

PC CD-ROM

 **paradox**
INTERACTIVE

A HEARTS OF IRON GAME



**ARSENAL OF
DEMOCRACY**

Introduction

Welcome to the *Arsenal of Democracy: A Hearts of Iron Game Manual*. This manual uses the original Hearts of Iron manual as its starting point and I wish to credit and thank the original (unknown) author. I have tried in a short amount of time to collate the vast amount of changes incorporated into this new game. I thank the developers for their misplaced trust and confidence in me. Any corrections, errata, and updates to this manual may be included with subsequent game updates and/or posted in the Forums. Any mistakes are mine alone. Clifford Andersen

Arsenal of Democracy is a new standalone game based on Paradox Entertainment's award-winning *Hearts of Iron II*, where you will guide your nation to glorious victory (or ignominious defeat) in the World War II era. Developed by BL-Logic, a development studio made up by fans of the Hearts of Iron series and active members of the modding community. Arsenal of Democracy is the ultimate World War II simulation and is described by Project Leader Lennart Berg as "Hearts of Iron II on steroids!"

With several Grand Campaigns, numerous Battle Scenarios, multiplayer capability, and your choice of the more than 70 playable countries that spanned the globe at the time, Arsenal of Democracy will give you hour upon hour of challenge and entertainment.

This is a highly complex grand strategy game, not a historical simulation or FPS. With AoD's nearly limitless options and exceptional depth comes a comparable learning curve. It may take some time to become familiar with its richness and its multitude of controls, so don't be surprised if your first few campaigns end in disaster. There is no "right" or "wrong" way to play AoD, and no sure way to win. You'll probably find that the lessons you learn in your early defeats will be just as valuable as any that you later gain through victory. Use those experiences and don't be afraid to experiment or save the game and then try a variety of alternatives.

While the manual will familiarize you with most of the ins and outs of Arsenal of Democracy, the most valuable resource of all is the Paradox public forums. You can usually get the answer to any question you might have about the game in a matter of hours (if not minutes), It's also a place where tips and strategies are exchanged, where people from around the world will arrange multiplayer games, where you can read about others' AoD experiences (or post your own), and where new battle scenarios and user game modifications will often be developed. This is also where you'll find Paradox's latest post-release enhancements available for download and a large number of FAQ's and other resources.

Installation Procedure

Arsenal of Democracy is a digital download only game. Go to your favorite online game store, register/login, purchase and download. If possible make a copy of the file as backup.

Double click on the installer to start the installation install. Simply follow the on-screen dialogs to install the game.

System Requirements

To play Arsenal of Democracy you will need to meet the following minimum requirements:
Pentium III 800MHz, Windows® 98/ME/2000/XP and Vista/Windows Seven x86/x64, 128Mb to 2Gb RAM (depending on your operating system requirements), 900Mb free hard drive space, 4Mb video card DirectX compatible (8Mb or more recommended); DirectX compatible sound card, DirectX 9.0 or higher.

Keeping Up To Date

Paradox is deeply committed to its customers and in my experience their product support is almost unparalleled in the gaming industry. The developers read (and frequently participate in) the discussions on the public forums and will often implement some of the best player-requested features or enhancements post release. They also make minor tweaks or alterations to existing features and squish the occasional bug that had previously escaped detection. Game updates and other information are announced first in the on-line Forum at www.paradoxplaza.com under the Arsenal of Democracy heading.

Launching the Game

Click Start> Program Files> Paradox Entertainment> Arsenal of Democracy> Arsenal to launch Arsenal of Democracy. This will open a launcher applet that displays news and information. It also allows you you register the game, check for updates, select a mod to play, and start the game. The opening movie for AoD (and most Paradox titles for that matter) tends to launch a little more slowly than some games because Paradox leaves a large number of files in simple text format to make them easily modifiable by users who might want to tweak unit values, write their own events, or even construct new battle scenarios on their own. This gives the game immense flexibility, but it also means that those files must be compiled when the game loads.

Note: you may experience some issues if the Bink Player (a small program used to play the opening movie) does not correctly release resources on your system when it finishes playing the opening movie. If you suspect that you are experiencing this problem you can easily resolve it by going to the main folder where you installed AoD and renaming the avi folder to avi_old. This will disable the opening movie and take you directly to the Main Menu on launch.

Registration

Why you should register: when you register the game you are allowed full access to the Tech Support, Bug Reports, Multiplayer and User modifications sub-forums Registration is also required to install updates!

Getting Started

For Beginning Players

If you're new to Arsenal of Democracy and Paradox games I would recommend that you begin by reading the Game Manual section: Key Concepts, and then work your way through the tutorial scenarios. These will introduce you to the most important parts of the interface and get you up and running fairly quickly, though they focus mostly on "how" to do something, not "why". Once you're more comfortable and have done a bit of your own experimentation you'll probably want to come back to the other sections where you will find detailed descriptions of all the controls and some of the underlying strategies and tips.

My best advice would be a mixture of "don't panic" and "be patient". AoD can seem a bit intimidating and complex at first, but once you've played it for a little while you'll find that most aspects of it are quite intuitive. Remember that a full grand campaign game is quite long and that if you rush headlong into battle without preparing for it, you're likely to be just about as successful as you would be if you tried to do it in real life. If you can't find the answer to a question you have in the manual, don't forget that you can probably get one almost immediately on (yep, you guessed it...) the Paradox public forums.

For HoI Players... What's New?

If you're a Hearts of Iron vet, then you'll find that AoD builds upon the best aspects of the HoI engine, adds several important new features, incorporates a few big game-play changes, and has undergone some pretty significant interface changes. You may want to simply dive in and explore, but I'd recommend that at a minimum you read the Key Concepts section (and glancing or reading through the entire manual really wouldn't be such a bad idea).

The complete "what's new" list is far too long to present here, but major changes include increased resolution and windowed mode freely selectable, a totally reworked combat mechanic, new missions with realistic combat behavior and losses, several new technologies, a new espionage interface and reworked espionage system, one of the most detailed economy and production systems found in any Hearts of Iron game, a realistic logistics system, everything is moddable, the AI is reworked and now poses a genuine threat - even to experienced players, four new battle scenarios... and much, much, more!

Getting Connected

One of the greatest features of this game is the ability to connect and play with up to nine other players. Paradox Interactive continues to show its community focus by bringing multiplayer and matchmaking support to its games via GameRanger, the longest-running multiplayer on-line gaming service that offers free support for more than 600 games on PC and Mac.

You will need either a fast Internet connection

(DSL/Cable with TCP/IP protocol installed) or a connection to a Local Area Network (LAN) to play AoD in multiplayer mode.

LAN: This connection is established automatically by searching for any hosted games on your LAN. Either click "host" or select a detected game and click "join".

GameRanger: This technology allows players of AoD and other games to easily connect and interact with each other in a friendly environment without the network problems usually associated with multiplayer games.

Valkyrienet: This is a service provided at no charge by Paradox as both a meeting place for players and a connection handler to make it easier to host or join games. AoD also allows the host to set a password that guests must enter to be able to join private games.

Internet: You will need to enter the IP address of the host computer in order to join an Internet game. This can change each time the host connects to the Internet if it is not a permanent connection. If you are hosting a game you can determine your IP address by establishing an Internet connection and then chose Run from your computer's Start menu.

If you are using Win98 or WinME type winipcfg and then click OK and make a note of the IP Address and then communicate it to your guests (via email, IRC or other means).

If you are using Win2000 or WinXP type cmd and then click OK. In the new window that appears type ipconfig. Make a note of the IP address displayed and then communicate it to your guests.

Routers and Firewalls

It is common for computers to be "behind" routers or be protected by firewalls.

Firewalls: multiplayer games use UDP port 7768 port for communication. This port need to be forwarded to to host or join a game. Note that this will result in limited exposure to malicious Internet users and that you do so at your own risk.

Routers: since there are many different routers on the market, each with unique software controls, please consult your user manual for details. You will also need to have a network client installed in Windows networking. If you're having trouble, ask for help in the AoD Multiplayer sub-forum on Paradox's website.

Internet Resources

Paradox Forums

<http://forum.paradoxplaza.com/forum/>

Arsenal of Democracy Forums

<http://forum.paradoxplaza.com/forum/forumdisplay.php?f=462>

GameRanger

<http://www.GameRanger.com>

Key Concepts

Arsenal of Democracy is a game of considerable complexity. It is vital to understand that virtually every aspect of the game is interconnected. It can (and will) take time to learn how each of the game elements interacts with each other, and to gain a good degree of control over the nation you are playing. The goal of this section is to give you a broad overview of the major components of AoD and to give you an introduction to its key concepts before moving on to the subsequent sections that detail each feature and interface in turn.

Arsenal of Democracy while based on the Hearts of Iron II game, so many new features and additions have been incorporated, that it is truly a new game.

The Second World War, indeed almost every war fought throughout history, was not purely a matter of pitting man against man on the field of battle - nor is AoD merely a large digital battlefield. Simply fielding a larger army than your enemy will not ensure victory, and neglecting the "engine of war", your economy, can be perilous for your chances of survival. It is vital, then, to ensure that your nation has the necessary economic infrastructure and political wherewithal to stand against your enemies if attacked, or to support any aggressive moves you might wish to make.

A huge army might seem invincible at first glance, but it can easily succumb to a seemingly weaker force that is equipped with more modern weapons, is in better supply, or is superbly trained and led. Elite forces can tip the balance in a conflict, as can employing a strategy that uses terrain or weather to your advantage. Your ability to coordinate every element of your armed forces to bring them to bear against your enemy will also greatly increase your chances of winning. Armies may be held in reserve or support other actions, air forces may be used to soften up an enemy's defenses, disrupt his troops' organization, hamper his supply, or even gut his industry, and navies can actively patrol enemy waters to embargo the import of much needed resources or even bombard and invade his shores.

Victory

The ultimate goal of Arsenal of Democracy is to guide your nation to victory. For those who play a conventional game, there are a number of provinces located around the globe that have a victory point value, and there are the three main political factions: the Axis, the Allies, and the Comintern.

Each campaign game has a predetermined end date - usually December 30th, 1947, and the victor is the faction which controls the highest point total of these provinces when the scenario ends. The shorter battle scenarios may have somewhat different victory conditions.

Although this is the only measure of victory recognized by the game, you might wish to consider alternate "personal achievement" criteria if you choose to play a "doomed" nation, or a country that is not a member of one of the factions and remains aloof. If you are

participating in a multiplayer game where it is likely that there will be more than one player on the victorious side you may want to establish some "house rules" about victory too, the choice is yours.

The Engine of War

While AoD is undeniably a game that focuses on war, it is not exclusively about war. Conflict is costly, very costly, and can involve immense expenditures in resources and lives before a victor is declared. The engine that propels a nation through war and ultimately leads to its success or failure is its capacity for industrial production; and it is frequently for economic or geopolitical reasons that wars are waged, and often won and lost, in the first place.

Natural Resources

If your economy is the engine that will propel you through war, then natural resources are the fuel that powers the engine. Although there were hundreds of resources that played a key role historically, AoD distills them into four distinct categories: energy, rare materials, metal, and oil. Energy, metal and rare materials are used on a daily basis by your factories to provide you with industrial capacity (see below), while oil is consumed by many of your armed forces (the navy, air force, and motorized parts of the army) to remain operational.

Natural resources are drawn from provinces throughout the world that are under your nation's control, or you may acquire them via trade or direct cash purchases from other nations if you lack territories where they occur naturally. Any excesses you have may be stockpiled, or sold or traded to other nations who are in need. If you lack any of these, then your economy and your military will grind to a halt, most likely dooming your nation to failure.

Industrial Capacity

To continue our analogy, industrial capacity (abbreviated throughout as "IC") is the engine that drives your nation's economy. This represents your overall ability to manufacture goods and is determined by the number of factories that you have operating in your nation. The more factories you have, the greater your potential industrial capacity. Your IC should be thought of as an ability and not as a thing. You can't store IC's in the way that can stockpile natural resources. You can only use them, up to your daily capacity, to manufacture products.

Factories require natural resources in order to operate. In AoD, this is abstracted such that each factory withdraws energy, metal and rare materials from your stockpiles each day in order to run at full capacity and generate IC. If resources are plentiful, then your factories will generate their full potential IC. If you run short of a necessary resource, then some of your factories will begin to shut down until you can find a new supply - usually through purchase or trade... or, of course, through conquest. Running out of a resource altogether is almost certain to doom your nation unless you can resolve the situation quite rapidly, so you may wish to consider

controlling your rate of resource consumption by artificially capping your production during plentiful periods. Shortages of fuel, however, may be alleviated by converting some of your energy stockpile into oil, but this is a very inefficient process unless you have researched advanced technologies to improve the conversion rate.

IC Allocation, Production and Gearing Bonuses

Resources are consumed by factories to generate the IC you require to manufacture the various things that you will need in the game. You will often lack sufficient capacity to do everything you want to, so you must decide how to carefully allocate whatever amount you have. IC is used by the assembly lines that manufacture your tanks, warships and airplanes. It produces the ammunition and supplies needed to equip and maintain your troops. It is also used to upgrade your existing armies and to make the various consumer goods needed to keep your population happy. A country that lacks sufficient IC will soon find its forces in disarray and its population in revolt. A country with surplus IC can convert this into cash which you can use to fund research, purchase natural resources, or to conduct certain other types of foreign diplomacy... or to stockpile supplies and prepare for war. Excess IC can also be left voluntarily unused, which conserves natural resources that might be required in the future.

A steady flow of resources and a healthy complement of factories will be vital to your success, but, as you'd expect, this may not be quite so simple to achieve as you might like. Some resources may have to be imported from your distant territorial holdings or obtained through trade with other countries, Imports will be at risk of loss if your enemy conquers your source or actively engages in blockade and embargo activities. Further, your industry may be subjected to a bombing campaign if you lack control of the skies, resulting in the destruction of factories and a drop in available capacity.

An additional consideration when deciding how to allocate IC will be whether to take advantage of a possible gearing bonus. This reflects the efficiencies of scale that are achieved through the production of many Identical items over a longer period of time, but It lacks some of the flexibility and easy modernization of a more generalized approach to manufacturing.

Infrastructure

Without the necessary infrastructure, roads and railways, it is difficult to efficiently move men and equipment throughout your nation. Factories may only be built in provinces that have enough existing infrastructure to deliver the necessary raw resources and then to transport the finished goods away from them; and the construction rates for some provincial assets are greatly accelerated by higher levels of infrastructure. Your armed forces will require these same assets to assist their movement and efficiently bring supplies and fuel from regional depots to the forces on the front lines. If you have insufficient infrastructure, or it is reduced by enemy bombing campaigns, then your troops will slow to a crawl and run

short of supplies, which will greatly reduce your combat capabilities and increase your rate of attrition (loss of troops and equipment due to illness, mechanical breakdowns, etc.).

Domestic Policies and Government

While AoD places you in supreme command, it would be impossible for you to govern every single aspect of your country. Instead, each nation has a set of domestic policies that determine what type of government is in place, what its trade practices might be, what type of army it will field, and how large a say the government permits its population in its affairs. Democracies, in particular, have strict limitations on the diplomatic actions they may take without provocation.

Domestic policies have numerous effects in the game, the most prominent of these being that they determine who will govern your nation and who will serve on your "cabinet" to attend to the myriad of little details that need taking care of on a day-to-day basis. They are not advisors (they don't make suggestions to you as you play) but their individual characteristics will give you bonuses, or penalties, to your actions. Some may be adept at foreign relations, others may provide a boost to your economy, still others may champion military doctrines that will benefit your armed forces in certain ways. Domestic policies also have Individual effects that may affect your Industry, recruitment, public sentiment and foreign interactions.

You will begin the game with a set of domestic policies that reflects your selected nation's historical situation at the time. During play you may periodically make minor adjustments to your policies, which could result in some changes to your government and the people that serve on your cabinet, but you are generally prohibited from making drastic or rapid policy reversals except through a few very special circumstances.

Dissent and Partisans

Depending on your domestic policies, your population may also play a prominent role in determining what actions you may take - even to the point of making it impossible to declare war on a nation unless public opinion is on your side. Policy settings will also influence the public's demand for consumer goods, and failing to meet these demands will have negative consequences by causing dissent - their overall level of happiness, to become worse. Dissent has two significant impacts: it will cause your troops to begin fighting more poorly and it will greatly increase the likelihood of your public rising in open rebellion against you. You can control dissent, reduce it or at least mitigate things somewhat, by allocating a larger share of your IC to the manufacture of consumer goods (though this will reduce your ability to meet the production and supply demands of your military). Providing excesses of consumer goods will reduce dissent, while falling short in this area will cause dissent to increase, You will need to maintain a careful balance between the needs of your military and the happiness of your subjects throughout the game.

Captive populations (the people who live in foreign

provinces that you occupy) will be much less interested in working for you and far more likely to rebel than ones who feel that they naturally belong under your rule. Partisans: nationalists who remain loyal to their former government and oppose your occupation, will reduce a province's industrial capacity and supply efficiency and may also become openly militant if you fail to maintain sufficient forces to keep them under control. An alternative to maintaining rigid military control is to voluntarily grant partisans their freedom, allowing them to form a new nation and establish a government of their own. You will lose the majority of the economic benefits from provinces they are granted, but they will generally be friendly towards you if you allow them their sovereignty; while if they achieve freedom on their own, you will lose all economic benefits and the fledging nation will actively side with your enemies and seek to destroy you.

Diplomacy and Trade

International diplomacy will also be a significant component of your success. There are many diplomatic options available to you, including negotiating one-time exchanges of goods, arranging an open-ended trade agreement, forming alliances or declaring war, and your ability to do any of these will depend on the type of relationship you have with the nation involved. AoD keeps track of evolving international relationships and bases many of its actions, or its willingness to agree to diplomatic proposals, on these. Fortunately, you have some diplomatic options available to you to improve your relationship with other countries, although any hostile actions you make will tend to undermine these efforts. There are other diplomatic alternatives that will change your relationship: non-aggression pacts, guarantees of independence, or more hostile actions such as engineering a coup of a nation or issuing an outright demand for some of its territory that you feel is rightfully yours.

It's rare that a nation can stand alone against the world, so you will probably wish to be part of an alliance. Although limited alliances are possible between almost any two or more nations, AoD considers the three main historical factions to be of paramount importance, the Axis (led by Germany), the Allies (led by the United Kingdom) and the Comintern (led by the Soviet Union). Depending on the actual historical situation, some nations will begin the campaign or scenario already as a member of an alliance, while others will be neutral. As the game progresses, the factions may attempt to influence other nations to join their alliance, or neutral countries may even petition to join an alliance, if they have a good relationship with its members. Alliances may freely move forces and trace supply through the territories of their member nations. They will frequently supply friendly forces and can lend divisions or even entire armies to an ally when the situation warrants that they be under their control. Neutral territories must be respected at all times (movement and the tracing of supply is prohibited), unless you can negotiate military access for your troops with that nation's government.

The other major diplomatic activity you will conduct

is trade. You will probably establish a number of open-ended trade agreements where you and other countries will exchange resources, cash or goods on a daily basis to meet your respective industrial needs. You can also negotiate one-time deals of this nature, or more complex trades that involve the exchange (or purchase) of land or even technological blueprints. You are also able to simply donate resources, land or blueprints to another nation if you wish.

The success or failure of your diplomatic attempts will depend on the domestic policies, cabinets, political leanings and size of the two nations involved. It will also vary with the attractiveness of a proposal and the relationship that exists between them. Not surprisingly, the more harmonious two nations are, the more likely it is that an offer will be accepted and the more balanced a deal they may be willing to negotiate. Successful diplomacy can even be its own reward, since each successful effort will usually further improve your relationship.

Technology

Another key domestic activity you will engage in is the research of new technologies. Some of these will improve your industrial capabilities, but the majority of advances are designed to enhance various elements of your armed forces. You may discover superior military doctrines, better arms and armaments, larger tanks and naval vessels, advanced aircraft with greater range, or more subtle advances such as systems that allow better observation of enemy movements or detection of their forces. You may even decide to pursue and deploy atomic weaponry. Needless to say, falling behind in the arms race is not likely to be a good idea, unless you can meet your enemy with overwhelming force (and even then, victory is not assured).

Research is conducted by funding teams of scientists to work on research projects. The number of projects you can conduct simultaneously will depend on your overall IC (a large nation can have as many as five projects ongoing at a time), and the nation that you select will determine the variety and caliber of your available teams. You will need to assign teams to your projects with some care, since each team will usually have a skill level and also certain areas of expertise associated with it. One that excels at avionics, for instance, can be expected to produce positive results in a new aircraft design far more rapidly than it would if you asked it to work on finding a better hull for your submarines. The length of time it will take to research a project depends on your teams' abilities, their overall skill level, the project's complexity, and your ability to maintain a steady flow of funding to the team.

Once you have achieved a new level of technology, you will need to implement it. In most cases, existing equipment can be improved by allocating IC to its upgrade. Major breakthroughs for technologies that haven't previously existed (as well as significant naval model upgrades) must be manufactured from scratch. You have the option to keep as much obsolescent equipment in the field as you like, upgrade it, or scrap it to recoup some of its manpower.

Preparation and Support of the Military

There are many components that must fall into place for a campaign to be successful. Armed forces must have access to a continual flow of supplies and ammunition if they are to remain in fighting form, and they will need strong and capable leaders who are able to command them effectively, maintaining an overall level of discipline and organization. Factors such as terrain, weather, and the placement of defensive structures will greatly influence their performance, as will their previous experience in such combat situations.

Supply, Outfitting and Transport Capacity

Your ability to supply, outfit and transport your troops will be vital to your military success. Armies require ammunition and food (supplies) to fight. Motorized vehicles, aircraft and naval vessels will also need fuel (oil) if they are to remain operational. For overseas engagements, you will also need to be able to move men and equipment great distances that are too far (or impossible) to reach by normal means.

You will need to pay attention to (and maintain) your supply chains to avoid having your armies end up in disarray and unable to fight. Supplies are manufactured by allocating IC to their production and then are transported to your forces along your supply chains. This can involve ground supply (using your provincial infrastructure), naval supply (via convoys), air supply (via your airborne transports), or a combination of these, all of which can also be disrupted by enemy actions. If your supply chains are damaged or cut by the enemy, or if you lack sufficient oil and supplies for your military, your chances of survival are exceedingly slim.

There is also the issue of transport capacity to consider. This reflects the infrastructure (roads, railways, etc.) that are in place to move large volumes of materials and men in a reasonable period of time. Each province has an infrastructure level (which you can increase) that will limit this volume and can be damaged or otherwise diminished by enemy aerial bombardment. Sea supply demands that you devote enough convoys to the task and have an available port to offload those supplies. If those convoys are left undefended, they can quickly fall prey to enemy submarines, surface vessels and even aerial bombardment, so you will need to provide escorts or other protection for them as well. Airborne supply tends to be very tricky and not particularly efficient, because the capacity of the aircraft is limited, they require fuel to operate, and unless you assign them some protection your enemy's fighters will probably shoot them out of the skies faster than you can replace them. Nevertheless, this is a method of keeping your troops alive until you can find an alternate means of getting resources to them. Don't be surprised to find an enemy actively engaged in disrupting your supply, particularly if he enjoys naval or aerial supremacy. Of course you can employ similar tactics in return, disrupting his supply and encircling his troops to achieve devastating effects.

Organization and Entrenchment

Land forces that are constantly moving don't have much time to prepare themselves against an enemy attack and have a tendency to become somewhat "stretched out" or disorganized. The same is true of armies that are constantly subjected to naval barrages or aerial bombardment. AoD models this aspect of war using the concepts of organization and entrenchment.

Organization is a measure of the cohesiveness of a force: how able it is to receive and respond to orders, how well it is supplied, how competently and thoroughly its command structure has been established, and is also an indicator of its general morale. Each of your units, land, naval and air, must have a sufficient level of organization to engage in battle, and without it they will break and retreat in disarray. A force that is engaged in combat will begin to lose organization, and the longer it continues to fight the greater the loss will be. The addition of new recruits to replace casualties will also reduce organization proportionally to the number of newcomers added, and if a unit finds itself without a source of supply, then organization will plummet rapidly.

While moving, a unit's organization will usually remain static unless the terrain it is traveling through cannot support the size of the force (or if it is moving without supply). If it ceases its movement and avoids battle for a while, then its organization will gradually recover. The maximum organization is determined by its leadership and experience (see below) and can also be increased through the research of various combat doctrines and some equipment advances.

A land unit that is stationary for a time will also begin to entrench itself in a province by selecting the most defensible ground, preparing foxholes and snipers' nests, establishing command and aid stations, organizing munitions, and so on. This will give that unit a bonus in any subsequent defense of that province and can make it difficult to overcome without a concerted effort on the part of an attacker. The longer a force remains in place, the more "dug in" it will become; but this entrenchment bonus is immediately lost if it begins to move and even if it later returns to a province it must begin the process from scratch.

Command, Leadership and Experience

The effectiveness of a force relies heavily on its previous combat experience and on the officers that you assign to your front-line commands. Each time a unit engages in battle, it will gain some valuable combat experience and over time and repeated conflict it will begin performing noticeably better. The resulting veteran units may become the backbone of your armed forces, but as they suffer casualties their losses will be replenished with green recruits which, not surprisingly, dilute their effectiveness.

Individual units may be instructed to act independently, but most often you will wish to group them into larger forces - often using a mixture of unit types to achieve the desired overall balance and combat

effectiveness. Commanding larger numbers of units requires special leadership skills that are possessed by only a handful of people, so you will need to draw from a pool of your officers, assigning someone to lead each of your forces. Various officers will have different skills or areas of expertise, so selecting the right man for the job can be extremely beneficial. Each officer also has his own level of combat experience which will increase as you continue to employ him. You may find that at some point you may wish to promote him to an even higher rank in your military, increasing the number of individual units he can command without incurring a penalty. Junior ranked officers tend to accumulate experience more rapidly than senior ones, however, so this will often prove to be something of a balancing act.

