turn around and retrace its path back to its airfield.

While tracing a path, <Esc> erases the last vector that you put down. If there are no vectors then <Esc> will cancel the mission.

If you have a squad with only fighters in it and you press <Enter> on an enemy squad, your squad's orders will be to intercept that squad to engage them in a dogfight. A small gold ball will stay with the enemy squad to indicate that it is marked.

If there are bombers in the squad and you move the marker over a target, the marker will become a bomb. If you press <Enter>, a bull's-eye will be placed on the target and the squad will bomb that target when it reaches it.

If your marker goes over a friendly airfield, it will turn into an airplane symbol to indicate that your squad can land at this airfield.

Each squad can mark up to 15 vector points and up to 10 bombing targets. When you are done marking a path, press <D> or press <Enter> twice.

If your squad tries to land at an airfield that is full (13 fighters and 13 bombers) the squad will land, refuel, take off again and reverse its flight path.

If the distance bar at the top of the screen goes below the green round trip area while tracing your squad's path then you have gone past the point of no return and the squad will not have enough fuel to return safely. There are several things you can do if your squad is flying beyond the halfway point.

1 Shorten the distance the squad has to fly. If you marked more than one target for bombing, it may be shorter to mark his home airfield as the last vector point rather than have him retrace his path to return to his airfield.

2. Make the last vector point a friendly airfield that is closer than the one it originated from.

3 Change the squad's flight settings to give them more range. Your squad has more range if it is flying slower, at a lower altitude or the formation is Offensive. A cautious formation burns a little more fuel than Offensive and less fuel than Defensive.

Flying long distances in open cockpit biplanes fatigues your pilots and will reduce the squad's condition.

Your squad can take off from a damaged airfield because they can avoid the damage on the runway. Your squad runs the risk of crashing on landing, however, at a damaged airfield. The more damaged the airfield is, the greater the risk of crash landing.

A squad that runs out of fuel will glide some distance before crashing, so you should mark the last destination point at an airfield, even if the squad doesn't have quite enough fuel to reach it.

Dogfight and Bomb icons

If your squad has any bombers in it, the squadron will be represented on the map by a large bomber symbol. Fighter squads are represented by a small fighter symbol.

After a squad is airborne, you can select it to check its condition, change its flight settings or change its flight path. The picture of the pilot you see in the binoculars reflects the general condition of the planes in the entire squad.

DOGFIGHTS AND BOMBING

When two opposing squads come together and at least one of the squads has fighters in it, the two squads will change into a Dogfight Encounter icon. When a bomber squad reaches a target, it will turn into a Bomb Encounter icon. You have about 30 seconds (depending on the Fight Delay setting in the Game Options) to decide if you want to take part in the dogfight or bombing. Press <D> to zoom to the Dogfight or <B> to zoom to the Bombing. If you decide not to take part, your squad will do its best without you, but it has a better chance with you as the squad leader.

If there is more than one encounter occurring, you will zoom to the oldest dogfight or bombing encounter. If you want to choose, put your marker over the encounter icon you want to zoom into until it changes to a magnifying glass and press D(ogfight) or B(omb).

If you choose not to zoom, the action will begin without you after a short time. After the actual dogfight or bombing starts, you cannot zoom in to it.

For every five enemy planes shot down, a pilot will receive a medal.

For instructions on what to do in a dogfight or bombing run, read the Dogfight and Bombing sections of the Training section of this manual.

CAMPAIGN EDITOR

After you select Campaign Editor from the airfield clipboard, you have five choices:

1. Make a New Campaign: Design your own campaign.
2. Change a Campaign: Make changes to campaigns.
3. Copy a Campaign: Copy campaigns to floppy disk or other directories on your hard disk.
4. Remove a Campaign: Erase campaigns you no longer need.
5. Remove a Saved Game: Erase saved games you no longer need.

1. MAKE A NEW CAMPAIGN

Select this to design your own campaigns. You can save up to 75 campaigns in any one directory whether on your hard disk or floppy disk. This limitation is only there to make navigating through the list a little easier. The new campaign will be saved to the directory specified in Game Options. To change this directory, select Game Options from the airfield clipboard.

Map Editor

The first step in making a new campaign is to design the map. Every map needs the following:

Campaign Editor

Map editor

1. A front in which both ends exit on the edge of the map.
2. At least one airfield on each side of the front.
3. Either a capital or a flag on at least one side so the computer knows which side is which.

How to build a map:

There are four tools you use while making your map: the Mapboard, the Marker, the Overview Map and the Map Pieces.

Mapboard: At the top of the screen is a view of a section of the Map. This is called the Mapboard and is where you will put Map Pieces as you build your map. (At first the map is all grassland.) Slightly less than one-twelfth of the total Map is seen at one time on the Mapboard.

Marker: The Marker is the white frame on the Mapboard. To move the Marker use the keypad.

Overview Map: The Overview Map is at the lower left of the screen. It is a miniature version of the entire map. The bright square is your Marker so you can see where you are placing map pieces in relation to the rest of the map.

Map Pieces: To the right of the Overview Map are the Map Pieces. To place a Map Piece on the map, move the Marker where

you want the Map Piece to go and then type the letter under the Map Piece. The selected Map Piece will appear under your marker. To change the selection of map pieces press the "5" key, the "-" key, or the "+" key, or the "N" key for New Pieces.

Another way to place pieces on the map is to move the Marker from the Mapboard to the Map Pieces is by pressing <Ins>. Use the arrow keys to move the Marker over the Map Piece you want and press <Enter>.

Mouse/Joystick: Move the mouse to move the Marker. Use the right button to move the Marker from the Mapboard to the Map Pieces. Notice that a dim Marker is left on the Mapboard. Move the mouse to move the Marker over the Map Piece you want. Click the left mouse button to place the piece under the dim Marker or click the right mouse button to select the Map Piece under your Marker and move the Marker back to the Mapboard. Then move the Marker where you want the Map Piece you just selected to go and click the left mouse button.

You can place up to 100 target pieces and up to 25 airfields on the map. See Designer Tips at the end of this section for more info. You can change a Map Piece as many times as you want.

There are 6 pages of Map Pieces. To select another page, press +, -, 5 on the keypad, or the N key. When the marker is on a Map Piece, it is described just below the Map Pieces. Generally, the strategic targets are on page 1, page 2 is forests and page 3 is grassland. Page 4 are rivers, page 5 has mountains and page 6 has damaged ground, target damage and the fronts.

You can also use the first letter of the command on the menu bar. For example, press N for New pieces, press H for Help, etc. If you decide you don't want to save your work, press C to Cancel. When you are done working on the map, press D for Done.

Tips for Designing a Map

When making a map, you will probably find it works best to lay down the front first, then place Capitals and/or flags on either side of the front. Place the airfields, next the target pieces and finally the rivers, forest, mountains, and ground terrain.

To begin putting down the front, place your mapboard marker on the edge of the map and select one of the front pieces. The color of the front doesn't matter much at this point because when the campaign begins, the front will adjust quickly according to the strength of the targets on each side. Next place another front piece in a square next to the first piece. Notice how the pieces automatically connect to each other. Repeat this process until you have completed building a front that is connected with both ends at the edge of the map.

To erase the front, you must start on either end and work backwards since the front pieces are all linked together like a chain. Select the piece labeled "Erase Front" and place it over either end of the front to erase that piece of the front. Proceed to the next front piece and repeat the procedure to continue erasing additional sections of the front.

To add pieces to the front, you must add to the ends of the front. Also, you must leave at least one non-front map square between any two pieces of the front that are not linked together. A warning message will be displayed if you try to put a front piece in an illegal square.

After you have built the front add a capital or flag to distinguish the sides. You need one flag or capital on at least one side of the front.

You can place more than one capital on a side although all of the capitals on a side must be the same color.

The two flags on page 1 of the map pieces are used to designate territory. If used with a capital, the French flag can only be used with the green capital and the German flag can only be used with the red capital. The flags have no strategic value.

Next add the target pieces. Target pieces are very important since their placement on the map will determine the primary strategies for your campaign. Each target piece has its own unique contribution to the game. The value of a target piece on the opponents side varies depending on your opponent. The campaign rules also affect some of the map pieces.

Note: *For more information on the importance of the Strategic Targets, see Go to War.*

Be sure there are adequate airfields scattered around the map since all squads must take off and land from an airfield. If they are spread too far apart, squads will be doing a lot of flying before they reach their target and this will tire the crew.

After you have placed the strategic targets, you can decorate your war map with special pieces, such as the compass, forests, rivers, mountains, and varied types of ground terrain.

Study the war maps in the campaigns that come with the game for more ideas on how the pieces can fit together. With a little practice you'll be creating great maps in no time!

Squad Editor

To build an airforce for your campaign, move your marker over an airfield and press <Enter>. The left column is for the names of the fighter pilots. The middle column is the fighter pilots' medals. The more medals a pilot has, the better he is in a dogfight. The third column is for the names of bombers.

Use the pencil to point at the top of the fighter pilot column. Type in the name of the fighter pilot and press <Enter> or press Alt-N to let the computer automatically create a name.

See "Pilot and Bomber Names" in appendix IV for a list of fighter pilot and bomber name suggestions. You can use any name you want, including names not on the list. A maximum of 50 planes can be in a campaign. A maximum of 26 planes can be at one airfield (13 fighters and 13 bombers).

The center column is for pilot medals. The more medals a pilot has, the better he is in a dogfight. You can give a pilot up to 6 medals. Real ace during the war shot down between 5 and 80 opponents. To simulate comparable skills when using authentic aces, give pilots who had a score of 60 or more 6 medals. If they had 50 or more, give them 5 medals and so on. Anyone with less than 10 victories would get no medals.

Use the pencil to change the medals for your pilot and then press <Enter>. Press <D> when you are done making squads.
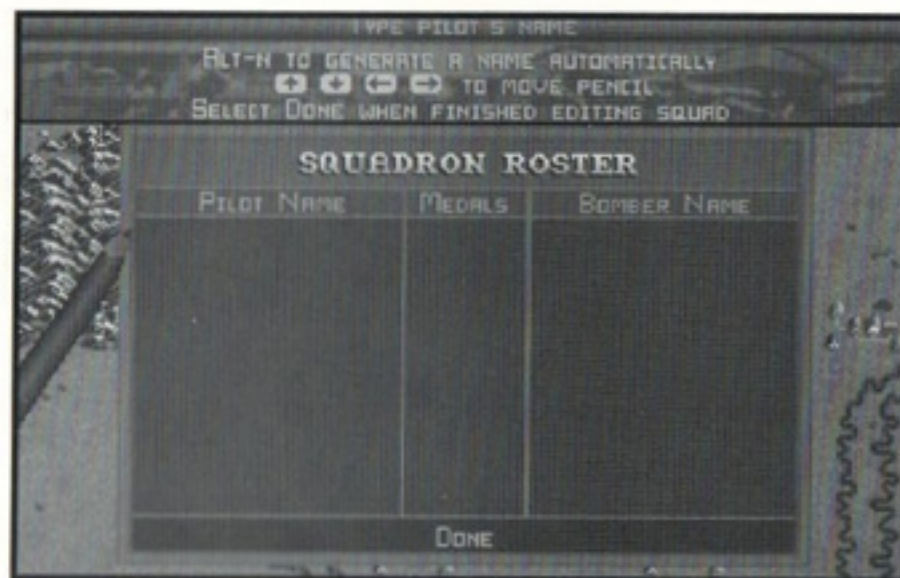
Campaign Rules

For a description of the rules, see section 1, Go to War. Press <Esc> when finished.

Choose an Enemy

Here you can choose a General and an Ace to be your opponents for this campaign. Point at the one you want to change and then press <Enter>. Press <Esc> when finished.

Write the Story

Write a story describing your campaign. Press <Esc> when finished.

Blank squad editor

Write the Title

Write a title for your campaign. Press <Enter> when finished.

2. CHANGE A CAMPAIGN

To change a campaign, select this option and then select the campaign you want to change. You can 'p over the Map Editor or Squad Editor by pressing <S> for Ski, therwise it is identical to making a new campaign.

3. COPY A CAMPAIGN

To copy a campaign to a floppy disk or to another directory on your hard disk, select this option and then follow the instructions on screen. If you copy a campaign to the same directory that the campaign is in, a duplicate of the campaign will be made.

4. REMOVE A CAMPAIGN

To erase a campaign, select this option then follow the instructions on screen.

5. REMOVE A SAVED GAME

To erase a saved game, select this option then follow the instructions on screen.

II: Planning Guide

Introduction

To be a consistent winner at the Ancient Art of War in the Skies, requires a study of both strategy and tactics.

The strategic portion of a campaign involves operations at the map level.

The tactical portion involves bombing and dogfighting methods.

Study this section to become a more competent commander of your forces.

War Strategy

The phrase 'wisdom transcends time' is a testament to The Art of War, the timeless book on war strategy and tactics. Written 2500 years ago by the great Chinese warrior Sun Tzu, The Art of War has been studied by many of the most brilliant military minds throughout history from the Mongol leader Genghis Khan to the US Marines in Operation Desert Storm.

During World War I, the weapons of war changed dramatically but the basic concepts of strategy and tactics remained the same. Read this chapter to understand how the teachings of Sun Tzu apply to The Ancient Art of War in the Skies.

Before the Battle Begins

In chapter I of the Art of War, Sun Tzu wrote of the importance of thorough planning before the battle begins. When playing chess, even the strongest piece on the board can be quickly lost due to poor planning. The same is true on the battlefield.

In World War I, the French General Nivelle lost 200,000 men with no gain during the spring offensive of 1917. He possessed enormous manpower but lacked strategic planning.

In The Ancient Art of War in the Skies, plan your strategy to gain maximum advantage before you launch your attack. Do you

Sun Tzu

want to control territory by advancing the front, weaken his flanks or go for his jugular-the Capital?

Sun Tzu explained in chapter II: Waging War, that during war you are not only fighting the enemy but you are also fighting time. World War I was long and drawn out and although it ultimately ended in victory for the allies, ten million human lives were lost. By contrast, Operation Desert Storm, in 1991, was short and well planned by the allied forces and it resulted in less than 100 U.S. casualties.

Consider what will move the front the fastest, but consider too, that your enemy is likely to retaliate and push you back.

Although bombing the front will move it, unless this is coordinated with bombing strategic targets near the front, the enemy will counter attack and regain territory quickly. This is what stalemated the front in World War I. Significant gains can only be accomplished by a well planned strategy.

THE ART OF FIGHTING WITHOUT FIGHTING

Rather than destroy an enemy, subdue him into surrendering, wrote the wise warrior in chapter III of The Art of War. Rather than meeting the enemy head on, try to slip your bombers past the enemy to strike their capitals. "Cut off the head and the serpent will die." If you destroy an enemy capital, the enemy air force will surrender and you can avoid fighting them, minimizing loss of life and destruction.

If you capture or destroy his airfields, he has nowhere to land and victory will be yours.

OFFENSIVE STRATEGY

In chapter III: Offensive Strategy, Sun Tzu described how, when and where to engage the enemy.

In War in the Skies, your offensive strategy should be based on your opponent, the layout of the war map, and the makeup of the forces on both sides. In planning your offensive strategy, keep in mind that captured airbases can be used for your squads, captured factories can be used to build new planes, and captured forts will halt the retreat of the front once you have gained territory.

KNOW YOURSELF, KNOW THE ENEMY

In chapter III, Sun Tzu said in order to anticipate the enemy's strategy, his methods must be studied. By studying what your opponent has done in the past, you can predict what he will do in the future. Learn the strengths and weaknesses of your opponent so you can exploit his weaknesses and avoid his strengths.

By attacking the targets that your enemy values most and defending the targets that the enemy is most likely to attack, you can maximize your forces and concentrate your strength where it will do the most good.

Consider, for example, that while your cities are your main source of strength for the front, the Kaiser places little value on the population centers and instead draws his power from supply depots and factories.

If the enemy is good at dogfighting, avoid his fighters. If he is good at bombing, intercept his bombers. If he is good at both,

keep a numerical advantage and let him come to you. To learn more about your opponent, see the chapter called "Know the Enemy's Mind".

CONDITION

In chapter VI, Sun Tzu wrote of the importance of keeping your forces in good condition.

Keep your planes in top shape. Wait for your planes to be repaired at their airbase before launching them on another mission. Sending a damaged plane into battle should only be done as a desperation move.

If in a dogfight or on a bombing mission, your planes get shot to ribbons, consider cutting off the attack. Head for home for repairs rather than risk the loss of more planes.

Your squad's condition is affected by many variables: altitude, speed, formation, and distance traveled. Flying your squad constantly at a high altitude and fast speed in an open cockpit will decrease the condition of your pilots rapidly. A defensive formation, while reducing the chances of a surprise attack, reduces your squad's condition because they are constantly turning and straining their necks while on the lookout for enemy planes.

Consider too that your squad becomes battle weary with each dogfight and bombing mission. Keep your missions short to avoid tiring your pilots and stressing their planes.

Condition can make the difference between a bomber reaching its target or being shot down by enemy anti-aircraft guns.

STRENGTH AND WEAKNESSES

Your troops should be commanded according to your strengths and weaknesses. If you are strong in a dogfight, seek dogfights. If you are strong at bombing, launch as many squads as you can to bomb the enemy targets. If you are stong at neither, return to Training and hone your skills.

MANEUVERING

Maneuvering pertains to tactics and strategy. In tactical maneuvering, you are close to the enemy in a dogfight. Strategic maneuvering refers to maneuvering your forces at the map level

to obtain an objective. While tactical maneuvering is a matter of your fighter pilot skills, strategic maneuvering requires planned offensives.

Tactical maneuvering should be practiced while in Training, for mistakes made during combat are usually fatal. Study the aces in Book III, Chapter 8 to learn about their dogfighting skills.

Strategic maneuvering will take time to master. You will improve with experience. Study the ground commanders to understand their objectives, then set your own offensive and defensive strategy to counter the enemy.

TACTICS

Sun Tzu spoke of Tactics in chapter VIII of the Art of War.

When enemy squads encounter each other, they engage in a dogfight. According to the status of each squad at that point, one squad may surprise the other. If a squad is surprised, the other squad will begin the dogfight in a favorable position (usually directly behind) and ready to shoot. The other squad will be fired upon before they have a chance to move.

Many factors come into play to determine if a squad is surprised. The squad's condition, altitude, speed, formation and the number of bombers and fighters in the squad all play a part.

Surprise could be attained from a higher altitude, a faster speed, or an offensive formation. But if a squad's condition is very low, they stand more of a chance of being surprised. Set your flight plan carefully to avoid surprise attacks.

Ponder these conditions and be the squad making the surprise attack instead of the other way around.

TARGETS AND TERRAIN

In Chapters X and XI, Tzu discusses how to deal with different types of terrain and ground objectives. In the Ancient Art of War in the Skies you must consider the effect of ground targets and their influence on the strength of the front. The closer a target is to the front, the more influence it has on the front. Thus, a village near the front would have more affect on the front then a city that is farther from the front even though the city is much stronger. Keep this in mind when choosing your targets.

There are eight important strategic locations on the ground and one type of ground terrain that must be considered.

1. Airfields:

Planes require airfields. Airfields contain hangars where planes are repaired. Machine gun ammuntion and bombs are also stored at airbases.

Airfields supply no strength to the front. They are, however, vital to your air force, so protect them well. A captured airfield can be used immediately by your planes. It provides a valuable landing strip close to the front, but beware. If the front is not stable in that area, the enemy can suddenly advance over your newly acquired airfield and destroy your planes.

After being bombed, airfields repair themselves twice as fast as the other strategic pieces.

2. Cities:

Protect your cities from enemy attacks, for they provide the most strength to your front. Your opponents will value cities in different degrees so consider who you are fighting before targeting enemy cities. Foch, like you, values his cities so they are strong, while the Kaiser would just as soon sacrifice his population centers.

3. Villages:

Villages are your third strongest supply piece. Again, some opponents will value a village highly while others have less use for them.

4. Capital:

The capital is the heart of each side's homeland. Although the capital adds no strength to the front, it is the source of command for each side's forces. When a capital is destroyed, the war is over. The capital is heavily defended and difficult to destroy.

5. Factory:

Factories build aircraft and supply them to airfields. All airfields receive aircraft from factories no matter how far away. The more factories a side has, the faster they will receive new planes.

6. Supply Depot:

The supply depot supplies fuel and ammunition to the front. After cities, it is your most powerful piece. Although your opponents value the supply depot to different degrees, it is usually one of the most powerful. Protect them well for they are not heavily defended.

7. Fort:

A fort is a defensive target designed to halt the enemy's advance. They are heavily defended and difficult to destroy. The front can not advance past a fort unless that fort is totally destroyed.

8. Bridge:

Although bridges don't supply the front directly, they allow supplies and reinforcements to reach the front faster. The front will move farther if a bridge is near.

9. Mountains:

Ground terrain matters little to planes with one exception. Mountains can be an obstacle for the planes of World War I because they have difficulty flying at higher altitudes.

Check your altitude carefully before flying over mountains. If mountains are set to 'low' in the map rules, you can fly over them safely above 6000 feet. If they are 'high' then you must fly above 12,000 feet to clear the peaks. A bomber cannot fly above 12,000 feet. It is possible to navigate through mountains at lower altitudes, but this is not recommended.

It is not enough to assign a squad a safe altitude above mountains. You must give them a path that allows them time to climb to that altitude before they reach the mountains. Your squad's climb rate varies with their speed. It will climb and descend faster at slower speeds. When trying to climb quickly to get over mountains, use the slowest speed. Then, when your squad has reached its assigned altitude, change to a faster speed.

Airfield

Cities

Village

Capital

Factory

Bridge

Fort

Supply Depot

KNOW THE ENEMY'S MIND

During the Great War, both sides were served by many ground generals. Some served early in the war and either died or were replaced due to incompetence. Others rose to power during the war. Britain, France and Germany are each represented by a General. The ancient Chinese general Sun Tzu and the not so famous Helmut von Spike are also included. Each has his own unique style.

The ground leader you select will lead the enemy ground troops. As such, the strength of the enemy front will depend on the ground commander. With some generals, the front will move forward with a strong central push leaving the flanks weak. For others it will move forward uniformly strong but slower. In addition, the ground general will determine the value of each of his strategic targets (cities, supply depots, villages, factories, etc.). The value of these targets determines the level of strength that the front receives from each target.

The ground commander also gives offensive commands to the air commander. These commands could be, " Attack airfields as your first priority, followed by supply depots and cities." Or "Attack forts as your first priority followed by the population centers (cities and villages).

Finally, the ground commander decides when he should surrender or fight to the last man.

Read these strategy notes for each ground commander to determine what you are up against.

Lord Horatio Herbert Kitchener

KITCHENER – GREAT BRITAIN

Lord Kitchener was the British Secretary of State for War and created a first class British army.

When battling Kitchener, his offensive strategy will be to target your airbases, followed by your industrial complex: factories, depots and bridges. Defensively, his supply depots, cities, and villages, followed by his bridges provide the most strategic value to him. His forts are of medium strength, and his troops advance at medium speed at the front.

Advice:

Guard your airbases and industrial complexes and target his supply depots and population centers.

Allied Commander in Chief Ferdinand Foch

Kaiser Wilhelm II

FOCH – FRANCE

Population centers and supply depots provide the most power to Foch's front. Target his strong points and you will weaken his front.

Defensively, Foch will fiercely protect his capital. His forts have superior strength and are heavily protected.

Offensively, Foch's primary objective is to cut off your factories from supplying planes. He will then target your cities, supply depots, villages and airfields.

Advice:

Attacking Foch's capital near suicide. Instead, identify his strongest targets and bomb them to advance the front, thereby controlling territory.