Very large-scale operations bring an added level of complexity to the overall command. It is one thing to issue orders to a collection of divisions all occupying the same general location, but another thing entirely to manage multiple army groups, whole armies, or even multiple armies assembled along a front. In such instances, you will likely need to establish special headquarters divisions: a unit unsuited for direct combat, but one that improves the overall supply efficiency of large numbers of forces and gives them a greater likelihood of achieving positive results. When you are considering massive offensives or the defense of an entire front, this special division can have a dramatic effect on the overall success of your operations.

In a larger sense, however, you will always be in ultimate control of your military and it will be up to you to plan your attacks and arrange for suitable defense of your territories. AoD includes some handy features that make it as easy as possible to coordinate your forces and use them to maximum effect, and to assign long-term missions that your officers will then proceed to carry out unless you instruct them to do otherwise. Leadership and experience simply help to determine how effective they will be in fulfilling your orders.

Defenses and Fortifications

While armed forces are required to protect your territories from the enemy's advances, there are up to three different defense Installations that you may be able to construct to help improve your chances of defeating an assault. You can also build radar sites, if you have the required technology, to improve the effectiveness of your aerial defenses. Also, AA efficiency rises with the number of Radar Stations constructed in the same province.

The construction of defenses requires a commitment of IC until their production is complete. They can be damaged by enemy attacks, requiring further allocation of resources to repair them, and they can be captured and used against you if they fall into enemy hands. Each of these installations can be added to by further IC investment, increasing their size, quality and effectiveness. This is a worthwhile investment and can become the difference between successfully warding off an enemy's assault rather than succumbing to his advance.

Land fortifications are a network of bunkers, gun

emplacements and minefields that you can construct in a province to help your army repel enemy land forces. They are particularly effective in protecting your infantry from tanks, mechanized units and artillery forces where they might otherwise be overrun or destroyed. They also offer some shelter from aerial bombardment although they are not designed to actively counter such attacks. A land fortification offers no resistance by itself and must be manned to have any effect.

Entrenchment bonuses are combined with the land fortification bonuses, resulting in an almost insurmountable defense if a force remains stationary for long enough in a province that has been heavily fortified. A good example of this would be the French Maginot line at the onset of the war (an obstacle that the German high command wisely chose not to attempt with a frontal assault). The only methods of dealing with forces that man such a defense are to bombard them over a long period of time, cut off their supply and hope to starve them into submission, or to take your chances (which aren't good) with a series of massive successive assaults on their position. Paratroopers, if they are available to you, will by-pass defensive fortifications and may be an effective component in an assault, although they incur other penalties and are usually fairly lightly armed. Needless to say, your best bet is to use a combination of all of these strategies whenever possible.

Coastal fortifications are a similar series of trenches, gun emplacements and other devices constructed along the shoreline of a province and must also be manned by your troops if they are to have any effect. They will present a major obstacle to enemy troops attempting to land in the area. Even an elite marine unit will find it hard to break through to establish a beachhead.

Anti-aircraft guns offer a third possible means of defense. Unlike land and coastal fortifications, anti-aircraft guns do not need to be manned by your forces in order to operate (their construction includes a manpower component). Their function is to provide added defense against air missions flown against targets in the province and to disrupt any enemy aircraft that pass overhead. They will not in any way help to defend you against the assault of a ground force or naval invasion. Enemy aerial attacks against factories, infrastructure, bases, other fortifications, or any forces stationed in that province will be subjected to withering return fire from your anti-aircraft batteries. This will not only hamper the inbound flight's organization, thus reducing the impact and extent of the damage from the attack, but it will also most likely inflict a number of casualties as well. Enemy squadrons whose missions cause them to fly overhead will also be subjected to fire, although the effect will be somewhat less.

If you have researched the necessary technologies, you will also be able to build radar sites in your territories. These stations will greatly improve any aerial defense that you mount in that province against enemy bombers and fighters, and may also allow you to detect approaching enemy naval vessels and aircraft in an adjacent sea zone. Radar sites do not need to be manned by your troops to be operational.

Naval and Air Basing

Military vessels and aircraft usually have special requirements that necessitate the construction of dedicated port facilities and air fields to fully meet their needs. AoD simulates this using a system called basing.

Each squadron must be assigned to an air base that is located in a province that you control or that is friendly to your forces, and all operations that it conducts must be launched from that base and then return to it after the mission has been flown. If you assign too many air wings to too small a base, then you may find that the ground staff will have trouble maintaining and servicing all of those aircraft in a reasonable period of time. You can either enlarge the base to increase its capacity (although the maximum size is limited) or reassign some of the squadrons to a different base that has sufficient space for them. If there isn't a suitable location then you can also construct a new base to house them, although this will take some time to prepare.

Similarly, naval bases are needed to act as home ports for your fleets. Ships are assigned to them and must return periodically to conduct minor, or not so minor, repairs. Any number of ships may use the same naval base, however a base's size determines how rapidly it can repair those vessels and its location will affect what seas your navies will be able to patrol. Existing naval bases can be enlarged and new ones can be built, again with certain restrictions. There are also many provincial ports that your fleets may use as temporary moorings; however those harbors lack the facilities to carry out any repairs to your vessels or offer them supply.

Bases are susceptible to bombardment or can fall into enemy hands. Enemy aircraft can be given missions to strike at your ports or crater your runways, reducing their basing capacity and forcing you to spend time and resources to repair them. If you lose control of a province that contains a base, then any forces that used it as "home" will find themselves out of supply and forced to re-base, and your foe will be able to use the captured facility as a new base for his forces, once he has effected repairs to the inevitable damage it sustains during its capture. You should pay close attention to the locations of your enemy's bases and either render them inoperative or consider attempting their capture, and you should also take precautions to prevent the enemy from doing the same to yours.

Weather, Terrain and Time of Day

Weather and terrain played significant roles in the historical outcomes of military operations. It was the onset of winter that did much to halt the initial German advance into Russia in 1941, and it was Burma's inhospitable terrain that added a heavy toll to the loss of life in that region. Most military actions also had to be conducted during daylight hours, since target recognition was very poor in an era when human eyesight was (more or less) the only available instrument. All three conditions are taken into consideration in Arsenal of Democracy.

Weather is synthesized by the game according to a complex random model and will play a prominent role in

your games. Both rain and snow will have a negative effect on your military operations, reducing units' combat effectiveness, in some cases, quite significantly. Combat resolution also includes a "visibility" component which adverse conditions will reduce, unless specialized equipment has been discovered by your scientists and supplied to your forces.

Certain types of terrain will reduce movement speeds, hamper supply, and impose penalties to combat as well. The effect will vary depending on the unit type (generally impacting more severely on motorized units than on foot soldiers), and in most cases the terrain will give a defender an advantage, reflecting his ability to make strategic defensive use of the landscape.

Arsenal of Democracy is played on a global stage over a period of years and includes accurate modeling for both local time of day and for seasonal variations in the length of a region's daylight hours. Most units perform very poorly in the hours between dusk and dawn when visibility is poor, so you will need to take this into consideration when planning your attacks. Certain technological advances may mitigate this somewhat, but you will probably have better success if you plan your large-scale operations to begin shortly after dawn during seasons when the daylight hours are long.

Artificial Intelligence

Artificial Intelligence (AI) is your "opponent" in AoD. Historically, in gaming terms, AI opponents have been rather predictable, unworthy, foolish, and even downright stupid. I'm sure that the new AI in AoD will occasionally display some of these characteristics, but so far in my playing of the game, this AI is a force to be reckoned with. Sneaky too!

First of all, let me assure you that this AI has been changed a lot regarding the actual execution and calculation of the AI code. New algorithms have been implemented that now allow for faster and more efficient resource usage than in previous HoI versions. Actual optimization in the code also affects the strategic level the AI is now able to handle. For larger countries such as the US, it now actually tries to keep an eye on the big picture, for example, the Pacific and European campaign are no more seen as independent theaters versus multiple enemies but as different fronts against a unified enemy (in this case, the Axis powers). It will now allocate and distribute its forces more appropriately.

The AI's operative scale has been vastly improved. You are now more likely to run into encirclements or into the risk of getting massively bombed without decent matching air coverage. The AI now proves to be a real tough competition in all areas of the game.

In Land Combat it switches and moves its troops efficiently from reserve positions back and forth to the front line to provide a stable defense line against your attacks. It lays traps in terms of small bad defended gaps in the front-line to lure you away from your original plans and into unfavorable positions – from which it strikes hard at your forces and gives you unexpected resistance.

We have improved the general AI interface of Ground and Air coordination on a massive scale. Air Forces now have a more important impact on the AI strategy at a whole and the AI themselves tends to use them more and also in a slightly smarter and efficient way.

The Garrison AI has also been vastly remodeled. It now tries to optimize the occupation process itself. It processes an intelligent distribution of minimal troops for a maximum effect, for example, best suppression and defense of key provinces and victory points.

On the maritime side, the Naval AI tends to create more efficient fleet combinations for the different tasks it faces. It will create large fleet concentrations by itself with an emphasize on battleships for invasions, depending on resources and doctrines - carrier fleets for sea dominance, for transport, screening, convoy or ASW missions smaller, more flexible task forces. The overall coordination between the various fleets of a country has been greatly optimized.

The AI system and files are fully modifiable with a mix of static values and dynamic rules.

Combat

Arsenal of Democracy does not seek to model combat on a highly detailed, microscopic level. You do not control individual soldiers, squads, platoons, companies or even battalions. In AoD you will issue orders to divisions (or whole armies) and your battles will represent a contest for the control of much larger regions of land (provinces) rather than individual beachheads or buildings. The actual hand-to-hand fighting occurs behind the scenes, in your CPU, and your progress is displayed using graphic and numeric feedback as each combat ensues.

Movement is Attack for Land Battles

A significant change in actual battle mechanics has been introduced in Arsenal of Democracy. In previous Paradox games and in many other strategy games, for that matter, a land force would be ordered to engage an enemy in a neighboring province, move there, and then upon its arrival a combat would ensue. The loser would then retreat from the province and the victor would remain. This is not the case in AoD. Instead, the game employs the concept of "movement is attack" in all land-based battles.

Combat is Initiated as soon as a land force begins to move towards an enemy province that is being defended. The battle will rage on until one of the sides has gained the upper hand, at which point either the aggressor's movement is discontinued (if it loses) or the defending force begins to withdraw and the victorious attacker conducts its movement into the province and assumes control. This system alleviates a number of common issues (such as being unable to tell where an enemy unit is moving until it is too late) and also offers a number of new operational possibilities for both the attacker and the defender. Forces in adjacent provinces may support the armies involved in the battle, and behind-the-lines reserves may be positioned to make a last-ditch effort to shore up the defenses. Air and naval battles, however, do not use this combat method and

will contest an air or sea zone while jointly occupying it.

Orders

Particularly if you play a larger nation, you will find that the sheer number and geographic separation of the forces you field can make them a daunting task to manage. To reduce the micromanagement requirements and allow you to focus on the zones of greatest activity, AoD allows you to give standing orders to most units. When you are initiating a large-scale assault involving large numbers of units or a combination of land, naval and air forces, you will also need to carefully coordinate these attacks to achieve maximum effect. The game's order interface makes this surprisingly easy to achieve.

Each unit has a useful set of orders that may be given to it beyond the basic "move here" or "attack right now" commands, An available option: which depends on the unit type, is selected on the order interface and then the force will carry out these orders exactly as you have instructed. The specific options are detailed later in the manual, but the concept that you should understand is that the order interface includes the ability to set a date and time that you would like a force to begin an action, allowing you to coordinate the orders of multiple units. In many cases, you will also be able to set a date and time (or operational condition) for it to discontinue operations or even give a unit a set of standing orders to repeat the same mission multiple times, allowing you to focus your attention elsewhere while it goes about its business.

Air and Naval Combat

Air and naval operations do exist, of course, but are abstracted to a greater degree in Arsenal of Democracy; otherwise the added level of complexity would be overwhelming to most players. You will usually assign general orders to each air wing or flotilla, giving specific time period and other parameters that you would like it to follow, and you may then pretty much leave it to its own devices to carry out these operations until it receives new ones or the orders expire.

This is not to say that combat won't occur between these forces, it will, and quite frequently at times. When this occurs, there are special rules that govern the engagements which take the types of units involved into consideration, as well as the time of day and weather conditions. Aerial combat is further limited by the range of the aircraft involved, as they will eventually need to break off and return to base to avoid running out of fuel and ammunition.

It is vital to understand that neither sea zones nor the air space above provinces are subject to control in the way that the provinces themselves are. There is no "ownership" of them, and neither aircraft nor naval vessels are capable of capturing a province. Most often you will use them in support of your armies, seeking to soften up an enemy's resistance through bombardment or to hamper, or even cut off, his lines of supply. Combat between them will therefore most likely be a contest to determine whether you are able to carry out these goals.

The Fog of War

This doesn't refer to a weather condition, but rather to darkened regions of the map where the game will hide things from you, particularly the dispositions of armed force, that you aren't in a position to know. It is assumed that you will have sufficient reconnaissance and intelligence sources to determine some basic information about provinces, even in your enemy's territory, but you will be unaware of the location of any forces that don't belong to you and are outside your territory or beyond the sighting range of your units. You will be aware of enemy units occupying provinces adjacent to your troops, but you will usually have only a very vague idea of their complement and size until such time as you engage them. You may also wish to fly several long-range missions deep into enemy territory prior to an attack to gain additional information about possible reinforcements and reserves that the fog of war will otherwise obscure. Keep in mind that some units, particularly submarines, are able to hide their presence, but there are technologies you can research to assist you in detecting and identifying them. Fortunately, your allies will share all of their knowledge of enemy positions (and also their own force dispositions) with you as well.

Strategic Redeployment and the Force Pool

Any new military units you produce will enter your force pool and can then be deployed at your discretion to any valid location. Naval forces and air forces have an additional deployment prerequisite: they must be assigned to specialized bases that are constructed to house and support them. These bases are limited with respect to the numbers units they can effectively handle, and this number can be temporarily reduced as a result of damage from enemy attacks.

Land units that are already in the field may be temporarily withdrawn from active service and strategically redeployed elsewhere without the need to manage their exact movements. As long as they don't have to cross water (which require the use of naval transports and thus active management), they will arrive at their new posting after a period of time. This redeployment method is not possible for naval or air forces, which must be re-based via conventional means.

The Main Menu

You will then see a status screen displaying the progress as the main game engine is loaded and, once this has finished, you will be presented with the Main Menu. This gives you the options of starting a single player game, starting a multiplayer game, playing the tutorials, viewing the game credits, or exiting the game.

Single Player Games

Most often you will probably be playing a single player game, pitting your skills against the computer. Click "Single Player" on the Launch Menu and the main menu screen will appear.

Selecting a Scenario or Save Game

When starting a new game you will select from a list of available grand campaign games or battle scenarios (area 1). Grand campaigns games use the entire globe and allow you to play any available nation in the world, starting with each nation's historical position at a significant date in WWII and then progressing until the end date in December 1947.

Battle scenarios are usually more limited in scope, focusing on short, specific engagements and often restricting the nations that may be selected and even the part of the globe that is being used. Many of these scenarios disable some of the game's more complex interfaces, providing the player with only scripted forces, replacements, and resources to accomplish their goals with, and usually having special victory conditions. The battle scenarios are great for playing fairly short "what if" games around major offensives, or for one-time multiplayer games of strategy. For the purposes of this manual, though, I will assume that you have selected a grand campaign game and that all interfaces are available to you.

Once you have begun play you can save your game at any time. To load a saved game, simply scroll through the list of file names (area 2) and select the one you wish to resume.

Selecting a Nation

After you have selected a grand campaign, battle scenario or saved game the nation selection portion of the main menu (area 3) will display up to ten national flags. Click on one of these to select that nation and display a brief overview of its historical situation during that era. If you don't see the flag of the nation you wish to play, right-click on any of the flags to display a list of additional nations and select the one you want. If you still can't find the desired nation, then either it doesn't exist (it has been eliminated from the game due to conquest) or you have selected a battle scenario where that country is not available for play.

Changing the Game Options

At the bottom of the screen (area 5) you will see three buttons. Click the Options button to change the settings to suit your preference (see side bar). If you make a change this will be displayed in the log area of the main menu (area 4). If you don't change anything then the game will use the same settings as the last time you played or will use the default settings if this is your first game. If you made a mistake and intended to play a multiplayer game or tutorial, you can click the Back button to return to the start menu.

Game Options

Difficulty: there are 5 levels of difficulty that will apply global modifiers to most aspects of the game (industry, resources, combat, movement, and more). At easy and very easy levels, the AI nations will be handicapped and the player will be given artificial bonuses. At hard and very hard

levels, the reverse is true. (You can see and even change the precise modifiers used by looking at the difficulty.csv file in the db folder).

A.I. Aggressiveness: this adjusts how the A.I. Reacts to the player's actions during the game, ranging from "coward" to "furious". At furious level, the A.I. will tend to declare war at the slightest provocation and will be considerably more actively militaristic; while at coward level the A.I. will tend to be more conservative and generally defensive.

Game Speed: this can be set prior to starting a game or from within the game itself using the "Ctrl" and "+" or "-" keys. In a multiplayer game, only the host may change the game speed.

Share Countries: Change this to "ON" for a multiplayer game where you wish to allow more than one player to be able to select the same country. This option is disabled in single player games.

Auto-save: this allows you to set how often the game will automatically be saved and may also be changed from within the game via the options menu. In multiplayer mode, only the host computer will save the game.

Use Counters: by default AoD uses animated sprites to display your units on the map. Enthusiasts may wish to toggle this to "ON" to have units displayed as traditional NATO counter pieces instead.

Launching the Game

Once you have selected a country and changed any options, click the Start button to begin the game. This button will remain grayed out until you have selected a country.

Multiplayer Games

Multiplayer games are started in much the same way that a single player game is launched; however, there will be at least two additional steps to perform before you may begin play. One player will act as the "host" of the game and the other players will join as "guests". Up to nine additional players may join (AoD supports a maximum of ten players) and I would recommend that the player with the fastest and most stable connection be chosen for Internet games, since this has a greater impact on performance than the host's computer specifications. If connection speeds are equal, then the host should be the player who has computer with the best performance. Only the host may select the scenario or saved game to be played and only the host may change the game options.

When you click the Multiplayer button on the initial menu you will be asked to specify the type of connection you wish to use (see sidebar) and to enter your name. Type your name in the space provided and then click the button that corresponds to the connection type you wish to use. Unless you are using Valkyrienet (vNet) you will then be asked whether you wish to host a game or join a game as a guest. Note that all players must be using the same version of the game (this is checked automatically when the connection is first established to ensure that there are no file discrepancies). I also recommend that you disable any

non-essential software that might be running in the background on your computer as this will often affect stability.

The vNet connection will take you to a free service where players frequently meet to start new games. Since vNet supports all of Paradox's games, you will need to select the AoD channel from the channel listing which will take you to a chat location where you can arrange a new game. Once you've found a few people to join, you must designate a host. Since vNet can be busy at times and some people have expressed a desire to be able to create "private" games, AoD now allows the host to set a password that must be entered to join a game. Once you're ready, the person who is hosting will click the Host button and type in a password. The other players will soon see the game listed and should select it and click Join and then type in the password when prompted. Establishing the connection will be handled by vNet for you automatically. (Note: once you start the game the connection is handed off to the host and the game will disappear from the vNet list.)

Once you've established a connection, the main menu screen will appear, however you will notice a few differences. Saved games will now be found at the end of the scrollable list in the game selection area (area 1) and a listing of all players will now appear in the area at the bottom left of the screen (area 2). I hope that you never need to use it, but the host also has the ability to ban a guest from the game by highlighting the player's name and clicking the Ban button. On a more positive note, you are also able to chat with other players while viewing this screen by typing in the space below the narrow line in the log area of the screen (area 4).

The host may now select the scenario or saved game to be played. If a saved game is chosen, then there will be a brief pause as the game is compressed and then the transfer process will begin to send the save game file to the other players. You will see a status indicator beside each player's name, indicating whether the transfer is still in progress or whether it is complete. I strongly advise players to wait until everyone has completed this transfer before selecting countries, since this is a common source of subsequent problems. Most players who frequent vNet follow a protocol whereby all players wait until the host has confirmed that everyone has completed the save game download. The host will then select a nation which signals that it is safe for the guests to do so as well. I would also advise against using the Windows operating system's Alt+Tab facility during download as this will almost always cause the transfer to freeze or become corrupt. With a decent connection speed, this process shouldn't take very long and you can safely chat with one another while waiting.

You will notice that the game options sub-menu now allows you to change the Share Countries setting to "yes". This allows more than one player to select the same nation, which is otherwise prohibited. If two or more players play the same nation (up to the maximum of ten may do so), then each of these players will be able to use

any interface or control for that country. There are no limitations to this, so I would recommend you agree on areas of responsibility ahead of time to prevent disagreements during play.

Once all players have selected their nations, the Start button will become active for the host. When the host clicks this, the scenario (or saved game) will be launched on each system and when all players have finished this process (slower systems will take longer to complete the launch) the game will begin. Another vNet custom that I recommend for any multiplayer game is for each player to use the chat feature to type "in" or "here" once the game has launched.

You may also chat with one another during the game by pressing the tab key, typing a message, and pressing the enter key. You have the ability to make your chats "private" by selecting the player (or players) you wish to have receive your communications. For your convenience, there are several preset chat filters that allow you to quickly address messages to the people you wish. After you press the enter key, the chat message will display on the recipient's main game screen and be recorded in his history log.

There are a few other important differences between single player and multiplayer games. The game speed setting may be adjusted during play using the "Ctrl" and "+" or "-" keys, but this may only be done by the host. Any player may pause the game at any time but other players may unpause it after a delay of 30 seconds. Any message boxes or events that would normally cause the game to pause automatically (depending on your message settings) will display normally but will no longer pause the game. Some of these will expire if you don't respond to them and disappear after a period of time. Others will disappear if they are no longer valid.

Tutorials

If you select the tutorial button in the Launch Menu you can play the AoD tutorials. For more details, see the Tutorial section near the end of the manual.

Credits/Exit

Click on the Credits button in the Launch Menu to see a list of the many people involved in the design, development, production and beta testing of Arsenal of Democracy. The Exit button will quit the game and return you to Windows.

The General Interface

There are very few parts of the AoD interface that are visible at all times. The majority of your screen will contain a display of context-sensitive information that will change depending on the type of action you are taking. There is one area, at the top of the screen, that never changes. This provides a quick reference to some of the most critical pieces of game information and also gives you access to all of the principle interfaces. There are also a few other things that aren't directly part of any other interface

but have global impact on the game. Taken together, these are best described as "the General Interface".

The Top Bar

This is the area at the very top of the screen that will be visible at all times and displays a quick overview of the state of your nation. It also gives you access to each of the main, and vitally important, interface screens.

Status Overview

The upper portion of the bar shows a series of icons and values which you will refer to frequently. This allows you to quickly review your reserves of energy, metal, rare materials, oil, supplies and cash. It also displays your manpower pool, national dissent level, and your transport and industrial capacities. Hovering your mouse over any of these will reveal an expanding tool-tip that gives you a more detailed summary of that item, particularly your daily income and expenditures. If the daily change is a detrimental one, then the value will be displayed in red. Each is described in detail in the relevant section of the manual.

The Folder Tabs

Immediately below the status overview is a set of click-able folder tabs that give you access to the five main AoD interface screens which we'll later look at one by one later on in this manual. Everything displayed below the top bar depends on which of these folders you've selected.

View Map: Clicking this folder tab displays the interface that you'll use most often, the Main Map Folder. This is used to view the map of the world where you'll find details of your provinces, examine and issue orders to your units, deploy new units, and perform most other common in-game actions.

Intelligence: The Intelligence folder is where you spy on your enemies and allies, conduct espionage, and glean intelligence.

Technology: This is the Technology Folder, where you will assign specialized teams to begin working on research projects, and where you may review the technologies that you already have available to you and their effects.

Production: This tab displays the Production Folder where you control your national budget, initiate the construction of new units and industrial and defensive structures for your provinces.

Trade: Previously found in the Production folder, the new Trade folder will consist of the Convoy System, the Resource Depot System, a Quick Trade System, and see a summary of your current trades, convoys and resource depots.

Diplomacy: This tab takes you to the Diplomacy Folder, where you may set your domestic policies, conduct diplomacy with other nations, and view diplomatic and political information about the other nations in the world.

Statistics: This brings up the Statistics Folder - a set of detailed charts that allow you to view summaries of almost all of the important information about your nation, armed

forces, and the rest of the world. There are some very handy "redundant" interfaces on these pages that allow you to make a number of similar adjustments very rapidly, and many items are hot-linked to allow you to quickly jump to a province or unit on the Main Map without having to search for it or use one of the other methods of locating items.

The Date/Pause Button

The current date and time are displayed in a button at the bottom right of the top bar. The time shown always reflects Greenwich Mean Time (GMT) and, depending on what portion of the map is presently displayed, could be significantly different from the local time. If you click on this button, the game will pause for as long as you wish. Clicking on it again will resume play. You can also press either the Pause button or the Space Bar on your keyboard to pause and resume.

The Game Management Menu Button

Immediately to the right of the date/pause button is a button labeled "Menu". Clicking this will bring up the Game Management menu where you may select from several options:

Save: Allows you to save your game in its current state. The default file name will be your country, date and time, but you may change this to whatever you like by simply typing in a new name. Once the save is complete you will be returned to the game.

Options: This brings up the in-game options sub-menu (similar to the new game options) where you may change the game speed, toggle between sprite icons and counters, change your auto-save settings, and adjust your sound effects and music volumes. There is also a box at the bottom of this sub-menu allowing you to change your message settings.

Hints: This turns on the hint boxes that are displayed when the game first launches.

Surrender: This ends your current game session (we all have to sleep sometime). Your current game data is lost when you exit so make sure you've saved first.

Return: Returns to the game.

Message Boxes

You will receive many messages informing you of things that are happening during play. These may be notifications of foreign diplomatic offers; they could be reports from your armed forces advising you that they have engaged in battle or arrived at a destination; they might be reports from your scientists announcing a new technology; or they could simply be an intelligence report about international affairs that may not seem to directly affect you.

Messages can be displayed in several ways, and when you first install AoD these will initially be set to certain defaults which you can later change to suit your preference. The most important ones will cause a message box to appear on the screen and will pause the game until you have acknowledged it. Ones that are somewhat less

important will be displayed in a message box but will not pause the game. Others will display a small message notification symbol at the right edge of the screen, waiting for you to open and respond to it. Many of these have a time limitation and will blink for a short while before disappearing. Messages that are probably of only minor importance will simply be written to your history log. Those that are likely to be irrelevant to you, like notice of a trade agreement being signed between two nations with whom you have no ties will not be displayed at all.

You can change most of your game's message settings by clicking on the top bar's menu button, then clicking the options button and then selecting the message settings button. This will display a scrollable list of message types that you can set to any one of the display options. You may also change the notification setting for a particular type of message in-game (without entering the sub-menu) by right clicking on the message when it appears (even in the history log) and then selecting the new display mode from the options box.

Message Settings

AoD allows you to customize the way that messages are displayed and now includes an optional message box close delay – no more accidentally closed messages or events. For each type of message you may select it and then set it to display in one of the following ways:

Do Not Display: use this setting to suppress this message from displaying at all.

Display in Log Only: these messages will only display in the history log

Message Notifier: these messages display a small icon on the right side of the screen. Clicking on it opens the message box. New for AoD, even more messages and events are available for this custom selection.

Message Box: this setting is for more important information and will cause messages to appear in a large message box as well as being recorded to the history log.

Message Box with Pause: this setting will bring up a message box and pause the game until you click "okay" on the box. Note that in multiplayer games the auto-pause function is disabled and this message will simply bring up a message box.

Events

Arsenal of Democracy also incorporates a special event system. These are usually historical events of great significance that have been programmed to occur during the course of your game and that can't easily be modeled using the regular game engine. In some cases, there are prerequisite conditions that must be met in order for an event to trigger, and many of them have a degree of randomization to make the exact date of their occurrence somewhat unpredictable. There are also a variety of recurring random events that may have very beneficial, or possibly detrimental, effects.

At first glance, an event box may look somewhat similar to message box, but there are a couple important

distinctions. An event will always display in a box (this cannot be changed via the message settings) and will cause a single player game, but not a multiplayer game, to pause until you have responded to it. Most events include explanatory text to give you some details about their historical context. Many events will offer you more than one possible response and the effects of most events are often quite significant, although in a few cases the exact implications of a choice will be hidden. Events may also cause an additional event to trigger, possibly for you or potentially for another nation. It is also possible that an event will result in changes that couldn't be achieved otherwise during the normal course of a game (huge shifts of domestic policy or dramatic changes in public opinion). An event may also cause certain officers or cabinet members to become available, or be removed from the game.

Read the text carefully and hover your mouse pointer over the available response options to see an expanding tool-tip that describes the event effects. Once you have made your decision and clicked the appropriate response, the message box will disappear and the game will resume.

Tool Tips

Arsenal of Democracy has an extensive set of expanding tool-tips that should greatly reduce your need to refer to this manual and that will often provide precise numerical details that, for a variety of reasons, I have intentionally omitted from this text. Most tool-tips are two-tiered, If you hover your mouse pointer briefly over an object, a context-sensitive tool-tip will appear. If you leave the pointer there for about three seconds, it is quite probable that the tool-tip will further expand to give you even more detailed information.

All numerical values displayed in tool-tips will use current in-game data, almost always including any applicable modifiers. Exceptions to this rule are typically due to "hidden" information of which you may not be aware. For instance, a tool-tip that comes up when hovering over an enemy force will only provide as much information as your current intelligence and technology permits you to know and could be misleading if you have not detected the entire force.

Right Click Menus

Many items in the game, particularly those on the Main Map Interface Screen, have context-sensitive quick menus that may be accessed by right clicking on the province, sprite or item. Some also require that you hold down the control (Ctrl) key as you do so. These act as shortcuts to commonly used controls or interfaces to make it easier for you to manage various aspects of the game. In particular, you will use the right-click and Ctrl+ right-click unit orders menus on a regular basis to set and coordinate your military activities. I have tried to include an indication in this manual of every instance where these menus are available, but if in doubt it isn't a bad idea to try it (doing so will never cause the game to crash or malfunction).

The Main Map Folder

Overview

This is the default starting screen and the folder that you will use most often. It is here that you will view the map of the world, see your troops (and your enemy's troops), deploy your units, issue orders to your armed forces, monitor ongoing battles, survey provincial defenses and resources, and much, much more.

You can access the main map view by clicking on the VIEW MAP folder tab on the Top Bar. The main map interface screen is divided into several important sections:

The Main Map: The largest area of the screen, this is where you will see a portion of the world map and be able to view and select your provinces and units.

The Hot Buttons: This is a set of six buttons that give you quick and convenient access to your provinces, troops and deployment queue.

The Information Panel: The information displayed in this area will change, depending on what you are doing. Most actions in the Main Map interface involve viewing and often changing something in this panel.

The Mini Map: This is a small click-able map that displays the entire globe and gives an approximate graphical representation of the current local time of day. It can also be useful for locating your forces around the world.

The Map-mode Buttons: This is a set of ten small buttons that you will click to change the information displayed on the main map. Some will cause a fairly drastic change of the map display, while others act more as filters.

The History Log: This is a scrollable running log of game messages and events.

Since the main map and accompanying context-sensitive information panel places just about everything you'll need at your fingertips during the course of basic play, it is important to know how to navigate it, and how to interpret the information you see there.

Navigating The Main Map

The world is divided into more than 2500 individual provinces and sea zones. This is far too many to be displayed on the main map while still giving you any useful graphical information, so the main map area displays just one small part of the globe at a time.

Sometimes, you will want to view the main map at a very high level of magnification, where only a handful of provinces will be visible, but where it's easy to see and select your military units. At other times you may wish to get a less detailed "big picture" of what's going on: where you can quickly survey several hundred provinces or look at the general location of troops along a front or in a theater. You can zoom in and out between AoD's four different levels of map resolution by clicking on the small "+" and "-" buttons located on the right edge of the Mini Map. You can also use the "+" and "-" keys on your keyboard (both the regular keys and the number pad keys will work). You may now also use the mouse-wheel to zoom in and out.

The Main Map can be scrolled by moving your mouse pointer to any of the edges of your screen. Doing so

will cause the map to begin scrolling in that direction (left, right, up or down) until you. remove the pointer from the map edge. You can also use the Mini Map to quickly jump to a different area of the world by clicking on the part of the world that you want to view. Another method is to use the Province Hot Button to jump to one of your nation's provinces. Simply click on the button (the first of the six buttons...it has a small graphic of a map) and a scrollable list of your provinces will appear in the information panel. Click on one of these to center the map on that province. The next four hot buttons (see below) can also be used to jump to the location of a specific land, air or naval force, or to a combat currently being fought.

Message boxes that appear during play will often include a "goto" button that you can click to take you quickly to the relevant area of the map. If you know the name of the province you would like to go to, you can also press the "?" button on your keyboard and type the name of the province (spelling is important!) into the box that appears on your screen. Many of the pages in the Statistics Folder include a "hyper-link" that will take you directly to a province when you double-click on its name. That's quite a few methods... and I'm undoubtedly forgetting some!

Provinces

Each province, and most importantly, who controls it, is the basic unit of measure for victory in AoD. There is a distinction between "national" provinces, "owned" provinces and "occupied" provinces. National provinces are ones that have historically belonged to a nation for a long period of time and where the population is generally content with being part of that nation. The only time they will become upset with their government is when it takes actions that are not popular in the view of the public. National provinces will be the heart of your economy and provide you with the bulk of your military recruits. Owned provinces do not share this sense of nationality, but have been under a nation's dominion long enough that only very small pockets of resistance remain to fight for independence. They tend to generate only a modest economic benefit to your nation and are usually not inclined to join your armed forces. An occupied province is one that has only recently come under the control of a nation, almost invariably as a result of a hostile action, and where the public not only resents its new rulers, but will usually try to actively oppose them. These provinces tend to contribute very little to your economy and are not suitable for recruiting purposes.

Not only can provinces contribute vital natural resources or industrial capacity to your nation, but they can also provide additional defenses or strategic assets for your military. Even a quick glance at a province on the main map will reveal important information about it, particularly in conjunction with several of the different map viewing modes. Clicking anywhere within a province's borders will change the display in the information panel on the left side of the screen to provide all the essential details about the province, this is the Province Information Panel.

Province Name

Each province's name appears on the Main Map and in the top left corner of the Province Information panel. Hovering your mouse over the province will also display a tool-tip with its name, terrain, any special weather conditions, as well as the name of the nation that owns it and controls it (if different). In some map-modes, the tool-tip will also identify the area and region to which the province belongs (this can be important when issuing certain orders for your military).

Province Ownership and Control

The flag of the nation that owns the province appears just below its name in the information panel. You can click on the flag to open the Diplomacy Folder with this nation pre-selected. If this province is currently occupied by another nation, then the flag of the controlling nation will be partially superimposed over the owning nation's flag. It is the controlling nation that receives any assets from a province.

Victory Point Value

The victory point value of the province (if any) is displayed as a number inside the star on the information panel. National capitals are also identified by a red circle on the main map, and non-capital provinces of particular strategic importance, a "key province", will have a red star on it when viewed using the victory point map-mode (it will not be displayed in other map-modes). If you have captured most of an enemy nation's key points, then it will be far more likely to accept your terms for its surrender. If you control all of a nation's key points, then you may impose extremely harsh terms if you wish, including its annexation and removal from play.

Terrain

A province's terrain is displayed in the picture on the information panel, and is also color-coded on the main map when using the terrain map-mode. Terrain plays an important role in combat, affecting movement rates and supply as well as the outcome of battles. The following are the various terrain types:

Plains: Depicted on the map in light beige, this type of terrain is ideal for the movement of all types of units and has no modifying effect on combat.

Forest: Depicted in green, forest slows down the movement of all units. Defenders gain bonuses in combat, and attacking units with wheels or tracks will have additional penalties reflecting the extra difficulty of maneuvering.

Hills: Hilly terrain is displayed in tan and slows down the movement of all units. Defenders gain a small bonus, while attackers, particularly units with wheels or tracks, incur a penalty. One specialized infantry unit, the mountaineers, ignore these penalties.

Mountain: Mountainous regions are displayed in gray and cause a drastic reduction to movement speed. Defenders enjoy modest bonuses in this terrain, while attacking units

(particularly wheeled or tracked ones) are heavily penalized. Only the special mountaineer units are exempt from penalties (and defending mountaineers have very large bonuses).

Desert: Yellow regions indicate desert terrain. This terrain is simply not very pleasant to fight in. The performance of both sides will be noticeably (and fairly equally) reduced, particularly in the case of cavalry units.

Marsh: Marshes and swampland are depicted in pale green and, as you'd expect, can have a large impact on the movement rates of wheeled or tracked units. Attackers suffer penalties (particularly motorized units) while defenders enjoy a modest bonus. Special marine infantry divisions tend to operate better in these conditions.

Jungles: Displayed in dark green, jungle is very inhospitable terrain for movement and ideal for defense. Any attacking units that are not on foot will be nearly useless.

Urban: Urban areas (large cities) are depicted in a yellowish-brown color. Defenders usually enjoy a modest advantage, since it is assumed that they have had the opportunity to select the optimum defensive positions. Because of winding streets and a multitude of physical obstacles, infantry generally perform better than other unit types in an urban area.

Water: Lakes and sea zones are displayed in blue on the map. Clicking on them will display only limited information, since they cannot be owned and no structures can be built in them. Note that for the purposes of AoD, the seaway between the Great Lakes and the Gulf of St. Lawrence is considered impassable to naval and supply vessels, even though this wasn't strictly the case historically. There are also several narrow bodies of water that may only be used by your ships if you control the adjacent provinces (see Naval Combat section).

Rivers: Rivers are displayed on the main map as blue lines between provinces and will present a challenge for military forces that attack across them. If possible, you should try to avoid launching such an assault if there is an alternative avenue of approach, although having engineer brigades will mitigate this penalty to a degree.

Beaches: While many provinces have a coastline, not all of them are suitable sites for the landing of an invasion force on the scale of AoD. Invasions (landing forces from a naval transport) are restricted to provinces that have an additional beach icon: a beige-colored, crescent-shaped symbol placed on the coastline. These operations are very tricky to accomplish and are quite risky, if there is much opposition to the attack.

Weather

Not only does terrain play a role in movement and combat, but weather and weather-related conditions can also hamper your efforts. You can check the weather conditions using the Weather map-mode and the prevailing conditions are also indicated in the Province Details. Most of the effects will favor the defender over the attacker, although both forces are usually penalized, and the degree of the effect is determined by the severity of the conditions.

Rain: This is shown on the weather map as a rain cloud. Land forces are only slightly affected by this weather condition.

Naval units will suffer somewhat greater penalties and have difficulty locating their targets; and air units will lose almost all of their effectiveness.

Storm: A storm is a severe form of rain and is shown as a rain cloud with occasional flashes of lightning. Naval vessels are severely hindered in storms and land units will generally have a fairly tough time of it as well. Air units cannot fly missions if their base is experiencing a storm and shouldn't bother taking off if these conditions exist over their target, since their drastically reduced performance will make the mission little more than a waste of fuel.

Muddy: This terrain condition is common in certain global regions and is shown in the weather map-mode in brown (unaffected provinces are shown in beige). This will only affect the performance of land units, particularly any that rely on wheels or are extremely heavy, and unlike most other weather conditions will very strongly favor the defenders in battle.

Snow: Snowfall tends to affect attacking ground units slightly more than defenders, and will have a very negative impact on any air missions. Naval vessels will perform poorly as well.

Blizzard: This is extremely heavy snowfall that will make your aerial units effectively useless (and they are grounded if there is a blizzard over their air base) and will also have a significant impact on all land and naval battles and movement.

Blizzards are displayed as very dense clouds with thick heavy snow falling from them.

Frozen: Regions will become frozen at certain times of year, reflecting extremely icy and hazardous conditions that will affect movement but only slightly reduce combat capabilities. Defenders have only a slight advantage on frozen ground.

Provincial Borders and Crossing Points

Regardless of the map-mode view you use, provincial borders are shown as a black-dashed line on the Main Map, while national boundaries are traced with red lines. Rivers are depicted using blue lines along provincial boundaries (there are some modest geographic liberties taken with river placement for game design reasons, and only rivers of some significance are taken into consideration). Each provincial boundary is also listed on the right side of the information panel when a province is selected (the label space is limited to the first six characters of the adjacent province's name) along with an indication of the type of connection it has with its neighbor. A green dash indicates a border that is not impeded. A blue river icon means that there is a river that must be crossed to move across this border and, if contested by an enemy force, an attacker will incur a river-crossing penalty (for more details, see the Combat section). If there is a unit engaged in battle in an adjacent province, a small red "under fire" symbol will be displayed on the provincial boundary as well. If the boundary is considered impassable, a red line will be

displayed. Clicking on one of the border names or icons will change the display to show the Province Details in the information panel for that province instead.

Some very narrow bodies of water may be traversed without the need for naval vessels and are shown using a blue water icon in the boundary listing. Since these crossing points are not displayed on the Main Map, you should pay careful attention to the province boundary listing whenever you are in a province that might have one. If a hostile fleet occupies the sea area, it will prevent you from using or attacking across that narrow strait. If the province you are moving to contains enemy forces, then the combat will be treated as an invasion and is subject to the same penalties as a normal amphibious invasion (see the Combat section for details).

Provincial Assets

The area immediately below the province's picture provides detailed information about each of its assets: its natural resources, industrial conditions (factories, infrastructure and partisanship), its defenses, and any other provincial improvements that have been built there. These are described in detail elsewhere, so you may encounter some terms here that you are unfamiliar with, and may need to refer back to after you have read the other sections.

If the province you are viewing is currently controlled by your nation, then several of the areas will be shaded gray and act as Quick Build buttons to allow you to initiate the construction of these items in the province. All province assets may be built using the right-click province menu as well. For province infrastructure, factories, land fortifications and naval fortifications, these are the only two ways to initiate their production. Other assets are built by placing a Production Order for them. This is all described in detail in the Production Folder section.

Manpower: This indicates the manpower that this province contributes to its controlling nation's national manpower pool. Manpower is needed for recruiting and reinforcing your armed forces, however it may only be drawn from core national provinces, not from owned or occupied territories.

Industrial Capacity (Factories): This is the number of factories that have been built in this province, each of which provides industrial capacity for the controlling nation. Factories may only be built in a province that has infrastructure over 33%.

Anti-Aircraft Batteries: This is a province defense that will fire upon any enemy aircraft that venture into the province and do not need to be manned to be operational. This icon will also be visible in the main map, as long as there is at least one AA battery present in the province. This is the only asset that may be built using all three ordering methods.

Land Fortifications: This is a defensive structure that helps land forces repel enemy attacks that are launched from adjacent provinces. Its size determines how effective a defense it is, but the fortifications must be manned by land divisions and will not assist forces against sea invasions or paratrooper attacks. As long as at least one fort is present,

this icon is also displayed on the Main Map.

Coastal Fortifications: Similar to land fortifications, this is a defensive structure that helps land forces repel an invasion that is launched from the sea. It must be manned to be effective, and it will not provide assistance against attacks launched from a neighboring province or paratrooper attacks. A matching icon will appear on the Main Map, as long as there is at least a level one fortification.

Metal: The amount of metal drawn from the province on a daily basis. This amount may be increased by researching appropriate industrial technologies and will either be placed in the nearest resource depot or, if a land supply route can be traced from this province to your capital, in your national stockpile. Metal is needed by your factories to generate IC.

Energy: The amount of energy drawn from the province on a daily basis. This amount may be also increased by researching the appropriate technologies and will either be placed in the nearest resource depot or (if possible) in your national stockpile. Energy is essential to keep your factories operational and may be converted into oil if necessary.

Oil: This is the amount of oil drawn from the province on a daily basis. It may be increased by researching appropriate industrial technologies and will either be placed in the nearest resource depot or, if a land supply route can be traced from this province to your capital, in your national stockpile. Oil is vital, as it is consumed as "fuel" by many units in your military. If you run short of oil, energy may be converted into oil (the conversion rates may be poor until you have achieved a high technological level) and the amount that you may convert on a daily basis is limited to a percentage of your national industrial capacity.

Rare Materials: The amount of rare materials drawn from the province on a daily basis. As with the other resources, this amount can be increased with appropriate technologies and will be placed in your national stockpile (if possible) or else the nearest depot. Your factories need a modest amount of this resource to remain operational.

Infrastructure: The roads, railways and other infrastructure in a province. Unless this value is 33% or higher, you will not be able to construct factories here and the more infrastructure present, the faster some provincial assets may be built. Infrastructure has a very large effect on the supply efficiency and movement rate of troops located in a province and its lack, or its destruction by enemy bombing campaigns, can have devastating results.

Partisan Activity: This is the amount of partisan activity in the province. Partisans will actively seek to hamper your industry and supply in non-national territories and may even rise in revolt if the opportunity arises. You will need to assign forces to anti-partisan duties (garrisons and MP's are particularly good at this) to suppress their resistance efforts.

Air Base: All air units must have a base of operations. The number of individual wings that may be stationed in a province without penalty is determined by the operational size of the base (which may be reduced as a result of enemy attack). If too many wings make simultaneous use of a base, they will experience reduced rates of repair and

upgrade and will be slow to regain organization. On the main map, a base will be blue if it is being used by at least one wing and gray if it is not, although this color-distinction is hidden by the fog of war.

Ports and Naval Bases: While many provinces have a large enough port for naval vessels to temporarily dock, all military vessels require larger facilities for repairs and refitting to take place. A naval base may support any number of flotillas, however the size of the base determines how efficiently it does so. This icon will appear in two different sizes on the main map. A small icon indicates a port, while a larger icon indicates a naval base. If either is colored in blue, then the port or base currently contains naval vessels, although this too will be hidden by the fog of war. A naval base in a province that you own will remove the fog of war from an adjacent sea area, although it may not necessarily detect all (or any) enemy naval vessels that go there, since this is subject to your technology. Ports are not displayed in the Province Details, so if you see this icon in the information panel it denotes that a naval base has been built here and will also indicate its size and operational condition.

Radar Station: Radar stations provide improved detection of enemy air and naval activities. The air-to-air combat abilities of any aircraft defending the skies over that province will be improved proportionally by the size of the radar installation. A radar site also removes the fog of war from an adjacent sea zone, although their detection of enemy forces in that zone is limited by the number of stations and by their technology level.

Nuclear Reactor: This installation might be better described as a nuclear test facility, since it does not provide any power that can be used on a provincial level. Instead, its function is to greatly assist in the research of nuclear technologies and accelerate the testing and manufacture of weapons-grade materials.

Rocket Test Facility: This is the rocketry counterpart to a nuclear reactor, providing a facility for more rapid testing and manufacturing rocket-propelled devices such as flying bombs, rocket bombers, ballistic missiles and ICBMs.

Synthetic Oil Plant: This will allow you to convert Energy to Oil.

Synthetic Material Plant: This will allow you to convert Oil to rare Materials.

Nuclear Power Plant: When built, this gives free Energy on the map.

Context-Sensitive Information

The upper half of the remainder of the information panel, the large slate-gray area, will display one of two things depending on whether or not you control the province you are reviewing. If you don't control it, then some basic (but essential) diplomatic information will be displayed here, as well as the controlling nation's flag. You may click on the flag to initiate a diplomatic action with that country. If the province is currently under your control, then a complete list of any units (land, air and sea) that are currently stationed here will be displayed. You can click on one of these list items to select the unit (this is only one of

several ways to do so) and then view its details and issue it orders.

Quick Build Buttons

If the province you are viewing is one that is currently under your control, some of the provincial asset values will be displayed in gray and will also act as Quick Build buttons that allow you to quickly issue a production order for more of that item to be built in this province. For infrastructure, factories, land fortifications and naval fortifications, this is one of only two ways to issue a production order. I will detail this in the Production Folder section of the manual and give only brief instructions here. Click on one of the Quick Build buttons to place a production order for this item to be built in this province. You will see the production order appear in your national Production Queue (which is displayed in the Production Folder) and this will also be displayed in the lower portion of the information panel for this province. You may click on the Quick Build button a number of times to order the serial production of multiple identical units.

Right-Click, Province Menu

Right-clicking in the main map area of a province you own will display a menu of all possible province improvements that may be built, allowing you to quickly initiate construction of these in exactly the same way as using the above hot buttons mentioned above, but also allowing you to build some of the other improvements that aren't included as own-province hot buttons. Right-clicking on another nation's province will display several context-sensitive options that you may select to quickly initiate a diplomatic action with that nation. Each of these is described in detail in the relevant portions of the manual (Production and Diplomacy).

The Hot Buttons

The six Main Map hot buttons provide a quick means of gaining an overview of (and locating) your provinces and armed forces. While details about combat and armed forces will be given in the Combat section, an overview of each is given here.

The Province Hot Button

Clicking on the province hot button displays a list of all of your currently controlled provinces in the information panel. This allows you to conduct a very fast survey of your nation's resources and any recent enemy activity. To the right of each province's name is its current industrial capacity, an indication of the type of resources (if any) that have been drawn from it, as well as its manpower value. If a battle is currently being fought there, or if it has very recently been attacked by enemy bombers or naval bombardment, then a red "battle" icon will appear adjacent to its name. To the left of each province is a small symbol that will be green if the province is one of your owned provinces, or red if the province is normally owned by another country but is currently under your occupation.

Clicking on any of the small "header" icons at the top will sort the list in descending order. You can click the Provinces header to return to an alphabetical sorting. Clicking on the province name will center the main map on that province and display the Province Details in the information panel.

The Land Forces Hot Button

Clicking on this button will display a list of all provinces that currently contain your land forces in the information panel, as well as basic information about the forces stationed there, the number of divisions and their overall strength and organization and the portrait of their commanding officer. If an army is presently... carrying out orders that you have given it then a summary of the orders will be displayed here, and if it is involved in an attack the combat icon will appear adjacent to its current strength. You may jump quickly to the province by clicking on the province's name in the information panel, or you may bring up details about any army by clicking on its name in the listing (the main map will also jump directly to that province).

The Air Forces Hot Button

Click this hot button to display summary information about your air forces. Each of your provinces that contain an air base will be listed here. To the right of the base's name are two values: the overall size of the base and its current operational size. If an air base has been attacked by enemy bombers, then the operational size may be less than the base size. As long as you devote IC to reinforcements, then the base will gradually be repaired and will become fully operational once more. There is no restriction to the number of air wings that may be stationed at a base, however if this number exceeds the base's current operational size, you will experience decreases in the rate that units regain organization, are repaired, or are upgraded. It is possible to base your air wings in an allies air base, although you are subject to the same size restrictions, at which point the allies province will also appear in this listing.

Your air units will be listed immediately below their current base assignment, You will see a unit's current mission and location (which may be different than its base if it is flying at the time that you review the information) as well as its leader, strength and organization. This panel can also be used to quickly issue new orders to your air forces by clicking the order box in the lower right corner of the unit's listing and issuing new orders. Click on a squadron's name to jump to its location on the map and to review detailed information about its composition.

The Naval Forces Hot Button

The Naval Forces hot button is very similar to the Air Forces hot button. Clicking it will bring up a complete listing of your naval bases and the various units that have been assigned to each. The base size and current operational status are shown beside the name of the port (naval bases are subject to aerial attack). Naval units are

listed below their base, along with a summary of their current location, orders, commanding officer, strength and organization. Clicking on a unit will center it on the map and the information panel will display more detailed information about its components. Just as with the Air Forces hot button, you may quickly issue new orders to your naval units from this panel.