WILHELM II – GERMANY

When fighting the German commander, you can expect his factories and supply depots to be his strongest asset, followed by his cities and bridges. Villages were of little value to him. Because of his offensive style, forts were of little interest to him.

The German front will move with a strong and fast central push but this leaves the flanks weak. If the main thrust is halted, the rear will collapse and retreat.

The Kaiser's primary offensive objective will be your cities, followed by your factories, supply depots, and villages.

The Kaiser knows when he is beaten, and will surrender rather than suffer the humiliation of losing his entire airforce.

Advice:

Stop his front advances before they start rolling over your territory. Factories and supply depots are the core of his military machine. Target these points to weaken his front.

Helmut von Spike

Sun Tzu

SPIKE – THE FATHERLAND

When you are at war with Spike, expect the unexpected. Above all, Spike values bridges. He naturally assumes bridges are also your source of power and immediately targets them for destruction. While his crack troops are assigned to bridge duty, you can expect him to randomly hit your targets. His troops at the front advance like a truck stuck in first gear - slow.

Advice:

Spike's strategy, like his mind, is in a state of confusion. Don't underestimate his haphazard style for some say there is a method to his madness.

TZU – CHINA

Sun Tzu lived 2500 years ago in the Kingdom of Wu. He wrote "The Art of War" which outlined the basics of war strategy and tactics that have been studied by military leaders ever since.

Sun Tzu is a superb tactician and military strategist. He will target your strong points (cities) while attempting to dismantle your secondary pieces. His forts are nearly impenetrable. Guard your supply pieces to stop the powerful advance of his front. Do not underestimate his strategic targets since they are all used to their maximum advantage.

Advice:

Don't let his front start advancing. Protect your capital, by keeping fighters at home ready to intercept.

AIR COMMANDERS

The Air Commander determines the offensive and defensive priorities of the enemy air force, as well as the tactics of the enemy planes during dogfights and bombing runs.

Your opponent's air force strategy is set according to his fighting style. For example, a defensive air commander may set his first priorities to intercepting bomber squads threatening his capital followed by bombing the front that threatens one of his targets. An offensive commander might send squads to bomb your targets near the front to move it forward as his first priority.

He also determines how the enemy planes will fight in a dogfight. Some commanders will try to maintain formation, others will swarm, others will seek to maintain altitude over you. The air commander also determines the shooting accuracy of the enemy pilots.

Bombing tactics are also determined by the air commander. This includes the accuracy of his bombers and his determination to destroy the target versus the risk of being shot down.

Of the hundreds of pilots in the Great War, only a handful could be called Top Aces. Here are some of the best (and one of the worst). Study their descriptions to determine their fighting styles.

Rittmeister Manfred von Richthofen, the Red Baron

RICHTHOFEN – GERMANY

As an air commander, the Red Baron is primarily offensive in nature. If his capital is not being threatened, his top priority is to advance the front to grab territory. His accurate bombers will devastate your strongest targets. Forts will get special attention if they slow his advance.

During a dogfight, the Red Baron is usually in a tight formation waiting for an opening. He has quick reflexes and is an accurate marksman. An injured foe will receive no mercy. If you surprise him from behind, he will quickly try to turn the tables on you.

Capitaine Rene Fonck, the Ace of Aces

Major Edward "Mick" Mannock, the One-eyed Ace

FONCK – France

Fonck leads his air force with a strong defense. He will attack only when he is confident that none of his targets are being threatened. He fiercely protects his capital. His bomber accuracy is above average.

When dogfighting Fonck, it is best to stay out of his sights for when he fires, he seldom misses. His fighters prefer to duel independently. They will seldom gang up on one of your fighters.

MANNOCK – Great Britain

Mick Mannock, the greatest British ace, was a natural born leader. As a commander, he is a cautious planner balancing his offensive and defensive strategies. While guarding his own positions, he will attempt to move the front forward, pulverizing anything in its path.

His bombing accuracy is less than average. He will tend to call off an attack soon after his bombers begin to take hits, preferring to head back to base for repairs rather than risk losing his crew.

In a dogfight, his tactic was to close in tight on his prey and "send the German vermin to hell in flames." When you challenge Mannock, you will rarely find him fighting solo. Very accurate at close range, he will attack your squadron at its weakest point.

Captain Albert Ball

Capitaine Georges Guynemer, the Winged Sword of France

BALL – GREAT BRITAIN

Other than fiercely protecting his airfields, Ball is all offense. His bombers are very accurate. While this tactic will destroy many targets, he will lose a lot of bombers to anti-aircraft fire.

Albert Ball is the classic lone wolf dogfighter. His tactic is to dive into an enemy formation and use his excellent marksmanship to quickly get a kill. He hates formation flying, preferring to fly alone and attack against any odds. Another tactic he uses is to fly under an opponent and then fire upwards.

GUYNEMER – FRANCE

On the ground, Guynemer was sickly and frail. In the sky, he was terror itself.

While Guynemer will single out anything that approaches his capital, he primarily leads an offensive strategy. While on the offensive, he tends to leave his airbases unguarded. This leaves him vulnerable. His bombers have average accuracy and like Ball, Guynemer prefers to empty his load of bombs without regard for hits he is taking.

In a dogfight, you can expect Guynemer to be an excellent marksman. His planes will act individually and tend to attack the weakest first. Expect him to close quickly and fearlessly.

Hauptmann Oswald Boelcke, the Father of Air Tactics

Lou P. de Loupe, Loopy

BOELCKE – GERMANY

Boelcke protects his territory with a water tight defense, engaging your squads as soon as they are spotted. When on the attack, his bombers are deadly accurate, second only to Richthofen.

When you challenge Boelcke you can expect the enemy squad to work together. He believed in tight formation flying as opposed to lone wolf tactics. He taught his Jasta pilots to stick together in battle and that it doesn't matter who scores the victory as long as the squad wins. If you dive on him, expect him to turn to meet you rather than to evade you.
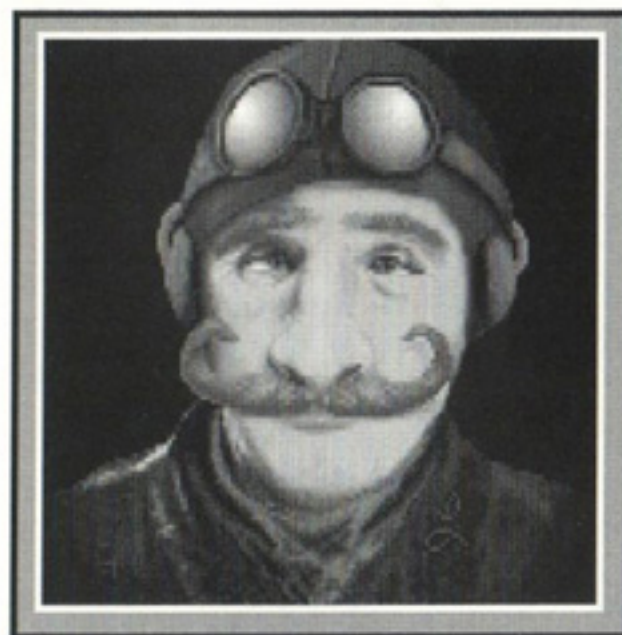
LOUPE – FRANCE

A descendent of Thor Foote, tyrant of the ancient seas, Lou was the black sheep of the French air force. Little is known about this pilot except that a common phrase uttered in discrete circles was that in the brains department, "Lou's engine is running but there is no pilot behind the controls". Lou's engine ran for many years after the war but the pilot never did show up.

Although he tends to get confused between offense and defense, his strategy is not to be underestimated. His haphazard style is sometimes used as a diversionary tactic for his real objective.

When challenging Loopy, you are challenging the worst pilot in the French air force. This makes him a good choice for beginners.

DOGFIGHT TACTICS AND AEROBATICS

DOGFIGHT TACTICS

*"There are only two kinds of aircraft
- fighters and targets."*

— *Author Unknown*

The purpose of fighters is to destroy other aircraft. The idea in a dogfight is to get into a firing position behind your opponent so he can't return fire.

The key to success in a dogfight is aggressiveness. When you are on the offensive, you are trying to shoot down your enemy. When you are on the defense, you are trying to avoid being shot down. The best defense is a good offense.

If you get an opponent on your tail and can't shake him, fly towards friendly planes so they can help you.

If you decide to try to escape during a dogfight, try to manuver your planes near the edge of the screen first. This gives the enemy less time to chase after you and shoot you down.

When you have more than one plane in your squadron, control the plane with the pilot that has the least medals. Say your squad has two fighter planes in it. One pilot has 1 medal, the other has 6. The pilot with 6 medals will fight better than the pilot with 1 medal.

When one squad surprises another, the surprised squad will not be able to maneuver for several seconds (the plane that you control can always maneuver).

AEROBATIC AND COMBAT MANEUVERS

These maneuvers can be practiced by selecting training from the airfield clipboard. Then select "No Enemy" and you will be able to practice without enemy harrassment.
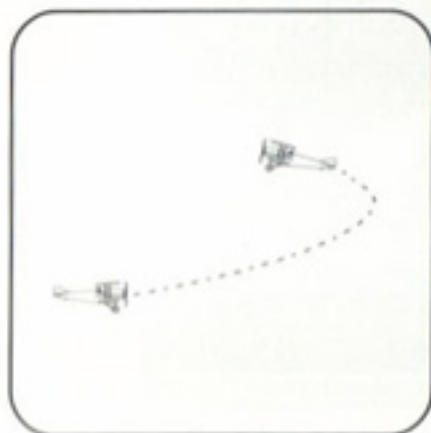
1. Climbing Turn

A Climbing Turn is used to gain height on an opponent. Technique: Use the 7 and 9 key to climb at maximum efficiency.
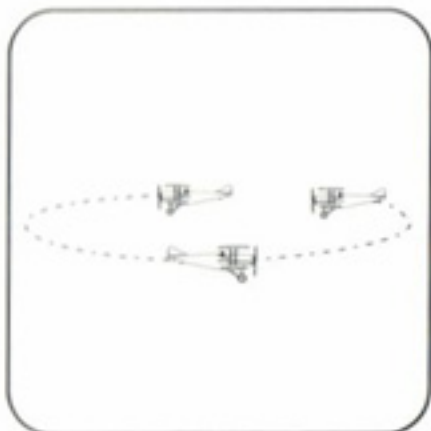
2. Chasing Your Tail

This is a tight horizontal turn used to reverse positions with an enemy on your tail.

Technique: When an enemy is on your tail, use the 4 or 6 key to try to circle behind him to bring your guns to bear.

3. Spin

A Spin is used to shake an attacker off your tail.

Technique: Push forward on the stick until you are flying straight down (Press 2 several times) then spin (Press <Ins>). This maneuver can be dangerous. If you allow your speed to go into the red you have a chance of causing a structural failure.
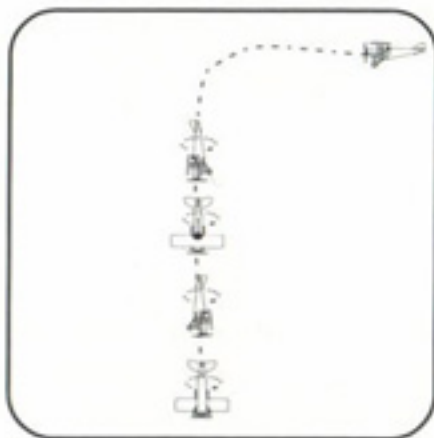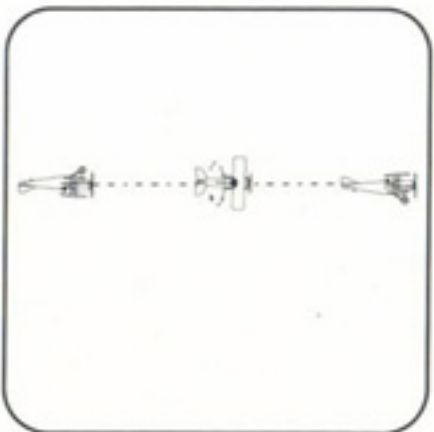
4. Half Roll

A Half Roll is used to right yourself when you find yourself upside down during combat maneuvers. It is also used as a part of other maneuvers.

Technique: Press <Ins> to Half Roll. Press <Ins> twice to do a complete roll.

5. Loop

A loop can be used as an evasive maneuver and parts of a loop are used in other maneuvers.

Technique: Begin a dive until reaching maximum airspeed (Press 3). Pull back on the stick evenly (Press 8) until your aeroplane makes a complete loop and you are again flying straight and level in the same direction you began.

6. Hammerhead Stall

Sometimes this can be used to shake an opponent off your tail. This is more effective if your climb rate is greater than your opponent's.

Technique: To get a prolonged climb, dive to gain speed (Press 3.). Then pull back on the stick (Press 8) until you are flying straight up. Soon, gravity overcomes your inertia, you stall and your fighter will make a 180 degree turn toward earth. You are particularly at risk in this maneuver because just prior to stalling your airspeed is near zero.

7. Split "S"

This is a good offensive maneuver to attack an opponent when you are both flying level but in opposite directions and he is beneath you.

Technique: Just prior to flying directly over your opponent, do a half roll (Press Insert). You are now flying upside down. Immediately pull the stick back to perform the second half of a loop (Press 8). If performed properly, you will be on your opponent's tail. You can now commence firing.
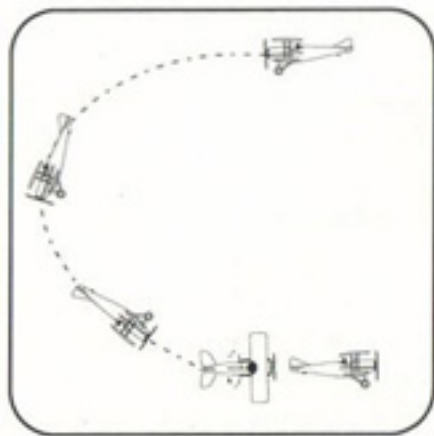
8. English Bunt

Like the Split S, this is a good offensive maneuver to attack an opponent when you are both flying level but in opposite directions and he is beneath you.

Technique: Just prior to flying directly over your opponent, push the stick forward to begin an Outside Loop (Press 2). At the bottom of the loop when you are flying straight and level but upside down, Half Roll to right side up (Press Insert) and commence firing.

9. Half a Vertical Eight

This is used as an evasive maneuver.
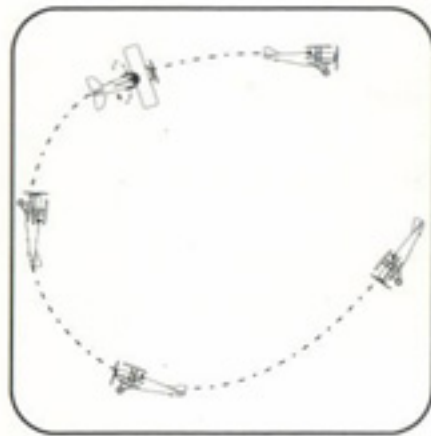
Technique: Fly straight and level (Press 6). Do a Half Roll (press Insert). You are now flying upside down. Immediately pull the stick back to perform the second half of an Inside Loop (Press 8). When flying straight and level (you just made a Split S), begin another Split S with a Half Roll (press Insert), pull the stick back to perform the second half of an Inside Loop (Press 8) until flying straight and level.

10. Immelman Turn

This is used as an evasive maneuver.

Technique: Begin a dive until reaching maximum airspeed (Press 3). Pull the stick back to begin a loop (press the Up Arrow). At the top of the loop, press insert to Half Roll to right side up. At this point you can either escape or continue the loop to reverse positions with the enemy that was on your tail.

11. Half a Cuban Eight

This begins as a defensive maneuver (similar to an Immelman Turn) and becomes an offensive dive.

Technique: Begin a dive until reaching maximum airspeed (Press 3). Pull the stick back to begin a loop (Press the Up Arrow). At the top of the loop, when you are upside down and flying level, roll into a dive (Press 1).

12. Defensive Spiral

This is used as an evasive maneuver. Warning: do not attempt this maneuver too close to the ground!

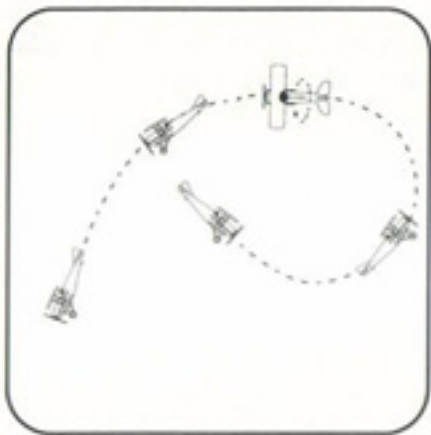Technique: Alternate between the 1 and 3 keys on the keypad to "dive out of trouble".
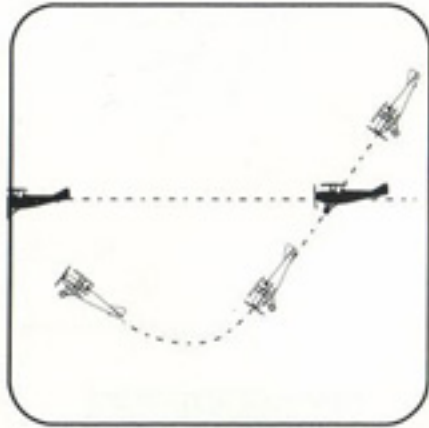
13. Fokker Bounce

This is an offensive maneuver that, when performed correctly, will eliminate your opponent in one pass.

Technique: Dive on your opponent from behind (Press 1), firing into him. When you pass below him, pull back on the stick (press 8) and fire into his belly.
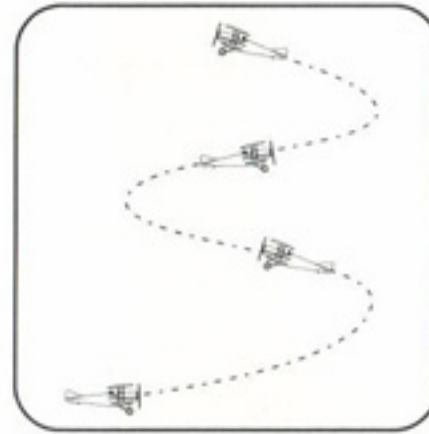
14. Chondelle

This is a climbing turn at maximum rate used to gain altitude quickly.

Technique: Begin a dive until reaching maximum airspeed (press 3). Pull back on the stick (press 9). Quickly reverse the direction of the climb (press 7). At your discretion, level off (press 4).

SUMMARY

The preceding maneuvers should be practiced until they can be performed with ease. A fighter pilot is free to improvise on these maneuvers as the combat situation requires.

BOMBING TACTICS

The smallest bombs that were dropped during the war were steel darts that weighed a few ounces. The largest bomb was over 3000 pounds. At first, explosive bombs were like falling cannon balls.

The German army developed the first true aerial bomb in 1913. It had a cast iron shell, a tear drop shaped body and tail fins. It was more like an air torpedo than a cannon ball. Designed to fall faster and be more accurate than previous bombs, the fins made the bomb spin on the way down which helped to stabilize its flight. Some bombs were carried vertically in bomb bays, some horizontally.

Anti-aircraft fire was nicknamed "Archie". The term came from a British pilot. Whenever he encountered anti-aircraft fire, he would say "Archibald, certainly not!". It was a line from a London show that was sung as the leading lady was fending off a lecherous suitor.

It is usually a good idea to eliminate troublesome anti-aircraft guns first. Then you can concentrate on your targets and not worry about return fire.

The Bomb Indicator to the right of your viewscreen shows how many bombs you have left. Use your bombs sparingly or you may run out before your mission is accomplished.

Hit and Run is one style of tactics. Pick your target from the recon photo, and line your bomber up for a straight run at it. Hit your target and then quickly exit the bombing area. Then pick another target, eliminate it and then exit quickly again. Continue this until your mission is accomplished.

Remember, you can press <Enter> anytime during a bombing run to look at the recon photo.

BOMBING LOCATION DESCRIPTIONS

There are 10 locations that you can bomb.
1. Airfield
At airfields, you may be called upon to bomb hangars, headquarters, etc. You can also choose to directly bomb any plane that is at the airfield.

2. City
The targets circled on the recon photo are where intelligence reports indicate war supplies, troops, weapons, etc. are hidden. It takes a sharp eye to hit the right target out of a densely packed city.
3. Village
Villages are also used to hide war supplies, etc. It is also used as a supply line to the front.
4. Capital
Capitals are the center of government. Destroy the Capital and you "cut off the serpent's head". Complete your mission by destroying all the targets on the photo and you will win the war. Capitals are heavily defended and are difficult to destroy.
5. Factory
Enemy factories supply aircraft to enemy airfields. It is a good idea to reduce their output as much as possible.
6. Supply Depot
Supply depots store materials for the war effort. Destroy the supplies before they can be used by the enemy.
7. Fort
A front cannot move past a fort unless the fort is completely destroyed.
8. Bridge
Destroy a bridge and you can slow down the enemy's supply line to the front.
9. The Trenches
The Western front consisted of a series of trenches. An effective bombing run through a section of the enemy's line can create an opening that your army may be able to penetrate.

Machine Gun Nests were dug in positions containing one or more machine guns.

Listening Post duty was a stressful job consisting of sitting out ahead of the front line and listening for approaching enemy soldiers.

Machine gun nest

Listening post
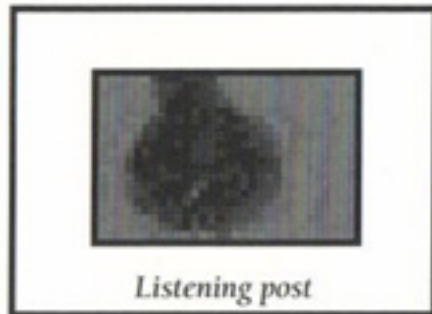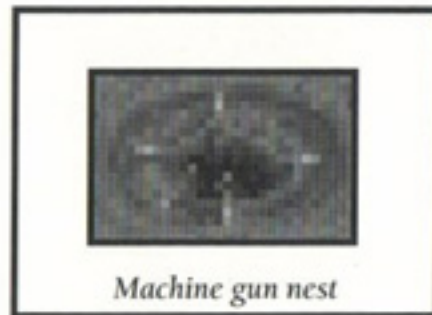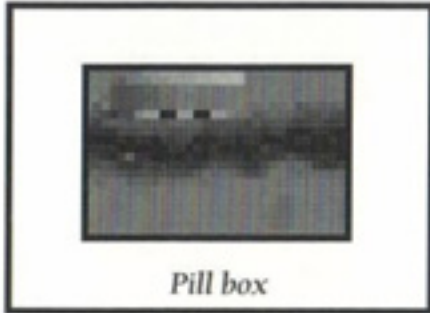
These concrete "Pill Boxes" were used for protection by machine gun crews.

Pill box
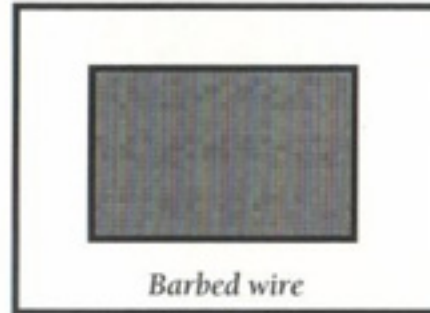
Barbed wire was laid in several rows, wide enough so that attackers could not throw gernades over it and hit the trenches.

Barbed wire
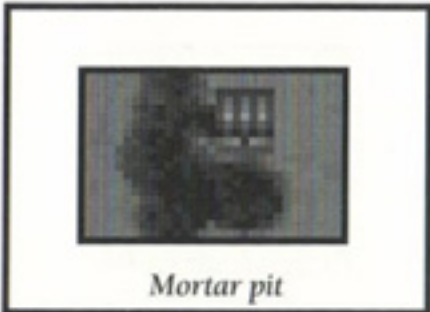
The Mortar Pit's E shape separated the crew from their bombs to limit damage in case of an accident

Mortar pit
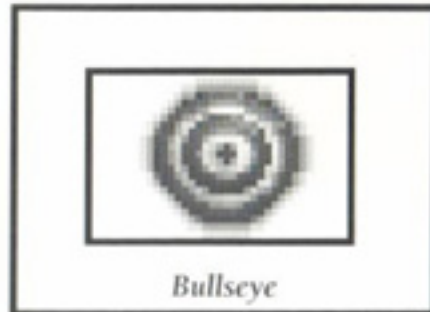
10. Target Practice
In target practice, your targets are bullseyes painted on the ground. Not all bullseyes are targets though, only the ones that are circled on the recon photo.

Bullseye

III: A History

INTRODUCTION

Book III contains information about the historical period of the Ancient Art of War in the Skies. Although not necessary for playing the game, reading this section will provide you with a colorful glimpse into a bygone era.

THE GREAT WAR

It was called the war to end all wars. It resulted in more casualties than in all the wars of the previous 200 years combined. France lost half of her male population between the ages of 20 and 32. In addition to the 16 million casualties, it cost 300 billion dollars. The United States alone spent a million dollars an hour on it and the total bill was more than the cost to run the government for the previous century!

Europe circa 1915

1. GREAT BRITIAN	6. ITALY	11. MEDITERRANEAN SEA
2. FRANCE	7. SERBIA	12. AFRICA
3. BELGIUM	8. BULGARIA	13. TURKEY
4. GERMANY	9. RUSSIA	14. PALESTINE
5. AUSTRIA-HUNGARY	10. BLACK SEA	15. SPAIN

Perhaps you've seen the old black and white films of soldiers and horses marching at a pace that is slightly faster than normal. They were marching off to this war, the Great War of 1914-1918. Today we know it as World War I.

It has been said that World War I was a war that nobody wanted and yet everyone participated. The events leading up to this war teach us one of the greatest lessons of history — how to do everything wrong.

"The book, The Guns of August, was the best book I have ever read because it described how to do everything wrong."
— *John F. Kennedy*

In the early 1900's, Europe was ruled by family dynasties. The Wilhelms ruled Germany, the Hapsburgs ruled the Austria-Hungarian Empire, the Nicholas family ruled Imperial Russia,

and the royal family of King George and Queen Victoria were the ruling monarchs of Great Britain. These powerful families, which had governed Europe for generations, had long histories of pride, nationalism, and romanticism. They were not known, however, for their intellectual brilliance.

Germany's Kaiser Wilhelm II enjoyed his power but he wasn't always sure what to do with it. Czar Nicholas II of Russia ruled the Russian Empire with the help of a mad, self-styled holy man named Grigori Rasputin. King George and Queen Victoria had no more qualifications for ruling Great Britain than the fact that they were born into royalty.

With the advice of their military, these leaders of Europe created an intricate system of alliances between their countries whereby each would come to the aid of the other in case of war.

These alliances, combined with the egotistical leadership of the ruling families, created a delicate situation, like a balloon expanded to its breaking point. In June of 1914, the balloon hit a sharp point.

Several years earlier before the start of the war, the Austro-Hungarian Empire annexed a small country called Bosnia. This shocked and angered the neighboring Serbians. A group of Serbian army officers formed a secret society called the "Black Hand" to arm and train resistance forces. In June of 1914, Archduke Franz Ferdinand, nephew of Emperor Franz Josef and heir to the throne, visited Sarajevo, the capital of Serbia. Seven of the Black Hand were waiting for him, each armed with a pistol, a bomb and a vial of cyanide to swallow in the event of capture. One of the assassins shot and killed the archduke and his wife. This started an incredible series of events that ultimately saw all of Europe, Russia, the United States and Japan at war.

The leaders of the Austro-Hungarian Empire used the assassination of Archduke Ferdinand as an opportunity to expand their empire by declaring war on Serbia.

The Russians, allied with Serbia, were alerted to the impending invasion and began partial mobilization to come to the aid of their Serbian Allies.

At the turn of the century, General Alfred von Schlieffen was the Chief of the German General Staff. He felt the threat of enemies on both sides—France to the west and Russia to the east.

Fearing a joint attack, he came up with a plan to fight a war on two fronts against the allied France and Russia. To avoid spreading his forces thin over two fronts, he believed that "the whole of Germany must hurl itself against one opponent." Schlieffen's strategy was to quickly defeat one enemy before battling the other. Since a country as large as Russia could not be defeated quickly, France became the first target of the Schlieffen Plan.

"If he strengthens his right, he weakens his left;
If he sends reinforcements everywhere,
he will be weak everywhere."
— Sun Tzu 400 BC

Having expected hostilities from Germany, France had built a line of fortifications to protect Paris. Schlieffen planned to avoid the forts by attacking through Belgium.

Germany, allied with Austria-Hungary, issued an ultimatum to Russia on July 31 to demobilize within 12 hours. The Russians refused. On August 1, Germany declared war on Russia.

Suddenly, things were not going according to plan for Germany. To follow the Schlieffen plan, Germany needed to conquer France first!

General Helmuth von Moltke was Schlieffen's successor. He felt that Schlieffen's plan was flawless and shouldn't be changed no matter what. Kaiser Wilhelm couldn't decide who to attack first and gave in to von Moltke's desire to hit France. By taking Paris quickly, he thought, France would be out of their way and Germany could focus on Russia. At least that was the plan.

The Germans began their attack on August 4th, 1914. Following Schlieffen's plan, the strong right wing of the German army charged through Belgium. This angered Belgium's protector, Great Britain. The powerful German army smashed the Belgian resistance and marched into the heart of France. The French stopped the advance of the 60,000 German combat troops just 30 miles from Paris.

The stage was now set. All of Europe's war machines were in full gear as the declarations and ultimatums continued. Japan entered the war in late August, Turkey in late October and Italy in May of 1915. By the end of 1915 all of Europe was consumed in war.

On April 6, 1917, the United States came to the aid of Great
Britain and France by declaring war on Germany.

The art of war was entering the modern age. For the first time
in centuries new weapons were changing the way war was fought.
Heavy artillery, tanks, machine guns, aeroplanes and poison gas
were new to the soldiers of the Great War. Within months after
the start of the war, the great armies of both sides were unable to
advance and unwilling to retreat. The only direction available to
them was down into the trenches and up into the air.

*"Five hundred miles of Germans,
five hundred miles of French,
And English, Scotch and Irish men*
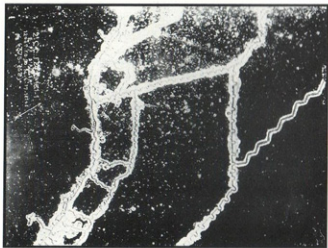
Trenches

*all fighting for a trench.
And when the trench is taken
and many thousands slain,
the losers, with more slaughter,
retake the trench again."*
— Edwin Dwight
August 4, 1915 Life Magazine

Trenches were not a new concept to the art of war. Caesar
had used trenches and so had the American armies during the
Civil War. What was new was the amount of trenches that were
used. Trenches soon stretched from the English Channel through
the heart of France to Switzerland. It was called the Western
Front. Millions of soldiers died along this stretch of land during
the war, sometimes as many as 50,000 in a day.

The Western Front was about 30 miles wide and 475 miles
long. Each side had several rows of trenches along the front. The
front line was the "fire trench." It was a heavily fortified and
guarded first line of defense. Behind it was the Support Trench
with the supplies, command posts, medical aid and reinforce-
ments. Further back was the reserve trench. These 3 lines of
trenches were connected with communication trenches.

Trench Pudding:
*After putting four hardtack biscuits in a dishcloth, pound on them
with a shovel handle until smashed. Soak in water until soggy.
Add one tin of Tommy Tickler's Plum and Apple Jam. Stir well
over a hot flame. When the bottom burns, serve with four tea-
spoons of condensed milk. Serves 4.*

The trenches were 6 1/2 feet deep. They were not in a straight
line but zig-zag shaped. This prevented the enemy from storming
through them and reduced the effects of artillery shells.

*"How do you feel as you stand in a trench
Awaiting the whistle to blow?
Are you frightened, anxious, shaking with fear
or are you ready to go?
No one is anxious to go, my friend
it's a job which must be done.*

Discipline ensures we obey the rules
Though for many their last day has come.

Me, I'm scared! Though I try not to show it.
It's my third time over the top.
I'm a lover of peace but a bullet don't know it,
I could be getting the chop!
May the Good Lord grant me a nice blighty wound
One which allows me to run
Out of this shambles, I've had quite enough
Let "the Butcher" keep his fun.
That's how we feel as we stand in a trench
Awaiting the whistle to blow.
Those are the thoughts which pass through our heads.

Emotions we are not keen to show.
All men react in different ways
Few to heroics aspire.
But should a man boast that he never knew fear?
Then, in my book, that man is a liar!"
— Sergeant H. Fellowes

The life of a soldier at the front was not romantic. It was monotonous hours of boredom interrupted with moments of sheer terror. Their home was a stinking ditch. It was many days or even weeks between a bath and clean clothes. In the summer they were hot, in the winter they were wet and cold. The muddy floors of the trenches resulted in constantly wet feet which resulted in trench foot which often resulted in the amputation of toes. Insects infested the soldiers including particularly aggressive critters called "cooties." Meals included turnip stew and stale bread. When they could, soldiers would sleep in the trench walls and on cots in dugouts. Rats fed on the corpses in and around the trenches. Mail call was one of the rare happy moments.

"You stand in a trench of vile stinking mud
and the bitter cold wind freezes your blood.
Then the guns open up and flames light the sky
and, as you watch, rats go scuttling by.

The men in the dugouts are quiet for a time

trying to sleep midst the stench and the slime.
The moon is just showing from over the hill
and the dead on the wire hang silent and still.

A sniper's bullet wings close to your head
as you wistfully think of a comfortable bed.
But now a dirty blanket has to suffice
and more often than not, it is crawling with lice.

Haig and his mob keep well in the rear,
living in luxury, safe in old St. Omer,
flashing Red Tabs, Brass and Ribbons galore,
what the Hell do they know about fighting a war?"
— CSM Sidney Chaplin
4th Battalion, Gloucestershire Regiment

Between the trenches of the two sides was a barren and dangerous stretch of land called "No Man's Land." Rows of barbed wire were strung in front of the trenches deep enough that attackers couldn't throw grenades from the front edge of the wire into the trench. Hanging from the barbed wire were tin cans with pebbles inside to warn of night attacks.

Two months into the war the fronts became stagnant. Nearly the entire war was fought from the trenches with no one making any progress. By 1915, the world was beginning to think of the war as a draw.

Stalemated in France, Germany's Schlieffen Plan fell apart. Germany decided to turn toward Russia and the Eastern Front formed. There too, trench warfare developed with a line extending 1900 miles between Germany and Russia. Other battle fronts developed in the northeast of Italy, northern Greece, Serbia, Turkey, Romania and Arabia.

The airplanes ability to fly over the battle was partly responsible for the stalemate. Since neither side could move large numbers of troops without the other side knowing, the element of surprise largely disappeared from the war.

The stagnant fronts inspired inventors to devise new weapons to try to break the stalemate.

In the spring of 1915 a new weapon was introduced to the war: poison gas. The Germans fired canisters of chlorine gas at the trenches of their enemy with hideous results. Ten thousand allied

soldiers fled and 5000 of them died in the next ten minutes. A gassed soldier would die a long and painful death. It didn't take long for the armies to issue gas masks. Various types of gases were used during the war including phosgene and mustard gas.

Poison gases accounted for 30,000 deaths. Poison gas, flame throwers, the machine gun, and underground tunnels filled with explosives were all used for the first time in World War I.

At the start of the war in 1914, the airplane was considered an unreliable, flying machine that had little value to the military. Over the next four years, encouraged by the desperate needs of the war, the airplane had begun to change into what would eventually be the most powerful weapon of modern warfare.

In the fall of 1915, American volunteer pilots formed L'Escadrille Americaine. By the next spring they were spotting German targets for the French artillery at Verdun. France lost as many as 70 pilots a month on this dangerous mission. They would look for enemy troop concentrations and hidden artillery guns. If he wasn't hit by the enemy, the pilot would mark the locations on a map and then drop the map down to his own artillery.

Their name was soon changed to the Lafayette Escadrille because the United States felt that using American in the name implied that the U.S.A. was no longer neutral in the war. Its new name was chosen in honor of the French General Lafayette's contributions to the American Revolution.

L'Escadrille's symbol

At the end of 1915, German General Eric von Falkenhayn, chief of the German General Staff, discussed the stalemate with the Kaiser. He knew that the French fighting style was to throw waves of soldiers into an attack no matter the cost. They would launch an unusual winter assault on France not hard enough to win but just enough to keep the battle going until the French armies were drained by charging German machine gunners. They chose to launch this attack at Verdun.

The German strategy worked to a degree. After 10 months of battle at Verdun, France used 70% of her army and lost 500,000 soldiers. Falkenhayn's plan was not a complete success, though, because Germany lost 400,000 soldiers.

For the last two months of the battle, the persistence of German attacks in spite of huge losses surprised many military strategists. The value of Verdun had shrunk since France had time to set up new lines of defense behind Verdun. Still, day after day and week after week, the German infantry died in great numbers at places like Dead Man's Hill.

The combined British and French forces planned to relieve pressure on the French army at Verdun and begin the greatest joint assault of the war. On July 1, 1916, the Battle of the Somme, with nearly 250,000 British and French infantrymen, started with a seven day artillery attack on the German front. Nearly 30,000 soldiers were killed in the first hour and 60,000 were dead by the end of the day. The battle lasted 5 more months causing over 500,000 casualties.

The Legend of the Flanders Poppy
Some believe that Genghis Khan brought seeds of the white poppy with him when he advanced into 13th century Europe. Legend says that when these poppys grow on fresh battlefields, they are red with a cross in the center of the flower. There were many red poppys on Flanders Field near Somme.

In June of 1917, the war was at a standstill. Russia had dropped out of the war following a revolution that put Lenin and the Bolsheviks in power. Germany occupied much of Belgium and France. France was close to collapse. The spring offensive, led by General Nivelle, had cost the French Army almost 200,000

Gotha bomber

A damaged tank

casualties with no gain. Morale was at an all time low and 54 combat divisions had mutinied. Nivelle was removed from power and General Henri-Phillipe Petain, "The Hero of Verdun," replaced him.

By the summer of 1917, advances in aircraft engineering let the Germans create a bomber that could reach London. At first, the Gothas would drop their bombs and then fly safely home without interference. Soon fighters were being brought back from the front to attack the bombers.

As the Allies prepared for the great spring offensive of 1918, it became obvious that cooperation between the Allied armies was not working. A single unified command was badly needed. French General Ferdinand Foch was named Supreme Commander of the Allied Armies. He would direct allied strategy and the tactics would be left to each nation's Commander-in-Chief.

In 1918 a new tactic was used by both sides. Instead of attacking whole lines of trenches, the Germans sent heavily armed and highly trained "storm troopers" against weak points in the line. After piercing the line, they would advance behind the line to take out the artillery.

The Allies used a variation of this tactic. Instead of using storm troopers, they used a new British invention, the tank. The tank was able to cross the rough terrain of "No Man's Land," break through barbed wire and cross over trenches. It could even destroy machine guns.

Tank attacks were supported by aircraft and followed by infantrymen. Tanks led in the final advances of the war. Heavy fighting in 1918 saw the Germans push the Allies back but their advance was stopped and then reversed by French and British troops reinforced by the newly arrived Americans.

By September, the tanks had penetrated the Western Front. The government of Germany began to crumble as the allies continued to advance. Talk of an armistice had begun.

In November, diplomatic agents representing the German government met in the French woods of Compiegne. Aboard a railroad car, they signed General Foch's uncompromising armistice.

The Great War ended with a cease fire on the eleventh hour of the eleventh day of the eleventh month of 1918. The Great War left crumbled empires in its wake. Swept away were the monarchies of Russia, Germany, and Austria-Hungary. It was then that the United States emerged as a world power.

THE CAVALRY LEAVES THE GROUND

"The aircraft is very good for sport — for the army it is useless."
— General Ferdinand Foch, 1914

For thousands of years, wars had been fought on land and on sea. Now for the first time, the sky too became a battlefield. In the four short years between 1914 and 1918, the airplane was transformed

from a flimsy machine that was barely able to get off the ground to one of the most powerrful weapons of war. The airplane was added to man's arsenal and with it came a new form of battle, aerial warfare, the third branch of the art of war.

At the start of the Great War on 28 July 1914, the airplane was nothing more than an unreliable novelty. With few exceptions, the old military leaders could see no good use for the airplane. It might, or might not, be useful for reconnaissance they thought, but reconnaissance was already done by the horse troops. There was no reason to believe these 'flying bird cages' could do a better job than the trusted cavalry, which had proven themselves quite successfully over the past few centuries. "Besides," said one cavalry officer, "the noise those damn things make frighten our horses!."

In 1908, Orville Wright was the first to demonstrate the airplane to the military. He and a colleague went up in the Wright Brothers' Military Flyer. The demonstration raised a few eyebrows but the military was not very impressed. They sent Orville Wright off with a pat on the back and a few kind words, like, "Thanks, Orv, we'll give you a call."

The US Army experimented with the Military Flyer over the next four years but could see no important use for it. Finally, in 1912, the army announced it would no longer fund aviation experiments, and considered the youthful flyers as time-and-money wasting dreamers. Consequently, when the United States joined the war on April 6, 1917, the country that invented the airplane had no organized air force.

In 1910, Orville Wright visited Britain and France to try to sell the Military Flyer airplane design to their armies. The enthusiasm for the airplane was greater in Europe than in America, but not overwhelming. The traditionalists argued that spending money on airplanes was foolish since that money would be better spent on the more vital cavalry horses. Orville was politely turned down.

"England might today, had she not shown initial apathy, be the first nation in the world in the fostering, and development, of aerial navigation."

— Harry Harper, 1912

The French military, which turned down the Wright's Military Flyer, began experiments with their own aircraft in 1910. The experiments ended with six days of aerial maneuvers at Picardy, France. The military was impressed with the airplane's performance in spite of the fact that seven of thirteen aircraft crashed during that week. They argued that someday the airplane may prove useful, but no armies could stand to lose 50 percent of their equipment per week.

In 1910, Germany was preoccupied with the lighter-than-air (hydrogen filled) Zeppelin. Authorities there believed the heavier-than-air aeroplane was sidetracking true aeronautical progress, the Zeppelin. The aeroplane was regarded simply as a reconnaissance machine, nothing more. Furthermore, the German army absolutely did not want fast aircraft, insisting if the plane flew too fast, a reconnaissance observer would be unable to accurately report what he had seen. The Zeppelin could fly farther, higher, and longer than the airplane—most importantly, it was slow.

"I hope none of you gentlemen is so foolish as to think that the aeroplane will be usefully employed for reconnaissance purposes in war."

— General Haig, 1914

Skepticism from the military leaders was only one of the problems facing the acceptance of the airplane—another was reliability.

Aircraft reliability and maintenance were given little consideration in the early years of development until many airmen lost their lives from aircraft failure. It seems aircraft had the annoying problem of wings falling off or buckling up in flight. Fabric ripping off the wing frame during flight was also common. Landings claimed more than a few pilots when a wheel would come loose, or get caught in a rut and flip the plane over. Engine failure in flight was also a frequent problem.

At the start of the war, the majority of military leaders had little interest in the airplane. There were, however, an inspired few who saw the true future of air power. As early as 1909, Major Giulio Douhet of Italy wrote,

"…aerial warfare demands a solution to the problems of preparation, organization, and utilization of aerial forces; that is, it calls for the creation of a third part of the art of war, the art of aerial warfare."

The airplane had scarcely demonstrated its ability to stay aloft when Douhet wrote an essay in 1911 titled, *Rules for the Use of Airplanes in War*. In the airplane, Douhet saw the perfect offensive weapon. It had none of the mobility limitations of ground or naval power. It had the overwhelming ability to fly anywhere and inflict heavy destruction on the enemy by bombing. Fleets of airplanes appearing over the enemy's capital and industrial centers would cause fear and chaos, leading to swift victory and an end to the war.

Douhet said that generals everywhere tended to look backwards. They try to solve the problems of the next war on the basis of how the last one was resolved without taking into account new realities. The airplane was the new reality.

Conventional war theory as taught by all military experts at the turn of the century, from West Point to the German War College, was to concentrate force at decisive defense points. (This led to the years of stalemated positions and the trench warfare of the Great War.) Douhet declared that the air force could weaken the defensive points by massive bombing raids. But he didn't stop there; rear bases, factories, railroads, sources of production, lines of communication and civilian centers should also be hit. Furthermore, he argued that the air force should be separate and independent, not merely a branch of the Army or Navy.

Well, these radical ideas had gone too far. The attacks on Douhet's ideas were vicious and he was labeled a barbarian for suggesting that cities be bombed. His theories were militarily sound but his relentless criticism of his superior officers led to his court-martial in 1917. He was found guilty and sentenced to one year in prison.

Convinced that his theories on aerial warfare were correct, Douhet spent his time in prison writing. In 1921 he released a comprehensive book on the theory of air power called *The Command of the Air*. In this book, Douhet explained his ideas on strategic bombing, tactical bombing, aerial observation, and the creation of an air force as an independent branch of the military. Unfortunately, his ideas were ignored by all but a few. Twenty years later, during World War II, Douhet's ideas were used with devastating effect.

Another prophet of air power that emerged during the Great War was US Major William "Billy" Mitchell. Mitchell promoted his ideas on air power that were years ahead of their time. Like Douhet, his enthusiastic support for air power caused a backlash from the old army and navy leaders. Mitchell ultimately suffered the same fate as Douhet — he was court-martialed in 1923 in the US for his outspoken views on the importance of air power.

Two other proponents of air power during World War I were a bit more successful in promoting air power. They were Britain's General Hugh Trenchard, and Germany's Hermann Goering. Through years of first hand war experience, Trenchard earned a position as Britains Chief of the Air Staff during the ten years after the war. Goering was a fighter ace in the Great War and by the start of World War II he built the strongest air force in the world for Germany, the Luftwaffe.

> *"No fortifications can possibly offset these new weapons, which can strike mortal blows into the heart of the enemy with lightning speed."*
> — Major Guilio Douhet, 1916

Air power was a grand new concept at the start of the War. Germany led the field with a total of 232 planes and 11 Zeppelins. Russia had 226 planes and 11 dirigibles. Great Britain had 113 airplanes and 6 airships, while France had 138 airplanes and four airships. Austria-Hungary (allied with Germany) had 36 airplanes and one dirigible, and Belgium had 24 airplanes. The US had 100 airplanes but only three were considered military aircraft. But even these numbers are misleading since typically one third of a country's planes were for training. The rest would be used for reconnaissance.

Despite the cavalry's objections, military leaders' indifference, and aircraft reliability problems, the airplane proved itself many times over during the war. What started as a rickety flying machine became the most powerful weapon of modern warfare. By the end of the war on November 11, 1918, the airplane became a new weapon and with it came a new form of war strategy — the art of war in the skies.

> *"We don't want to carry additional weight merely to save our lives."*
> — RNAS Commander Boothby, 1915

The Aces of World War I did not wear parachutes. Today it seems unbelievable but when it came time to bail out, the airmen, like the valiant captain of a sinking ship, went down with their airplane — hugging a seat cushion. Why didn't they use parachutes?