The Active Combats Hot Button

When you engage in large-scale operations, it can be easy to lose track of all of the various combat activities that are currently underway, even though you will receive a message when each one commences, The Active Combats hot button becomes an invaluable tool for quickly locating and evaluating the status of any battle.

When you click this hot button, you will see a complete scrollable listing of all active military engagements. Each will feature a summary of the size and nationality of the forces involved, the portraits of the two opposing commanders, and a graphic representation that shows each force's current strength and organization. The attacker is always listed on the left and the defender on the right. Below them is a battle status bar that gives an approximate idea of who is currently prevailing. If you click on any of the active combats listed in the panel, then you will jump to the location in the main map and the Combat Details (a detailed battle analysis) will be displayed in the information panel.

In very large wars, you may have a huge number of battles in progress, so you can also filter which active combats are shown when you click the hot button. You may choose to see a list of only the land, air, naval, or bombing engagements by clicking on the appropriate icon at the top of the listing. Click the "all" icon to return to a complete listing of all active combats.

The Force Pool Hot Button

The sixth hot button is used to view and deploy new units from your force pool. will give you details of how to use this interface later in the manual so it will suffice to indicate here that if you click on the Force Pool hot button you will be given a list of all of the available units in your force pool. These are the new units that you have built or recruited using the production interface and that are now ready for active duty and are simply waiting for you to issue them an assignment. If you have given orders for the strategic redeployment of a land unit then it, and its intended new location, will appear in this list as well. You can only review, not change, a strategic redeployment order and the force is listed here only for your reference and convenience. Important note: each item awaiting deployment in the force pool will tie up national transport capacity as well as consuming a daily allotment of supplies. This may hurt your ability to efficiently supply your forces that are already on the front lines. Items in the force pool will also have very poor organization when first deployed and will not be upgraded with the most recent technological advances until they have been placed in the field.

The Mini Map and Map-mode Buttons

The Mini Map has three primary uses: If you left click anywhere on the Mini Map then the main map will move to be centered on that location, making this a quick way to jump between theaters. The Mini Map also has a graphic representation of the approximate local time of day for any portion of the globe. A dark band will sweep across the Mini Map, indicating that it is night time in that region. The third function of the map is accessed by right clicking on the Mini Map and selecting the type of force you would like to view. Small red dots will then appear on the Mini Map, showing you the locations of all forces of that type.

On the right edge of the Mini Map are small "+" and "-" buttons. Clicking on these will change the magnification of the main map. You can also use the "+" and "-" buttons on your keyboard to do the same thing. AoD permits four different levels of main map magnification. Along the base of the information panel, below the Mini Map, is a series of ten Map-mode buttons that allow you to quickly change the main map view to provide you with important, often essential, information at a glance.

Terrain Map-mode

This is the standard display mode, with provinces shown color-coded by terrain type (see the Provinces section above for a description of each terrain type). Province improvement symbols are shown, but the portions of the map that are not within visual range of your alliance's provinces or military units will be covered by the fog of war.

Political Map-mode

While the unit and province improvement display remains the same as the terrain map-mode, in this view all provinces are color-coded to show the controlling nation instead of the terrain.

Weather Map-mode

Click this button to view the prevailing weather trends around the world. Provinces will be colored beige unless the conditions are muddy (brown) or frozen (white). Animated icons will show the current weather trends in provinces and sea zones, indicating frequent rain, storms, snow or blizzards. If you're planning a major offensive, check this map before you launch it.

Economic Map-mode

This map-mode provides a quick means of checking resource locations and industrial capacity. Provinces belonging to your nation are color-coded in light green if they contain at least one factory; or in dark green if they belong to you but do not contribute at all to your nation's industrial capacity. Any province that has some type of natural resource or manpower value will contain the appropriate icon to indicate its presence. You can also use the Territorial Information summary in the Statistics folder or the World Atlas information that is in the .PDF file included with the game.

Supply Map-mode

This map-mode displays military units and is therefore subject to the fog of war. Each province will be color-coded to indicate whether it is currently within allied supply. If it is currently within supply then it will be shaded in green, and if it lies outside of an allied supply chain then it will be red. The shading of each province indicates its approximate infrastructure level. Darker shadings indicate lower infrastructure levels and lighter shadings indicate excellent infrastructure. Note that enemy and neutral provinces that are adjacent to allied provinces will also usually be displayed in green, since a unit that moves there would remain in supply. Sea zones through which either supply convoys or resource convoys will run are also indicated on the map as a clear blue color, rather than the standard greenish-blue tint. This only indicates that the convoy path has been created, but does not indicate that a sufficient number of vessels have been assigned to actually carry out that duty. Supply (and convoys) will be discussed in detail in the Production and Combat sections.

Partisan Map-mode

This map-mode will give you a quick indication of the risk of partisan activity in your provinces. Light green indicates a national province which has no risk of rebellion. Dark green indicates an occupied province where any risk of partisan activities is being suppressed by your forces. Various shades of red indicate provinces where partisans are active (the darker the shading the more active they are) so these should be carefully monitored. A tool-tip details all current partisan-related conditions. Partisans are discussed in detail in the Diplomacy Section.

Region and Area Map-mode

The next two buttons will display a color-coded map of either regions (large province groupings) or areas (somewhat smaller subdivisions of the regions, usually about 3 or 4 provinces in size). Areas and regions are used for many of the orders that you will give to your air force or navy and do not indicate ownership or control, so you may find these modes convenient when issuing such orders.

Diplomatic Map-mode

It is easy to lose track of who is at war with whom, and who is allied with whom, so this map-mode allows you to determine this at a glance. The map display is color-coded and context-sensitive. Click on a province to view the world from its controlling nation's perspective. A medium-green province is currently controlled by that nation. A light green province belongs to one of its allies and a dark green province is one that the nation considers to be its natural property but is currently owned by another nation (whether friend or foe). A red province is currently controlled by another nation with which the nation is at war.

Victory Points Map-mode

This map-mode can be used to quickly locate provinces that have an assigned victory point value. Green

shading indicates that a member of your alliance occupies the province; orange shading indicates that a neutral country occupies it; and red shading means that it is currently controlled by an enemy. Provinces with very high victory point values (often national capitals) will be darker in color than those with lower point values. Key provinces of particular strategic importance for peace negotiations are marked with a red star in this map-mode

The History Log

The history log is a scrollable sequential list of the messages and events you have had during the game. In multiplayer mode, it will also record any chat messages you send or receive. You can scroll back up through recent messages (those received during your current session of play) and this log is also saved for future reference. A full log may be read using the History Log screen in the Statistics folder. If you wish, you may hide the message log by clicking the small button at the top left corner of the log and later restore it by clicking on the button again.

The Intelligence Folder

Overview

The previous Intelligence system was pretty ineffective and impractical to handle. It has been totally revamped for AoD. Spies are now sent automatically, as long as you allocate a small amount of money for espionage and give a targeted country at least a minimal observation precedence. After making your adjustments, you can easily regulate the system via the Espionage Expense slider in the Production Folder.

Espionage

In the Production folder, there are several new sliders for allocating Expenses. With the Espionage slider, you allocate money to recruit, train, deploy, and maintain your spies. These spies are then allocated to various countries in accordance to the Observation Priority you set in the Intelligence Folder.

A high level of Observation Priority setting for your own country, increases the passive counter-espionage mission and the removal of foreign spies.

The more spies you have in a country, the greater your chances of accomplishing the Intelligence mission. The more spies you have overall, the greater the maintenance cost you will need to allocate with the Espionage Expense slider. Failure to adequately expense will mean very poor performance and a much higher chance of your spies getting caught...

Intelligence Missions

There are twelve Intelligence missions to assign your spies to:

Steal Blueprint: Attempt to steal a blueprint.

Assassinate Minister: Attempt to assassinate a minister in their government.

Smear Campaign: Start a smear campaign in their country.

Coup Nation: Attempt to coup the government.

Sabotage Industry: Attempt to delay their production.

Nuclear Sabotage: Attempt to destroy a nuke.

Fund Partisans: Support the troublemakers in their ranks.

Global Manipulation: Attempts to influence the world opinion against our enemies.

Sabotage Tech-team: Attempts to delay one of their tech-teams with their current project.

Sleep Spies: Your spies in this country will become inactive.

Counter Espionage: Our counter espionage team will attempt to flush out enemy spies in our ranks.

Naval Intelligence: Spies on this mission will return vital information about naval fleets back to you. You will be able to see the fleet of that country for a couple of weeks, what its mission is and what ships it consists of.

The Technology Folder

Overview

Technology is an integral component of Arsenal of Democracy and your degree of overall achievement will have a significant impact on many things. Your domestic affairs will benefit from new efficiencies in extraction, conversion and production rates, and your military will deploy new technologies to gain a crucial edge over your enemies. You may even begin nuclear experimentation that can lead to powerful new energy sources... and the atomic bomb.

Unlike most things in AoD, this does not require a direct allocation of IC. New technological advances are gained by hiring a team of scientists, assigning them a research project to work on, and then after a period of time, the team will announce that it has achieved this new technology. The length of time will depend on the nature of the project and on the skills and expertise of your team. You are also limited in the number of projects you may work on simultaneously. The maximum number of projects and the specific teams that are available to you will depend on which nation you are playing, and on your nation's economic strength.

Research speeds may be further improved (or hindered) somewhat by several of your cabinet ministers. Your rocketry research will be greatly aided if you have built rocket test facilities in at least one province; and your nuclear research will benefit similarly from a nuclear reactor site. The only other way to accelerate your research is to acquire blueprints from another nation. Gaining an edge over your enemy, or at very least maintaining an approximate technological parity, will almost certainly be vital to your overall success.

Selecting Research Teams

The left side (area 1) of the Technology Folder will display your country's teams of scientists, each of whom may be assigned a project to work on. When you first start

playing this area will be empty, waiting for you to assign research teams to each slot and then give them each a project to pursue. Depending on the nation you are playing, you may have as many as ten slots, or as few as one. The number of available slots is based on your nation's current industrial capacity.

Click on a blank team slot to display a list of the teams in your nation's pool. Some of these may be headed by individuals, while others will be identified as companies but there are no benefits or penalties to selecting one over the other. Each team will have a skill level and will have at least one area of expertise. The skill level is an indication of the team's overall proficiency and will affect both the daily cost of funding the team and the overall rate at which it will be able to research a new project. The higher the skill level, the less time the team will need to complete a project, but the higher the daily cost of financing them will be. The small color-coded icons indicate the team's areas of expertise (fields of research at which the team excels). The number of available teams and their skill and areas of expertise will depend on the country you select and will only rarely change during play.

Whenever possible, try to find a team that has expertise in the fields that relate directly to the components of the project that you intend to assign them, even if they might be less skilled overall than another team that lacks this expertise. Each area of expertise that matches a component's field requirement will give the team a research bonus when working on a project, so the more fields that match the better. A lower skill level will also result in a reduction the daily cost of financing the team during the course of the project.

Once you have chosen a team (by clicking on it) a portrait or logo will appear in the project slot of the technology folder and you'll see the team's name and its areas of expertise. Since you haven't yet assigned a project for it to work on you, will also see a comment that it is idle and that it does not currently require funding. Idle teams may be replaced by clicking the Replace button and selecting a new team. The new team will be placed in that project slot and the old team will be returned to the team pool.

Research Projects

Selecting and Assigning a Project

Across the top of the screen (area 2) are a set of buttons listing the various general categories of technology in AoD. Each category has many individual projects, each of which has its own set of component advances. When you click on one of the category buttons, the main section of the folder (area 3) will display a color-coded flowchart of all of the projects that are part of that category. A dark green entry indicates that you have already completed this project; light green indicates that you have all the prerequisite advances necessary to begin researching the project; yellow indicates that a team has already begun work on the project; and red indicates that you lack some of the prerequisite accomplishments to begin research. The

arrows in the flow chart indicate the prerequisites for each project, making it easy to see what steps must be taken if you are looking far forward into your research future. All of the secret weapons have prerequisites in other categories that must first be completed before you may begin to research them.

Clicking on any one of the projects will display the Project Details (area 4) and its component advances. Each component will have a difficulty rating and a specified field that is the primary discipline that relates to the component. The overall project completion time will be reduced for each of the assigned team's areas of expertise that correspond to one of the components' primary fields; but the higher the difficulty rating, the longer it will take to research that component. You will also see a list of the benefits you may expect upon completion of the project. The effects will vary significantly from project to project. Some improve an aspect of your economy; others will increase the abilities of your military; and others will make new or improved units available to you that a less advanced nation will not be able to use.

Each project has one other factor that can play a role in determining how long it will take to research, the historical year that it appeared. This reflects the need for other sub-components that aren't directly included in the technology tree's multitude of components but played a role historically in it being possible to make scientific advances in this area. If you begin researching a project before its historical time period, then it will take longer to complete since your team will need to spend additional time inventing those (hypothetical) subcomponents. Highly complex or advanced projects may be very difficult and time consuming to complete, and it is very unlikely that a nation will be able to complete research on all of them during the course of a single game (for many nations it will be nearly impossible to research everything).

Progressions in advanced levels of rocketry research will be nearly impossible without appropriate test facilities being constructed to assist your scientists. If you intend to pursue this field, then you should build at least one rocket test site as soon as you are able to and then increase its size whenever possible. This province improvement will drastically reduce your research times of further rocketry advances. The same is also true of nuclear research projects, which will progress very slowly unless you have built a nuclear reactor in at least one of your provinces.

As mentioned earlier, all research projects will take much less time if you begin with a set of blueprints for the project. It is highly unlikely that a nation will simply give blueprints to you; however you may be able to negotiate a one-time trade if you make an attractive enough offer during your negotiations... and of course, an enemy's blueprints may occasionally come your way as a result of espionage activities (this is a game event). If you are lucky enough to steal blueprints for an advanced technology, they will not grant you knowledge of any prerequisite advances, nor give you any bonuses to researching them. The blueprints will not be of use to you until you have reached a point where you would be able to begin work on that

project.

Once you have decided on a project that your team is able to research, click the Start Project button to assign the team to this project. The main area of the screen will then change to display the project details with an indication of the overall progress being made on the project. Money will be withdrawn from your national cash reserves to finance the project and, as time passes, you will be able to see the team gradually researching each of the component advances. You will also see an indicator showing the overall progress being made on the project. If you lack sufficient funds to continue financing the team's work on the project, then research progress will slow dramatically, the team's skill level will be set (temporarily) to zero, and a large red dollar sign will be displayed as a warning. This penalty will be removed once the team's financing has been restored.

After all of the components have been researched, the project will be complete and you will be notified that the team has finished its task. Whatever effects the technology gives will be immediately available, however in many cases this will require some degree of implementation.

Canceling and Reassigning a Project

Only one team may be assigned to a project at any one time. At any time that you wish you may cancel the project and then assign it to a different team (or abandon it and start work on something else instead) by clicking the Cancel Project button on the project details screen. You will lose all of your progress towards this project, including any components that have been completed and all cash invested, so this should only be done under dire circumstances.

Implementing New Technology

The effects and implementation of a new technology will vary depending on the type of project and are far too numerous to list here. Some effects are instantaneous and require no direct action or IC allocation, they will be implemented immediately and automatically, while other projects may have few (or no) immediate effects and act more as stepping-stones along the road to a major new technological breakthrough. Many military advances will be improvements to existing technology and any units you have in the field will need to be upgraded to take advantage of the new benefits. There are many unit types and some province improvements that will not be available until you have researched the prerequisite technologies. This includes specialized infantry units (mountaineers, marines, paratroopers, etc.), radar sites, nuclear weapons, and many of the heavier, larger or more advanced tank, aircraft and ship designs. You can check all of this by consulting the details of the advances in the technology folder.

Upgrades to existing units are accomplished by allocating IC to the Upgrades slider in the Production folder. Naval advances that result in a new model type cannot be upgraded, though, and in such instances you will have to manufacture a new vessel to implement the advance. You will also have to decide whether to mothball the

obsolescent vessel to recoup its manpower, or whether to keep it in active service and benefit from the crew's experience.

Technology Summary

Clicking the Overview button (at the extreme upper right of the category buttons) will display a summary of the effects of all the technologies you currently possess. This is where you can gain a rapid overview of the most advanced unit types that are available, the benefits enjoyed by your nation's industry, as well as all of the mission types that you are able to order and how effectively your forces will be able to carry them out. Remember that some units and mission types will not become available until you have researched the necessary technologies and/or doctrines. If you see a mission listed as "no" or a unit type without a model listing, then you lack one of the prerequisite technologies. For such an innocuous little button this sure packs a wallop from a human player's point of view. I can only urge you to review it frequently!

The Production Folder

Overview

The Production Folder is the interface you will probably use most frequently (other than the Main Map Folder). It is used for two main purposes: issuing new requisition orders and managing your economy. It is here that you will recruit new divisions, construct new aircraft and naval vessels, and build some of your provincial assets. You will then be able to adjust the priority that each order is given by making changes to this in the production queue. It is also the folder you will use to manage your nation's IC allocation to meet various domestic and military needs and will manage the disposition of your network of convoys. Failing to pay attention to your economy will have devastating effects that can cripple your nation, by promoting civic unrest or leaving your armed forces without the fuel or supplies they need to operate.

The screen is divided into two sections. The left side displays the Production Orders interface and the Production Queue; while the right side shows the vitally important Industrial Capacity Allocation sliders, a summary of your national resources, trade agreements and convoy activity, and the location and size of your resource depots. We'll look at each of these in turn.

This is maybe the part of the game we changed the most. You can now lengthen and shorten serial builds. Gearing works in a completely different way and has become much more important. There are now, besides political settings, techs which can increase your max gearing efficiency.

For every new Production Line you start and open up, you now have a minimum retooling time of 90 days where machines are adjusted and the pre-planning of the production process is simulated. In this 90 day period, IC's are used and consumed, but no resources. Resource Consumption also rises with rising gearing bonus. You can

also now upgrade production lines. For example, you have that Panzer II line running for 2 years now and have that 30% gearing bonus but now you want to switch to Panzer III. No Problem. You can upgrade lines with a click, they will retool to the new model and keep a large amount of that precious gearing bonus for the new Panzer III model.

You can also idle production lines to not lose gearing bonus and start them again later, but it will cost a small amount of IC for upkeep purposes. This comes in handy for units like Convoys or Escorts where you never know if you will need them in the future or not.

What really amazes me is that when you plan very detailed in advance what to produce when and how much under which circumstances, you really get an huge advantage over other players who just simply insert parallel runs for quick and short dated success.

For Emergency Production runs we created a new feat called rapid production. You can now increase production speed by up to 50%. We have built in three steps of speed: normal, increased and super fast. At each additional level above normal, you will increase the amount of IC assigned to that production line. It is not cost-efficient at all, but if you really need something in a very short time frame and don't care about the costs, this is going to be your tool of choice. In my experience, this is really good for Infrastructure (which now also improves IC and resource efficiency if extended), convoys, radar and AA.

You may also have noticed the double slider system in the IC allocation area. With "Advanced Sliders" set to on, you can now also define min and max levels of IC distribution. Works really well and is in my eyes an absolute killer feature of AoD.

We also integrated a new slider called "Repair provinces", here you can assign IC to repair destroyed buildings, Installations and Infrastructure. A small amount of all this always gets repaired for free (about 5%), but investing some spare IC into this area might speed it up around 50x times. I urge you to take care that you always spend some on repairing or you might just wake up one day with your country laying completely in ashes because no one cared to do some rebuilding.

Production Orders and the Production Queue

The Production Orders interface (area 1) and Production Queue (area 2) are displayed on the left side of your screen in the Production Folder. Every time you wish to recruit new forces or construct one of several province assets, you will initiate a new production order, confirm the type and quantity desired, and then issue the order. It will then be added to the bottom of the scrollable Production Queue listing, where you may subsequently review, manage or cancel it. It is also possible (and in some cases mandatory) to place orders for some province assets directly from the Province Details information panel, but the priority of those orders is managed from the Production Queue. Let's look at all of these controls.

Placing a Production Order

Production Orders are easy to place in Arsenal of

Democracy. Begin by clicking one of the dozen or so production category buttons on the Production Orders interface to indicate the type of item you wish to build. If an item has prerequisite technological advances that you currently lack then the button will be grayed out on the interface until your scientists have researched them. The Division, Air Wing, Flotilla and Brigade Attachment categories will display a slightly different Order Details interface than the others, since there are a number of possible items that you may select from each one. The remaining categories require no further selection and will display a "simple" Order Details interface.

Orders for "simple" items are always manufactured using the most current technology, so there is only one type you may build. Click on the name of the item you wish to build to display the Order Details interface. If you wish to build only one unit, then you can click the Start Production button and the order will be placed immediately. The Order Details interface will disappear and you will see that an order for one unit has been added to the bottom of your Production Queue (you may need to scroll down the list to see it). If you want to order more than one unit, you may do so by adjusting the Serial Runs or Parallel Runs values. We'll come back to the meaning of (and distinction between) those options in a few moments.

Placing orders for divisions, brigade attachments, air wings, and flotillas is slightly different since you will usually have a variety of available unit types and must choose which one to manufacture. Begin by clicking on one of these four buttons in the Production Orders interface to display the more "complex" version of the Order Details interface. Scroll through the list of available unit types (area 3) to locate the type of unit that you would like to build. The length of the list and the types of units available will depend on your current technology level. Since you aren't expected to be able to remember all of the various unit types and then apply all of the additional modifiers that your current technology might give, detailed unit information is displayed (in area 4) when you select a name from the unit type list. The meaning of each of these is described in detail in the Combat section of the manual, so the only note I will add here is that the organization and morale values shown are not the maximum values, but rather the initial deployment values of those items.

You will also want to refer to the cost of the unit and its required production time (area 6). All military units not only require a daily allocation of IC during their production but also require an initial amount of manpower to be withdrawn from your national manpower pool. If you lack the manpower then you may still place the order and it will be withdrawn as soon as it becomes available, however production of the item will not begin until the manpower becomes available.

Once you have decided which unit to build, you may click the Start Production button to place an order for one unit. If you wish to order multiple units, then you may adjust the serial or parallel production run values (area 5, which we'll discuss in a moment). Once you've confirmed your order, the Production Queue will be updated to reflect

this.

For all order types there is a daily IC requirement that must be maintained for production to proceed at full speed. If you fail to allocate sufficient IC to production then the manufacture of items at the bottom of the Production Queue will not begin until you either increase your IC allocation, or until items with a higher priority (higher up the queue) have been completed and the IC that they were using becomes available.

Production Runs

The Order Details interface for both simple and complex orders will provide you with an option to increase the number of units produced in a production run (serial runs) as well as to place multiple identical production orders at a time (parallel runs). This is designed to make the production interface as convenient as possible for you to use when you want to manufacture large numbers of the same item or have ongoing, continuous production of it.

If you increase the "serial runs" value of the Order Details this will issue an order for multiple, identical items to be manufactured sequentially. When you click the Start Production button a single order entry will be added to the Production Queue and your factories will begin to manufacture the first unit. When production is complete the unit will be added to your Force Pool and your factories will then begin manufacturing the second unit. This process will continue, with the units becoming available one by one, until your order has been filled. If you look at the order in the Production Queue (after it has been placed) you will see the total number of units ordered as well as which of those units is currently being manufactured.

Increasing the "parallel runs" value will issue a series of identical orders and each of the units will be manufactured at the same time. This is a quick way of placing multiple identical orders without being forced to go through the order procedure multiple times. When you click the Start Production button the number of orders added to the Production Queue will be the same as the number of parallel runs you have specified in the Order Details. If you allocate sufficient IC to production then all of the units will be manufactured simultaneously and become available on the same date. If you use both of these controls then you will be issuing multiple serial production run orders, each calling for the same number of units per run.

There are obvious advantages and disadvantages to both approaches of issuing an order for multiple units, and a hidden one as well. Serial orders take much longer to fill but spread out the drain on manpower which, if required, will only be subtracted as each new unit is begun. They also require only a small allocation of IC, since only one unit is being made at a time. Parallel orders will rapidly deplete your manpower (if needed) and demand much larger IC commitments, but multiple units will be available far sooner. Serial orders for military units are not updated as new technological advances are discovered, even for units whose production begins after the advance has been gained, so you may find yourself being forced to upgrade or even consider disbanding them immediately after they are

deployed. Although the same is true for parallel orders, it is far less likely to happen during the shorter time period involved. There is one huge advantage, though, that applies only to serial orders: the gearing bonus.

The Gearing Bonus

In the "real world" there are significant manufacturing benefits to be gained from dedicated production lines and other efficiencies of scale. I won't go into the underlying economic principles. There are volumes on the subject, many of them dating from the WWII era. The heart of the idea is that if a factory (or series of factories) sets up a dedicated production line and can purchase its raw materials based on a high volume of consumption, then the overall cost of production and length of time it takes to make each unit will decrease. In Arsenal of Democracy this is represented by something called the "gearing bonus." To avoid making the gearing bonus unduly complex (or excessively open to player exploitation) AoD takes a few small liberties in the way it is implemented and awarded. Let's get straight to the bottom line (and please pardon the pun).

If you place a serial run Production Order, one that calls for multiple units to be manufactured in a single production run, then you will be eligible to receive a gearing bonus where each successive unit that is produced will require slightly less time to manufacture. The first unit will take the usual length of time and require the full allocation of IC. The next unit will require slightly less time to produce (and thus a lower total IC consumption) and the subsequent unit will require even less time. Until the order has been canceled or completed, each unit that you manufacture will receive a gearing bonus that increases as each is produced. There is a maximum bonus level, though, beyond which there will be no further reductions in time.

Note, however, that if at any time during the production run there is insufficient manpower in the national pool or insufficient allocation of IC to a serial run order this will not only cause the order to be put on hold but will also reset the gearing bonus to treat the current item as though it was the first one being produced. You should consider giving serial run orders a very high priority in your queue to avoid having this happen. Note also that provincial assets, no matter which method of ordering them you use, do not benefit from serial run gearing bonuses.