The parachute had been invented and tested long before the start of the War in 1914. Since the 1880s exhibition parachute jumps were performed from balloons. Soon after the airplane began flying, people made parachute jumps from them too. As early as 1912, successful jumps were made in St. Louis from a height of 1,500 feet. In England in 1913, jumps were made at Hendon Airbase from 2,000 feet. By May 1914 a compact, quick-action parachute was developed by R. E. Calthrop in England which he called the "Guardian Angel." Unfortunately, Calthrop and his parachute were all but ignored by the military. Military leaders argued that the Guardian Angel "needed additional testing and improvements before it could be deployed." One would think that even a marginally successful parachute would be better than none at all.

At the start of the War, the airplane was only used for observation — there were no fighters, bombers, or anti-aircraft guns. Since the pilot had little reason to believe his plane would be shot down, there was no need for a parachute.

When air fighting began, the need for a parachute was apparent but certain logistical problems prevented it from being used. The pilot, and observer in the case of a two seater, needed to move freely in the cockpit to reach their machine gun and to look in all directions for the enemy. A bulky parachute strapped to the pilot's back would seriously restrict this movement. Pilots were also concerned that the parachute might become tangled, hindering a quick exit after landing.

The weight of a bulky, canvas parachute was yet another excuse for not using them. The weight would have been a significant drag on the 80hp engines of 1914.

By far the most controversial reason for not deploying parachutes was due to some questionable reasoning by the military high command. It seems that some chairbound experts believed that a parachute might encourage a pilot to abandon his aircraft prematurely, resulting in the loss of planes. Unfortunately, many airmen lost their lives before this was proven untrue.

It was supposed to be "the war to end all wars" but unfortunately, this was not the case. New military alliances were formed and Europe was again divided. Three new political groups appeared that threatened democracy. In Russia was Lenin's Bolshevism, Italy had Mussolini's fascism and Hitler was in Germany with his Nazis.

During the Great War, the art of war was transformed from a system of artillery barrages, cavalry charges and marching infantrymen to battlefields of tanks, machine guns, and poison gas. New battlefields were opened with submarines under the sea and aircraft in the skies. The world had entered the 20th century and the age of global warfare.

"No one in high quarters had any time to devote to investigating the merits of an appliance whose purpose was so ridiculously irrelevant to war as the saving of life in the air."
— R. E. Calthrop, 1916

THE FIGHTERS

If any of you wants to go to 'eaven quick, now's yer chance. They're askin' for volunteers to learn to fly and become oficers in the bloody R.F.C. So if any of you feels like committen' suicide step two paces forward out of the ranks and I'll take 'is name. But remember it's a 'ell of a long way to fall and you only falls once.
— RFC British Sergeant Major
Announcement for volunteers, 1917

Aside from the risks associated with early aircraft construction, flying was good duty at the start of the war in 1914. Neither the airplane nor pilots were equipped with weapons. The airplane was only used for reconnaissance and aerial artillery spotting. Not having weapons, pilots from opposite sides would wave at each other when they passed. Airmen were among the highest paid in the armed services at 53 cents a day.

The chivalrous behavior among pilots soon changed, however, as each side realized the pilots they were cheerfully waving at were carrying strategic information about troop movements. Pilots began to take pot-shots at one another with their pistols, carbines, and an occasional shotgun. Bricks were thrown in an attempt to rip thru the wing fabric, break the delicate framework,

or even clunk the pilot on the head with a lucky toss. Bricks were later replaced with hand grenades. Pilots feared a structural failure in their own aircraft much more than a random pot-shot from a passing plane.

Soon a new idea started to take form. What would it take for one aircraft to bring down another? A machine gun would give enough fire power but the 80 hp airplanes of 1914, loaded down with a pilot, machine gun, and ammo, could barely get off the ground. Clearly, the aircraft needed improvements.

All of the major powers (Britain, France, Italy, Russia, the US, and Germany) made aircraft improvements in early 1915. Advances were made in engines, structure, speed, and lift. These improvements enabled pilots to carry machine guns and ammunition. In order to avoid the propeller, the machine guns were mounted on the top wing, in the observer's cockpit behind the pilot, and in front of the pilot at an angle to avoid the propeller.

A French pilot, Roland Garros, began to think of ways to improve his aircraft. He thought that the best design would have the machine gun pointing straight ahead in the pilot's line of sight. Unfortunately, the propeller is in the way but Garros had an idea.

On April Fools Day, 1915, Roland Garros took to the air in the first plane that had a machine gun mounted to fire through the propeller blades. He did it by fitting a metal collar on the inside of his propeller blades. He figured that most of the bullets would go through the blades. The seven percent that hit the blade would be safely deflected away by the angle of the metal collar. His experiment worked. Garros shot down five enemy aircraft in two weeks to become the first ace.

Unfortunately, on April 19th Garros went down behind enemy lines with engine trouble. He was captured before he could burn his plane to hide his invention. The secret was out. Within two days a Dutch engineer, Anthony Fokker, analyzed Garros' plane and designed a better method of firing through the propeller. This was called the interrupter gear. It mechanically linked the gun's trigger to a cam on the engine shaft that would time the bullets so the machine gun would fire only when the bullets would go between the blades and not hit the propeller. It was the beginning of the Fokker Scourge. By the beginning of 1916, the British and French also had interrupter gears.

Tracer bullets were also introduced during the war. Mixed in with the normal ammunition, they were a great aid to the pilot allowing him to watch the trajectory of his stream of bullets and adjust his aim.

The improvements in aircraft design along with the synchronized machine gun enabled pilots to go one-on-one in the air. The fighter plane was born and it set the stage for aerial warfare.

Fighters were soon grouped into squads and sent on missions to rid the skies of enemy planes. The enemy would likewise send squads to counter. The resulting battles became known as the "dogfight." Groups of planes would dive, circle, climb, and roll trying to avoid being shot at or trying to maneuver into a position to shoot.

The biplane armed with a synchronized machine gun was the basic fighter during 1916. In 1917, a second forward firing machine gun was added and rapid improvements were made in speed, maneuverability, rate of climb, and performance, especially at high altitudes (above 15,000 ft). The twin machine gun biplane became the basic fighter for the rest of the War—with one exception. In February 1917, the British Sopwith Company introduced the first triplane, reasoning if two wings provided better maneuverability than one, then three wings would be better than two.

The triplane, or Tripe as it was called, provided exceptional maneuverability but it sacrificed speed. Germany soon introduced its own triplane. The Fokker triplane was favored by Germany's von Richthofen (the Red Baron). It took an exceptional pilot to handle the triplane, but if flown properly, it was unsurpassed in close combat. Ultimately, speed proved to be more important than maneuverability and the triplane didn't survive as a war machine.
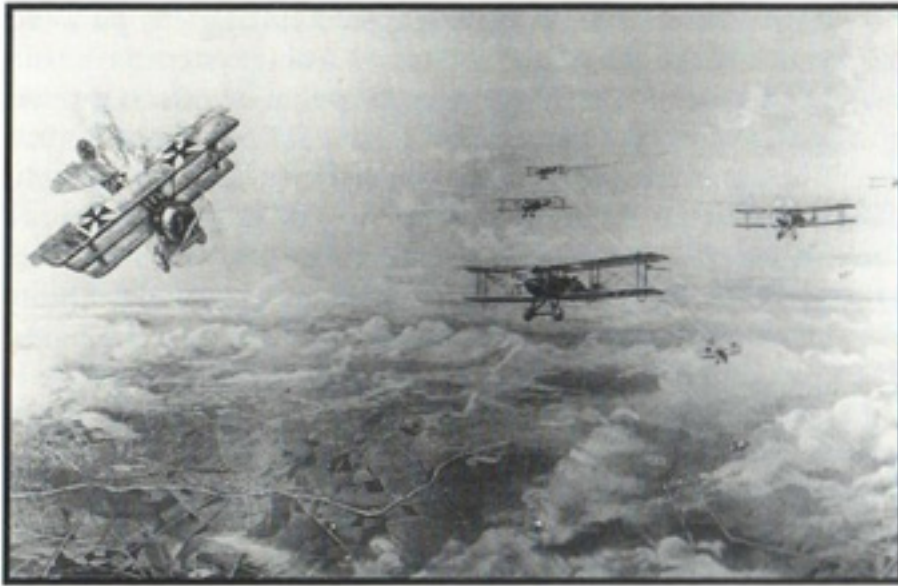
Fighter tactics and strategies were developed during the course of the war by the pilots who lived to talk about it. Almost every form of air combat has its beginnings in World War I. Pilots freely shared their ideas and experiences trying to make their squad the best. These open discussions at the end of the day led to a series of flying tactics and strategies that are still in use today.

"The speeds and altitudes, turning radius and weapons have changed dramatically, but the basic maneuvers are still very similar to World War I."

— *Kurt Schroeder*
Chief Test Pilot for the F-14 Tomcat Time Magazine
January 16, 1989

THE BOMBERS

"Yes, we dropped bombs and yes, we scared an old woman."
— *Hauptmann Oswald Boelcke, 1916*

The thought of aerial bombing inspired writers as soon as man dreamed of flying. Visions of huge bombers sailing overhead raining death and destruction from the sky thrilled readers long before the start of World War I.

The first bombing from an aircraft occurred on November 1, 1911 during Italy's war with Turkey. Lt. Giulio Gavotti leaned over the edge of his cockpit and dropped a few primitive bombs on Turkish troops in Libya. The bombs kicked up a lot of dust and frightened some camel mounted tribesmen, but did little else. Still, the event made international headlines in newspapers proclaiming: TERRORIZED TURKS SCATTER UPON UNEXPECTED CELESTIAL ASSAULT and AVIATOR DROPS BOMBS ON ENEMY CAMP. Thus began a new in warfare — aerial bombing.

By the start of World War I in 1914 bombing was a reality but few military leaders looked to the airplane to do the job. It simply wasn't capable of lifting enough weight. Instead, the dirigible was thought to be the future of bombing. Although it wasn't very maneuverable, the dirigible could carry about seven times the weight of an airplane, fly three times higher, and ten times longer.

The most celebrated and widely used dirigible of the war was perfected by Count Ferdinand von Zeppelin of Germany, which he modestly called the Zeppelin. The massive airships were over 500 ft long and could lift over 3000 lbs of bombs. They were nearly invulnerable to attack since aircraft couldn't fly as high as the Zeppelin nor could anti-aircraft guns reach that high. The Zeppelin could only be hit when it was on the ground, or rising from and descending to its base.

When the War began, the British population was in near hysteria over the Zeppelin threat. For the first time an enemy could fly over British cities and drop bombs on the unsuspecting population below. Something had to be done. Winston Churchill, First Lord of the Admiralty, had the answer. The Royal Naval Air Service (RNAS) would make a pre-emptive strike on the Zeppelin sheds at Dusseldorf, Germany.

On October 8, 1914, RNAS Flight Lieutenant R.L. Marix set off in his Sopwith Tabloid with four 20 lb bombs. Though he encountered bad weather, he managed to find the Zeppelin sheds at Dusseldorf. Marix dropped all four bombs from a height of 600 feet. Only one bomb hit the target, but that was all that was needed — the brand new hydrogen filled Zeppelin Z-9 was sitting inside. The giant air ship exploded with flames shooting 200 feet into the air. Marix took heavy fire from the ground troops but managed to land his badly shot up Tabloid about twenty miles from Antwerp, Belgium. He then borrowed a bicycle from a peasant and peddled safely back to his base.

After that, the Zeppelin bases were heavily guarded by anti-aircraft guns, ground troops, and interceptor aircraft. It soon became very difficult to attack the Zeppelin bases. This meant that the giant air ships had to be attacked in the air. Unfortunately, no one up to this point managed to shoot a dirigible out of the sky.

On January 19, 1915, Germany launched the first of 51 Zeppelin bombing raids on England. Two Zeppelins attacked several coastal towns, killing four people and injuring 16. The population's fears had come true. Four months later, on the night of May 31, 1915, London was bombed, killing seven and injuring 14 others. The public became outraged, not so much from the destruction but from the thought of enemy airships flying over their country uncontested...

"It is particularly humiliating to allow an enemy to come over your capital city and hurl bombs upon it. His aim may be very bad, the casualties may be few, but the morale effect is wholly undesirable. When the Zeppelins came to London they could have scored a galling technical triumph over us if they had just showered us with confetti."

—R.P. Hearne
Aviation Writer

England made a determined effort to defend against the Zeppelins — searchlights, smoke screens, sulfuric acid sprays, anti-aircraft guns, and interceptor fighters armed with incendiary bullets, all of which had little or no effect. It wasn't until September 2, 1916 that a Zeppelin was brought down on British soil. Lieutenant W. Leefe Robinson caught up with one in his B.E. 2 and put three drums of ammunition into it before it exploded in a giant ball of fire. England rejoiced that the giant air ships could be brought down. Robinson became an instant hero. He was awarded the Victoria Cross, Britain's highest military award for bravery and valor, one of only 19 airmen to receive the medal during the war.

Strangely, this one victory was the beginning of the end for the Zeppelin bomber. It seemed to take the heart out of the German aviators, some of which witnessed the spectacular death of their sister ship from other Zeppelins on the same raid. Suddenly the idea of flying high in the air in a highly flammable gas bag affected the morale of the German aviators. The hunters became the hunted.

By the beginning of 1917, England had an elaborate air defense network consisting of an early warning system, powerful searchlights for night time spotting, a multitude of anti-aircraft guns, and improved fighter aircraft that could fly above 20,000 feet. The giant Zeppelins were being driven back or brought down. The Zeppelin raids continued in 1917 but the number of raids decreased significantly. By the summer of 1918 they were stopped completely. The mighty Zeppelin bomber passed into history

While the Zeppelin raids had a significant psychological affect on the British population, the bombing did relatively little damage. The Zeppelins could rarely reach London (the primary target), and when they did, they often couldn't find it. The huge airships were difficult to maneuver, and the winds would frequently carry them far off course. Many crashed due to bad weather, structural failure, or engine trouble. As the airplane was improved it seemed perfectly logical that more powerful aircraft become the bomber of the future.

On August 30, 1914, scarcely one month after the start of World War I, Paris became the first major city to be bombed from an airplane. A single German plane, the Taube monoplane, piloted by Lieutenant Richard von Thiedemann dropped five small bombs aimed at a railway station. He missed, but one woman was killed and several other people were wounded. He also dropped a propaganda notice attached to a streamer in the colors of the German Empire which read,

"The German Army is at the gates of Paris. You have no choice but to surrender."

— Lieutenant von Hindelsen.

The little Taube caused such a stir in Paris that a single plane was sent to bomb Paris every day at about 5 PM. Parisians became so used to the plane showing up every evening that they named it the "five o'clock Taube." Some set up viewing areas to observe the curious intruder. The five o'clock Taubes dropped about fifty tiny bombs, causing little damage. The bombing was discontinued after Paris tightened its air defenses and shot down several planes.

The Taube bombing raids hinted of what was to come. All of the warring countries realized the need for larger aircraft designed for bombing. A long range, heavy lift bomber airplane was needed to make a strike deep in enemy territory with enough

destructive force to damage a strategic target. By mid 1915, bomber aircraft began to appear from France, Britain, and Germany, though they were not real successful. The Russians, with the Sikorsky IM bombers, and the Italians, with the Caproni Ca. 4 bombers, were further advanced but they too needed improvements.

By late 1916, design improvements were made in engine horse power and the wood airframe was replaced with steel-tube welding. In November 1916, Britain rolled out the Handley-Page 0/400 bomber, a monster aircraft with a 100 ft. wing span. The 0/400 could fly nearly 100 miles per hour and carry three quarters of a ton of bombs with a range of 650 miles — "a bloody paralyzer," as Britain's Captain Murray Sueter called it. Similar bombers were introduced by Germany with the Gotha, and France with the Voison. By the end of 1916, bombing was commonplace.

Aerial bombardment opened a new chapter in the air war. Bombing strategy evolved into three basic objectives — strategic, tactical and psychological. Strategic bombing involved strikes at military targets: factories producing war material, communication lines, and railroads. Tactical bombing directly affected the battlefield: trenches, headquarters, supply depots, troop concentrations, and cannon positions. Psychological bombing was intended to destroy the civilian morale so they would no longer support the war effort. The latter usually meant bombing cities or targets that would disrupt civilian life.
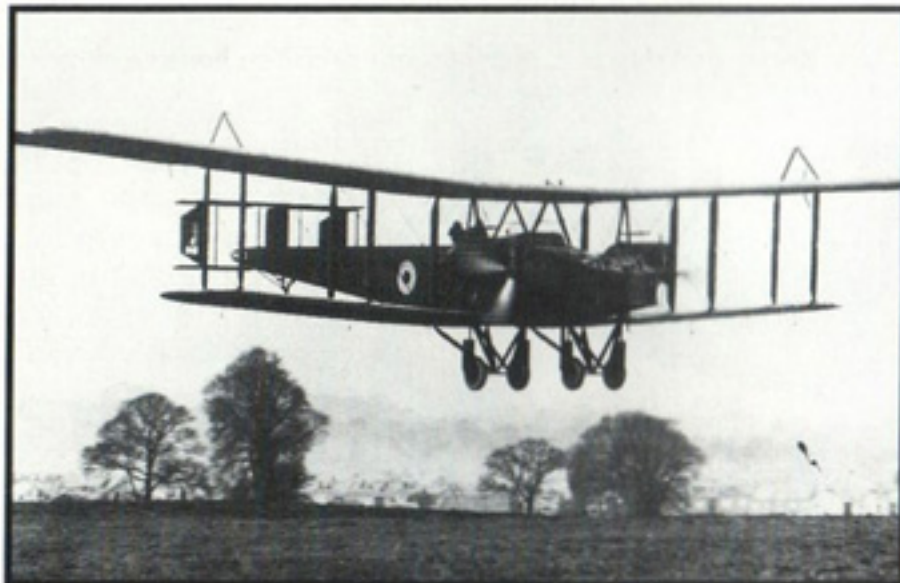
By the end of the war, the bomber emerged as the most dangerous weapon in the skies. What started as a large, clumsy, gas-filled death trap became a powerful war machine that could destroy military and civilian targets deep in enemy territory.. This was a weapon from which no one was safe.

There is only one great difficulty that cannot be solved. God would never allow such a machine to be built, since it would create many disturbances in the civil and political governments of mankind...Iron weights could be hurled to wreck ships at sea, or they could be set on fire by fireballs and bombs; nor ships alone, but houses, fortresses, and cities could be thus destroyed, with the certainty that the airship could come to no harm as the missiles could be hurled from a vast height.

—Jesuit Father Francesco Lana of Rome, 1697
(Excerpts from a scientific treatise on the possibility of building an aerial ship and its potential as a weapon.)

AIRCRAFT OF THE GREAT WAR

Early in the war, it was difficult to identify aircraft from the ground so soldiers often fired on their own planes by mistake. By the end of 1914, airplanes had special markings to show which side they represented. Germany and Austria-Hungary used the black Maltese Cross. The allies used roundels. Roundels were round, bullseye-like markings. France used red, white and blue the colors of the French revolution. Great Britain used the same colors but reversed red and blue so blue was on the outside with a red center. The United States also used the same colors with red on the outside, then blue with a white center.

Of the dozens of fighters used during the war, the Sopwith Camel and the Fokker Dr. I stand out. The Camel was popular because it was one of

Maltese Cross and Roundel
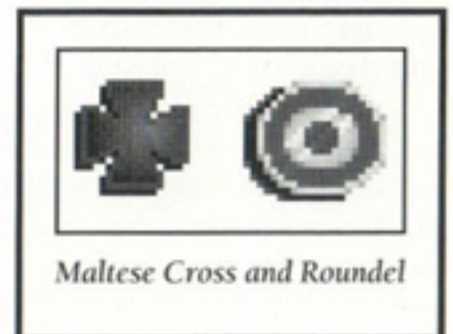
Sopwith Camel

the best fighters England built during the war and because of its widespread use. The Dr. I was the legendary and highly manuverable triplane flown by the Red Baron. The Fokker could outclimb the Camel but the Camel could outrun the Fokker. This is reflected in the game when the dogfight rules are set up properly. The Camel should climb slower than the Fokker and the Camel's maximum speed should be greater than the Fokker's. You can adjust the characteristics of these planes to simulate other aircraft by changing dogfight rules.

Tommy Sopwith was born in 1888. In 1910 he was one of the first to fly across the English Channel to France. After establishing the Sopwith Aviation Co., Ltd.in 1912, he introduced his famous Sopwith Camel in 1917. The Camel was the first British scout that was armed with two synchronized machine guns. It was very maneuverable, outmatched only by the Fokker Dr.I.

The feisty Camel was hard to control but an efficient weapon to those who could fly her. Among Britain's best fighters, it shot down 1294 enemy aircraft, more than any other aircraft in the war. It was the most common fighter of many British and American squadrons.

The Sopwith Company built a total of 5,490 Camels. In 1933, Sopwith merged with H. G. Hawker Engineering Company and after a series of acquisitions over the years, it evolved into today's Hawker Siddeley Group.

Handley Page Limited of London was founded by Frederick Handley Page before the war. Early in the war, the British Admiralty wanted airplanes that were capable of long range missions. The Handley Page design won Admiralty approval. The Admiralty asked Handley Page to build a big airplane that could carry loads over long distances. First, Page built the 0/100 with a 100 foot wingspan. The 0/400 was basically the same plane but with some improvements. It was the standard heavy British bomber in the latter part of the war. Nicknamed "the Bloody Paralyser," it was one of the largest aircraft in the war.

The founder, director and chief designer of the Fokker Airplane Works of Germany was a Dutchman named Anthony Fokker. His was one of only two German companies that specialized in single seat fighters. The Eindecker monoplane series (one deck or single wing) fought in the skies over Germany until 1916 when they became outclassed by new allied models that took over air supremacy from the Germans.

A gifted young engineer named Reinhold Platz became the chief designer for Fokker. He designed the new Dr.I. This colorful German triplane (Dr. stood for Drei-decker or "three wings") was introduced in 1917 and used by the Red Baron for the last 21 of his 80 victories. It could outclimb the British Camel but its top speed was only 103 miles per hour. Once a Dr. I was on your tail, about the only way to shake him was a steep, high speed dive.

Gotha Bomber

The Gotha was the standard German heavy bomber of the war. With a 78 foot wingspan it could operate at high altitudes and was quite maneuverable for a large aircraft. It had twin pusher props (the propellers faced the back of the plane) and carried its bombs externally. The deadly Gotha could fly nearly 90 miles per hour and carry 1100 pounds of bombs. These planes often flew in formation to protect each other. They were armed with one forward firing and one rear firing Parabellum machine gun. By June of 1917, Gothas had sufficient range to bomb London.

THE GENERALS

When a call to arms was answered
by a hundred thousand men,
There were lots of chaps in Britain,
twixt the age of four and ten,
Who'd have answered to their country's call
and hurried off to war
If Kitchener had but reduced
the fighting age to four.
— *"Little Folk" poem*

Lord Horatio Herbert Kitchener, Great Britain

Before the start of the Great War, Britain felt that she needed only a small army because of her huge navy. Compared to Germany's 4 million soldiers and France's 3.5 million, England had only 125,000. To raise an army, Lord Kitchener was called from retirement to become Minister of War. In the first 8 months, the British army grew to 750,000 soldiers Kitchener refused to send into battle until they were properly trained. The German's called this army Kitchener's Mob.

Kitchener also appeared on a famous poster. The American painter, James Montgomery Flagg did the classic "I Want You" poster in 1917. It showed Uncle Sam pointing at the viewer saying "I want you for the U.S. Army. This painting was based on an earlier British painting from 1914. It showed Lord Kitchener pointing at the viewer and saying "Your country needs you"

In June of 1916, Kitchener was riding on the H.M.S. Hampshire enroute to Russia when it was sunk by German mines. He was lost at sea.

In the game, Kitchener's fighting style is a composite of his own and that of the following British Generals.