Building Provincial Assets and Using the "Quick Orders" Buttons

Provincial assets are the wide variety of structures that can be built to make your provinces more economically productive, more defensible, or provide an additional boost to your research in the fields of rocketry or nuclear science. Depending on the item involved, there are three possible ways that it may be ordered, although in most cases only two of those options will be available to you. The exception to that rule is the AA battery, which may use all three methods.

Infrastructure, factories, land fortifications and coastal fortifications must have a province location specified

at the time that the initial order is placed for their construction. You may do this either by selecting the desired province and then using the appropriate Quick Build button in the Province Details display, or by right-clicking on the province on the main map and selecting the asset you wish to build. Using either method will initiate a new production order for that item, adding it to the listing at the bottom of the Province Details information panel, as well as to the Production Queue. If you subsequently order additional items (via either method) they will be added to your original order. All orders for these items are serial orders. The level of infrastructure in a province will greatly affect the length of time each of these assets takes to produce; and when each asset is completed it will be automatically deployed to the province.

All other assets may be ordered using the right-click method or by placing a simple Production Order for it as described earlier in this section. The order will then be listed in the Production Queue while it is being manufactured. If you use the right-click method then the asset will automatically deploy to the province upon completion (which I find very convenient!). If you use the Production Order method then the asset will be "sent" to your Force Pool to await deployment instead (see below). It will then force you to spend a bit of extra time placing them later, but it does give you an added degree of flexibility in their location and construction.

The Production Queue

The Production Queue allows you to quickly review and manage your current production orders. Each time you place a new order, an entry will be added to the queue's scrollable list. On the right side of the entry you will see some basic details about the unit being produced: an icon that shows its type and a listing of its name and basic attack and defense values. If you used the quick order method to requisition a provincial asset, then the auto-deployment location will be identified as well.

On the left side of each line's entry is the estimated date and time that the unit will be ready for deployment. Below this is the "production percentage" value, indicating whether production of this item is proceeding at full speed (I'll come back to that in a moment). Towards the middle of the line you will see the daily IC requirement of the project. If you have placed an order for a production run (a serial order) then you will also see two numbers below this. The first is the number of units from this order that have already been completed, and the second is the total number of units ordered in the production run. Each entry also has a set of four buttons that allow you to adjust the order's priority, and Cancel Development button (an "X").

Manufacturing new items requires an allocation of IC to their production and for many items will also involve a one-time "consumption" of manpower from your national pool. While you can still place an order for an item that you can't afford, its manufacture will not begin until such time as sufficient manpower and resources become available. Both are allocated on a priority basis in the queue, which is always sorted in order of priority, so the orders at the top of

the list will always be allocated to and manufactured first.

You can review an order's status by looking at its production percentage. If this value is 100%, then production is proceeding normally and you can expect it to be ready on its reported ETA date (unless something like a drop in available IC happens to affect it in the interim). If it is less than this, then production is being delayed by either a lack of necessary IC or by insufficient manpower. Any order that isn't at 100% production will be color-coded in yellow or orange to make it easy to spot when scanning the Production Queue. Yellow means that production is only proceeding at a partial rate, while orange indicates that production has halted.

Manpower is not only consumed by production orders, but is also withdrawn from your national pool when units that have sustained casualties are being reinforced. If you lack the manpower for a new production order, then you have four alternatives. You can simply wait until you have enough manpower in your pool, at which point the available manpower will be withdrawn automatically and production will begin. Increasing its priority in the queue will ensure that it will receive the manpower sooner. A second option is to cancel the order by clicking the "X" button and then place the order again, once you have enough manpower in the national pool. Since manpower is withdrawn when an order is first placed (if available) you may have other orders that are higher in the queue for which you've already paid the required manpower cost. Canceling one of these will return the full manpower value of the order to your pool which will then be automatically applied to the next order in the queue that is waiting for manpower. Your final option is to disband some of the units you have in the field. This places their manpower back into the pool, but they will lose any combat experience that they have.

Shortfalls in IC allocation can be dealt with in a variety of ways. The simple one is to allocate more IC to production, but this will take that IC away from something else, so this may not necessarily be a viable solution. Building more factories in your provinces will increase the total potential IC (if you are suffering from a lack of capacity and have lots of resource reserves), or finding additional sources of natural resources will increase the actual IC if you have enough factories, but they aren't operating at full capacity due to a lack of resources. Technological advances may enhance your factories' IC or improve your resource extraction and conversion rates so you might want to look at this as an alternative. Your remaining option is to change the priority of your orders to ensure that the ones you need most are produced first, and that lower priority orders are put on the back burner until you have an excess of IC.

The IC that you've allocated to production is assigned to orders based on their priority: their position in the queue. Orders at the top of the production queue have the highest priority and will get any new IC that becomes available. If you cancel one or more of the orders that are currently running at a 100% production rate, then you will lose any IC (and hence the resources) that has already

been used by the order but the IC will become available to the next order in the queue. You should avoid doing this too often since it wastes valuable resources and you could lose any gearing bonuses on that order. Fortunately, there is another solution: changing the priority of an order.

Click on an order's small "prioritize" buttons to assign it a new priority in the queue. Moving it to the top will ensure that it receives any available IC and begins production immediately; however this will also cause your other orders to be bumped downwards in priority and will result in at least one of your other orders now stopping (or slowing) in production. Any degree of progress that this bumped order has received to date will be saved and included once production resumes, but any gearing bonus that an order is receiving will be forfeited. You may also send an order to the bottom of the queue if it isn't particularly urgent, or you may shuffle its position by making smaller adjustments to move it up or down one position relative to the other orders.

Once the production of an order is complete, the order will be removed from the Production Queue and the newly built item will appear in the Deployment Queue. If you used the quick order method for a province improvement, it will be deployed automatically to the province instead of to the Deployment Queue. The IC that the order was using will be applied to the next order in the queue that is currently running at less than 100% capacity. Note that if you allocate more IC to production than is currently required to fill your orders, the excess capacity will not be used and no resources will be consumed.

Two final notes about the Production Queue. At the beginning of some games, you may discover that there are some items already in the queue and that they require no IC allocation. This is completely normal and is because they have been "prepaid" for you as a special bonus in the scenario's design. The other important note is that the IC allocation in the Production Queue (and in all other information displays in the Production Folder) is only updated at midnight each day. If you are placing sizable orders, be sure to check back once a new day has begun.

Deploying Unassigned Provincial Assets

If you placed an order for certain province assets using the simple Production Orders method, you will need to deploy them from the force pool once production is complete. All other province asset orders will be deployed automatically to whatever province you have already chosen to build them in. In all cases, choose the location carefully because provincial improvements can't be moved after they've been deployed and are vulnerable to bombardment and capture. Building up industry that is within easy striking range of enemy bombers will likely be a waste of assets, and there is often very little point in heavily fortifying a province that is many miles away from any likely front.

Deploying a new provincial asset is quite simple. Click on the View Map folder tab and then click on the Force Pool hot button. This will display a list of any assets (and military units) that have not yet been deployed. Scroll

through the list until you see the provincial asset that you wish to deploy, then click on it. The provinces on the main map change to a color-coding as soon as you do this, with green indicating that the asset can be placed in this province. Click anywhere in one of the valid provinces and the asset will be deployed there. Invalid locations will be ones that don't belong to you, are already at maximum capacity, or that are completely cut off from your capital.

Deploying Military Forces and Rockets

The deployment of new military forces and rockets is similar to the method used for province improvements, but there are some additional options and restrictions. Please see the Combat section of the manual for instructions on how to do this. Military forces will tie up some of your transport capacity until you deploy them so you should usually try to do so as soon as you possibly can.

National Resources

We now turn our attention to the right half of the Production Folder and will begin with the information displayed in the upper left portion of that side of the screen: a summary of your national resources. The data that you see displayed in the national resources area of the production screen reflects your current stockpile or pool of each resource type and the daily change to this value (in brackets). This is the same information that you can view on the top bar but saves you the trouble of using the expanding tool-tips to see the daily rate of change for each. The information displayed is updated on a daily basis (at midnight), with the exception of the supplies stockpile (updated hourly) and the manpower pool (updated as soon as manpower is used to order a new unit and also drawn from daily for any necessary reinforcements).

It is also important to note that the values reflect only your national stockpile levels and do not include any resources that might be located at your depots. The daily change values indicate the rate of change to the national stockpile, so the figure you see displayed reflects any transfers that you are making to and from your depots, and any trade agreements that you might have in place. If this is being impeded or otherwise affected by enemy convoy raiding or a shortage of transports, then the values may not reflect your potential rates of change or any changes to your depot levels. This can be a fairly important consideration that many new players overlook.

Oil

Oil is available only in a limited number of locations throughout the world, predominantly the south-central USA, Colombia, Caucasus and parts of the Middle East, in the form of natural petroleum reserves. Historically it was also extracted or synthesized, albeit inefficiently, from other resources (coal, "oil shale", etc.), which is represented in AoD by the ability to convert energy resources into oil. This will be done automatically for your stockpile of oil is low, but the amount that may be converted is based on your national IC level and your technology. Only a small amount

of energy (determined as a percentage of your national IC value) may be transformed into oil on a daily basis, and the conversion rate you achieve will vary depending on the advances you have researched. At the beginning of the game this will be very poor, but will improve steadily as your scientists discover new methods of synthetic oil refining.

Oil is the fuel that powers your naval vessels, aircraft, and any other military units that are motorized (tanks, mechanized infantry, etc.). If you lack the oil to supply them then these units will grind almost to a halt (incur large reductions to their movement rates) and will suffer large operational penalties in combat (a reduced organization value). You can see a unit's daily oil requirements by viewing the unit details and looking at the "fuel consumption" value. Land units consume only half this amount if they are stationary and aren't involved in combat.

Metal

This resource represents a variety of common metals, with iron ore being the predominant one considered. The largest global reserves are found in the mid-west and south-west USA, Sweden, China, England, Japan and Ukraine; although additional sources are scattered throughout the world. Certain technological advances can improve your extraction rates.

Energy

The energy resource represents a number of different materials that are used to generate the power that your factories require to operate. Historically this came predominantly from coal fire generation, as well as hydroelectric facilities, wood-burning plants, and several other sources. While this resource is well distributed throughout the globe, the greatest concentrations may be found in Germany, England, and parts of North America. Energy may also be converted into oil if your stockpile of the latter is low, although the rate of this conversion will be poor unless your scientists have discovered improved methods of synthesis.

Your factories will demand a healthy supply of power, each one consuming two units of energy for every unit of IC that it produces daily. As with metal, a lack of energy will reduce production to the level of your daily intake.

Rare Materials

This might be thought of as AoD's "catch-all" for materials that were consumed on a daily basis but don't belong to the metal or power categories. These are natural resources (or materials derived or synthesized from natural reserves) that are relatively rare or were consumed in only limited quantities. Examples might include rubber, sulphates, gold, potash, and other such resources and may be found scattered here and there around the globe.

Rare materials were used for various components in a large number of manufacturing processes during this era and a reasonable supply will be vital to keep your factories

running. Each factory will consume one unit of rare materials for every two units of IC it produces.

Supplies

Supplies aren't a natural resource that you will find lying around in a province. Instead, these are manufactured by allocating IC to the production of basic allotments of food and ammunition that your military forces will need to survive. Each unit has different requirements (which can be seen by referring to the unit details' supply consumption rate) and failure to meet its needs will result in very poor organization values, plummeting morale, and a high rate of attrition. I'll remind you here (although the details are presented later in the manual) that simply having supplies does not ensure that they will reach your troops. You will need to establish supply chains for that purpose and have sufficient transport capacity and infrastructure to ship goods along them. Unlike fuel, supplies are always consumed at their full daily rate.

Money

This is cold hard cash... and it doesn't grow on trees. Fortunately, there are several ways of increasing your cash reserves. Any IC allocated to the manufacture of consumer goods will generate some amount of money, and excess allocations are treated as a surplus and converted directly into cash. You may also receive money as part of a diplomatic transaction when you negotiate either a one-time exchange or a trade agreement.

Money's two most crucial functions in your nation are to finance projects for your research teams and for the multitude of diplomatic actions that have a cash cost associated with them. Money may also be used during negotiations with other nations to purchase raw materials or supplies. If you have no national cash reserve, then your technological progress will grind to a halt and there will be many common diplomatic options that you won't be able to initiate.

You will now start earning a little tax revenue from unassigned manpower. This simulates tax income from the working class citizen in an demobilized state. Producing Consumer Goods now creates money on a large scale which you can divide onto the new Expenses Sliders in the Production Folder for Civil expense needed, Military Salaries, Espionage, Research funding and Nuclear site funding.

Trade is now mostly done by money as it is the most cost effective way to trade. The new trade AI will make your decisions and trade a breeze and let you control on how to use your resources to your advantage. So in short, trading smart and hoarding lots of money actually gives you a serious advantage. Which is also the case of available IC.

Spending money on Military Salaries will insure that your troops morale and Organization levels are always high. If you on the other hand cut spending here to almost zero, troops will have more attrition (simulating deserters), lower maximum Organization and morale. Raising them again from low funding to full funding for example, in case of war, will result in a long time frame needed for them to get back

to optimal levels.

Spending Money on Research, Espionage and Nuclear Sites mainly modifies in those areas efficiency and time consumption. Espionage progress is not linear with spending – giving research lower funding will enable you to fund more projects at the time while trading total cost with speed (meaning total research cost is lower at lower funding). Otherwise the "Rule of Thumb" is: full funding always leads to the best results in all areas (if you can afford it).

Manpower

Manpower is a resource that is treated somewhat differently than the others. A review of the main map using the economic map-mode filter will display a variety of provinces that have a large enough population to contribute manpower to your national pool on a daily basis. They will continue to do so until the maximum size of the pool (which is also based on the total manpower values of your provinces) has been reached. At that point your national pool will remain constant until you draw from it, either for the production of new armed forces units or for reinforcements to replenish casualties due to combat or attrition.

Partisan and Occupation Effects on Resources and Industrial Capacity

Captive populations are reluctant workers at best, so even if you are able to prevent outright rebellion you should not expect the workers in owned or occupied provinces to be as productive as those who are full-fledged citizens of your nation. Owned and occupied provinces are both subject to heavy penalties to the extraction of oil, metal, energy and rare materials from their soil (occupied province more so than owned provinces), and these same penalties are applied to their industrial capacity. This may be modified by your domestic policies and cabinet, and will also be affected by the efforts of partisans who will further reduce provincial IC by the degree of their activities, unless your forces are able to suppress them. The populations of non-national provinces do not serve in your armed forces except under very unusual circumstances and thus any manpower values in those territories will not be added to your manpower pool. An occupied province also reduces your transport capacity (we'll discuss that subject shortly).

Industrial Capacity (IC) and IC Allocation

To the right of the National Resources summary is one of the most important interfaces in the game: the Industrial Capacity Allocation sliders. These are used to allocate your available industrial capacity to the six main areas of production, effectively controlling your economy.

At the top of this area are three values: your current unused IC, your available IC, and your base IC. The base amount is simple sum of all the factories that are in your nation. During wartime this amount may be reduced if your enemy conducts a bombing campaign against your factories. Remember, too, that occupied provinces

contribute less than their full IC to your economy. The available IC reflects the actual daily IC production which is the base amount, modified by your ministers, domestic policies and any technological bonuses you might have. If you lack sufficient natural resources then the available IC will plummet. Partisans also have a direct effect on available IC, with every percentage point of partisanship reducing a province's industrial output by that amount. The unused IC value indicates that you are allocating more IC than necessary to at least one area of production. Having some amount of unused IC isn't such a bad idea, because this excess IC allocation is "ignored" for the purposes of consuming resources and provides a buffer against small fluctuations of your nation's total IC production. This can be particularly important in multiplayer games where you may have only limited time to fine-tune your allocation levels and can benefit from having this "slush fund" of IC to temporarily offset losses until you have time to attend to them. It also allows you to conserve resources, saving them for occasions when you really need them.

Each slider displays your current daily IC allocation to this area at its right end. Immediately above the slider is the amount of IC that you need to allocate in order to meet your current needs. The sliders can be adjusted by either clicking on the "+" or "-" buttons at either end (usually used for small changes) or by dragging the indicator tab (for larger changes). The sliders are always zero-sum, so adjusting one in one direction will cause all others to adjust slightly in the opposite direction to compensate. You can lock a slider in place to prevent it from moving when you adjust other sliders (which is very handy for ensuring that you don't accidentally under-allocate to a slider) but you should note that if you have locked all but one slider you will not be able to adjust it without unlocking at least one more.

Consumer Goods

You will need to allocate some of your industrial capacity to the manufacture of consumer goods: the various basic commodities that your population consumes on a daily basis and you should expect your public to become quite upset if you fail to provide for their needs. While their demands will vary depending on your domestic policies, your cabinet ministers, and whether you're at war or not, if you fail to allocate sufficient IC to this area then national dissent will rise. Dissent will reduce the performance of your military and at higher levels it makes your nation more susceptible to foreign coup attempts and may even lead to open rebellion in your provinces. If you allocate excess IC to consumer goods then your national dissent will gradually recede. You can influence Dissent largely with it – in positive as in negative ways.

Allocations to this slider also generate cash revenue. You will need that money to fund your research projects, to conduct trade and for many of your diplomatic activities, so some excess allocation may be needed unless you are selling resources to another nation and earning enough money that way. This also gives some new strategies to play with – if you are selling a lot of resources

and have accumulated some wealth, you can spend this money in expenses without investing a single IC in consumer goods.

Production

The production slider is used to allocate IC towards the manufacture of the orders in your Production Queue. Allocation shortfalls will result in low priority orders being placed on hold until new IC becomes available and could result in the loss of the gearing bonus for an order. Excess allocation of IC to production is ignored and is displayed in the summary as "unused IC". Remember, unused IC does not consume resources so this is an excellent means of conserving those valuable resources until you need them and for guarding against unexpected fluctuations that may result from enemy bombing campaigns against your industrial base.

Supplies

As mentioned earlier, it is vital to ensure that you are supplying your military with a daily allotment of food and ammunition. This is withdrawn from your national stockpile of supplies and sent out to them along your supply chains. You can trade for supplies with other nations, but it is usually far more efficient to allocate IC to their manufacture. Whatever quantities you manufacture will be added to your national stockpile at a rate of three units of supplies for every unit of IC that you allocate. A warning though, having supplies in your national stockpile doesn't mean that your armed forces will receive those supplies. The delivery of supplies depends entirely on whether your supply chains are intact and unimpeded, and on the effective supply efficiency in the provinces where your forces are located. This slider's sole function is to manufacture and stockpile the necessary materials.

Reinforcements

This slider allocates industrial capacity to reinforcements and repairs. It is used to train replacements and repair equipment for units whose strength has been reduced as a result of combat or attrition. Military forces have a "human" component as well, so as you are reinforcing them you will also need to have sufficient manpower available in your national manpower pool to be withdrawn to meet those requirements. The amount needed depends on the original manpower cost of the unit and on the percentage of strength that it has lost. This slider is also used to rebuild and repair any provincial assets (infrastructure, factories, bases, etc.) that have been damaged as a result of enemy bombardment. Failing to allocate sufficient IC to the reinforcement slider will reduce the rate at which all of these replenishments occur, while any excess allocations will be ignored and included in your unused IC total (thus also conserving natural resources).

It now costs more IC to rebuild constructions quickly. There is also an integrated a small rebuild-for-free modifier. So if your country is completely wiped out and you either don't want or can't invest anything in rebuilding, the

full IC, Radar, AA, Port and Infrastructure Capacity will recover completely and for free over the time span of 10 years.

Upgrades

As you gain new military technologies you will be able to upgrade the abilities of your existing land and air units, and the air groups attached to your carriers. Naval vessels cannot be upgraded. This is done by allocating IC to the upgrades slider and will require a prolonged investment (often up to several months) to complete. Your forces will continue to operate normally at their old combat values during this time. Insufficient allocation will increase the length of time that this upgrade will require, while excess investment is ignored and added to your unused IC total. Air units only upgrade during the times when they are idle and at their assigned home base, and if too many units are assigned to the same air base then this process will take far longer.

Repair Provinces

New for AoD is a new slider for repairing provinces. Here you can assign IC to repair destroyed buildings, Installations and Infrastructure. A small amount of all this gets always repaired for free (about 5%), but investing some spare IC into this area might speed it up around 50x times. I urge you to take care that you always spend some on repairing or you might just wake up one day with your country laying completely in ashes because no one cared to do some rebuilding.

National Transport Capacity (TC)

Although your nation's transport capacity (TC) is not displayed directly in the production folder this is something that is fully dependent on your nation's Industrial Capacity. Transport capacity is an abstraction that Arsenal of Democracy uses to represent your country's overall ability to move men, equipment and supplies throughout each nation. It is the underlying factor that will determine whether you can get the necessary supplies, reinforcements and technological upgrades to your armed forces in a timely manner.

The Top Bar will always display your nation's transport capacity and how much of it is being used. The base amount of TC is determined by your national IC output and can be increased by researching certain technologies. This total value indicates the limit of your ability to move "stuff" around: supplies, fuel, and divisions that are either in your force pool or are being strategically redeployed. If your required TC exceeds your available TC then your ability to carry out this vital task will be reduced...and your troops will move more slowly and may even begin to starve unless they are in a very favorable location. We'll look at this again (in detail) when we discuss supply and supply efficiency in the Combat section.

International Trade Summary

The method of establishing new international trade

agreements is discussed in detail in the Diplomacy section; however the Production folder also includes a summary of all active trade agreements since they will impact on your flow of resources. Each line item identifies the trading nation, the type of goods being exchanged, and the current trade efficiency. Hovering your mouse over any item in this scrollable list allows you to view the precise details of the agreement. International trade does not use convoys to transport the goods back and forth. Instead, this is abstracted to "invisible" commercial shipping that will attempt to ensure that the goods reach their destination. These vessels are subject to enemy disruption if either nation is currently at war with a nation that has a navy. Any enemy vessels that are assigned to convoy raiding will automatically disrupt and sink some percentage of the trade goods being exchanged, resulting in a reduction of trade efficiency. You will see a percentage value displayed at the right edge of each trade entry that indicates the current trade efficiency. If it becomes impossible to establish a direct link with your trading partner, although this may be traced through friendly territory, your trade efficiency will drop to zero. Goods will continue to be shipped (even though they won't arrive at their intended destination) until one of the trading partners cancels the agreement.

You may cancel a trade agreement by right-clicking on its listing in the trade summary and then confirming that you wish to cancel it. You may also cancel an agreement in the Diplomacy Folder by selecting the nation, then using the "Cancel Trade Agreement" diplomatic option and specifying the agreement to cancel.

The Trade Folder

General Overview

Previously found in the Production folder, the new Trade folder will improve speed and overview of all trades. More advanced trade options, like setting an import target, or block import/export of specific resources. It consists of the Convoy System, the Resource Depot System, a Quick Trade System, and see a summary of your current trades, convoys and resource depots. Also an improved supply mode map: province ESE, convoys and prioritized provinces is available.

For trading, all deals will now be conducted with cash and not other resources. Also, all trades now require a direct land connection or else a functioning convoy must be established.

Auto-Trade Feature

The new Auto-Trade feature allows you to customize your trades how you want them and allow them to automatically Initiate/Reply to trades. You can also block the Export/Import of your resources if you choose to. You are also now able to change the Import Focus by adjusting the slider for each resource, so you can emphasize how much of which resource you want to import. And if you really want to, you can still make those trades manually.

Convoys

Convoys are the essential vessels used to ferry natural resources from any provinces that you control overseas back to your national stockpiles, and to send supplies and fuel to your troops abroad. Without convoys, you will be unable to import resources from your own colonial possessions (if any) or to keep your supply chains open and operational. AoD's convoy system is somewhat abstracted, relieving you of the need to micromanage their specific actions. Rather than giving orders to individual ships, you will designate a route and then make special convoy and escort vessels available to traffic along (and defend) that route. The convoys will then go about their business and only appear as routes on the map (when viewing it using the convoy map-mode). Their assigned route is subject to enemy interference, though, with convoy vessels being common prey for enemy submarine packs. Escorts will attempt to fight back, defending the otherwise unarmed supply vessels, but you would be well advised to manufacture new convoy and escort vessels on a regular basis if your economy depends heavily on imports or if your troops will be engaged in many overseas campaigns.

The convoy section of the Trade Folder allows you to quickly review your existing convoy routes. For each one you will see the port of origin, port of destination, cargo type, and the number of convoy vessels and escorts currently assigned to the route (shown as convoys/escorts). If this text is red then the number of transports assigned to the route is too few to maintain it at full efficiency. If the text is white then you have a sufficient number. Immediately below the text will be the icons of the types of resources that this convoy has been permitted to carry (see below). This does not necessarily mean that they are being shipped, however, since the depot may not have any of that type of resource. The actual daily transport of goods is displayed in a tool-tip that appears when you hover your mouse over the route. Limited air supply of ground forces is possible, but this is not treated as a regular convoy so it won't appear in this summary. See the Air Combat section for details on air supply.

At the top of the summary area, you will see the number of transports and escorts in your convoy pool that are currently without an assignment and are available for new routes (or to expand existing routes). Click on the Convoys button to display the Convoy Management interface where you can adjust many common aspects of your convoy routes. You may view and control even more details of individual convoys' activities using the Convoy Details interface, accessed by clicking on the route's listing in either the main Trade Folder's summary or in the Convoy Management interface.

The Convoy Management and Convoy Details Interfaces

The upper portion of the Convoy Management interface is similar to the production folder's basic view, providing a scrollable list of all existing convoys and an expanding tool-tip that details the goods being transported. For each route you will see the number of convoys and

escorts currently assigned to that route (which will be red if you have not assigned enough vessels to the task) and there are small "+" and "-" buttons beside these that allow you to change these quantities. Each route also has a prioritize button (an arrow pointing upwards) that is used to assign the relative priorities of each route if you elect to have the route maintained automatically for you. This indicates which routes are most important to you, ensuring that any available convoy vessels will be assigned to keep those goods flowing if you have an insufficient number of vessels to maintain all of your routes at full capacity. We'll discuss how to use convoy automation in a moment.