Field Marshall Sir John French led the British Expeditionary forces when the war began. At the battle of Marne, he forced the retreat of the German right wing. By 1915, French and Kitchener were not seeing eye to eye and French was finally relieved of his command.

French was replaced with General Sir Douglas Haig. Haig was a controversial leader that didn't get along with the French or with his own British leadership. Some consider him to be incompetent, others consider him to be one of Britain's finest soldiers.

Sir Archibald Murray once served as Sir John French's Chief of Staff. He maintained a short supply line and a slow but steady advance. He defended the Suez Canal from the Turkish forces. General Hugh Montague "Boom" Trenchard tried to make the air force as efficient as possible. He got his nickname from his "booming" loud voice. When he was a young lieutenant in India, he was called the Camel. The nickname referred to the "loud grunting noises he emitted when anyone addressed him and he had nothing to say." Some said he had trouble expressing himself but he was a fighter. His motto was "the will and power to attack the enemy, to force him to fight and defeat him." He would send aircraft in groups rather than flying alone believing that offensive action was the key to aerial superiority. He wanted an air force that could carry the war deep into enemy territory. He convinced the British War Office that an air force should be organized to attack important factories deep inside of Germany. As soon as he had his Royal Flying Corps at the front, he started bombing German supply lines with everything he had and didn't let up until the war was over.

Lord Kitchener, British Secretary of State for War, represents the British high command in "The Ancient Art of War in the Skies."

Lord Horatio Herbert Kitchener

Allied Commander in Chief Ferdinand Foch, France

The French tactic was to rely on offensive spirit. They would simply rush headfirst with a great deal of "elan" (spirit) into the German army. This strategy was based on the "School of Attack." In order to attack, "only two things are necessary; to know where the enemy is and decide what to do. What the enemy intends to do is of no consequence." This resulted in many French soldiers being killed very quickly.

General Joseph J. C. Joffre was the French Commander in Chief at the start of the war. His tactic was the old style war of attrition which proved to be less effective in this war because of a new weapon called the machine gun. In spite of this, he knew how to handle soldiers and he saved the French Army from defeat at the Battle of Marne in 1914. He would make a limited retreat and look for an offensive opening.

General Robert Nivelle would concentrate his forces into one powerful unit. He called this tactic "a mighty blow of a gigantic fist." Unfortunately he drove his gigantic fist into a massacre in 1917 and was relieved of his command.

General Henri Phillipe Petain had an aggressive, though cautious, fighting style and maintained a strong supply line. Called the "Hero of Verdun," he was intelligent and skillful. He felt Verdun must be held as a symbol of French determination. The French soldiers trusted him and had high morale. His tactic was called "elastic defense in depth." He would leave a thin front line and put his major strength farther back out of range of artillery fire. This would lure the enemy to advance where he would go down with machine gun and artillery fire.

Before the war began, Ferdinand Foch was a professor at the French War College. When war broke out he commanded part of the French Second Army. In 1918, he became the General in Chief of the Allied Armies in France. He favored the use of a new weapon, the tank, to lead the attack rather than the artillery. Near the end of the war, he refused to send the full allied force against the German offensives and kept a reserve offensive force. The German effort started to falter, he counter punched with the reserve force and forced the German Army to surrender.

Ferdinand Foch
France

Kaiser Wilhelm II, Germany

Some of the arrogant German leaders held a belief that they were a superior race. This caused them to underestimate their opponents. A German tactic was to hit weak points in the Allied line with a short, hard barrage of artillery fire that was quickly followed by shock troops.

Luftsperre (air blockade) was a concept where they would spread their air force in a thin line along the front. This proved to be an ineffective strategy.

Although spread thin, the German air force had two things in their favor. First, they fought a defensive style and let the Allied planes come to them. The advantage of this was that during battles, they were sometimes assisted by ground fire and if one of their planes was crippled but able to land safely, they would be in friendly hands. Secondly, the wind was in their favor. The prevailing wind was a West wind. After a battle, crippled allied planes had to return to their bases fighting the wind all the way.

The German airmen were expected to follow orders explicitly. This restricted them from using their own initiative if the circumstances changed.

The German bombing strategy was weak. At Verdun, the German artillery had immobilized the French railroads. This left the French with only one supply and reinforcement line. It was a road called "la Voie Sacree" (the Sacred Way). The road was always crowded with troops and supplies. If the Germans could have destroyed this road the war might have had a very different

Kaiser Wilhelm II
Germany
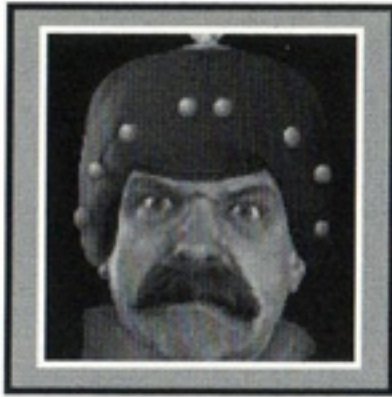
Helmut von Spike
The Fatherland

ending. Instead the bombing orders were to bomb railway junctions!

Kaiser Wilhelm II, the Supreme War Lord and Commander-in-Chief of Germany was indecisive, arrogant, vain and hot tempered. He loved power but didn't know what to do with it. It was said that he "operated like a ship with bad steering in a body of water with strong but conflicting currents." He reluctantly agreed to the bombing of London. On November 9, 1918, he abdicated the throne as armed mobs rioted thru Berlin. The next day he fled across the Dutch countryside to live the rest of his life in exile.

The Kaiser's fighting style represents a variety of German Generals. The Kaiser's son, Crown Prince Wilhelm commanded the German 5th army. General Karl von Bulow commanded the German Second Army and was aggressive against any odds.

General Helmuth von Moltke's job was to carry out the Schlieffen Plan at the start of the War. Moltke lost control of his 200 mile long battle front. Joffre took advantage of the situation and beat von Moltke at the battle of the Marne. Soon after that, von Moltke was relieved of duty.

General Erich von Falkenhayn was the Chief of the German General Staff. It was his idea to attack Verdun and "bleed France white." Opinion is divided on whether that was a strategic blunder or a brilliant innovation.

Eric von Ludendorf became a hero during the invasion of Belgium. He would avoid strong points and move forward quickly. This would isolate these strong points that could be dealt with later. Other times, he would use "hammerblows" against a point in the enemy line until it broke and then move through the break. He would use a strategic withdrawal to regroup. Unfortunately, he let his troop's morale fall apart. By the end of the war he couldn't handle the pressure and had a nervous breakdown.

Helmut von Spike, The Fatherland

Helmut von Spike is the self-appointed Junior General of the Fatherland. This crazy, cross-eyed hun is unpredictable, unruly and flatulent. He is related by marriage to Prince Trench Foote, the great-grandson of the infamous Crazy Ivan conqueror of many ancient lands. Unpredictable and illogical, some say there is a method to his madness but that is unlikely.

Sun Tzu, China

Long ago, Sun Tzu lived in the Chinese Kingdom of Wu. His book, The Art of War, so impressed the King of Wu that Sun Tzu was invited to give a demonstration of his leadership skills at the King's castle.

The King of Wu wanted to see if the demonstration could be carried out with women acting as soldiers. Dozens of his lovely concubines were brought into the courtyard. The King would later regret his desire to be amused this way.

The concubines were divided into two groups, and the King's two favorite concubines were made the leader of each. Sun Tzu, acting as the general, carefully explained the orders he would give. However, the first time he gave the orders, the women broke into laughter. He carefully explained the orders again to be sure that he was not at fault, then again gave the order. Again, the women dissolved into laughter. Sun Tzu announced that he had explained the orders carefully and could not be at fault. The concubine leader of each group was at fault and should be executed.

The King became very alarmed and announced that Sun Tzu had certainly proved his leadership qualities and did not need to prove it further by carrying out the beheadings. Sun Tzu then told the King that as the appointed leader of troops, there were times when he had to carry out certain orders the King might not think necessary. The concubines were beheaded, and two others moved up to take their places.

Sun Tzu
China

As you can imagine, Sun Tzu's next orders were followed very seriously and Sun Tzu became General of the Kingdom of Wu.

For nearly twenty years, the armies of Wu defeated their enemies. After both Sun Tzu and the King of Wu died, the ancient kingdom soon fell.

Sun Tzu's book, The Art of War, has been studied by many of the most brilliant military minds throughout history. The great Mongol leader Genghis Khan used The Art of War as the basis for his own philosophy and created the most awesome army the world had ever seen. In 1782, The Art of War was translated into French by a Jesuit priest and some believe this translation inspired the young Napoleon. Mao Tse Tung was greatly influenced by Sun Tzu's book when he wrote his Little Red Book. Hitler also studied the book. More recently, Marines in Operation Desert Storm were studying The Art of War. The Art of War is as valid today as it was 25 centuries ago when it was written.

THE ACES

Fly on dear boy,
From this dark world of strife,
On to the promised land,
To eternal life.
— Epitaph for James McCudden

The fighter pilots of the Great War were a breed apart. Most were young men just out of their teens. All were volunteers. None wore a parachute. They flew delicate planes put together with wire, canvas and wood that a single spark could set ablaze. They engaged in combat in the bitter cold of high altitudes with open cockpit monoplanes, biplanes and triplanes . They were a new kind of Knight whose duels were called dogfights. They were heroes during the War and legends forever.

Most of the aces received their country's highest medals. The German medal, the Blue Max, is called the Order Pour le Merite. It has a French name because it was instituted during the reign of Frederick the Great, when French was the official language of the Prussian court. It has an F with a crown on it which stands for Frederick. In 1916, Immelman and Boelcke each shot down their

Richthofen and Moritz

eighth victory and Kaiser Wilhelm II presented them with the Blue Max. The equivalent medal in England was the Victoria Cross and in France it was the Legion d' Honneur.

The top aces were a motley group. Guynemer was frail and sickly, Fonck was a braggart, and Mannock could barely see out of one eye. Most were in their early twenties. As young as they were, the airplane was even younger. At the start of the war, the ability of man to fly heavier-than-air aircraft was barely 10 years

old! The Wright brothers first flew in 1903. By the end of the war the aeroplane was only 15 years old.

Pets and mascots were popular at the airfields. Dogs and cats were common. Richthofen had a Great Dane named Moritz and Fonck had a stork named Helen. Albert Ball had a hutch of rabbits. The Lafayette Escadrille adopted a pair of lion cubs.

All of the air fighters of the war were heroes to their countrymen, but a select few, perhaps one percent, became legendary. This tiny minority had the mysterious ability to score victories far above the rest. The term "ace" was sports slang in France at the time. It was derived from the high card and meant champion. While an ace was considered anyone who shot down 5 enemy aircraft, some aces scored 40, 50, 60, or more victories. The average life expectancy of a new airman on the western front was 5 weeks. Who were these men that beat the odds and what abilities did they possess that allowed them to outscore 99 percent of their comrades?

Many skills were needed to become a superior fighter pilot: flying ability, marksmanship, reflexes, determination, coolness under fire, good eyesight, and experience. However, even these qualifications didn't guarantee a top scoring ace. There was another factor which today we call 'situation awareness' — an almost psychic ability to be aware of everything going on in one's immediate vicinity, and then to instinctively make the right move. It could be considered the inverse of Murphy's Law —everything done right, and at the best possible moment. Some had it, most didn't. The ones that did became the legends.

Rittmeister Manfred von Richthofen, "Red Baron"
Country: Germany
Medals: Pour le Merite (Blue Max), Iron Cross, Austrian War Cross
Victories: 80

A charismatic mystique surrounded Manfred von Richthofen, the infamous Red Baron. Even his closest friends could not fully understand the popular war hero. He was a compassionate human being who once refused to fire on a helpless pilot whose guns had jammed during a dogfight. He was also a devoted son who regularly wrote to his mother throughout the war. But Richthofen has also been described as an arrogant egomaniac and a ruthless killer who enjoyed running up his list of kills as Germany's top scoring ace.

Richthofen had a strong ego which drove him to do some rather strange things. At one point, early in his career, he decided that his plane should stand out above all other planes in the sky. It had to be easily distinguished in a dogfight to his squad and to the enemy. It was then that he chose the spectacular red color for his airplane. The French called it, "Diable Rouge" (the Red Devil). It soon became his trademark. Soon all of Richthofen's squad custom painted their planes with dazzling colors and fancy patterns. This led the Allies to call the German squads, "The Flying Circus."

Richthofen was also an avid souvenir collector. He would take anything he could salvage from a fallen plane — a machine gun, a pistol, propeller fragments. For each plane he shot down, Richthofen had a silver cup engraved with the date, victory number, and type of plane. Sixty silver cups were in his collection before Richthofen was told that due to the war effort there was no more silver in Germany for cups.

Manfred von Richthofen was the highest scoring ace of World War I with 80 victories to his credit. He was not considered a natural pilot but he had the ability to quickly position his aircraft into an advantageous position in relation to his opponent. He would then close in to finish his victim off with an accurate burst of fire. An excellent marksman, Richthofen's best skill lay in his shooting. He was also a brilliant organizer and tactical leader.

Richthofen was a stickler for military etiquette and a strict disciplinarian who planned his attack to minimize risks.

On September 17, 1916 he shot down his first plane. In mid January 1917 with his 16th victory, he was awarded the Blue Max and assigned to lead his first fighter squadron, Jasta 11. By the end of April,

Rittmeister Manfred von Richthofen "Red Baron"

Richthofen had 52 victories to become Germany's leading ace and a national hero. He was soon named to lead Germany's first fighter wing, Jagdgeschwader No. 1, composed of an elite group of Jasta squads. Richthofen trained this wing to be the most efficient fighter force of World War I. It claimed 644 victories with only 56 pilots killed and 52 wounded.

> "Victory belongs to him who is calmest, who shoots best, and who has the cleverest brain in a moment of danger."
> — Manfred Von Richthofen, April 1917

Fate: The exact cause of the Red Baron's downing is disputed to this day. He was shot down April 21, 1918 over the Somme River while in pursuit of Wilfred May who had broken away from a dogfight with The Flying Circus. Richthofen's red Fokker Dr. I triplane suddenly glided to earth. It landed peacefully in a field next to the Somme. Australian ground troops found the pilot slumped in his seat with a single bullet wound through the chest.

Canadian pilot Roy Brown, flying a Sopwith Camel, had been attacking Richthofen from behind while Richthofen was chasing May. Brown saw the plane go down, flew back to his base and claimed the victory unaware that it was Richthofen. But an Australian machine gunner on the ground also claims to have fired the fatal shot.

In a waning age of chivalry, Richthofen was buried by the Allies with full military honors, complete with a gun salute. More than a hundred pilots attended the funeral of their respected foe. A nearby British air squadron sent flowers to the funeral of their late enemy. After the funeral, a British pilot flew over Richthofen's airdrome and dropped this message along with a picture of his flower covered grave.

> "To the German Flying Corps., Rittmeister Baron Manfred von Richthofen was killed in aerial combat April 21, 1918. On that fateful day, Manfred von Richthofen passed into legend. He was 25."

> "…a glorious death. Fight on and fly on to the last drop of blood and fuel — to the last beat of the heart and the last kick of the motor: a death for a knight — a toast for his fellows, friend and foe."
> — Manfred von Richthofen, 1916

Capitaine Rene Fonck, "French Ace of Aces"
Country: France
Medals: Legion d'Honneur (Legion of Honor), Medaille Militaire (Military Medal)
Victories: 75

Capitaine Rene Fonck "French Ace of Aces"

Greatest of all Allied aces, Fonck was cool and aloof, more admired than liked by his men. He was never at a loss for words to describe his successes. When he first became an ace in 1917, he described the achievement as "my new found glory." After a few more victories he proclaimed himself "a virtuoso."

Although abrasive and tactless, Fonck had the skill to back up his remarks. He handled his plane with absolute confidence and was a deadly marksman. Second only to Richthofen in victories; he was never shot down.

Fonck was one of the war's best aerial marksmen. He always scored with a minimum of bullets, sometimes only four or five. On May 6th and again on September 26, 1918, he shot down six planes in a single day. He was the only fighter pilot of the War to do so.

Fate: Rene Fonck survived the war and died of natural causes in 1953.

Major Edward 'Mick' Mannock, The One Eyed Ace
Country: Great Britain
Highest Medal: Victoria Cross
Victories: 73

Mannock had problems enlisting in the air service because of his age, 29, and the fact that he had bad vision in one eye. He managed to bluff his way into the air service by memorizing the eye chart. His love of England brought about an intense hatred for the enemy. He did not believe in fighting a "gentlemanly war." He didn't like war, his only goal was to rid the skies of the enemy. When he shot down an enemy plane, he believed he was exterminating evil.

Major Edward Mannock
The One Eyed Ace

Mannock was the greatest British ace and perhaps the greatest air fighter who ever lived. He is described as a cool, calculating technician. He had a conservative fighting style and a scientific handling of his aircraft and guns. He was a firm believer in formation flying and careful marksmanship. This made him a superb patrol leader.

Fate: On July 26, 1918, a bullet from the ground pierced Mick Mannock's gas tank and his plane went down in flames. He was 31 years old.

"When he died, every man in the squadron wept."
— Captain Ira "Taffy"
Jones RAF, 1918

Capitaine Georges Guynemer, "Winged Sword of France"
Country: France
Medals: Legion d'Honneur (Legion of Honor), Medaille Militaire (Military Medal)
Victories: 54

Guynemer was a frail and sickly young man who twice failed to pass the army physical. He was given the chance to fly in the Air Service because of his mechanical ability and his father's influence. And yet, he was an adored hero of the French people. His mail was filled with love letters from girls and women proposing marriage. He was followed in the streets by people requesting his autograph. Myth and romanticism surrounded him.

On the ground he was moody and rarely in good health. In the air he was terror itself. Biographer Henri Bordeaux described Guynemer as he prepared for combat,

"His face became deathly pale and his eyes flashed with a strange light. His personality transformed, almost in terms of a seizure. He carried fire and massacre into the sky."

Guynemer was a technician who preferred to work solo. He knew every nut and bolt in his plane and was an excellent marksman. Flying with complete disregard for odds and safety, he was shot down seven times, wounded twice, and by some miracle survived. He had a method of combat that almost seemed suicidal.

Fate: The exact circumstances of Guynemer's death are shrouded in mystery. His aircraft simply vanished while he was on patrol September 11 1917. Neither body nor plane were ever found. He was 22.

Capitaine Georges Guynemer
"Winged Sword of France"

"He belonged to the skies, and the skies have taken him."
— French Cardinal at memorial service, 1917

Captain Albert Ball
Country: Great Britain
Medals: Victoria Cross and Legion of Honor (posthumous), Distinguished Service Order, Military Cross, Distinguished Flying Cross
Victories: 44

Albert Ball was a shy loner who hated killing. After he shot down a plane, he would return to his aerodrome and try to put it out of his mind by playing his violin. He liked rabbits (he kept a hutch of them in his hangar) and gardening. Between missions he would spend hours working in the garden that he planted with seeds sent from his family. He was the only pilot to fly without a helmet and goggles.

An ace at 19, Ball was a daredevil pilot who would take on any odds. He had one rule: attack everything. He would often charge into a formation of enemy planes with guns blazing. His reputation was of sheer courage, almost suicidal. He rarely, if ever retreated.

On one occasion in August 1916, Ball flew alone in his Nieuport to challenge a group of German fighters based at Cambrai. When they rose to intercept, Ball flew straight into their midst, scattering the squad. He soon shot down two of his attackers. Even with the odds

Captain Albert Ball
Great Britain

against him, Ball refused to turn back until his ammunition was gone. Finally, when his engine was sputtering from a direct hit he pointed his plane toward his lines. As the plane drifted away he drew his pistol and fired it at the enemy. He crash landed behind his lines, one of six times he had done so.

Ball was very good at stalking an enemy aircraft. His favorite technique was to come up from under and behind in the crew's blind spot where he could fire a close-range burst.

Fate: The exact circumstances of his death are one of the most debated of all World War I pilots. He dove into a cloud in pursuit of a German aircraft on May 7, 1917. When he emerged from the cloud his plane was out of control and crashed outside the village of Annoeullin. Pulled from the wreckage, Ball died in the arms of a French farm girl. Some three weeks after he crashed, Lothar von Richthofen (brother of Manfred) claimed the victory. It was later discovered that Lothar was in Berlin on sick leave on May 7th. Another story has him being shot down from a secret machine gun nest hidden in a church clock tower near the village of Annoeullin. It seems Ball had the habit of flying over the tower to check his watch after each battle. This made for an easy ambush. The mystery has never been solved. He was 20.

"Nothing makes me feel more rotten than seeing them go down. He is just a good chap with very little guts, trying to do his best."
— Albert Ball, 1917

Hauptmann Oswald Boelcke, "Father of Air Tactics"
Country: Germany
Medals: Pour le Merite (Blue Max), Iron Cross
Victories: 40

Oswald Boelcke, Germany's first national air hero, was a kind man who would often visit his victims in the hospital or bring flowers to the graves of those that didn't make it. In 1916, less than two years into the war, he wrote the "Dicta Boelcke," the first set of rules for aerial combat. Through his success as a fighter pilot and his scholarly character, Boelcke was admired and respected by both his students and the pilots on both sides.

A superb air fighter, Boelcke flew instinctively. Frequently he would rise before dawn and set out on patrol alone. He would often return with a victory and then tell the other fighter pilots about his adventure.

Boelcke was credited with developing the first "Jasta" (hunter) squadron, an elite squadron of fighters. A Jasta squadron would attack a smaller squadron of Allied fighters, there by disposing of them with relative ease, while avoiding a squadron that was bigger than theirs.

He took advantage of his fighting experiences and passed his knowledge on to his students. He was regarded as a strategist and tactical genius with a sharp military mind. Many of his ideas formed the rules of air fighting that are still in use today.

Fate: Ironically, Boelcke was killed as a result of a flying accident with one of his students. The wing tips of their planes collided on October 28, 1916 while both were shooting at the same plane. Boelcke was killed upon impact.

At his funeral a British plane flew overhead and dropped a wreath with the inscription,

To the memory of Captain Boelcke,
our brave and chivalrous foe.

After his death, Boelcke's prize pupil, Manfred von Richthofen, took over the Jasta squad. Boelcke was 25.

"In air fights it is absolutely essential to fly in such a way that your adversary cannot shoot at you."
— Captain Oswald Boelcke, 1915

Hauptmann Oswald Boelcke
"Father of Air Tactics"

IV: APPENDIXES

CAMPAIGN DESCRIPTIONS

These historical campaigns are based on actual battles of World War I.