You can click on a route listing (either here, or in the Trade folder's summary) to display an even more detailed interface for that convoy. The Convoy Details interface includes information about the route that the convoy is taking and allows you to set limits on the types of materials that the convoys will carry. You cannot adjust the convoy's route, but you can specify exactly which materials are to be transported by checking (or unchecking) the appropriate resource check-box. You may also adjust the number of vessels assigned to the route, and you may cancel a route altogether by clicking the Cancel Convoy button in the middle of the panel.

The lower section of the Convoy Details interface is the same as the Convoy Management's lower section and is used to create a new convoy route and to control the level of route automation. To manually create a new convoy route, click on the button that corresponds to the type of route you wish to establish: a resource or a supply convoy. You will then be asked to select a port of origin from the list of possible valid ports. This is whichever port you want the convoy to use as its starting point. You are then asked to select from a list of possible destination ports, the ports you wish to deliver the resources to. Click OK to establish the route. By default, a supply convoy will pick up supplies and fuel (if they are available) and will deliver them to the destination port. A resource convoy will pick up all natural resources and deliver them to the destination port. Goods carried by a convoy to a destination port that is directly land-linked to your capital will automatically transport those goods to your capital and add them to your national stockpile. If this is not possible, then a new depot will be created in the destination port's province and all inbound goods will be placed there for subsequent distribution. Note that you can create a second convoy route to transport goods from one depot to another. This is a very useful technique, particularly when supplying forces in the Pacific theater, since it may require fewer vessels and be somewhat less susceptible to enemy anti-convoy activities than creating a large number of long-distance direct routes.

After you have created the convoy route you may need to use the Convoy Details interface to allocate convoys and escorts to protect them, and possibly to make adjustments to the default goods being transported, before it will become active. You won't need to do this if you have a sufficient number of unassigned vessels and have enabled the "auto-maintain convoy" option, but you might want to adjust its priority. Once created, it will usually require a few

days of game time before you begin to see much activity along a new route since the flow of materials will take some time to be established. You should also check the route periodically if you are maintaining it manually to ensure that it is still active. It might cease to be functional if there are no materials available for it to carry, or if enemy anti-convoy activities are intercepting and destroying the majority of the vessels.

The most common error that new players make when manually establishing convoys is to forget that oil is both a resource and a supply. If you set up a default supply convoy to a depot and a default resource convoy to pick up from that depot and transport raw materials elsewhere, the oil that you intend to place in that depot as fuel for your troops will be carried away by your second convoy since it's a resource. After you've done this a couple times, and suffered the devastating battle consequences of being out of fuel, you'll probably begin to remember to set the material transport limitations.

If all of this sounds just a little bit too complex and overwhelming then you'll be very happy to know that you can delegate almost all aspects of convoy management using the three buttons that appear at the bottom of both the Convoy Management and Convoy Details interfaces. You may elect to have your "unseen assistants" establish and remove resource convoys automatically for you as required. You may also have them do the same for your supply convoys, and you may ask them to maintain the routes by assigning new transports and escorts as they become available. If you automate convoy management you will still be responsible for ensuring that there are a sufficient number of vessels (convoys and escorts) for the "assistants" to work with, and for assigning priorities to each of the routes.

When you are at war you should also be sure to check the status of your convoys on a regular basis. Enemy vessels and aircraft can be ordered to engage in convoy disruption activities that will attempt to locate and sink a portion of your merchant marine. While escorts will help mitigate this to a degree, it is still probable that you will lose some percentage of your shipments and that some of your transports and escorts will be sunk. You should make provisions to build new convoy vessels periodically to replace these inevitable losses.

Resource Depots

The lower right portion of the Trade Folder is a scrollable listing of all the resource depots that you currently have throughout the world. Depots will exist for one of three reasons: either it is your nation's capital; or you have natural resources being extracted from provinces in that region but there is no direct land link to your capital so they are being stockpiled locally to await convoy transport to your capital; or a depot has been established to act as a supply dump of oil and supplies for your troops in that region. I mentioned above that you can use air transports to supply your armed forces, although this is very costly and inefficient so it should only be done in case of emergency. This is an air mission (described in detail in

the Air Combat section) and does not appear in the convoy listing, but the depot of supplies and oil that you establish by doing this will appear in the depot listing.

The first depot in the list will always be your national capital and will reflect the same resource stockpiles that are reported in the Top Bar and National Resources summary. All natural resources listed as being located at one of your other depots are not included in the National and Top Bar values and will not be available to your factories for use until they are shipped, via convoy, to your capital. Generally you will wish to move all natural resources from your depots to your capital as soon as possible to avoid risking their capture and to make them available to industry (or international trade). In the case of a depot that is also supplying your armed forces you will probably want to leave some oil behind and ship some supplies to it.

Quick Trade System

A new window allows you to make a quick trade with another counter. Just select the country you want to trade with from the scrollable section on the left. In the center of the Folder you will see a series of slider bars for each resource you can trade. Slide the bar and it will automatically calculate the chance of the trade being successful. Diplomatic relationships and minister effects will greatly influence your chances.

Minor Fixes and Features

You may now, in-game, right-click on a province and secede that non-national province to an ally or puppet of your choice. This requires an ally with a land or sea connection to that province (puppets will require a land or same-sea connection).

Ships that were damaged will now not be fixed for free when traded to an ally.

There is now much greater flexibility when modding Ministers effects.

The Diplomacy Folder

General Overview

While the Main Map interface screen may be your window on the world, the Diplomacy Folder screen is the interface that governs most of your interactions with it or at least those that don't directly involve bloodshed. It is here that you will form alliances, declare wars, negotiate trade agreements, flex your international muscles or lend a helping hand to a friend (or would-be friend), and generally conduct all of your diplomatic activities. This is also the folder where you may review the domestic policies and governments of the nations of the world and, perhaps even more significantly, control your own. Let's look at the main areas of the folder before we go into the detailed descriptions of the information and controls available for each:

Your Nation and Government: The top left corner of the folder will always display your nation's flag and name, as

well as your form of government and current belligerence value. If you click on the flag then details of your nation will be displayed in the rest of the interface.

World Nations: This is a scrollable list of all nations in the world. If a nation ceases to exist then it will be removed from this list, and any new nations that are formed during the game will be added to it. The information displayed in the rest of the diplomacy folder will change depending on which nation you have selected, as will the options available to you in the interfaces. Beside each nation's name you may see one or more resource icons. This indicates that the nation currently has a daily surplus of this item and might be interested in trading it for something else (this display is updated at midnight each day and the icons will not be displayed until 24 hours have elapsed from the start of the game).

There are tabs at the top of this area that you can click to filter the list and display only those nations that are members of one of the three major factions: the Axis, the Allies or the Comintern. Many nations will not be aligned with one of the three major factions, particularly early in the game, so you will need to locate them in the master listing (you can return to this by clicking the All tab). Another very quick and simple means of selecting a nation is to click on any province on the main map that is currently controlled by that nation. Their flag will be displayed in the information panel and clicking it will automatically bring you to the Diplomacy Folder and pre-select that nation.

Selected Nation, Government Type, Relationship and Diplomatic Details: The top of this area will display the flag and name of the country you have selected from the list (by default it will be your nation). Beneath the flag you will see that nation's form of government, your relationship with them (unless the selected nation is yours), and that nation's current belligerence value. All of the known details of its diplomatic status and activities will be itemized in a scrollable list below this, including any wars that it is engaged in, alliances it has, as well as a variety of other possible diplomatic conditions that might exist.

Selected Nation's Government and Cabinet: Here you will see photographs of the selected nation's head of state, head of government and cabinet. If you have selected your own nation then you will see the people that currently occupy these positions in your government and cabinet and can click on a portrait to change the minister (if a replacement is available). Expanding tool-tips will appear over each picture, detailing that person's traits and any bonuses or penalties these might give. Note that in some cases, an individual may hold more than one position. In particular, the head of state and head of government are often the same person, if the type of government does not distinguish between these positions.

Diplomatic Options: This area is the main diplomatic interface of the folder, allowing you to access a variety of possible options. The actions available to you will depend on the nation selected, your respective governments, your relationship, and any belligerence values.

Selected Nation's Domestic Policies: This area displays the domestic policies of the nation you have selected from

the list. If you have selected your own nation, then this will also be the interface you use to make changes to those policies. This may only be done rarely and within certain restrictions that are determined by your type of government.

Domestic Policy

Overview

Our detailed look at the Diplomacy Folder begins with the Domestic Policy area, displayed as seven distinct policy sliders. Don't be fooled by the small size of this part of the screen... it's a deceptively important one! Each slider has a label at either end, representing two opposing views. The slider position determines which view the nation tends to favor, and how strongly it does so. We'll take a closer look at the meaning of each in a moment.

Domestic policies have far-reaching implications on a nation. Some will give bonuses or penalties in your day-to-day activities, while others will limit or affect your diplomatic or domestic actions or will alter the nature and quality of your armed forces. The first two sliders determine the type of government that is in power and will have a limiting effect on the allowable positions of some of the other sliders. Further, they determine which ministers will serve on the cabinet and can have a significant impact on your relationship with other nations. While you can examine any nation's domestic policies, it is your own country's policies that will be of greatest interest to you. You can easily review these by clicking on your nation's flag in the top left corner of the folder. Hovering your mouse over any slider will give you details about the current effects that your policy setting has on your nation, and hovering it over the small "+" or "-" buttons at either end will show the effects of changing your policy by one step in that direction. Wait! Don't change them quite yet...

The domestic policy of your nation can be changed by clicking on either the "+" or "-" button on the end of a slider. Drastic policy changes are impossible and certain types of governments will place restrictions on the allowable positions of some of the sliders. You are allowed to make only one policy change every six months, and this is limited to adjusting only one slider by only one step. Since each slider has ten distinct steps and it may take several of these to achieve any significant change, you should carefully consider your policies and determine what change will benefit you most before making a change. The only other means of altering domestic policy is by the choices you make when you receive one of the game's special events.

The Democratic - Authoritarian Slider

This slider represents a nation's political pluralism: whether it is highly democratic, highly authoritarian, or somewhere in between. When combined with the setting of your Political Left-Political Right slider, this will determine your government type and the default ministers who will rule the nation. Your level of democracy will have a large impact on your ability to declare war on a nation. The more

democratic you are the more provocative (belligerent) another nation must be before your public will allow you to declare war on the offender. The populations of democratic societies generally expect higher levels of consumer goods and are more upset when their government plunges them into war. Occupied provinces, however, are somewhat less resistant towards their occupiers as they are given somewhat more freedom of expression.

The Political Left - Political Right Slider

This slider determines the general political leanings of your nation. When combined with the setting of the Democratic-Authoritarian slider this will determine your government type and the ministers who will rule the nation. It can also have a significant impact on your relationship with other countries and may limit the allowable settings of several of your other domestic policy sliders (see Government Types below).

The Open Society - Closed Society Slider

This slider determines the measure of freedom enjoyed by your citizens. An open society is somewhat more prone to national dissent and generally has a more difficult time countering enemy intelligence activities, although any conquered provinces will have a lower level of partisanship. A closed society is better able to repress partisans and counter enemy intelligence activities, but is more likely to have trouble controlling national dissent. Scientists who work on projects for open societies also tend to require somewhat higher levels of funding.

The Free Market - Central Planning Slider

This slider affects aspects of your economy. Free market societies generate more cash from their IC allocation to consumer goods, though demand will be higher too, and enjoy reductions in the cost and time required to complete production orders and upgrades. Scientists will also earn considerably higher salaries when working on research projects. A more regulated, centrally governed economy will offer lower salaries to their scientists but the cost and time required to complete production orders and upgrades will be greater. While consumer demand will be lower, correspondingly less cash is generated from IC allocations to consumer goods.

The Standing Army - Drafted Army Slider

This slider determines whether a country maintains a largely professional military force or whether servicemen are only drafted in times of trouble. Nations who rely on drafted armies will receive a significant gearing bonus, but the organization of their armies will be lower and they will gain experience more slowly. Nations with standing armies tend to be better organized and even their raw recruits will be more experienced, but they will not receive nearly as large a gearing bonus in the industrial sector.

The Hawk Lobby - Dove Lobby Slider

This slider indicates the relative strength of the pro-

Government	Policy Settings	Advantages and Limitations
National Socialist	Authoritarian & Far right	This government is adept at maintaining good international relations, but tends to favor central planning over a free market. You will be restricted to policies that lean very strongly towards central planning and a closed society.
Fascist	Authoritarian & Somewhat right	Similar to the above, a Fascist government may be slightly more open and free with its trade if it wishes.
Paternal Autocrat	Authoritarian & Slightly right	This government enjoys modest international relationships with slightly less central planning. This permits further policy flexibility for trade and the openness of its society.
Left Wing Radical	Authoritarian & Slightly left	This nation is somewhat more heavily weighted towards central planning and has some difficulties on the international scene. It does, however, allow a greater openness of society and better trade flexibility.
Leninist	Authoritarian & Somewhat left	This government is generally poorly regarded internationally, and tends to be more restrictive of trade and on the openness of its society.
Stalinist	Authoritarian & Far left	Stalinist governments are not generally liked by other nations and are highly committed to central planning, closed society and are very restrictive of trade.
Social Conservative	Democratic & Strongly right	This society is fairly flexible with regards to its internal markets, and may be somewhat open or closed, depending on preference. Trade is somewhat restricted, and although there is some flexibility in terms of how frequently it intervenes in international affairs, this has little or no beneficial impact on its relationship with other nations.
Market Liberal	Democratic & Somewhat right	Neutrally regarded on the world scene, this government favors a free market and is usually a very open society. Market liberals also tend to adopt interventionist policies.
Social Liberal	Democratic & Somewhat left	This very open society is usually far less inclined to meddle in foreign affairs and is neither highly centrist in its planning nor highly supportive of a free market.
Social Democratic	Democratic & Strongly left	Social democrats lean towards central planning and somewhat more isolationist policies, occasionally harming their relationships with other nations. They do not attempt to restrict their societies, although they are never entirely open either.

war versus the pro-peace lobby in a nation. Nations with a strong hawk lobby will enjoy reduced production times and costs, while more peaceful nations will enjoy a better return on all IC allocations to consumer goods and often enjoy a somewhat more accepted international diplomatic position. You will find that a public that favors a more hawkish political stance volunteers more readily for military service and won't have as much dissent when their government underfunds its consumer goods allocation.

The Interventionism - Isolationism Slider

This slider determines a nation's interest in being part of, and interfering in, the larger international community. Nations that actively involve themselves on the world stage enjoy fewer restrictions and lower

costs for conducting diplomatic activities (some diplomatic actions require cash) but are generally poorer at smoothing over any diplomatic blunders. They are very likely to create or join alliances. Isolationist nations incur higher costs on the occasions that they do engage in diplomatic activities and in some cases may not be able to engage in them at all. A strongly isolationist nation will refuse to join an alliance (it cannot even be invited) and cannot even create an alliance; but such nations are generally good at maintaining and repairing poor relationships. The position of this slider will also partially determine the necessary level of belligerence that another nation must have before you will be allowed to declare war on them. The more of an interventionist you are, the less provocation will be required before you may interpose

and the less upset your public will be when you act on it. Isolationist societies also tend to have a somewhat higher demand for consumer goods.

Government

The position of the first two domestic policy sliders will determine the type of government that is in power in a nation, as well as the ministers who be available to help rule it. Each government type imposes certain restrictions on the possible ranges of some of the other sliders. There are ten distinct forms of government used in Arsenal of Democracy:

Cabinet and Ministers

These are the highest-ranking officials in a nation's government. Unlike the various field officers who directly command a country's armed forces, the ministers are those who hold the highest levels of authority and carry on their day-to-day business away from the front lines. Many ministers possess specific individual traits or characteristics that may play a large role in certain aspects of your economy or military.

The cabinet of each nation is automatically assigned based on the prevailing domestic policy conditions, particularly the type of government, forming a body of ten officials who will oversee its affairs. Each minister may possess personality traits that make him ideally suited to hold that post, although in many cases there are trade-offs between his natural expertise and his corresponding deficiencies. You can achieve amazing success simply by taking advantage of your ministers' attributes and working to minimize or avoid the less desirable aspects of their personalities.

Appointment of Ministers

Ministers are appointed automatically in Arsenal of Democracy based on a nation's domestic policies and drawn from the available pool of potential officials in the region. Every country will appoint ten ministers to serve on its cabinet, although in some regimes a minister may occupy more than one cabinet position (most notably in the case of a dictatorship, where the head of state will usually also hold the head of government post).

The ministerial files of the game not only include the names of almost every significant government official of the era, they also contain additional "possible" ministers who did not historically occupy posts on cabinet. During the course of play, these ministers may come to power as a result of the domestic policies you pursue; or through civil war, dissident uprisings, an enemy-funded coup d'état, or as a result of special events. You may also voluntarily change many of your ministers by clicking on the appropriate portrait and selecting from the list of other available ministers. The ones that are listed will depend on your current domestic policies, so you may find that some prospective ministers may not be available until you have made a significant change to your policies.

New for AoD, the effects of Minister (and leader)

changes are now delayed and will also cause dissent. How much dissent depends on how often and how quickly you make changes. You will get a chance to see the level of change before you accepting.

It is not practical, in the space available in this manual, to detail each of the various ministers' possible traits and their effects. This information is clearly displayed in the expanding tool-tips that appear when you hover your mouse over each person's portrait. The following is a general summary of each nation's cabinet positions:

The Head of State

The Head of State occupies the highest position in the nation. He will often have a trait that will have a significant effect on your nation (and the AI's actions) and the person that occupies this position is usually, though not always, determined by the type of government that is in place.

The Head of Government

The Head of Government is in charge of directing the nation's general affairs and its cabinet. He may have any one of a number of widely varying traits that may affect the industry, diplomacy or military success of his nation.

The Foreign Minister

The Foreign Minister is charged with conducting the majority of a nation's international diplomacy and may possess traits that will benefit or hinder those activities to various degrees. These traits will often give bonuses to certain diplomatic options while incurring penalties for other types of negotiations.

The Minister of Armament

The Minister of Armament oversees all research and production in a nation. His traits will usually affect research times, production time and costs, and resource availability, although most characteristics will involve potential trade-offs in opposing areas.

The Minister of Security

Charged with maintaining the internal stability of a nation, the Minister of Security will usually possess traits that will affect domestic affairs. He may be proficient at maintaining lower levels of dissent, or partisanship, or be adept at preventing hostile diplomatic attempts (such as an enemy-funded coup d'état).

The Head of Military Intelligence

The Head of Military Intelligence is the counterpart to the Minister of Security. He will direct your intelligence efforts abroad and his agents could provide vital and timely information about your enemy's activities. Depending on his specific area of focus, this could result in advanced warning of large troop build-ups, the theft of enemy technological secrets, important information about the enemy's industrial activities, or may affect the likelihood of a coup d'état attempt that you fund of being successful.

The Chief of Staff

The Chief of Staff is responsible for a nation's combined armed forces and will usually subscribe to a "school" of thought about how best to wage war. He is usually biased towards one of the three main divisions of the armed forces (army, navy or air force) and will give that one particular group an extra edge over the others.

The Chief of the Army

The Chief of the Army directs the overall activities of a nation's ground forces. He will usually have a combat doctrine that provides bonuses to certain types of engagements or to a specific type of land unit that he prefers above the others.

The Chief of the Navy

The Chief of the Navy directs the overall activities of a nation's maritime forces. He, too, will tend to prefer a specific doctrine that may have decisive benefits and may favor one type of vessel over all others.

The Chief of the Air Force

Like his army and navy counterparts, the Chief of the Air Force will subscribe to a doctrine that may give some of your aerial units advantages in certain types of missions.

New Policy Positions for AoD

For each major country we also added a unique ideology, policy and culture. For AoD, there are three new policy positions for every country. They are all dependent on a country's base ideology, for example, autocratic or democratic, left wing or right wing. Because it is very hard in real life for a nation to just switch between different value-sets, changes first takes a lot of time and secondly gives a huge amount of dissent to your nation. Thus, you are still limited in new policies to the options in your near environment, for example, as a fascist Italy you won't be able that easy to go a liberal way in social politics but maybe one which tends into the Nazi region.

The effects these policies have on the game-play values itself are very broad. The changes range from the field of diplomatic and/or intelligence costs, to build times and/or organization and dissent modifiers.

National Ideology: Which tries to model the ethics of the population itself.

Social Policy: Which simulates in an abstract way the social fabric of a country and the degree of development towards a human and tolerant society.

National Culture: Which actually tries to represent the overall mindset and social conventions of a country.

Other Nations' Domestic Policies and Ministers

There is a tendency of newer players to pay very little attention to the policies and cabinets of other countries. While it is arguably not particularly vital for you to review the domestic situation of smaller, more remote

nations with whom you will rarely come into contact, it can be a serious oversight to ignore the capabilities of an enemy. You should evaluate a foe's strengths and weaknesses, seeking to take advantage where you can and perhaps even tailor your own domestic affairs to either counter or exploit them.

Dissent and Partisans

Dissent is a global effect in your nation and can be thought of as a barometer of overall public satisfaction. It affects all provinces equally, whether national, owned or occupied, and is displayed in the Top Bar at all times. There are two direct and important effects of allowing your nation's dissent levels to rise: you will suffer decreased performance from your armed forces and you will increase the likelihood of civil disobedience.

As far as your public is concerned, the most unsettling action you can take is to plunge your nation into war without cause or provocation. In some cases, your type of government and your domestic policies will prevent you from going to war at all; but in those instances where you are permitted to make a declaration (and choose to do so) some portion of your public will object to this action, causing a sudden rise in dissent. The amount of this increase will depend entirely on your "reasons" for going to war and are also modified by your domestic policies. If you are declaring war simply to satisfy your territorial ambitions (or for the sheer fun of waging war) then your public will take a very dim view of it. If you declare war as a result of a casus belli, a "just cause", then your public will be far more understanding. A casus belli may result from another nation having control of one of your national provinces (as displayed on the diplomacy map-mode). But it can also occur if you guarantee the independence of a nation which is then attacked by a third party. Because you have made these diplomatic assurances, your public will be quite supportive if you subsequently declare war on the aggressor. There will be no rise in dissent if you find yourself at war as a result of one of your allies declaring war, or due to a nation declaring war on you or a member of an alliance you belong to.

Dissent is not limited to foreign affairs. The most common reason for it rising is actually as a result of your failure, domestically, to meet the consumer goods expectations of your public. If you allocate too little of your industrial capacity to their production, then dissent will begin to rise. The demand for those goods, and the rate at which dissent rises if you fail to meet that demand, will depend on your domestic policies and possibly on your cabinet ministers.

As the level of dissent rises, the most immediate effect you will notice is that the performance of your armed forces will begin to suffer. Low levels of dissent will have only a marginal impact on their combat abilities, however higher levels may place your forces at a significant disadvantage. There is also a chance that dissent may reach a level where your public will rise in open rebellion and seek to overthrow what they view as a corrupt and malevolent government. They will also be far more open to accepting

foreign financing of a coup d'état, something that could have devastating consequences for your nation.

The only way to reduce public dissent is to allocate excess IC to the production of consumer goods (which also has the side benefit of generating additional cash for your national treasury). The rate of the decrease is determined by the extent of your over-allocation, by your domestic policies, and may be further modified by the capabilities of your cabinet ministers.

Partisanship is a concern only in non-national provinces, and is tracked on a province-by-province basis. Non-national owned provinces will usually have fairly low levels of militancy, while occupied provinces will generally be much higher. In both cases, this may also be compounded by your current level of national dissent. Detailed partisanship values are displayed in the information panel when you are reviewing a province's details, or may be seen as a graphic representation on the main map when you click the partisan map-mode button.

Partisanship damages the economy of a province, hampering the supply and movement of troops in that territory, and increasing the likelihood of open rebellion. In owned provinces this effect is slightly less than in occupied provinces, but neither should be expected to contribute a very high percentage of their industrial or resource potential. The risk of rebellion is represented directly by the partisanship level and will be further modified by your national dissent values, and this same partisan percentage is also applied as a reduction to your nation's transport capacity. This may be overcome by maintaining a large enough standing force to suppress their efforts; however neither type of province will contribute to your national manpower pool except under very unusual circumstances, and each occupied province you control will reduce your transport capacity by at least 1 point.

The only way to reduce the level of partisanship in a province is to keep the resistance movements in check by placing troops there to maintain order. Most land units have a suppression value. This value is subtracted from the partisanship value when the troops are located in a province, and the value is doubled when the troops have been specifically ordered to engage in anti-partisan activities (we'll look at how to do this when we get to the Land Combat section). If the suppression value is high enough, then the additional percentage effects of partisanship may be completely eliminated; but the base reduction to resource extraction and industrial capacity and the minimum loss of 1 point of transport capacity in occupied territories cannot be removed.

The factor that will most heavily influence partisanship and national dissent is the degree to which your society is open or closed. Open societies have national province populations that will be considerably more militant about your actions, but owned and occupied populations are generally very happy to be allowed to express their opinions and are less likely to revolt. The opposite is true of a closed society. To a lesser degree your Minister of Security, who is responsible for such domestic affairs, may be able to influence the dissent or partisanship levels if he

possesses the correct skills.

Beware! Partisans and dissidents who rise in rebellion may be heavily armed and quite difficult to defeat. Failing to deal with them promptly may result in them achieving independence, forming their own government, and establishing a new nation - one that will be in conflict with your own. Neighboring provinces may even decide to join in the rebellion and it is quite possible that other members of the international community could be drawn into the affair.

Diplomacy: International Affairs

Overview

We now turn our attention to international affairs: your nation's ability to engage in diplomatic activities with the world's other nations. The options available to you when conducting diplomacy will depend on the relationship that exists between your country and the nation with which you are attempting to enter into discussions. The overall stance is of prime importance, whether you are allied, at war with, or neutral towards one another, but other factors may also play a pivotal role in the likely success of your negotiations: your relationship with the nation, your cabinet (most notably, your foreign minister), your respective forms of government and domestic policies, your prior diplomatic actions, your military successes or failures, and your overall wealth.

Other Nations' Domestic Policies and Cabinets

While you have no direct way to affect other nations' domestic situation, you should periodically review the domestic policies and cabinets of the other nations in the world, particularly those with whom you are at war. This may give you an added insight into their overall strengths and weaknesses and might suggest tactics that are more likely to be successful. This is easily done by selecting a nation's name or flag from the list of world nations in the Diplomacy Folder. You can also click on a nation's flag when viewing one of its Province Details to go directly to the Diplomacy Folder with that nation pre-selected for you.

National Relationships

Arsenal of Democracy uses a diplomatic model that assumes that each nation in the world has a specific view about each other nation in the world, and that any two nations are capable of conducting at least some level of diplomacy. The success or failure of a diplomatic action and in many cases, the diplomatic options that are available will depend on the relationship value that exists between the two nations. When you select a country in the Diplomacy Folder, you will see your current relationship value with that nation displayed near the top of the screen. This value indicates generally how that nation "feels" about you and can range between -200 (you detest one another) and +200 (you're the best of friends). Although you cannot view a nation's relationship values with other nations in the

world, these are tracked and will modify the diplomatic activities between AI-controlled nations. If you examine the details of the diplomatic agreements that they have in place, however, you will get a pretty good idea of their general leanings. Nations with similar government types will tend to be very friendly towards one another, as will nations who are joint members of an alliance.

Your relationship with a country will affect the diplomatic options available to you and will also impact on the likelihood of a proposal being accepted. Alliances are usually limited to nations that have a very good relationship, at least at the time that the alliance is first formed, and trade deals and negotiated deals are far more likely to be met with a favorable response if your nations are on friendly terms. Some diplomatic options are specifically designed to improve relationships between nations, while others are almost guaranteed to result in a worsening of this value. In most cases, a relationship will improve when a diplomatic proposal is accepted, thus opening the door to further interactions, and will worsen if it is declined. The other factor that affects international relationships is each nation's belligerence.

Belligerence

Every nation has a belligerence value that is displayed below the relationship value. Think of this as a special means used to measure and evaluate each nation's actions. The more actively aggressive you are, the higher this value will become. Entering into wars without provocation, annexing countries, initiating coups, and similar activities will tend to make other nations think of you as belligerent and a danger to their continued survival. Freeing nations from oppression, or even just keeping a low profile over a significant period of time, will tend to make nations think of you as being more friendly and trustworthy. Each of these actions (or inactions) will alter your belligerence value and affect your diplomacy. The most visible result of a high belligerence value is to exert a continuous downward pressure on your relationship values with other nations. Even your closest allies will begin to view you with some degree of suspicion, overcoming the normal bonuses that apply to relationships between allies. Neutral countries will tend to dislike you rather intensely, and enemies will become committed to your destruction. If you allow your belligerence to reach epic levels you could even find that the entire world suddenly becomes obsessed with your destruction.

A less obvious effect is that a limit is placed on democracies where they may not declare war unless the "target" nation has a sufficiently high belligerence value and the democracy has a strong enough policy of intervention. These factors are weighted, meaning that the more democratic a nation is and the less it leans towards interventionism, the higher the required belligerence value of a target nation needs to be in order for the democracy to declare war.

Other than going out of your way to free nations that you have already conquered, you can reduce your own belligerence value by being on your best behavior for a

prolonged period of time. If you do this for long enough, the international community will slowly forgive and forget your previous transgressions and your belligerence value will slowly recede.

The Three Factions: The Allies, The Axis and The Comintern

While an alliance can be formed between any two neutral nations, there are three pre-existing factions in Arsenal of Democracy that are considered to be natural and dominant alliances: the Axis, the Allies, and the Comintern. A nation may only belong to one alliance and, upon joining, is automatically considered to be allied with any other nation which is also a member of that alliance. That nation is then prohibited from joining a second alliance without first leaving their existing one.

The Allies: This alliance is headed by the United Kingdom and will appeal primarily to democratic nations. In virtually all games there are a number of nations that are already a member of this alliance (mostly Commonwealth nations, and possibly France or the USA, depending on the game). In several of the battle scenarios "The Allies" may actually be treated as a single nation rather than as a collection of nations (it uses a special flag with a green star on it as its insignia).

The Axis: Germany begins the 1936 Grand Campaign game as the only member of this alliance of fascist nations, though others may be interested in joining. For game purposes, Japan is also treated as a fascist nation to increase the probability that they will join the Axis alliance at the outbreak of war.

The Comintern: The Soviet Union leads the alliance of communist nations, and in most games Mongolia and Tannu Tuva will also begin as members. Although historically the Comintern and Allies formed what would normally be viewed as an alliance, this relationship is not established in the game setup of later campaigns to allow the player a little more freedom of diplomatic action (although both the Comintern and the Allies will be at war with Germany).

I should point out that the nations who lead these three factions are not only considered to be alliance leaders (see below) but are also programmed to be extremely reluctant to agree to any peace terms other than the outright annexation of a member of another alliance. You should expect any other offers of surrender to be rebuffed when they are involved.

Spheres of Influence

Before we look at the various diplomatic options, you should be aware that there is an additional component to diplomacy that is not readily apparent from any of the interfaces but will have an impact on the outcome of your actions. This is termed "spheres of influence" and represents the historical situation where a number of larger nations took a very dim view of other nations conducting diplomacy in an area that was geographically close to their interests without their expressed permission. This is most easily seen by watching which countries have their independence guaranteed by larger AI nations, since they

will typically do so for any nation in their sphere that isn't diametrically opposed to their form of government. Be warned that stepping on their diplomatic toes can result in no small degree of resentment, a drop in your relationship values, and could even lead to war.

Initiating Diplomacy

To initiate any diplomatic action, select the country from the listing at the left side of the Diplomatic Screen. The Diplomacy Options area will now display a list of all available actions that you may take with this nation. Ones that you may perform immediately are highlighted in orange, while others may be grayed out if you fail to meet a necessary condition to initiate that action, generally a case where the relationship or belligerence values are too high or too low. Some diplomatic options require cash to perform, so this could also prevent you from taking an action until your national cash reserves have increased. There are also some diplomatic options that will only appear if you are at war with a nation or not at war with a nation. There are also options that will only be displayed if you have selected your own nation as the "target". A tool-tip will appear when you hover over an option, briefly detailing what it means and also informing you of the cost of the action and any prerequisites that you currently fail to meet.

Once you decide on an action, click on it. In many cases a new interface will appear that allows you to specify additional details, while in other cases the action may take place immediately or you may be asked to confirm the action. If there is a cash cost for the diplomatic action, it will only be deducted when you confirm the action and dispatch your diplomat. You will not lose the money if you change your mind and cancel the action; but once confirmed, the money will be deducted whether or not the diplomatic offer you send is agreed to. (For instance, the cost of sending a diplomat to negotiate military access will not be returned to you if the access is declined.) The cost of a diplomatic action will fluctuate, depending on your domestic policies, your cabinet, and the size of the nations involved (which explains why I don't give precise costs in the sections that follow). The tool-tips will indicate the exact cost of each action.

Once you have sent a diplomatic message to a nation, you will have to wait for a period of time before you are able to initiate any further diplomacy with that nation (although you may conduct diplomacy with other nations if you wish). If a response is required, you will usually receive it within a day or two (although human players may take longer to answer in multiplayer games), but you must wait a full week before another message may be sent to that nation. When you receive a diplomatic message that requires a response (usually a trade offer), you will have a limited period of time to respond before it becomes invalid and disappears from your screen. The following are the various diplomatic options that may be available to you:

Offer Trade Agreement

There are two different types of trades that can be arranged between two nations: a trade agreement and a

trade negotiation. Trade negotiations are one-time transactions that may involve a very wide range of items, while trade agreements are open-ended deals that involve an ongoing daily exchange of resources. There is a small cost required to propose a trade agreement. When you click on the offer trade agreement option, a secondary interface appears.

Each of the resources (including supplies and cash) will be represented by a slider on the interface. There will be maximum end points set for each slider, limiting what you may request or offer. These endpoints are based on the daily rate of change of each of the resources: on the right side for your nation and on the left side for the nation with which you are negotiating. If you have no daily increase of a resource, then you will not be able to offer that item (regardless of your stockpiles) and if the target nation has no daily increase of an item then you will not be able to request it. The exception to this is that you may offer more than your own daily rate of change of money or supplies if you currently have stockpiles of those items; but you cannot request them regardless of that nation's stockpiles. You can check the resources that a nation might be interested in bartering before you open the interface by looking at the small resource icons adjacent to the country's name in the diplomatic list. An icon will indicate a daily surplus of a resource and means that you might be able to barter for it (reminder, these icons are updated at midnight each day and will not appear until the first game day has elapsed).

To set the terms of the proposed trade agreement, simply adjust the sliders to indicate the resources you would like to exchange. Shifting a slider to the left of the mid-point will indicate that you are offering that resource, while shifting it to the right means that you are asking for that resource in return. Once you are satisfied with the deal, click the OK button to send the offer. There is a numeric display near the bottom of the interface that indicates the chance that the nation will accept your proposal, but the accuracy of this value will depend somewhat on your minister of intelligence's reports and on your foreign minister's persuasiveness. It is also affected by your belligerence value and by the relationship between your two nations, and is further modified by both nations' domestic policies. Don't be too shocked if a nation declines a trade in spite of a 100% acceptance probability and it's similarly possible that a nation might agree to an offer even though the chance seems slim.

If a trade agreement is accepted, the exchange of goods will begin on the next day and will continue until one of the two nations decides to cancel the deal or is no longer able to supply that resource. There is a trade efficiency factor, however, that will modify the actual amounts that each nation receives. The efficiency reflects the small losses in goods that may occur naturally if they must travel great distances (shipwrecks, etc.) and potentially very large losses if one (or both) of the nations involved is at war with an enemy who is engaging in convoy disruption activities. The routes used by ships involved in trade agreements are not shown on the supplies map-mode, but you must still be

able to trace a line of supply through your respective nations' territories, or through the territories of those nations who are friendly towards you and with whom you have a treaty of access. If you are unable to do that, or if the route is heavily blockaded by enemy vessels, then none of the goods will arrive at their desired destinations and there is little point in proceeding with the offer. Note that the full shipment of goods that you are sending will still be withdrawn daily, but that you will receive less in return.

Cancel Trade Agreement

If you have a trade agreement with another nation then you will have the option to cancel it if you wish. The most likely reasons for doing so would be a drastic reduction in trade efficiency or a change in the availability of a resource. When you click on this option, you will be given a list of all existing agreements that you have with that nation. Simply select each of the agreements that you wish to cancel (an X will appear) and then click okay. You may also cancel a trade agreement directly from the production screen by right-clicking on the trade deal. There is no negotiation involved in canceling an agreement, it is canceled automatically by this action, however it may damage your relationship with your former trading partner.

Open Negotiations

This diplomatic option is used to negotiate a one-time trade between your nation and any another nation with who you are not at war. The range of items that can be bartered may include resources, provinces and even technological blueprints. There is also a small cost involved in negotiating the deal. An interface will appear when you click the open negotiations button that is divided into two halves: the items being offered by your nation will be on the left and the items you wish to receive in exchange will be on the right. As you assemble your offer any provinces or blueprints that would be exchanged will be listed below the nations, and the amounts of any resources involved will be displayed beside the appropriate icons towards the bottom of the interface.

Territory may be included in a deal by clicking on the Provinces tab (on the appropriate side) and then selecting the province name from the list. The name of the province will appear at the bottom of the screen when you click on it, and if you change your mind you may simply click on that listing to remove it. Note that you may only offer to buy or sell non-national provinces.

The same technique is used for including a blueprint in the deal, however the Blueprints tab will be grayed out and cannot be selected unless the nation you are negotiating with is an ally, or if one of you is a puppet to the other. It will also be gray if a nation has no technology to offer that its ally doesn't already possess. You may only request or offer blueprints for projects that a nation currently has the necessary prerequisites to begin researching (or is already researching).

Resources may be offered or requested by clicking on the Resources tabs. You may only offer up to the total amount that you have in your national stockpile, or request

up to the amount that the other nation has in its own (again, this is an underhanded way to evaluate another nation's resource stockpiles). As you adjust the sliders, the amounts being offered or requested will be displayed beside the appropriate icon at the bottom.

As you assemble the proposal, the chance of the deal being accepted will be displayed at the bottom of the interface. This is the base chance and is modified by the same sorts of factors as affect trade agreements, so keep this in mind as you are putting the proposal together. The only deal that would be automatically accepted is one where you are giving something away for free: offering something on your side of the interface while requesting nothing in return. Once you are satisfied with your offer click the OK button (or click the cancel button to abort the diplomatic action) and the proposal will be sent. If the target nation accepts the deal, then the exchange will be made. Beware! Negotiated deals are subject to the same trade efficiency modifiers as trade agreements are, so not all of the resources exchanged will necessarily reach their intended destinations. Provinces and blueprints are not subject to enemy embargo.

Influence Nation

This is a fairly common diplomatic action where you will send money to a nation in an attempt to improve the relationship that exists between you. There is no acceptance required for this "gift" and you will usually see at least some improvement in your nations' relationship after choosing this option. The degree of change will depend on a variety of factors, particularly the capabilities of your foreign minister and your relative government types, and will have no additional or lasting benefits beyond this one-time boost.

Alliances: Offer Alliance/Bring to Alliance/ Join Alliance

An alliance is a special relationship that exists between two or more nations: usually for protection and military cooperation. New alliances may be formed between any two nations that are not already part of an alliance, and whichever nation that creates the alliance will become the alliance leader. The alliance leader is the only nation that may invite new nations to join the alliance, or accept the petition of an otherwise unallied nation who wishes to join. At the beginning of each campaign game, there are three preexisting alliances: the Axis, the Allies and the Comintern. Germany is always the alliance leader of the Axis. The United Kingdom is always the leader of the Allies. The Soviet Union is always the leader of the Comintern. There is a special case in the 1936 Grand Campaign where Germany has no other allies at the beginning of the game - even if you are the one to propose and arrange an alliance with Germany, Germany will be the alliance leader and you will be deemed to have joined the Axis.

If you wish to form a new alliance, you cannot already be allied to any other nation and you must issue your invitation to a nation that is also not already allied. If it is possible to create one, the offer alliance option will be

available in the list of diplomatic actions. Creating an alliance is usually a fairly expensive process and is only likely to succeed if you have a good relationship with that nation and you have fairly similar types of government. Larger nations will also tend to be somewhat disinclined to accept an offer made by a smaller, weaker nation; and a nation that pursues isolationist policies is very unlikely to be interested in your offer (in fact, unless a democratic nation with a strong isolationist policy is already at war, it cannot offer or be asked to form an alliance, nor can it ask or be asked to join an existing alliance).

Once an alliance has been formed, the leader of the alliance may invite additional members to join (as long as they are not already a member of another alliance) by selecting the nation and using the bring to alliance diplomatic option. This will be a somewhat less expensive process than creating an alliance, and the likelihood of the offer being accepted is governed by a similar set of considerations as forming alliances. If you aren't part of an alliance and wish to become a member of one, then you may petition the alliance leader to allow you to join by selecting the join alliance option. This is a relatively inexpensive option and the leader's response is determined by the same set of preferences as has already been mentioned. If you aren't sure who the alliance leader is, you can select any member of the alliance and then hover your mouse over the join alliance option. If the selected member isn't the leader you will see a tool-tip that indicates that you can't ask this nation and identifies the alliance leader.

Alliances are very tight international bonds. Allies will share all of their territorial and armed forces information with one another, removing the fog of war over those provinces for all member nations. If a member of an alliance declares war or is the recipient of a declaration of war, then the entire alliance immediately becomes involved in the conflict. Alliance members grant unconditional military access to one another. They will also provide supply for each others' forces as required and will allow navies and squadrons to make free use of their bases.

Once an alliance is involved in a war, no member may leave that alliance until it has concluded a peace treaty with the enemy and is no longer involved in the war. Be cautious when forming an alliance or adding new members to it after it has been created. There is no provision for an alliance leader to either ban a member nation from an alliance or to dissolve the alliance. An alliance leader may, however, decide to leave the alliance if he wishes (see below), at which point a new leader is chosen from among the remaining alliance members. Similarly, if an alliance leader is annexed then a new leader will be appointed from the survivors.

Alliance leaders always conduct peace treaties on behalf of the entire alliance (except for their own annexation), and all terms that an alliance leader agrees to are binding on all other alliance members. Separate peace treaties may be negotiated by non-alliance leaders, but these are only binding on the two nations involved in the negotiations. If an alliance leader negotiates a peace treaty with a non-alliance leader, then the terms agreed to by the

alliance leader are binding on his entire alliance, but the terms agreed to by the non-alliance leader will only affect his nation separately and the remaining members of that alliance will still remain at war.

Leave Alliance

If you are a member of an alliance, you may elect to disassociate yourself from it by selecting this option. You may not leave an alliance if it is at war. The cash cost for leaving an alliance is quite steep and has a very negative impact on your relationship with all other member countries. It goes without saying that you are not allowed to declare war on another member of an alliance you belong to; thus you must leave the alliance if you wish to do so. Although it might seem odd, and is admittedly very unlikely to happen, an alliance leader is permitted to leave an alliance that he has created (as long as it is not at war).

Send Expeditionary Force

This option allows you to lend a force to one of your allies. This is a free diplomatic option (it doesn't cost any money to do) and relinquishes control over one existing force to the target nation. The new national controller will then assume all responsibilities for issuing it orders and replenishing its losses, however it will remain under the command of the officer you have assigned to it and cannot be disbanded. The nation you've lent it to may continue to use it until the force is either eliminated or returned to you voluntarily (you cannot request its return).

When you select this option, an interface will appear that allows you to select which force to send to your ally. Since the listing is a scrollable list of every force that you possess but doesn't detail its complement (other than total size, strength and organization), I would recommend that you predetermine which one you intend to send before initiating this action. If you currently control another nation's expeditionary force and wish to return it, click on this option in the Field Command Details menu to place it back under its home nation's direct control.

Assume Military Control/Relinquish Military Control

If you are allied to another nation you may ask that nation to allow you to assume military control over its forces. This request will cost a moderate amount of money to initiate and is likely to be accepted only if you are significantly larger and stronger than the nation to whom you are making the request. If accepted, you may then issue orders to that nation's armed forces but their reinforcement and the decision as to whether to begin production of any new units remains at their discretion.

Once you have been granted military control over a nation, you will remain in control until you return control back to that nation via the relinquish military control diplomatic action (which has a modest cost associated with it), or until the nation either is annexed or leaves your alliance for some reason. If you grant military control to another nation then the only way to regain control of your armed forces (without being annexed and thus losing the

game) is to leave the alliance.

Guarantee Independence

This is a relatively inexpensive option that allows you to guarantee the independence of a nation for the next five years. This is a formal declaration that warns that you will take a very dim view of any hostilities that are initiated against this nation and will very likely act in its defense. In the event that a third party does declare war on that nation, you will have a *casus belli* against the aggressor, allowing you to declare war without paying a heavy political price for that declaration (either domestically or internationally). You are not required to make such a declaration, though, nor do you suffer any ill effects for failing to do so. This is a method for a democratic nation to bypass the normal belligerence and interventionism restrictions that would otherwise prevent it from making a declaration of war.

Offer Non-Aggression Pact

This diplomatic option is used to arrange a two-year mutual non-aggression pact with another nation and involves a moderate cost to negotiate. In essence you are asking another nation to formally sign an agreement where both nations commit to remaining peaceful towards one another for the duration of the pact. If accepted it will usually have a positive effect on the relationship between your two nations and will incur very hefty penalties if it is subsequently broken prior to its expiration. A nation cannot declare war on a nation with which it has signed a non-aggression pact without first formally canceling it, so this may offer you some degree of security and, at very least, a minimum of a week's advance notice before a war can occur between your two nations. Once a pact has expired, there are no further assurances of peace, nor is there any additional penalty if either nation subsequently declares war (beyond the penalty for the declaration of war itself).

Non-aggression pacts have a good chance of being accepted if you have a fairly competent foreign minister, are significantly larger or more powerful than the other nation, have a fairly low belligerence factor, or enjoy a decent relationship with the other nation.

Cancel Non-Aggression Pact

This option will only be available if you have an existing non-aggression pact with a country. Although this will severely damage your relationship, you are prohibited from making a declaration of war on a nation with whom you have a non-aggression pact and thus you must cancel it before you will be able to declare war. Needless to say, a country that breaks a non-aggression pact with you should be watched very closely.

Ask for Military Access/Cancel Military Access/ Revoke Military Access

This diplomatic option is a request to a nation to allow your forces to move freely through its provinces and also to be able to trace supply through them. Without this, you are prohibited from entering or supplying through a

neutral nation's territory. The cost to initiate this request is modest, but most nations will not be willing to grant you access unless you enjoy a very good relationship. Allies automatically grant one another access, so it is not necessary to arrange a special treaty unless you expect that at some point they (or you) might leave that alliance.

A military access treaty is not a reciprocal arrangement. A separate access treaty would have to be requested by the other nation before it could move forces through your nation's provinces. While an access agreement is in place, you will be prohibited from declaring war on a nation that is granting you access. Beware! A nation that grants you access is not under the same constraints and may declare war on you at any time and without warning.

Military access may be revoked by either the nation at a modest cost by selecting the cancel (or revoke) military access diplomatic option. If a nation does this, then it is likely, probable in fact, that the nation is planning to declare war on you in the near future, so you should be on your guard. Besides souring your relationship, a nation whose access is revoked is also given a *casus belli*, allowing it to declare war without paying the usual domestic or diplomatic cost.

Liberate Nation

This option is only available if you have selected your own nation and if you control provinces that can become part of a nation that does not currently exist. If you click liberate nation you will be asked what country you wish to create from a list of possible nations. A tool-tip will advise you of the provinces that will become part of the new nation (and cease to be considered yours). When you have selected the new nation and clicked OK the new independent nation will be formed and will be added to the list of nations in the world.

If you voluntarily liberate a nation, it will begin its new political life as a puppet regime and will send you a portion of the resources it extracts from its provinces each day. It will also become a member of whatever alliance you currently belong to (if any) and you will begin your new relationship with them at a very high standing. The liberation of a nation will be greeted warmly by the international community, usually causing your belligerence value to decrease.

Release Puppet

If you have a nation that is under your control as a puppet regime you may decide to release it to its own devices. The only immediate effect is that you will cease to receive any portion of its national income, but this is considered a very benevolent action that is likely to improve your relationship with many parts of the international community.

Demand Territory

This option will be available if a nation owns one or more provinces that are considered to be your national provinces (shown in dark green on the diplomatic map-

mode). This is not a peace treaty option! It is a demand that the nation return territory to you that is rightfully yours. The cost of sending your diplomats will depend on the amount of territory involved, and although it does not increase your belligerence, it will seriously degrade your relationship with that country regardless of whether or not it agrees to your demands.

Coup Nation

Coup Nation is a means of financing a coup d'état of another nation. If you have sufficient funds to send to the insurgents, then you can select this option regardless of whether or not you are at war with that nation. The attempt will not always be successful, being influenced primarily by the target nation's level of dissent, although this is also modified by the abilities of your Minister of Intelligence and the target nation's Minister of Security.

Declare War

This option sends a formal declaration of war to another nation. Making a declaration of war without a *casus belli* is a very belligerent action. Democratic nations will not even have this option available to them unless the recipient of their declaration has either provided provocation, or has a very high belligerence value and the democracy has a firm domestic policy of interventionism. While there is no monetary cost for declaring war, doing so also risks civil unrest unless there is a very strong reason for the conflict. When you click on the action, an interface will appear that informs you of the effect this will have on your national dissent level and advises you of any allies that the target nation might have. If you wish to proceed, click the OK button. If you change your mind you may click Cancel.

A declaration of war will automatically plunge all allies of both nations into the conflict as well, they have no choice in the matter, although they do not pay a political or domestic price for doing so. Once begun, war can only be ended by concluding a peace treaty, or by all nations on one side of the conflict being eliminated. The subject of a declaration of war will also gain a small amount of sympathy from the international community, resulting in a modest reduction of his belligerence value.

Sue for Peace

The sue for peace diplomatic option will only be available if you are at war. There is no cash cost to initiate this action and you may sue for peace whether you feel that you are in a position of victory, or one of defeat. When you sue for peace, you will first be asked what type of peace you are interested in negotiating. If you feel that you are winning the war, then select the "insist on demands" button to assemble the terms of your enemy's surrender. If you are in a losing position, then you may wish to select the "beg for peace" button to put together a proposal of what you'd be willing to give up to go to peace. If you would be content with a return to the status quo before the war broke out, making neither concessions nor demands, then select the "white peace" button. Whichever option you

select, a new interface will appear that will depend on what type of peace you are pursuing.

Before we look at the options, though, it is important to understand the distinction between peace treaties negotiated by an alliance leader and those that are negotiated by some other nation that is part of an alliance. This is something that I touched on earlier when discussing alliances and bears repeating. When an alliance leader is involved on one side of the negotiations in a peace treaty, any agreement that is reached is binding on every member of that side's alliance. If a nation that is not the alliance leader agrees to peace treaty, then it is only that nation, and not the alliance it belongs to, that is bound by the agreement. The only peace agreement that will end a war completely is one negotiated between the alliance leaders of the two sides that are at war. Any other agreement will result in only a partial peace, with the extent of the peace being determined by whether one of the nations involved in the negotiations was an alliance leader or whether neither of them was. Before you offer terms or decide to accept an offer that is sent to you, be absolutely certain that you know what you are agreeing to and who you're agreeing to it with, or you could be in for a very big (and potentially nasty) surprise! When an alliance leader is involved in a peace negotiation it can arrange for one (or more) of its alliance members to be the beneficiary of any land being exchanged (they must currently occupy it for this to be possible), but it can also force an alliance member to concede territories, if those provinces are occupied by the enemy. An alliance leader cannot, however, bind an alliance member to any special peace terms such as forced disarmament, military access, or forcing them to become a puppet of the enemy. Annexation, the worst possible outcome of war for a nation, is not negotiated using the "sue for peace" option. It is a separate option and is only binding on the nation that is annexed.