HISTORICAL

1. THE CONQUEST OF BELGIUM: AUG 1914
GERMANY VS BELGIUM

The Schlieffen Plan called for a surprise, lightning quick strike through neutral Belgium and on into Paris. 300,000 German soldiers met 150,000 Belgian troops. A few British troops helped to defend Mons and Antwerp, while French troops helped to defend Namur. The fort cities of Liege, Namur and Antwerp slowed the German advance but didn't stop it. Soon, the Belgian army, led by King Albert I, was in an organized retreat, heading West into Northern France.
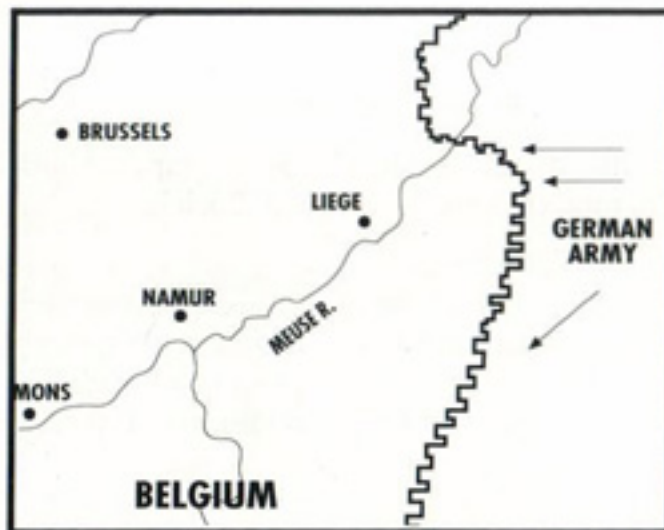
Map 1: The Conquest of Belgium
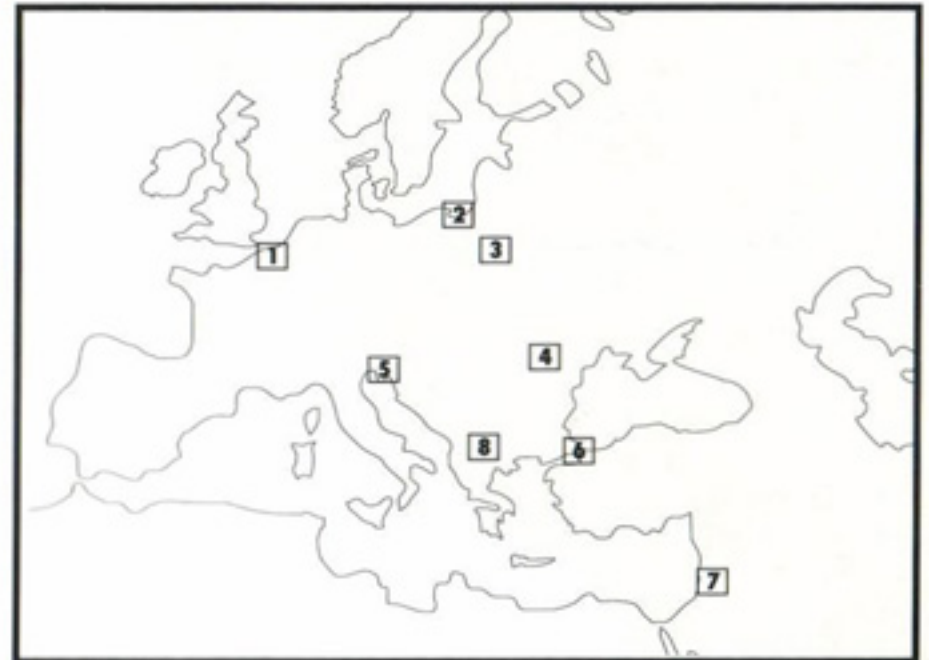
Campaigns

1. CONQUEST OF BELGIUM	2. BATTLE OF TANNENBERG
BATTLE OF MARNE	3. BATTLE OF LEMBERG
FIRST BATTLE OF YPRES	4. BRUSILOV OFFENSIVE
BATTLE OF VERDUN	5. BATTLE OF CAPORETTO
BATTLE OF THE SOMME	6. GALLIPOLI
BATTLE OF MESSINES	7. MEGIDDO
BATTLE OF PASSCHENDAELE	8. DEFEAT OF SERBIA
BATTLE OF CAMBRAI	
BATTLE OF LYS	
FINAL GERMAN PUSH	
FINAL ALLIED OFFENSIVES	
BATTLE OF AMIENS	

In this campaign, the fortress cities of Antwerp, Liege and Namur are represented by a fort and a city. The Western Front hadn't been established yet so the front represents the border between Germany and Belgium. The Green Capital is at Brussels. The Red Capital represents the German Empire and is surrounded by mountains that protect it. The campaign begins just before the German army makes its move. You have the smaller force but sometimes the smaller man can win.

Difficulty: 9

2. THE BATTLE OF MARNE: AUG-SEP 1914
GERMANY VS. FRANCE

After moving through Belgium, the mighty German army got within 50 miles of Paris before they were stopped along the Marne River. This line defined the Western Front.

In this campaign, you join the French to try to stop the forward momentum of the German Army. Supply depots along the front represent the strength of the German forces. French bombers are named after the French cities on the map. Early air tactics are represented by Boelcke.

Difficulty: 2
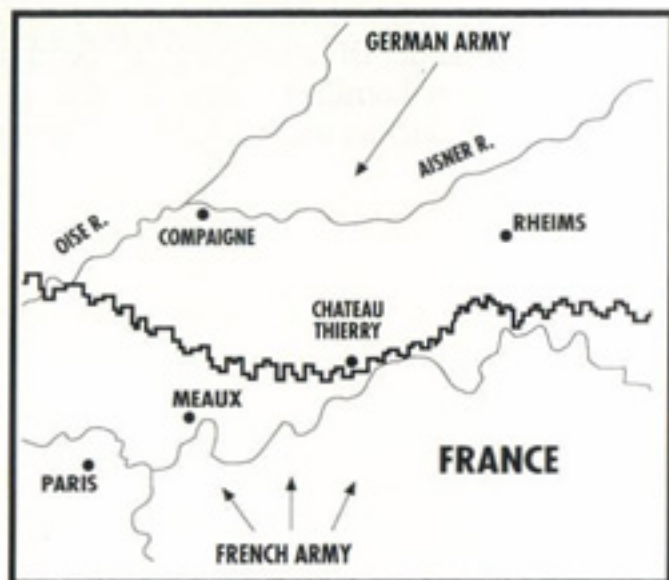
Map 3: The Battle of Tannenberg

Map 2: The Battle of Marne

3. THE BATTLE OF TANNENBERG: AUG 1914
GERMANY VS. RUSSIA

While Germany focused her strength on the push to Paris, Russia was moving to strike Germany's rear. Von Schlieffen knew the Masurian Lakes would divide the Russian army so he planned to concentrate on one half of the Russian army. When it was destroyed, they would turn and destroy the other half of the Russian army. Instead, the German commander, von Prittwitz, panicked and split his forces and then withdrew behind the River Vistula. Moltke had been concentrating on the Western Front but when he heard this, he immediately replaced von Prittwitz with Hindenburg and Ludendorff. As the battle progressed, both sides tried to encircle the other. Hindenburg and Ludendorff made a good team. Near the city of Tannenberg, the Russian army was encircled and collapsed.

In this campaign, the impenetrable Masurian Lakes are represented by forts and high mountains. The green side has no factories because even though Russia had a huge army, she was unable to mobilize quickly. Red has no factories because the bulk of the German army was committed to the Western Front and couldn't be spared for reinforcing the Eastern Front. You play the

German side (red). The green Capital is represented by Russia in the Southeast. The Black Capital is the key city, Konigsberg in the Northwest. Each side is about equal in strength. The bombers are named after towns on the map. The White Russian air force is centered along the front. They could move North, South or split. Strategy tip: When you play green, select the Kaiser for the enemy leader. Since villages are of little value to him, bomb the cities near the front and ignore the villages.

Difficulty: 3

4. THE BATTLE OF LEMBERG: SEP 1914
AUSTRIA VS. RUSSIA

Austria wanted to take advantage of the Russian defeat at Tannenberg and strike quickly before Russia could further mobilize. The Russian army expected Austria to attack from the East and felt they could envelope them from the north, striking their rear. Instead, the Austrian left flank moved north towards Cholm while its center anchored at Lemberg. The battle went back and forth with Russia gaining in the north before being forced to draw back from Lemberg. Then Russia was reinforced by the Ninth army. By Sep. 11, Austria was in full retreat. As a result, Austria lost Lemberg, the center of its road and rail networks. It also broke

Map 5: The First Battle of Ypres

Map 4: The Battle of Lemberg

the confidence of the Austrian Army. When Germany sent reinforcements, it weakened her at the Western Front and proved that her hope for early victory was lost.

In the campaign, there are no factories for the red side. This represents the lack of aid that Austria got from Germany. The green side has one slow factory which represents the Ninth Army that arrived late in the battle. Offensive Strategy: Send waves of fighters out to cover your bombers. Defensive Strategy: Leave bombers on the ground and scramble fighters to intercept and pick off enemy squadrons. After they are severly weakened, it will be severely to send your bombers up.

Difficulty: 3

5. THE FIRST BATTLE OF YPRES: OCT - NOV 1914
BRITAIN, BELGIUM, FRANCE VS. GERMANY

After the battle of Marne, the Western Front became stalemated along the Yser River. The British army decided to move further north for easier communication with their home bases and to concentrate her troops near the English Channel. When British soldiers moved north, Germany followed, taking the fort at Antwerp on Oct. 10. The British had hoped to encircle the German right wing but Germany made a surprise move to the

coastline hoping to capture the Channel Ports of Dunkirk, Boulogne and Calais and to encircle the British left wing. It might have worked except the retreating Belgian army happened to be in the way. Though retreating, the Belgian army was still intact. The Belgians stopped the German thrust near Dixmude. Then they opened the river locks at Nieuport, creating a flood that forced the German army back. The Germans then focused on British positions around Ypres (pronounced E-pray). After three days of continuous fighting, the British center retreated to just in front of Ypres. The British launched a successful counterattack. Soon, French troops arrived as reinforcement to the British and the front was again at a stalemate.

In this campaign you command Allied forces against the agressive German force. Dixmude is represented by a city near the river Yser. You are defending Ypres (the green Capital). The enemy Capital is in the northeast at Bruges, Belgium. The German forces are spread out along the front and could move in any direction.

Difficulty: 8

6. GALLIPOLI: MAR 1915 - JAN 1916
BRITAIN VS. TURKEY
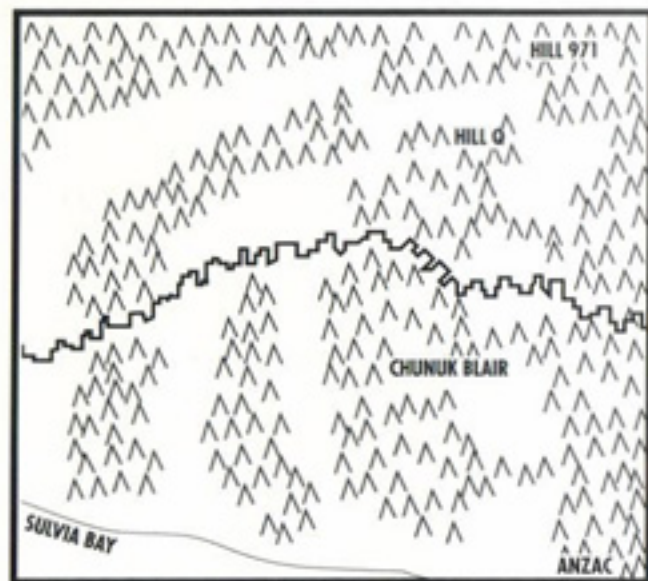
Map 6: Gallipoli

Turkey entered the war hoping to gain territory from Russia. Russia appealed to Lord Kitchener for relief. He sent an army of 70,000 men, mostly Australian and New Zealanders, to attack the Turks at the Gallipoli Peninsula. Some British and French soldiers were also involved. As soon as they hit shore, communication was lost and each unit had to act independently. On top of that, the first assault wave landed at the wrong place. A strong current had moved the ships north. Instead of the expected sandy beaches there was a rocky shore. Hopes for a quick victory disappeared. The British sent reinforcements but not as quickly as the Turks did. Soon the Allies were greatly outnumbered. By the time the Allies withdrew, there had been over 250,000 casualties on each side. The invasion of Gallipoli could have been sucessful if done properly. Instead, they ignored strategic high ground when it was available, didn't understand their enemy, did not have adequate maps, and lost their lines of communication.

In this campaign, we focus on the effort to break the stalemate in the summer of 1915. It was a double Allied assault, one came from Sulvia Bay, the other from Anzac. They planned to rejoin on the high ground over the Narrows. Turkish resistance was fierce and it ended in stalemate. The Turks were able to reinforce much faster than the Allies. This is represented by their having three factories and you only having one. The mountains are high and treacherous so travel through the passes but watch for enemy fighters.

Difficulty: 5

7. THE DEFEAT OF SERBIA: OCT-DEC 1915
AUSTRIA-HUNGARY VS. SERBIA

By October of 1915, Serbia was being pressed on three sides by the armies of Austria-Hungary and Bulgaria. The Serbian army was pushed back to her West border in a line from Novi Pazar to Prizren. French and British troops arrived too late to help and what remained of the Serbian army retreated into Albania. Of the 200,000 soldiers in the Serbian army, half were either killed or wounded.

In this campaign, the Green Capital is on the West border of Serbia at Prizren. The front outlines the border of Serbia, to the north is Austria-Hungary and to the East is Bulgaria. Novi Pazar

Map 7: The Defeat of Serbia

Map 8: The Battle of Verdun

is represented by a city, Belgrade is a city/supply depot by the North border and Skopje is a supply depot. You are greatly outnumbered (as was Serbia) but this campaign can be beaten if played properly.

Difficulty: 5

8. THE BATTLE OF VERDUN: FEB-DEC 1916
FRANCE VS. GERMANY

The German Army with 1000 big guns are across the Meuse River east of Verdun. Verdun is protected by a series of forts and the French are determined to defend their city at any cost. This long battle took most of 1916 and resulted in enormous losses on both sides. In the end, France was sucessful in protecting Verdun.

In this campaign, you take control of German forces to try to capture Verdun from a determined opponent. Verdun is represented by four cities split by the Meuse River. Verdun has one supply line, The Sacred Way, which connects it with Bar le Duc to the Southwest. Bar le Duc is the Green capital. If you destroy it, you choke Verdun and win the campaign. The sacred way is represented by supply depots between Bar le Duc and Verdun.

Difficulty: 2
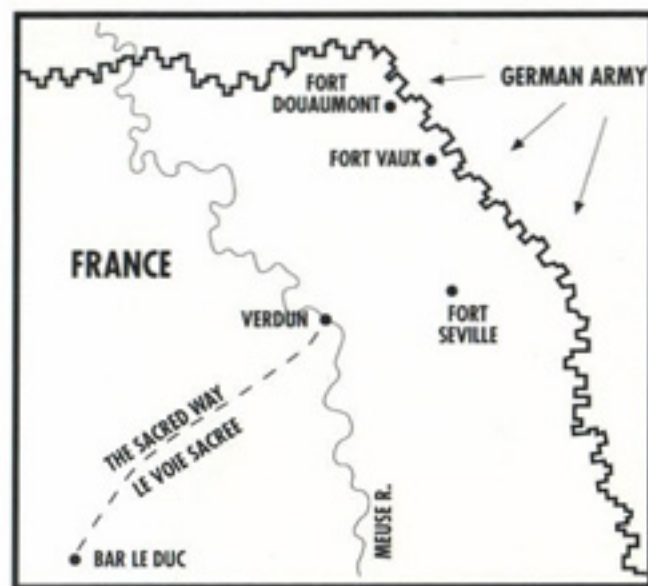
9. THE BATTLE OF KILIMANJARO: MAR 1916
BRITAIN VS. GERMANY

The war spread to Africa when Britain tried to take advantage of her superior naval force to take Germany's Imperial possesions. Kenya was British East Africa and Tanganyika was German East Africa. The Germans had their eye on the Uganda Railroad that links the British port, Mombasa, with Uganda. The Germans hoped to cut this supply line and capture the port city, Mombasa. To stop them, the British had to prevent them from moving through the gap between Mount Kilimanjaro and the Pare Mountains to the Southeast. The battle was hard fought but the British finally captured much of the German Army. The rest of the German army hid in the brush, making geurrilla strikes until the war ended.

In this campaign, you control the British Army and try to stop the German advance through the pass. Your Capital is at Mombasa. The red capital is at the city of Handeni. You have an airfield Southwest of Mount Kilimanjaro that represents the 1st South African Mounted Brigade that turned the German right flank.

Difficulty: 4

Map 9: The Battle of Kilimanjaro
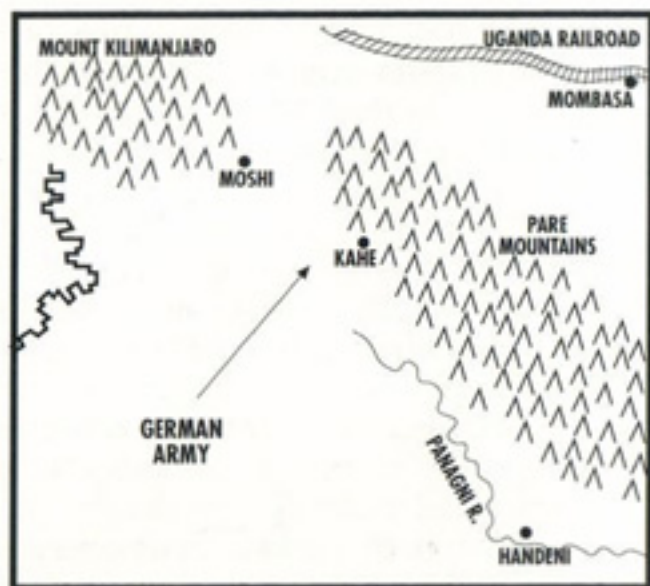
Map 10: The Brusilov Offensive

10. THE BRUSILOV OFFENSIVE: JUN-SEP 1916
RUSSIA VS. AUSTRIA

Brusilov commanded the Russian forces along a front that stretched through the Ukraine from Poland to Romania. Instead of concentrating forces, he decided to attack the Austrian army across a wide front. It started with a short artillery attack that focused on certain points in the enemy line. Brusilov broke through and left the Austro-Hungarian army in confusion. The advance gathered speed and over the next few weeks moved ahead 60 miles, capturing key cities, many prisoners and weapons. Germany took troops from other fronts to reinforce the Austrians. Then things went bad when Brusilov pushed too far too fast, straining his supply lines and suffering heavy casualties. One million Russians died. This was too much for the Russian people, Russia collapsed into anarchy and soon into revolution. This led to the Bolsheviks (with Lenin as their leader) taking power and the beginning of the Soviet Union.

In this campaign, you are Brusilov. The enemy Capital is Lemberg. You can concentrate your forces on a point in the enemy line, put your power into a flank to try to turn the enemy's flank or do what Brusilov did and attack across a wide front.

Difficulty: 1

11. THE BATTLE OF THE SOMME: JUL-NOV 1916
BRITAIN VS. GERMANY

The British initiated this "Big Push" that they thought would relieve the pressure on the French at Verdun and bring an early end to the war. It began with five days of heavy artillery bombard-
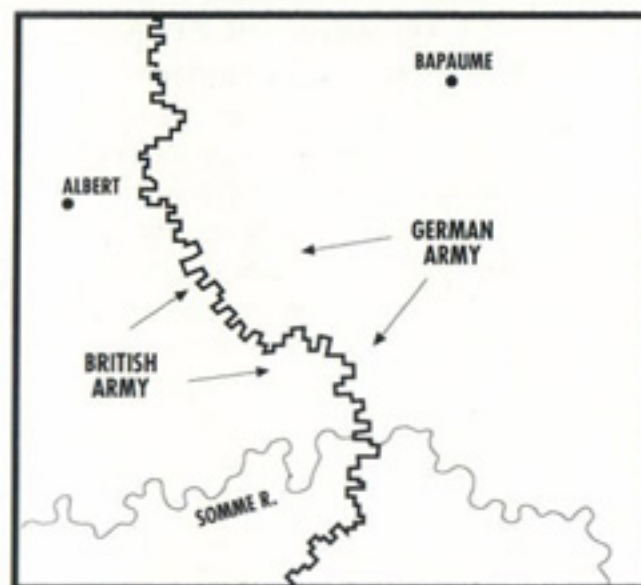

Map 11: The Battle of Somme

ment near the Somme River in Northeast France. Instead of weakening German defenses, it created craters that were hard to advance through and made good dugouts for German machine gun nests. The bombardment ended at dawn on the fifth day and British and French soldiers climbed out of their trenches to attack. Machine gun fire killed them by the thousands. By midday there were 100,000 casualties. By September, both sides had taken heavy losses. The British introduced a new weapon, the tank. British infantry followed behind the tanks and gained some ground but the fighting continued. November brought heavy rains and both sides lost interest. When it was over, Britain had gained just a few miles.

In this campaign, your British army is on the offensive. You have a stronger air force but they have more strategic targets to represent the defensive strength of the German's who were on a ridge and dug in. The enemy has one factory which represents German reinforcements but you have none.

Difficulty: 3
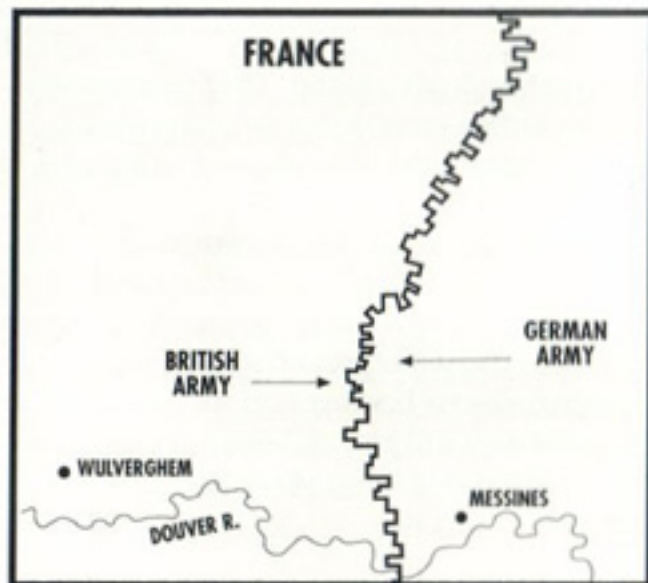
Map 12: The Battle of Messines

12. THE BATTLE OF MESSINES: JUN 1917
BRITAIN, FRANCE VS. GERMANY

Messines Ridge is South of Ypres. The Germans had been dug in here for two years. On the first day of the battle, 120,000 Frenchmen fell. General Nivelle was quickly replaced by General Petain, The Hero of Verdun. Petain took a defensive posture, waiting for tanks and American reinforcements. The British weren't as patient and moved to Flanders and began an attack on Messines Ridge. The Germans knew the strategic importance of the ridge and had a strong defense. The British surprised the Germans by tunneling under the German trenches and detonating one million pounds of explosives. The British were sucessful in taking the ridge.

In this campaign, deep German entrenchment is represented by two forts to "hold the line." To represent British explosive power, you are equipped with more bombers than the enemy. The Germans have more fighters which also represents defensive power.

Difficulty: 3

13. THE BATTLE OF PASSCHENDAELE:
JUL-NOV 1917
BRITAIN VS. GERMANY

By the middle of 1917, the situation looked bad for the Allies. Italy was unable to advance against Austria, Russia was about to collapse, German submarines were causing trouble on the high seas. The allies last hope was the United States. German U-boats were sinking neutral and unarmed ships at sea and this upset the United States. British General Sir Douglas Haig wanted to beat the German's before the Americans could arrive and steal his glory. He planned to attack in Flanders and break though the line near Ypres and then circle the German right flank. Heavy artillery bombardment mixed with the heavy rains made a mess out of the battlefield. By October, Allied forces had made some gains but winter was coming and Russia was out of the war. Germany was rapidly moving troops from the Eastern Front. What followed was called the muddiest war in history. With the help of Canadian and Australian forces, Haig achieved his goal and captured the high ground around Passchendale.

Map 13: The Battle of Passchendaele

Map 14: The Battle of Caporetto
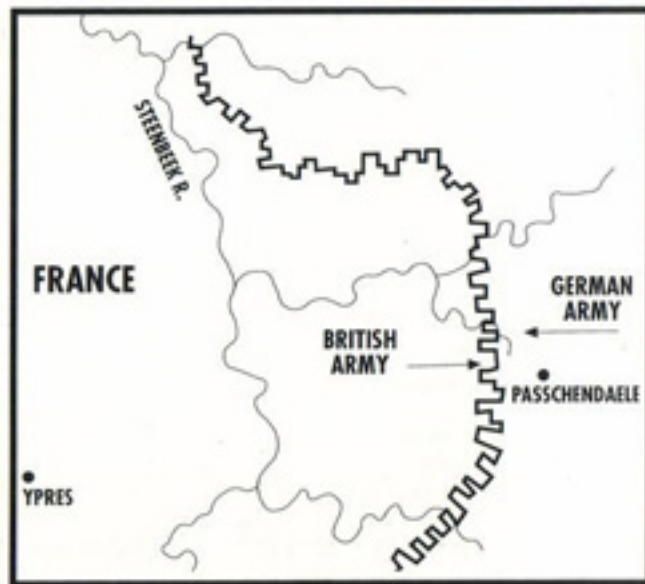
In this campaign, British offensive power is represented by strong air power and little ground power. German defense is represented by strong ground targets. The dug in defensive strength of Passchendaele ridge is represented by a series of three forts. The town of Passchendaele is the Red Capital.
Difficulty: 2

14. THE BATTLE OF CAPORETTO: OCT 1917
ITALY VS. AUSTRIA

The Italian/Austrian front ran through the Alps. Both sides wanted to move forward through the mountains and to the plains beyond. Russia's collapse let Austria focus more troops on Italy. The Austrians thought they saw a weak spot in the Italian line at Caporetto. The Italian defenses collapsed and Austria advanced to 80 miles west of Caporetto. Italy suffered heavy losses. Britain and France quickly sent reinforcements and a year later, the Allies split the Austrian army in two, forcing her retreat.

In this campaign, you play the Italian Commander and try to protect your homeland from the Austrian invaders. You are badly outnumbered but if you use every airplane to its maximum efficiency, you may succeed.
Difficulty: 5

15. THE BATTLE OF CAMBRAI: NOV 1917
BRITAIN VS. GERMANY

A few tanks had been used on the Somme during the latter part of the battle but most became stuck in the mud or in shell craters. At Cambrai, the ground was firm and if the British could penetrate the enemy line, they could force a retreat. Thirty-six trains secretly moved tanks to the front during cover of night. The point of attack was just South of Cambrai. The Germans were taken by surprise and the British suceeded in breaking the line and moved ahead six miles. Due to lack of reserves, the British lost most of their gains within ten days.

In this campaign, you command German forces. Prepare for the British onslaught. You have no bombers and no factories to make any. The British have many bombers to represent their tanks. You have much greater ground strength though so use your fighters to destroy enemy bombers before they can destroy your ground targets and you will prevail. Your red Capital is at Cambrai and the green Capital is at Gouzeaucourt.
Difficulty: 6
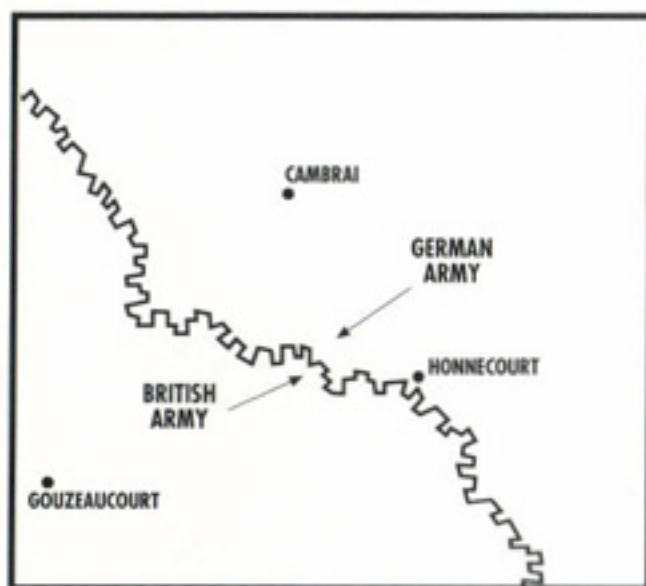
Map 15: The Battle of Cambrai
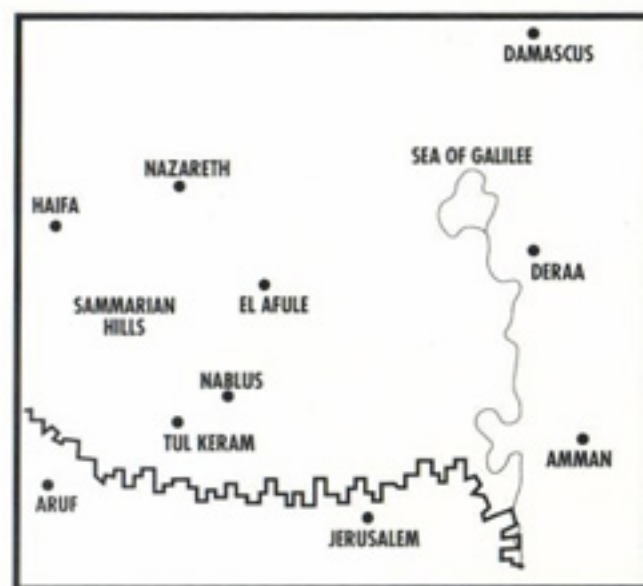
Map 16: The Battle of Megiddo

16. THE BATTLE OF MEGIDDO: SEP-OCT 1918
BRITAIN VS. TURKEY

The Turkish front line extended from Arsuf on the Mediterranean Sea to the Jordon Valley. The Turks main supply line ran between Damascus south to Deraa where it split. One route ran south to Amman and the other ran West through El Afule, Messudieh, Nablus and Tul Keram. The British wanted to capture these key cities. The plan was to trick them into thinking they would strike up the Jordon Valley but instead move the left wing north through Samarian Hills and hit them from the west. They used their superior air force to keep the enemy air force on the ground so they wouldn't see the troop movement to the West. Australian pilots bombed the railroad at Deraa while Lawrence of Arabia hit it from the ground. Just before the big push, the Allies bombed Tul Keram, Nablus and El Afule cutting off Turkish communication lines. Allenby's left wing was successful in penetrating the Turk's right wing forcing retreat. Bombers attacked the Turks while they fled East towards the Jordon River. Turkey surrendered much of her territory which eventually became Israel, Syria and Iraq.

In this campaign, you command British forces. You have greater air power than the Turks but will have to use it quickly and efficiently before they overrun you on the ground. Your Capital is at Jerusalem, the red Capital is at Nazareth.

Difficulty: 8

Map 17: The Battle of Lys
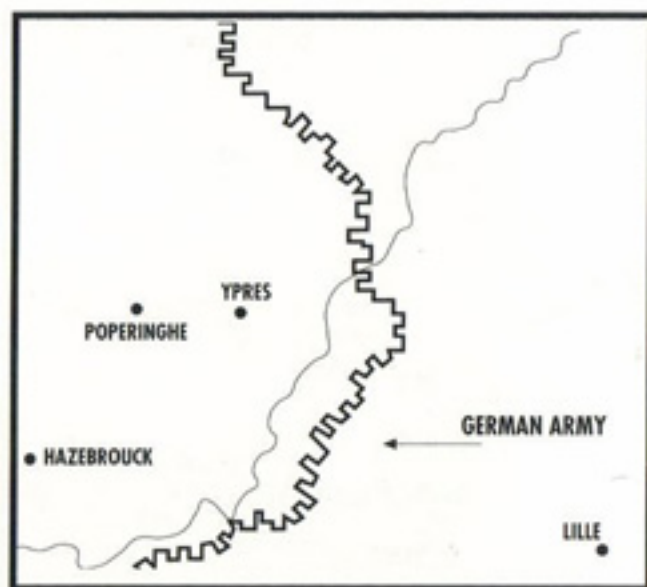
Map 18: The Battle of Amiens

17. THE BATTLE OF THE LYS: APR 1918
GERMANY VS. THE ALLIES

Germany made a number of attempts to capture the strategic city of Ypres during the war. This time, they planned to hit the Allies from the Southeast, forcing them back across the river Lys. Then they would chase the British out of Hazebrouck and Poperinghe and Ypres would be surrounded. In the end, German troops got within a few miles of Ypres but were stopped.

In this campaign, you play the side of the Germans. The Allies have a series of lines of defense around Ypres. Ypres is the green Capital. The heavy Allied defenses Northeast of Ypres are represented by Forts. The red Capital is at Lille.

Difficulty: 5

18. THE BATTLE OF AMIENS: AUG 1918
ALLIES VS. GERMANY

Germany appeared to be on the verge of winning the war by the spring of 1918. Russia had dropped out of the war letting Germany move more than a million men to the Western Front. The French were exhausted, Britain was wearing down and the Italians had been defeated at Caporetto. The main concern of the Germans was to move quickly before fresh American forces
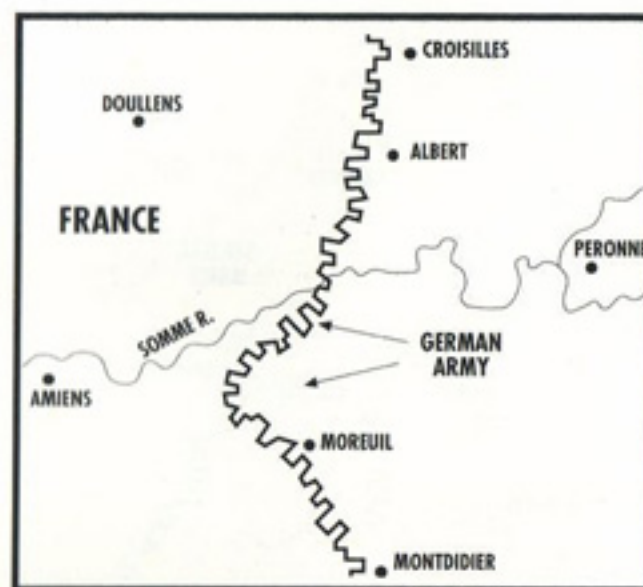
arrived. Germany outnumbered the Allies and kept moving forward. Soon, they had taken 90,000 prisoners and were within 10 miles of the strategically important city of Amiens. A portion of the German line was protruding towards Amiens and this battle was an attack intended to push that salient back. Behind tanks and an artillery barrage, the British advanced on a ten mile front. By night, they had recaptured nine miles and captured thousands of prisoners. General Ludendorff called this the "Black Day" of his army. The British advance slowed after the first day and the French army hit the Southern side of the protrusion, pushing the Germans out of Montdidier. More British forces attacked from the north and Ludendorff ordered a withdrawal to the east along a 30 mile front.

In this campaign, the red Capital is at Peronne, the green Capital is Amiens. French pilots represent French forces in the south and British pilots represent British forces in the north. Since it is an Allied offensive, you have more bombers than your opponent.

Difficulty: 9

19. THE FINAL GERMAN PUSH: MAY-AUG 1918
ALLIES VS. GERMANY

On May 27, the Germans made another major push between Rheims and Soissons, taking more ground. Now they were almost within shooting distance of Paris. The next attack was an attempt to capture

Map 19: The Final German Push
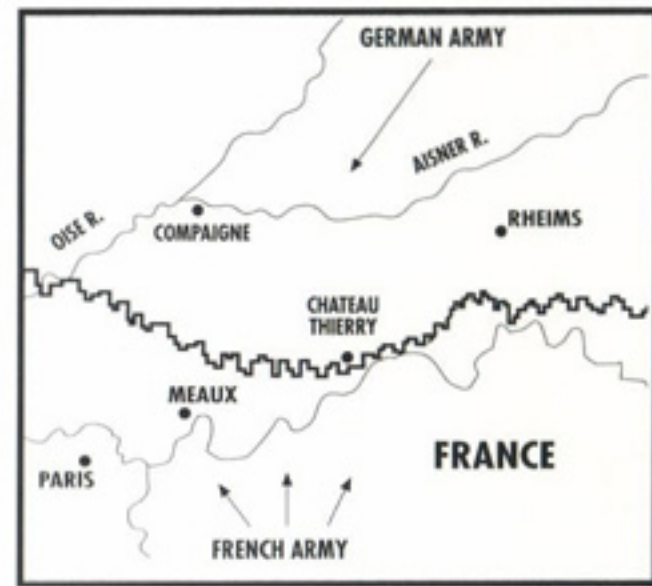
Map 20: The Final Allied Offensives

Rheims in early July. Foch had been holding American troops in reserve but it was now time to use them. On July 18, Foch decided to counter attack to try to free Soissons. He was successful in moving the Germans back in the Second Battle of Marnes. This improved the morale of Allied troops as much as it lowered the morale of German troops. Then, the Allies attacked at Picardy and recaptured 110 square miles. By August 21st, Ludendorff knew the war was lost and went on the defensive.

In this campaign, the enemy is pushing towards your Capital at Paris. The enemy Capital is at Brussels. This is a war spread across a wide front with many strategic targets. For their final push, the Germans have many bombers but few fighters. Their troops outnumber you at the front but you have a much larger reserve force represented by American pilots near Paris. The French in the South are represented by French pilots, and the British in the North are represented by British pilots.

Difficulty: 5

20. THE FINAL ALLIED OFFENSIVES: JUL-NOV 1918
ALLIES VS. GERMANY

By Fall of 1918, all of Germany's partners had dropped out of the war. The Allies were ready to attack from Verdun to the North Sea. An important section of this front, from the river Meuse to the

Argonne Forest was guarded by the American First Army. Piercing the German front here would disrupt communication between the German left and right wing and interrupt their supply lines. The rapid attack began in a dense fog. The artillery had a hard time keeping up with the infantry. Alarmed, Germany brought in troops from other parts of the front, weakening defenses elsewhere. Within days, the German High Command demanded that the Chancellor surrender but he refused. The American attack resumed again and Germany threw her best soldiers into the battle. Meanwhile, the British offensive against the German right wing broke through the Hindenberg line. The last American offensive was the last Allied push of the war. Ludendorff fell from power and chaos threatened his country.

In this campaign, the Americans and the French are ready to attack in the South, the British make up the left wing in the North. You outnumber your German opponents but don't let your guard down, there is still plenty of fight left in them. The war is won unless the German command can find a flaw in your strategy.

Difficulty: 4

PILOT AND BOMBER NAMES

You can use any name that you want for fighter pilots and bombers when you make your own campaigns. They can have a maximum of between 11 and 18 characters, depending on what characters you use. For example, a capital W uses more space than an i.

BOMBERS

You can name your bombers after towns, friends, states, countries, etc. The following is a list of other ideas including the German and French translations. Try combining them. For example, you could name an allied bomber, the "Green Eagle" or the "Vert Aigle." A German bomber could be called the "Rot Adler" (Red Eagle)

English	German	French
adventure	abenteuer	aventure
aero	luft	aero
airraid	luftangriff	aeroraid
angry	argerlich	irrite
animal	tierisch	animal
annihilate	vernichten	annihiler
army	armee	armee
arrow	pfeil	fleche
arsenal	waffenlager	arsenal
ass	esel	ane
assassin	attentater	assassin
daring	verwegen	audace
aviator	flieger	aviateur
bad	schlect	mauvais
barbarian	barbar	barbare
beautiful	schon	beau
Bee	Biene	abeille
bird	Vogel	oiseau
black	schwarz	noir
blood	blut	sang
blue	blau	bleu
boat	boot	bateau
bold	wagemutig	hardi
bully	raufbold	mattamore
buzzard	bussard	buse
champion	sieger	champion
cool	kuhl	frais
crazy	wahnsinnig	fou
dog	hund	chien

English	German	French
dragon	drache	dragon
eagle	adler	aigle
emperor	kaiser	empereur
empress	kaiserin	imperatrice
fort	feste	fort
fox	fuchs	renard
breeze	brise	brise
gallant	tapfir	vaillant
good	gute	bon
goose	gans	oie
green	grun	vert
hawk	habicht	colporter
indignant	ungehalten	indigne
horse	pferd	cheval
flying	fliegen	vol
jockey	jockei	jockey
kite	drachen	cerf-volant
knight	ritter	chevalier
lady	dame	dame
marksman	scharfschutze	tireur
menace	drohung	menace
merciless	erbarmunglos	impitoyable
miraculous	wunderban	miroculeux
monster	ungeheuer	monstre

English	German	French
octopus	krake	pieuvre
parrot	papagei	perroquet
pigeon	taube	pigeon
pirate	pirat	pirate
rebel	rebell	rebelle
red	rot	rouge
scorpion	skorpion	scorpion
scout	spaher	vedette
ship	schiff	bateau
sparrow	spatz	moineau
spider	spinne	araignee
spy	spion	espion
squadron	schwadron	escadrille
star	stern	etoile
sun	sonne	soleil
superman	ubermensch	surhomme
sword	schwert	epee
talon	kralle	serre
turkey	puter	dindon
tyrant	tyrann	tyran
vandal	vandale	vandal
warship	kriegszeit	navire de guerre
wasp	wespe	guepe

FIGHTER PILOT NAMES

For fighter pilots, you can use the names of friends, famous people, etc. The following is a list of real aces from World War I and the number of victories they had. To simulate their skill levels, consider each medal as being the equivalent of 10 victories. So, if an ace had 39 victories, give him 4 medals.

BRITISH ACES

Score	Pilot and Rank
73	Major E. Mannock
72	Lieutenant-Colonel W.A. Bishop
60	Lieutenant-Colonel R. Collishaw
57	Major J.T.B. McCudden
54	Captain A.W. Beauchamp-Proctor
54	Major D.R. MacLaren
53	Major W.G. Barker
47	Captain R.A. Litte
46	Captain P.F. Fullard
46	Captain G.E.H. McElroy
44	Captain A. Ball
44	Captain J. Gilmore
41	Major T.F. Hazell
40	Captain J.I.T. Jones
39	Captain W.G. Claxton
39	Major R.S. Dallas
37	Captain F.R. McCall
35	Captain H.W. Woollett
34	Captain F.G. Quigley
32	Major G.H. Bowman
31	Major A.D. Carter
31	Captain J.L.M. White
30	Captain M.B. Frew
30	Captain S.M. Kinkead
30	Captain A.E. McKeever
29	Captain A.H. Cobby
29	Captain W.L. Jordon
27	Captain J.E. Gurdon
27	Captain R.T.C. Hoidge
27	Captain H.G.E. Lucford
27	Major G.J.C. Maxwell
26	Captain W.C. Campbell
26	Captain W.E. Staton
25	Major K.L. Caldwell

25	Major R.J.O. Compston	19	Major A.M. Wilkinson
25	Major J. Leacroft	18	Lieutenant L.M. Barlow
25	Captain R.A. Mayberry	18	Lieutenant C.F. Collett
24	Major J.O. Andrews	18	Captain A.K. Cowper
24	Captain W.E. Shields	18	Captain F.R. Cubbon
23	Captain J.S.T. Fall	18	Captain E. Dickson
23	Captain A. Hepburn	18	Captain A.J. Enstone
23	Captain D. Latimer	18	Captain F.L. Hale
23	Captain E.J.K. McLoughry	18	Captain A.T. Iaccaci
23	Lieutenant A.P.F. Rhys Davids	18	Lieutenant E.V. Reid
23	Captain S.W. Rpsevear	18	Captain F.A. Thayre
23	Captain H.A. Whistler	18	Captain J.L. Trollope
22	Major C.D. Booker	18	Lieutenant W.B. Wood
22	Major W.J.C.K. Cochrane-Patrick	17	Captain J.H. Burden
22	Captain R. King	17	Captain G.H. Cock
22	Lieutenant McK. Thomson	17	Captain L.F. Jenkins
22	Captain C.J. Venter	17	Captain M.A. Nounhouse
21	Captain P.J. Clayson	17	Captain Edwin Swale
21	Captain R.P. Minifie	16	Captain O.M. Baldwin
21	Captain G.E. Thompson	16	Captain W. Gillette
20	Captain D.J. Bell	16	Captain C.R.R. Hickey
20	Captain T.S. Harrison	16	Captain H.T. Mellings
20	Captain W.L. Harrison	16	Captain T.P. Middleton
20	Captain E.C. Johnston	16	Lieutenant S.A. Oades
20	Captain C.F. King	16	Major S.F Oxspring
20	Flight Sub-Lieutenant J.J. Malone	16	Major S.F. Pender
20	Captain I.D.R. McDonald	16	Captain B. Roxburgh-Smith
20	Lieutenant C.M. MacEwen	15	Captain P.C. Carpenter
20	Major G.W. Murlis-Green	15	Captain M.H. Findley
20	Major K.R. Park	15	Captain R.A. Grosvenor
20	Captain D.A. Stewart	15	Lieutenant H.B. Richardson
19	Captain W. Beaver	15	Captain J.H.Tudhope
19	Captain H.B. Bell-Irving	15	Captain W.A. Tyrrel
19	Captain W. MacLanachan	15	Lieutenant C.T. Warman
19	Major S.M. Miles	14	Captain M. Galbraith
19	Captain H.W.L. Saunders	14	Captain G.E. Gibbs

14	Captain S.W. Highwood	12	Major J.T. Whittaker
14	Captain F. Libby	12	Captain P.Wilson
14	Major N.F.K. McEwan	11	Captain S. Carlin
14	Captain R.T. Mark	11	Captain R.E. Dodds
13	Captain C.P. Brown	11	Captain G.B. Gates
13	Captain R.A. Delhaye	11	Captain H.A. Hamersley
13	J.H. Hedley	11	Lieutenant P.T. Iaccaci
13	Captain A.G. Jones-Williams	11	Captain S.C. Joseph
13	Lieutenant C.H.R. Lagesse	11	Captain A.C. Kiddie
13	Lieutenant N.W.R. Mawle	11	Captain K.M. St. C.G. Leaske
13	Captain G.P. Olley	11	Captain C.N. Lowe
13	Captain H.G. Reeves	11	Lieutenant A.McCudden
13	Captain C.G. Ross	11	Lieutenant R.W.McKenzie
13	Lieutenant-Colonel A.J.L. Scott	11	Captain N.McMillan
13	Captain F.R. Smith	11	Lieutenant A.J. Morgan
13	Captain O.H.D. Vickers	11	Captain W.R.G Pearson
12	Lieutenant L.B. Bennit	11	Lieutenant A.E. Reed
12	Captain A.R. Brown	11	Captain W.W. Rogers
12	Captain R.W. Chappell	11	Captain M.D.C. Scott
12	Captain E.S. Coler	11	Lieutenant J.E. Sharman
12	Captain C.M. Crowe	11	Captain S.F.H. Thompson
12	Major C. Draper	10	Major B.E. Baker
12	Captain H.F.S. Drewitt	10	Captain G.B.A. Baker
12	Lieutenant Alan Gerrard	10	Captain C.C. Banks
12	Lieutenant F.D. Gillete	10	Captain A.J. Boswell
12	Major P. Huskinson	10	Lieutenant G.L. Graham
12	Captain H.P. Lale	10	Captain E.T. Hayne
12	Lieutenant M.E. Mealing	10	Lieutenant T.S. Horry
12	Lieutenant K.B. Montgomery	10	Captain W.H. Hubbard
12	Lieutenant-Colonel R.H. Mulock	10	Captain V. Kearley
12	Major R.C. Phillips	10	Captain D.V. MacGregor
12	Captain L.H. Rochford	10	Lieutenant R.M. Makepeach
12	Captain W.A. Southey	10	Lieutenant R.F.S. Maudit
12	Lieutenant L.T.E. Taplin	10	Captain J.W. Pinder
12	Lieutenant F.D. Travers	10	Lieutenant H.B. Redler
12	Captain N.W.W. Webb	10	Lieutenant L.L. Richardson

10	Lieutenant T. Rose
10	Captain J. Scott
10	Captain S.P. Smith
10	Captain A.T.B. Tonks
10	Lieutenant K.R. Unger
10	Major G.M. Vaucour
10	Lieutenant H.G. Watson
10	Lieutenant W.L. Wells
10	Major W.E. Young

AMERICAN ACES

Score	Pilot and Rank
26	Captain E.V. Rickenbacker
21	Second Lieutenant Frank Luke. Jr.
17	Major Raoul Lufbery
13	1/Lt. George A. Vaughn, Jr.
12	Captain Field E. Kindley
12	First Lieutenant David E. Putnam
12	Captain Elliot W. Springs
10	Major Reed G. Landis
10	Captain Jacques Michael Swaab

BELGIAN ACES

Score	Pilot and Rank
37	Second Lieutenant W. Coppens
11	Adjudant A. De Meulemeester
10	Second Lieutenant E. Thieffry

ITALIAN ACES

Score	Pilot and Rank
34	Maggiore Francesco Baracca
26	Tenente Silvio Scaroni
24	Tenente-Colonnello Ruggiero Piccio
21	Tenente Flavia Torello Baracchini
20	Capitano Fulco Ruffo di Calabria
17	Sergente Marziale Cerutti
17	Tenente Ferruccio Ranza
12	Tenente Luigi Olivari
11	Tenente Giovanni Ancillotto
11	Sergente Antonio Reali

RUSSIAN ACES

Score	Pilot and Rank
17	Staff-Captain A.A. Kazakov
15	Captain P.V. d'Argueeff
13	Lieutenant-Commander A.P. Seversky
12	Lieutenant I.W. Smirnoff
11	Lieutenant M. Safonov
11	Captain B. Sergievsky
11	Ensign E.M. Tomson

FRENCH ACES

Score	Pilot and Rank
75	Capitaine Rene Paul Fonck
54	Capitaine Georges M.L.J. Guynemer
45	Lieutenant Charles E.J.M. Nungesser
41	Capitaine Georges F. Madon
35	Lieutenant Maurice Boyau
34	Lieutenant Michel Coiffard
28	Lieutenant Jean P.L. Bourjade
27	Capitaine Armand Pinsard
23	Sous-Lieutenant Rene Dorme
23	Lieutenant Gabriel Guerin
23	Sous-Lieutenant Claude M. Haegelen
22	Sous-Lieutenant Pierre Marinovitch
21	Capitaine Alfred Heurtaux
20	Capitaine Albert Deullin
19	Capitaine Henri J.H. de Slade
19	Lieutenant Jacques L. Ehrlich
18	Lieutenant Bernard de Romanet

16	Lieutenant Jean Chaput
15	Capitaine Armand O. de Turenne
15	Capitaine Paul V. d'Argueeff
15	Lieutenant Gilbert Stardier
14	Lieutenant Marc Ambrogi
13	Sous-Lieutenant Omer Demeuldre
13	Lieutenant Hector Garaud
13	Lieutenant Marcel Nogues
12	Sous-Lieutenant Bernard Artigau
12	Lieutenant Jean H. Casale
12	Sous-Lieutenant Gustave Daladier
12	Capitaine Xavier de Sevin
12	Sous-Lieutenant Fernand Guvou
12	Lieutenant Marcel Hugues
12	Sous-Lieutenant Lucien Jailler
12	Capitaine Jacques Leps
12	Sous-Lieutenant Jean M.D. Navarre
12	Lieutenant Paul A.P. Tarascon
11	Adjutant Armand Berthelot
11	Sous-Lieutenant Jean Bouyer
11	Lieutenant Benjamen Bozon-Verduraz
11	Sous-Lieutenant William Herisson
11	Adjutant Maxime Lenoir
11	Sous-Lieutenant Ernest Maunoury
11	Adjutant Rene Montrion
11	Sous-Lieutenant Leon Nuville
11	Lieutenant Jacques Georges Ortoli
10	Adjutant Maurice Bizot
10	Adjutant Andre Chainat
10	Adjutant Marcel Gasser
10	Sous-Lieutenant Andre R. Herbelin
10	Capitaine Auguste Lahoulle
10	Adjutant Charles Mace
10	Adjutant Jean Pezon
10	Sous-Lieutenant Charles Quette
10	Sous-Lieutenant Robert Waddington

GERMAN ACES

Score	Pilot and Rank
80	Rittm. Manfred Frhr. V. Richehofen
62	Oberleutnant Ernst Udet
53	Oberleutnant Erich Loewenhardt
48	Leutnant Werner Voss
45	Leutnant Fritz Rumey
44	Hauptmann Rudolph Berthold
43	Leutnant Paul Baumer
41	Leutnant Josef Jacobs
41	Hauptmann Bruno Loerzer
40	Hauptmann Oswald Boelcke
40	Leutnant Franz Buchner
40	Oblt. Lothar Frhr. V. Richthofen
39	Leutnant Karl Menckhoff
39	Leutnant Heinrich Gontermann
36	Leutnant Max Muller
35	Leutnant Julius Buckler
35	Leutnant Gustav Dorr
35	Hpt. Eduard Ritter von Schleich
34	Leutnant Josef Veltjens
33	Leutnant Otto Koennecke
33	Oberleutnant Kurt Wolff
33	Leutnant Heinrich Bongartz
32	Leutnant Theo Osterkamp
32	Leutnant Emil Thuy
31	Leutnant Paul Billik
31	Rittmeister Karl Bolle
31	Ober. Gotthard Sachsenberg
30	Leutnant Karl Allmenroder
30	Leutnant Karl Degelow
30	Leutnant Heinrich Kroll
30	Leutnant Josef Mai
30	Leutnant Ulrich Neckel
30	Leutnant Karl Schaefer
29	Leutnant Hermann Frommerz

28	Leutnant Walter von Bulow	20	Hauptmann Wilhelm Reinhard
28	Leutnant Walter Blume	19	Vizefeldwebel Gerhard Fieseler
28	Oblt. Fritz Ritter von Roth	19	Leutnant Wilhelm Frankl
27	Oberleutnant Fritz Bernert	19	Leutnant Otto Kissenberth
27	Vizefeldwebel Otto Fruhner	19	Oberleutnant Otto Schmidt
27	Leutnant Hans Kirschstein	18	Leutnant Hartmuth Baldamus
27	Leutnant Karl Thom	18	Leutnant Franz Hemer
27	Hpt. Adolf Ritter von Tutschek	18	Vizefeldwebel Oskar Hennrich
27	Leutnant Kurt Wusthoff	18	Leutnant Kurt Wintgens
26	Oberleutnant Harald Auffahrt	17	Leutnant Walter Boning
26	Oblt. Oscar Frhr. von Boenigk	17	Leutnant Ernst Hess
26	Oberleutnant Eduard Dostler	17	Leutnant Franz Ray
26	Leutnant Arthur Laumann	17	Leutnant Hans Rolfes
25	Lt. O. Frhr. von B.-Marconnay	17	Vfw. Josef Schwendemann
25	Oblt. Robert Ritter von Greim	16	Leutnant Hans Boehning
25	Leutnant Georg von Hantelmann	16	Leutnant Hans von Freden
25	Leutnant Max Nather	16	Leutnant Ludwig Hanstein
25	Leutnant Fritz Putter	16	Leutnant Rudolf Klimke
24	Leutnant Erwin Bohme	16	Leutnant Karl Odebrett
23	Leutnant Hermann Becker	16	Leutnant Hans Weiss
23	Leutnant Georg Meyer	15	Leutnant Albert Dossenbach
22	Oberleutnant Hermann Goring	15	Vfw. Christian Donhauser
22	Leutnant Hans Klein	15	Vizefeldwebel Albert Haussmann
22	Leutnant Hans Pippart	15	Leutnant Aloys Heldmann
22	Leutnant Werner Preuss	15	Oberleutnant Max Immelmann
22	Vizefeldwebel Karl Schlegel	15	Leutnant Johannes Klein
22	Leutnant Rudolph Windisch	15	Leutnant Otto Loffler
21	Leutnant Hans Adam	15	Leutnant Victor von Pressentin
21	Oblt. Friedrich Christiansen	15	Leutnant Theodor Quandt
21	Leutnant Fritz Friedrichs	15	Leutnant Julius Schmidt
21	Leutnant Fritz Hohn	15	Leutnant Kurt Schneider
20	Vizefeldwebel Friedrich Altemeir	14	Leutnant Ernst Bormann
20	Oberleutnant Hans Bethge	14	Vizefeldwebel Rudolf Francke
20	Leutnant Rudolph von Eschwege	14	Offz. Stellv. Edmund Nathanael
20	Leutnant Walter Goettsch	14	Leutnant Franz Piechurek
20	Leutnant Friedrich Noltenius	14	Leutnant Karl Plauth

14	Vizefeldwebel Wilhelm Seitz	11	Leutnant Hans von Keudell
14	Vizefeldwebel Emil Schape	11	Leutnant Alfred Lindenberger
14	Leutnant George Schlenker	11	Leutnant Fritz Loerzer
14	Leutnant Paul Straehle	11	Leutnant Hermann Pfeiffer
14	Leutnant Rudolf Wendelmuth	11	Leutnant Hugo Schaefer
13	Vizefeldwebel Karl Bohnenkamp	11	Leutnant Renatus Theiller
13	Hpt. Hans Joachim Buddecke	10	Offizier Stellvertreter Paul Aue
13	Leutnant Siegfried Buttner	10	Vizefeldwebel Dietrich Averes
13	Leutnant Heinrich Geigl	10	Oberleutnant Hans Berr
13	Vizefeldwebel Robert Heibert	10	Leutnant Franz Brandt
13	Vizefeldwebel Reinhold Jorke	10	Vizefeldwebel Fritz Classen
13	Leutnant Johann Janzen	10	Leutnant Martin Dehmisch
13	Vizefeldwebel Christel Mesch	10	Leutnant Wilhelm Frickart
13	Vizefeldwebel Otto Rosenfeld	10	Leutnant Justus Grassman
13	Oberleutnant Kurt Schoenfelder	10	Leutnant Max Mulzer
13	Oblt. Erich Rudiger von Wedel	10	Leutnant Rudolf Matthaei
12	Vizefeldwebel Erich Buder	10	Vizefeldwebel Alfons Nagler
12	Leutnant Diether Collin	10	Leutnant Wilhelm Neuenhofen
12	Oberleutnant Theodor Cammann	10	Oberleutnant Hans Schuez
12	Vizefeldwebel Gottfried Ehmann	10	Leutnant Werner Steinhauser
12	Offz. Stellv. Otto Esswein	10	Leutnant Paul Turck
12	Vizefeldwebel Sebastian Festner	10	Leutnant Erich Thomas
12	Leutnant Walter Hohndorf	10	Offz. Stellv. Bernhard Ultsch
12	Vizefeldwebel Max Kuhn	10	Leutnant Paul Wenzel
12	Leutnant Hans Mueller	10	Leutnant Joachim Wolff
12	Vfw. Friedrich Manschott		
12	Oberleutnant Franz Schleiff		
12	Leutnant Richard Wenzl		
11	Leutnant Heinrich Arntzen		
11	Leutnant Joachim von Busse		
11	Lt. Raven Frhr. von Barnekow		
11	Oberleutnant Kurt von Doering		
11	Leutnant Xaver Dannhuber		
11	Leutnant Heinz Dreckmann		
11	Vizefeldwebel Willi Gabriel		
11	Oberleutnant Stephan Kirmaier		

AUSTRIAN-HUNGARIAN ACES

Score	Pilot and Rank
40	Hauptmann Godwin Brumowski
32	Offizierstellvertreter Julius Arigi
30	Oberleutnant Frank Linke-Crawford
29	Oblt. Benno Fiala Ritter von Fernbrugg
19	Leutnant Josef Kiss
16	Leutnant Franz Graser

15	Stabsfeldwebel Stefan Fejes
15	Feldwebel Eugen Bonsch
14	Offizierstellvertreter Kurt Gruber
14	Oberleutnant Ernst Strohschneider
12	Hauptmann Raoul Stojsavljevic
10	Leutnant Franz Rudorfer
10	Hauptmann Adolf Heyrowsky
10	Oberleutnant Friedrich Navratil
10	Hauptmann Josef von Meir

This list of aces includes only those who scored ten or more victories.

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MICRO PROSE™
SIMULATION • SOFTWARE

Unit 1, Hampton Road Industrial Estate, Tetbury, Glos GL8 8LD. U.K.
Tel: 0666 504326.
Printed in the U.K.

The Ancient Art of War in the Skies

The ~~Ultimate~~ Fun World War I Strategy & Action Game™

TECHNICAL SUPPLEMENT
FOR ATARI ST COMPUTERS

CONTENTS

Your *Ancient Art of War in the Skies* package should contain a manual, this Technical Supplement, a set of Atari ST 3.5" disks and a registration card.

REQUIRED EQUIPMENT

• COMPUTER

This simulation requires an Atari ST with at least 1 Mb. of RAM.

• CONTROLS

Ancient Art of War in the Skies can be run from the keyboard, mouse or joystick. The mouse is recommended during menu selection.

• DISPLAY

Ancient Art of War in the Skies requires a colour display.

• DISK DRIVES

Ancient Art of War in the Skies can be played from a double-sided (1 Mb.) disk drive but works best if installed on a hard disk.

INSTALLATION ON FLOPPY DISKS

• WRITE PROTECT

Check that all disks are write protected (the hole is visible in the top right-hand corner of the disk) if they are not, then flip across the small tab on each disk. This will protect your original disks from accidental erasure.

• BACKUP DISKS

It is recommended that you copy the disks supplied in the package and keep the originals in a safe place. Copies are for your personal use only. See the copyright notice at the end of this document. For details on disk copying please refer to your Atari ST computer manual.

• SAVE GAME DISK

If you are running from floppy disks, you are advised to have a blank formatted disk ready as your Save Game Disk.

INSTALLATION ON HARD DISK

• Boot up your hard disk as normal and insert the first *Ancient Art of War in the Skies* Disk (containing INSTALL.PRG).

• Open this disk and double-click on the Install icon.

• Click on the Start button to begin Installation.

• Please follow any on-screen prompts.

A drawer will be created on your hard disk containing all

necessary files. When the installation is complete you will see an Alert Box. Select OK and you will be returned to the Desktop.

LOADING FROM THE FLOPPY DISKS

• Turn off your computer and remove all unnecessary peripherals.

• Insert your *Ancient Art of War in the Skies* Disk 1 into your double-sided drive and switch on the computer. Double-click on the SKIES.PRG icon.

• Please follow any on-screen prompts.

Note for single-sided internal drive owners with external double-sided drive fitted.

When the machine is first switched on, or reset, you must select the directory on the external drive and double-click on SKIES.PRG.

LOADING FROM YOUR HARD DISK

Boot up your hard disk as normal. Open the folder selected with the Install Program and double-click on the game icon.

SAVED GAMES

If running from a floppy then the computer will prompt you for the Save Game Disk to be put in the disk drive.

LOADING A SAVED GAME

Saved games can be loaded as a pre-game option. To load a saved game, choose the option from the Clipboard Menu when you start the simulation. If you are running from a floppy you will be asked to put the Save Game Disk in the disk drive.

COPY PROTECTION

The Ancient Art of War in the Skies has no disk copy protection. However, the program asks you a manual-related question. Use the manual to answer the question. MicroProse regrets that continuing casual and organised software piracy requires that this minimal form of copy protection is retained.

THE READ ME FILE

The latest notes regarding this program, additions, revisions etc can be found in an ASCII file named READ.ME. You can read the file from the Desktop by double-clicking on the icon (further details are found in your computer manual).

OPERATING DIFFICULTIES

In the vast majority of cases a loading problem is not because of faulty software, but either incorrect loading procedure or hardware fault. Please ensure that the loading instructions have been correctly executed. The most common hardware failures are due to a misalignment of the heads in the disk drive. Such faults may be detected by loading the game on another computer.

TECHNICAL ASSISTANCE

If you experience difficulties with the game, you may need some help from us. As we receive many calls every day, we can deal with your enquiry more efficiently if you have the following information available:

1. The correct name of the game
2. The type of computer you are running it on
3. Exact error message reported (if any)
4. The version # of the game

Ring us on 0666 504399, Monday to Friday 0900 to 1700 hours. Have a pen and paper handy when you call. Alternately, you can write to Customer Services at the address shown in this document.

VIRUS

Be aware that a virus may have transferred into your hardware from another piece of software. Pirated copies of games are an incredibly common source of virus problems It always pays to own original software.

SOFTWARE FAULT

In the unlikely event of a software fault please return the complete package, with your receipt, to the place of purchase. MicroProse regret that goods cannot be replaced unless bought from the company directly.

Simulation Enhancements

Additional Information

The Airfield

After starting the game, the opening title sequence will play. When it concludes, you will be at the airfield. To skip the title sequence, press any key and you will go directly to the airfield.

The Airfield can be thought of as the "Main Menu". From here you can access the various parts of the game. If you don't do anything for 30 seconds, the game will begin a self-playing demo. Press any key to exit the demo.

Game Controls

Available commands and options appear on the top line of the screen. To activate a command simply press the first letter of the command or the key it describes.

The Menu and Option screens can be navigated with the following keys:

Arrow Keys (Cursor and Keypad): Select different options.

Enter Key: Activate selected option or the default option which is highlighted in red at the top of the screen.

Esc Key : Close the current clipboard or window and back up.

Ctrl-Q: Exit to Operating System.

Mouse Control

Left button = Enter key.

Right button = Esc key.

Playing a Campaign

If this is your first time through the game, we suggest you try some of the Training missions to learn how to bomb and dogfight before playing a full war campaign. Select Training from the Clipboard and skip ahead to the Dogfight or Bombing description on this card.

For detailed instructions, see Book I of the Training Manual.

If you want to jump right into the thick of things, follow these simple steps to start the game:

1. Load the game (see above).
2. From the Airfield Clipboard, select Go to War.
3. Answer the question on the Roundel.
4. Select a campaign title.
5. Select Begin the Campaign.

6. The campaign begins when you see the overview map with the pictures of your opponents.

Overview of a Campaign

Your primary activity is to send your fighters and bombers, which are stationed at your airfields, on dogfight and bombing missions. When one of your fighter squadrons encounters an enemy squadron you can "zoom in" to a dogfight. When one of your bomber squadrons reaches a designated target, you can "zoom in" and direct the bombing run.

There are three ways to win:

1. Capture/destroy all enemy airfields/aircraft.
2. Capture or destroy any enemy Capital.
3. Force the enemy to surrender.

You capture territory when the battle front (the jagged double line that stretches across the map) advances into enemy territory. You can influence the movement of the front by strategically bombing enemy targets and the front itself.

For more details on game strategy see Book II of the manual, the Planning Guide.

The Marker

You interact with the game at the map level with the Marker. When over Allied territory (the green side) it is a Roundel. When the marker is over Central Powers territory (the red side) it is an Iron Cross. It is used to give instructions to your units and to learn information about enemy forces. The Marker can be moved with the arrow keys, mouse or joystick.

You can send a squad on a mission by moving the Marker to one of your airbases (the Marker will turn into a magnifying glass). Press <ENTER> and follow the instructions at the top of the screen.

There are 9 types of strategic targets that you can bomb. You can identify these targets by moving your Marker over them. If it is a valid target, it will be identified in the window at the top right of the screen. You can also bomb the front.

Map Level Controls

Arrow Keys:	Move Marker
	Scroll map when Marker toggled off.
Enter Key:	Select squad under Marker.
	Select an option.
Esc Key:	Select clipboard with additional options.
	To backup/unselect an option.
Letter Keys:	Activate menu command that starts with that

letter. Example: Press T to change Time.

INS Key: Toggle Marker on and off.
Alt/S: Toggle sound on and off.
Alt/M: Enable mouse or disable mouse.
Ctrl/Q: Exit to Operating System.

MENU AND CLIPBOARD

Some of your available commands appear on the menu bar. Others are on the clipboard. Press the first letter of a menu command or Esc for the clipboard. Not all commands are available at all times.

Time: Adjusts the speed of the game.

Dogfight: When two squads encounter, they will be replaced with a dogfight encounter symbol. Use this command to "Zoom in" and participate in the dogfight. If you wait too long, the dogfight will begin without you.

Bomb: When your bomber squad reaches its target, it will be replaced with a bomb symbol. Use this command to "Zoom in" and participate in a bombing run. If you wait too long, the bombers will begin without you.

Squad Info: Lets you change the Flight Plan or path of your airborne squads.

Overview Map (Alt/O): Shows a miniature view of the map.

Look at Campaign Rules: Shows you the rules settings for current campaign.

Show All Flight Paths: Displays the flight paths of all your squads that are in the air.

Save Campaign (Alt/D): Saves your game to disk.

Restart Campaign: This lets you begin the campaign over.

Display Help Window (Alt/H): This lets you see the Help Window.

Mission: This command lets you select a squadron and send it on a mission.

Surrender: Quit the campaign.

MISSIONS

1. To send a squadron of planes on a mission, move the Marker over one of your airfields that has planes on it and select Mission.
2. Assemble a squadron by selecting up to three fighter pilots and up to three bombers.
3. Change the squadron's Flight Settings by adjusting the following parameters: Altitude, Speed, Formation or Orders.
4. Select "Done" when finished with flight settings.

5. Assign a flight path to your squadron by marking vector points. When your squad reaches the end of its path it will retrace its path. If its last vector point is a friendly airfield, it will land there.

DOGFIGHT

When you "Zoom in" to a dogfight, you will be able to control fighters in close combat. Please see the "Flying a Fighter" chapter in the manual for more details.

FLIGHT CONTROLS (NUMERIC KEYPAD):

Direction:

	climb left	nose up	climb right	
	7	8	9	
level flight left	4			6 level flight right
	1	2	3	
	dive left	nose down	dive right	

Other Fighter Control Keys:

INS Key	half roll.
Space Bar	fire machine gun.
Keyboard Plus +	More Throttle.
Keyboard Minus –	Less Throttle.

SPECIAL COMMANDS

All special commands are shown in the box at the lower right corner of the screen. The commands available will change depending on the situation. Press the first letter of the command to use it.

View: Press <V> to alternate between Near View and Far View.

New Plane: Press <N> to control another friendly fighter. The fighter you are controlling is the one with the puffs of white smoke.

Pause: Press <P> to pause the game. Press any key to continue.

Rules: Press <R> to adjust the settings for the dogfight. Press <S> if you want to save them permanently. See the chapter "Flying a Fighter" in the Manual.

Leave: Press <L> to leave the dogfight and return to the map level. The dogfight will continue without you.

Escape: If the dogfight is not going well for you, press <E> and your planes will try to escape from their opponents. Bombers can not escape.

Bomber Gunner Controls

Up Arrow	Aim gun up
Down Arrow	Aim gun down
Space Bar	Fire gun.
New Post:	Press <N> to alternate between the front and rear gunner position on your bomber.

BOMBING RUN

When you zoom in to a bombing encounter, you can direct the bombing run for your squad. Please see the "Flying a Bomber" chapter in the manual for more details.

Bombing Run

1. Select a Bomber: If you have more than one bomber in the squad you can select which one to use.
2. Select an Approach: The Recon Photo shows you the bombing area. The blue circles are your assigned targets. The red X's mark the anti aircraft guns that you should avoid if possible. You can enter the bombing area from any side. Follow the instructions at the top of the screen to move the bomber to where you want it to enter the bombing area and press <ENTER>.

3. Flying Your Bomber: To change the direction your bomber is flying, use the Arrow Keys.

NW	N	NE	
7	8	9	
W 4		6	E
1	2	3	
SW	S	SE	

Other Bomber Control Keys

Space Bar: Drop a Bomb.

Enter: Look at Recon Photo. Press any key to continue

P: Pause. Press any key to continue.

Your bombs will fall from the side of the opening by the small red pointer. The gauge at the right side of the screen shows the number of bombs remaining (25 maximum).

Remember, this has been a quick overview. For more detailed information, see Book I and II of the manual

CREDITS

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