If you are pursuing a white peace, then you can simply click on the white peace option to send the offer. If your enemy agrees to the proposal, then all nations included in the peace will sign the truce and a peace treaty will exist between you for the next five years. If a nation occupies any provinces that are owned by a nation that is part of that peace treaty, then these are returned to their rightful owner (but provinces owned by a nation that is still at war will remain occupied). There will be no further compensation received by either side. I should warn you that a white peace does not preclude a resumption of hostilities. War may be declared again by any nation at any time, though with an added penalty for breaking the peace treaty, so this should be regarded as something of a tenuous arrangement at best.

If you wish either to beg for peace or insist on demands, a somewhat different interface appears where you will set the terms you are willing to agree to. You will see a numeric evaluation of your current war-score (which reflects victories, defeats, conquered provinces and provinces lost to the enemy) and a variety of possible peace conditions. Several special terms may only be included in the negotiations if you are insisting on demands, and those

terms will apply only to the nation with whom you are negotiating, not to any nations that are part of that alliance, but the overall interface will be generally the same in both cases. Each peace term has a "value" and as you assemble your offer in the center area of the interface these are tallied at the bottom.

You can make multiple demands and can mix various types of terms to assemble your final offer. The possible peace conditions include:

Territory: You may specify territory whose ownership is to change hands if the peace is agreed to. If you are insisting on terms, then you may only demand provinces that you currently occupy. If you are an alliance leader, then you may also demand provinces that are currently occupied by your allies and ownership would transfer to your ally in that instance (the recipient of each province that you demand is clearly indicated). If you are begging for peace, then you may also offer any provinces that you own, whether or not they are occupied by the enemy. Note that all occupied provinces not included in the treaty will revert to their rightful owners when the treaty is signed.

Forced Disarmament: This option may only be demanded by a victor (not offered by a loser) and may only be imposed upon the nation with whom you are directly negotiating (not one of his allies). If the enemy agrees to this, he will be forced to disband his entire military.

Military Access: This is another term that may only be demanded by a victor. If agreed to this will give the victor unrestricted access to move through the loser's territory.

Make Puppet: If you have a high enough war score, usually because you control many of the enemy's key provinces (identified by a red star in the victory points map-mode), you may demand that an enemy submit to you and allow the establishment of a puppet regime in his nation that is loyal to your government. If accepted, the enemy will succeed all territorial claims to your nation and a new government will be installed that is of the same type as yours. The new puppet will leave any alliance it is currently a member of and will join your alliance instead. It will automatically grant your country military access to their lands and henceforth a portion of the puppet's daily revenues will also be transferred to you (as a sort of tribute or war reparations). This is a fairly hostile action, although not as belligerent as outright annexation, and will probably only be accepted if you enjoy vast military supremacy and the target nation feels that it has little or no chance of survival otherwise.

Once you are satisfied with the terms, click the OK button to send your offer. I should caution you that an enemy is unlikely to agree to a proposal that is close to the exact war-score value and is much more likely to accept it if there is large benefit to doing so. Certain nations will also be highly resistant to accepting any peace terms whatsoever (beyond outright annexation) with certain other nations, particularly the faction leaders. As with any diplomatic option it may take a day or two to receive a response and you will not be able to initiate further diplomacy with that nation until at least one week has elapsed. If the peace is agreed to, then all nations involved

in the deal will sign the peace treaty which will be in force for the subsequent five years, but it is no more binding than was the case with white peaces. Any territory that does not exchange ownership as the result of the terms will be returned to its rightful owner.

Annex Nation

If you are at war with a nation and have achieved a crushing victory (you must occupy all of its key provinces identified by a red star when viewing the main map in the victory point map-mode) the annex nation option will become available. Annexation is the most devastating demand that you can impose and is treated as a separate diplomatic peace option due to several special considerations related to its terms. The target nation must lay down its arms and dissolve its government, surrendering ownership of all of its territories and for all intents and purposes becoming part of your nation. This is always handled as separate peace, so even if the defeated nation is an alliance leader it is in no way binding on any of its alliance members. There is no cost to offer this "peace" but it is a demand that will remove that nation from the game (unless it later reforms as a result of partisan uprisings) and is considered the most hostile and belligerent action possible. Don't expect your demand to be accepted if the target nation still has some capacity to wage war; and if it is accepted then you should expect other nations who are not very closely aligned with you to treat you as a pariah in the international community for a long time afterwards. If you enjoy this high a margin of victory you may wish to consider the "puppet regime" peace term instead, one that will be considerably less damaging to your reputation, or some other combination of highly punitive terms.

If an alliance leader is annexed, then a new leader will be chosen from amongst those nations that remain and the state of war will continue to exist with that alliance. If there are no remaining alliance members, then the war will be over.

The Statistics Folder

Overview

The Statistics Interface is primarily a means of gaining and reviewing large quantities of global information quickly, and for comparing your nation's progress to that of others. Each table of information relates to an aspect of the game: general summaries, economic information, convoy summaries, technology and military comparisons, a complete listing of your armed forces including their locations, strengths and combat stats, and a place where you may view the full-length version of the history log. A large number of the tables have "hot links" allowing you to double-click to jump to a specific unit or province, or have right-click menus that allow you to conveniently issue orders or make changes without going directly to a unit or provincial location. Due to the number of statistics sub-folders, their fairly self-explanatory nature.

New for AoD is a sub-folder that gives greater comparison for losses vs. kills.

Selecting and Using a Statistics Sub-Folder

Each of Arsenal of Democracy's sub-folders (there are more than twenty of these) can be accessed by paging through them using the left and right arrows at the bottom of each folder. They are also grouped into five general categories: Summary, Economic, Technology, Military and History. You will see a set of buttons at the bottom of the folder which you can click to quickly jump to the appropriate group of folders that relate to that category.

There are some fairly common features available in the statistics sub-folders. In many cases, the column headers can be clicked to sort the data in the tables in ascending order according to that heading, and clicking it again will reverse the sort order. Double-clicking on an individual line in a table will usually jump directly to and select the item in question (a province, unit, leader or supply route). In some cases, you can right click on an item to display a context-sensitive menu that allows you to take a direct action from the sub-folder.

When you have finished reviewing the information and leave the Statistics Folder (or use the quick-jump feature), AoD will remember the last statistics sub-folder that you were viewing and the sort category and order that you last used for that folder. When you next open the Statistics Folder it will return to you that exact same view.

Combat: The Art of War

General Overview

We now (finally!) come to the part of the manual that deals with combat - a section that is designed to familiarize you with the various combat interfaces and to introduce you to some basic strategies that are likely to be successful in your games. Beyond the odd one-on-one struggle that may occur once in a while, combat is one of the most complex systems of the game and can have the most far-reaching effects. If you approach it from the "Oh, there's an enemy force...I'll attack it!" standpoint, without taking any other factors into consideration, you are very likely to lose not only the battle but also the entire war. Instead, you must consider variables such as terrain, weather, supply, leadership and the operational capabilities of your forces if you are to achieve any lasting success. This shouldn't come as a surprise, since this is a grand strategy game, but it will probably take some time for you to gain a full understanding of combat's intricacies...and quite a bit more to become a master of the art of war. I will assume for this entire section that you are familiar with the contents of the previous sections of the manual, thus allowing me to avoid redundant descriptions or being forced to go off on tangents.

You will notice that I avoid giving detailed unit descriptions in this section. In part this is due to space limitations but largely it is because the characteristics of each unit will change many times during the game to reflect the modifiers that new technological advances will give you. An overview of the basic details can be found in the military sub-folders of the Statistics Folder and a more thorough description is included in the unit specifications in the

Production Orders interface. For individual units, though, the most detailed information is shown in the Unit Details interface. The big advantage of using in-game information is that it reflects the actual statistics of your units, including any modifiers.

The effectiveness of most armed forces relies on the real life principle of a chain of command, and since you can't be expected to issue orders to every single NCO in your army in every single theater of war, AoD implements a command structure to help you. As we've already seen in the Diplomacy section of the manual, you will have a national Chief of Staff and then three subordinates: the Chief of the Army, the Chief of the Air Force, and the Chief of the Navy. For human-controlled nations, these individuals will sit quietly behind the scenes and allow you to issue your own orders, their primary function being limited to giving you a few select bonuses to certain military areas, although you could think of them as being the ones who relay your orders to the troops and see to their supply. Your role as a player is to wear the multiple hats of the combined Joint Chiefs of Staff and issue orders to your army, navy and air force. Each of these branches of the armed forces uses a slightly different set of rules, and so to avoid introducing too much confusion we will examine each one in somewhat isolated detail before we combine them again. As you read, it is worth keeping in the back of your mind that your eventual success will probably depend on using a combination of at least two, and occasionally all three, branches when you are planning your attacks.

We'll begin by looking at your land forces, since they are the units over which you have the greatest degree of control and they are the only units that are capable of conquering a province. Once we've thoroughly explored their various interfaces and controls, we'll move on to look at the differences and similarities of the interfaces that you will encounter and use to control your air forces and navies.

The Land Forces

Overview of Force Structure and Field Commands

Arsenal of Democracy doesn't allow you to control individual soldiers, nor will you see any house-to-house or even town-to-town fighting as you play the game. Combats represent large-scale offensive and defensive actions; a scale where the struggles involve large numbers of men and equipment, and where the prize is the control of an entire province. Your job is to plan ahead, prepare and position suitable forces, ensure their supply, and then issue the necessary orders to your field commanders and entrust them to carry them out to your advantage.

While the precise structure and size of armies in the WWII era varied somewhat from nation to nation, AoD abstracts and generalizes this to avoid confusion and maintain ease of play. The smallest land unit that can be directly controlled in the game is the division; a unit that represents many thousands of men or a large assembly of military vehicles (e.g. tanks, trucks or half-tracks). There is, however, a smaller unit size available in AoD, the brigade. These are specialized units that cannot operate alone and

must be "attached" to divisions to provide a bonus to some aspect of the division's performance. Due to their cost, it is unlikely that you will attach a brigade to every division, but you are able to reassign one by detaching it from its current division and then attaching it to another. This is a somewhat disruptive process, though, and will take some time to accomplish.

Individual divisions may operate in isolation, but more often will be grouped together to form a "corps" or "army". You have complete control over the way that divisions are grouped and may arrange them in more or less any combination or number that you like. The terms "army" and "corps" are simply a semantic distinction that the game uses when automatically assigning names to forces (a smaller grouping is usually called a corps and a larger grouping is called an army), but there is no functional difference between them beyond their sheer size. This size, however, introduces one specific issue that is of vital importance: leadership. When you issue orders you will select a force (of whatever size and composition) and then tell its commanding officer what you would like the force to do. He will then arrange for that force to carry out your orders to the best of their ability; however, their performance will depend on a large number of factors (the individual division types, their level of technology, the terrain, the weather, and more) and most importantly on the rank and skills of that commanding officer.

Each nation begins the game with a specific set of military officers that historically served in that nation's armed forces and were of high enough rank that they were (at some point) in charge of an entire division of men (or more). Each of these officers will either be in the officer pool awaiting assignment, or be pre-assigned to command one of the forces that are present when the game first starts. As you create new forces, either by building new ones or by combining or subdividing existing ones, officers must be assigned to lead them. You may maintain complete control over officer assignments or you may delegate this process to the computer to take care of (think of it as letting your Chief of the Army oversee it). Each officer has several attributes that will affect the performance of the troops he commands: his rank, skill, experience, and possibly also a special area of expertise. Of these, the one to pay the most direct attention to is his rank, since this is the attribute that determines the maximum number of divisions that he is able to handle before his field command will begin to incur a combat penalty. Whenever more than one field command is operating within the same province, there are additional considerations that will contribute to the outcome of the battle. This becomes somewhat, but not terribly, more complex when an operation is staged using multiple field commands, launching their attacks from several different provinces.

At the beginning of each game, you will have a certain number of pre-existing divisions that are based on the approximate historical order of battle of that nation. For some countries, this could be quite a large number, while for a few others it could possibly be none at all. Some of these may have brigades attached to them and some may

already be grouped into larger commands, and each will have a pre-assigned officer. Any further forces you require must be obtained by placing a production order and waiting until they are ready for deployment. When ready, they will appear in your force pool to await deployment. Divisions that engage in battle will gradually gain valuable combat experience which will improve their capabilities over time. Unfortunately they are also likely to experience casualties that will need to be replenished with reinforcements. Raw recruits will fill those vacant positions but will also dilute a division's experience. Officers also gain combat experience which can lead to improvements in their skill levels and might prompt you to promote them in rank. It will take them a little while to get used to this new level of command, so there will be a period of time where they will not perform quite as well as they did prior to their promotion. Now that you have a rough overview of the forces, let's look at them in greater detail...

Division Types

Your divisions are used to defend your territories from enemy attack, or to launch offensives of their own to conquer and then occupy enemy provinces. Only land forces are able to capture and hold an enemy province, although their efforts will often need to be supported or assisted by air and naval units. While your air force and navy may hinder an enemy advance, neither is able to defend a province, so you will need to deploy your land forces to protect them.

Divisions can be of a variety of different types, each one having its own specific advantages and disadvantages which will vary depending on terrain, weather, and even the type of enemy they are facing. While there are more than a dozen varieties, they can be classified in three broad categories: foot soldiers, mounted troops, and armor; which I'll describe in a moment. As your technology improves, each unit's specifications will also improve, provided that you allocate sufficient IC to upgrade them with your most recent advances. It is also likely that not all of the division types will be available to you at the beginning of a campaign, since many require specific advances in equipment or achievement of a particular type of army doctrine. Check the detailed descriptions in the Technology Folder to determine what is required for their production and then instruct your scientists to work towards that goal if you feel that you will need that type of specialized combat force in the future.

The most numerous and versatile unit is probably the foot soldier, with the most common type being the infantry division. While they will find themselves at a disadvantage in the open, they generally perform better than mounted or armored units in less hospitable or obstructed terrains. Infantry is usually fairly inexpensive to recruit, relatively fast to train, and does not consume any of your precious oil; though of course they won't move as fast as the other units. There are specialist infantry types who perform particularly well in certain roles but are more expensive and time-consuming to prepare. Marines are particularly effective for coastal invasions, mountaineers

excel in hilly and mountainous areas, and airborne infantry are the only units that may be used to attack from air transports. If you are in desperate need of a quick influx of troops at low cost, you might find that a militia division's generally poor performance is sufficient, at least for a while.

Mounted units perform in much the same way that infantry do. The most basic of these is the cavalry division; an obsolescent holdover that predates the First World War, but which was still used in some parts of the world. Not surprisingly, they tend to perform very poorly against most other units and have few advantages other than a more rapid rate of movement than foot soldiers. The majority of your mounted units will be infantry who use motorized vehicles (primarily trucks) to move more rapidly, but which are more expensive to outfit and will consume a quantity of fuel. Motorized infantry are much more susceptible to aerial attack and will run into difficulties where the roads are poor or terrain becomes an obstacle. Mechanized infantry divisions who use armored vehicles such as half-tracks are very expensive and consume even more fuel, however they have better attack and defense capabilities than any other infantry unit, although they remain easier targets for enemy tactical bombers.

Infantry and mounted infantry are no match for tank divisions when it comes to sheer firepower and the ability to withstand punishment. As your technology advances, you will have the ability to build larger tanks with heavier armaments and armor which will further increase the amount of damage that they can both inflict and sustain. Armored units are expensive, though, and consume fuel at an alarming rate. They also perform very poorly when the terrain is rough or filled with obstacles.

There are two other specialized division types that merit extra attention but are detailed later in this section. A garrison division is a special infantry unit whose sole function is to suppress the activities of partisans. They are highly restricted in their method of movement and are utterly unsuited to combat situations, but they are unparalleled at maintaining law and order in any enemy provinces that you might occupy. The other unit type is the headquarters division. These act as large mobile command and control centers, assisting very highly ranked officers (generals and field marshals) to manage larger numbers of divisions, improve supply efficiency, and provide improved combat capabilities for any nearby forces (forces that are in the same province or an adjacent one). They are, however, a division that is primarily designed for tactical and logistical support and are not heavily armed or suited to combat themselves.

Brigade Types

There are a variety of brigades that may be attached to your divisions to enhance their abilities; however each division may only have a single brigade attachment. A brigade's area of expertise is fairly self-explanatory when you review its details in the production interface. Note that the specific values are added to the abilities of the division they are attached to, thus usually improving their performance quite significantly, although

sometimes there is a small trade-off in another area. Brigades may range from anti-tank to anti-aircraft specialists, or may be able to support your divisions by providing withering artillery (or even rocket) fire. Engineers will improve both the defensive capabilities and movement rates of your divisions, while additional armor can be attached to bump up the attack strengths of a force. The available brigade types will depend largely on what technologies you have researched, as will their effectiveness.

A brigade is created in exactly the same way that a division is ordered, but they are never deployed by themselves. Instead, brigades must always be attached to a division, which is determined at the time that it is deployed from the force pool, although they may later be detached and returned to the force pool for subsequent redeployment elsewhere.

In AoD, brigades have been modified extensively. They have been given greater value in their specific areas and less overall general value. For example, the AT brigades will now do a lot more damage to attacking armor, but do not contribute as much to the overall defense as before.

Division Details

Before we look at deployment or movement, or begin assembling corps or armies, let's take a close look at the details of an individual division and the meaning of each of its specifications. These can be seen for any unit by first selecting any field command and then selecting the division that you are interested in reviewing. Select any field command by clicking on it on the Main Map, using the Land Forces Hot Button, or via several of the sub-folders in the Statistics Folder. The information panel will then display the name of the commanding officer and a list of the divisions in his command (we'll come back to the Field Command Details display shortly). Clicking on any one of the listed divisions will display the Division Details for that unit in the information panel, as well as giving you a few options for that specific division.

Division Name: At the top of the information panel you will see the division's name. While this is assigned automatically when the division is first created, you can change it any time you like by clicking on the unit name and then typing a new name.

Division Type: Below the division name you'll see a picture and then a description of the division type. The specific model represented by the division will follow in parentheses.

Brigade Attachment: If there is a brigade attached to this unit then the brigade type and model names will appear immediately below the division name. There will also be an inset picture of the brigade in the lower right quarter of the division's picture.

Commander: You will see a picture of the division's current commanding field officer. Remember that this officer may command a number of divisions if they are grouped together into a corps or army. Clicking on the officer's portrait (or anywhere in this field command summary bar except the Orders Box) will return you to the Field

Command Details display in the information panel.

Command Strength and organization: Beside the commander's picture is a graphic display of the percentage strength (orange bar) and the percentage organization (green bar) of the entire field command. This is the average of all forces under that leader's command, so it may be different than the individual division's values if it is presently part of a larger command. Again, you can click almost anywhere in this area to return to the Field Command Details instead.

Command Name and Size: Beside this you will see the name and the number of divisions in the field command.

Command Orders Box: The command's current mission is displayed in the Orders Box immediately below its name. You may click on this box to issue new orders directly from this interface or cancel its existing orders. Note that doing this will update the orders for all divisions in this field command.

Location Details: Below the command bar is a second bar that indicates the current location of this division. This is the same bar that is displayed for each province in the information panel when you click the Province Hot Button. You will see the province name, IC, resources and the total number of divisions (including allies) presently located in this province. Clicking on this bar will close the Division Details and display the Province Details in the Information Panel instead.

Strength: This is a division's current operational strength. When first built it will be at 100% but can then be reduced as a result of combat casualties or attrition losses. If a division is in supply, then it will gradually replenish to 100% (as long as you allocate some of your IC to reinforcements). If the strength ever drops to 0% then the division will be destroyed. As a division's strength is reduced the amount of damage it will inflict on an enemy is also reduced by a corresponding amount. Regardless of how fantastic its other combat values might be, if a unit is near destruction then it will contribute very little to a battle.

Organization: This is the division's current level of organization, reflecting its internal command structure, intrinsic cohesiveness, and readiness to fight. Although expressed as a percentage value it might be more appropriate to think of it as a capped index value instead. Early in the game the maximum achievable organization level of a division will rarely exceed much more than 40% or 50%, but as your technology advances you will be able to reach much higher levels. Domestic policies and your Chief of Staff and Chief of the Army may further increase a division's cap, even allowing it to exceed the 100% mark. organization may be lost as a result of bombardment, prolonged movement (particularly in poor terrain), and during combat. It will also plummet if your troops are out of supply and will be fairly low when divisions are first deployed and when they are strategically redeployed over great distances. If organization drops below 5% the division will lose its ability to fight and will try to withdraw. organization is regained when a division is in supply and remains stationary (and out of combat) for a period of time. The infrastructure of a province (which affects the efficiency

of supply) and the morale of a division will also have an effect on the rate of regain (or loss).

Morale: Each division has a morale value that represents its willingness to persevere in the face of adversity and is similar in almost all respects to organization. It, too, will rarely approach 100% until very late in the game, when a division's experience and your nation's technology will boost the maximum level that a division may attain. As long as a division is in supply, high morale will allow it to perform better in combat, reduces the rate at which it loses organization during combat, and increases the rate at which organization is regained. Morale is slowly lost during combats and will drop rapidly if a division is out of supply. Once it drops too low (below about 30%) it will actually cause the rate of organization loss to accelerate. Should morale reach 0% your division will break and run in utter disarray.

Softness: Each division has a "hard" and "soft" component to its strength. The hard portion is its armor (tanks, trucks, machinery, etc.) while the soft component is its personnel. The softness value indicates the percentage of a division's makeup that is considered as a soft target. This has a significant effect on the types and degree of damage that different types of enemy units will inflict during combat. An infantry division will usually have a softness value of nearly 100% while a tank division has a far lower value (probably around 30%).

Hard Attack: I'll describe the specific meaning of attack and defense values in detail when we look at the actual mechanics of combat, but roughly speaking this value indicates the attack power of the division when engaging an enemy division that has a fairly large "hard" component (i.e. a low softness value). The higher the attack number the more likely it is that it will inflict some damage to a "hard" target (e.g. a tank division).

Soft Attack: This value indicates the general attack power of the division when engaging soft targets. A high number here indicates that it probably do well against divisions that have a high softness component (e.g. infantry divisions).

Air Attack: When a division is attacked by aerial units it may have the ability to fight back and inflict some damage. The air attack value indicates how well it is able to do this and will be fairly good if the division has an anti-air brigade attached.

Artillery Bombardment: This value reflects the amount of damage that Land Units can inflict. You are now able to bombard the next province over and damage any Units stationed there. Larger Artillery, like the Big Railroad Guns, are also able to seriously damage fortifications and the province itself.

Defensiveness: The division's defensive capabilities are divided into two components: defensiveness and toughness. The defensiveness value is used when a division is defending a province against an attack initiated by an enemy. Roughly speaking, the higher the value, the better the division will be at withstanding enemy fire.

Toughness: This is the second component of a division's defensive capability and is used when the division is launching an attack of its own against another province. A

high value indicates that it can withstand more of the enemy's return fire as it makes this assault.

Air Defense: This value indicates how well a division is able to defend against enemy tactical bombing attacks. This value is mostly an indication of how difficult a target it is to hit and how resilient it is. It does not imply an ability to fight back.

Suppression: This is an indication of a division's basic capabilities at suppressing partisanship in a province. The value is subtracted from the province's partisan value (which determines partisan effects and activities) and can be further enhanced by giving the unit orders to engage in anti-partisan activities, which doubles the effective suppression value.

Maximum Speed: This is the maximum speed that the unit can travel in clear, unobstructed terrain. This will be reduced in less hospitable terrain or inclement weather.

Supply Consumption: The supply amount that this division needs on a daily basis is listed here and will fluctuate depending on the current strength of the unit. Note that this is the amount of supplies it requires and is not necessarily the amount it is receiving.

Fuel Consumption: Any division that uses vehicles of any sort will require a daily supply of fuel (oil) equal to this value if it is currently moving or if it is engaged in combat. A stationary unit that is not engaged in combat uses half this amount. Fuel consumption is also dependent on the current strength of the division.

Experience: Each division gains combat experience whenever it engages in battle. An experienced unit will receive combat bonuses and tends to maintain its organization and morale far better than a division filled with recruits. When any casualties that a division sustains are replaced through reinforcement, the newly recruited men will dilute the division's experience level.

Effective Supply Efficiency: This is the division's current rate of supply efficiency which is determined by a large number of factors (details will follow in the subsection on Transport Capacity and Supply Efficiency). Roughly speaking, this indicates whether a unit is fully supplied or whether it will be subject to some penalties for being under-supplied

Attach/Detach Brigade Button: If the division currently has a brigade attached to it, then clicking on this button will detach the brigade and return it to the force pool. If the division does not have a brigade attached to it and a suitable one is available in the force pool, then clicking on this button will allow you to select and attach a brigade from the force pool.

Disband Button: Clicking this button disbands the division and returns some of its manpower to your national manpower pool.

Remember that not all units of the same type will have the same division stats, since these are dependent on whether or not a division has been upgraded to the latest technology. Any brigade that is attached to a division will also have its abilities added to the division's stats reported in the information panel. Several of the division stats will also be modified by the unit's experience level and by the

abilities of the commanding officer, the source of yet further discrepancies between two otherwise identical divisions.

Field Command Details

Corps and armies are created by grouping divisions into a larger fighting force - a field command. Before we look at how to do this, let's have a look at the information you'll see when you select a typical field command, a summary of the divisions that make up the command and their most critical statistics.

Command Name: The name of the field command appears at the top of the information panel. As was the case with individual divisions, the command name is assigned automatically (based on size and nation) but can be changed by clicking on its name and then typing in a new one.

Commander: The portrait and name of the officer who is currently in command appears just below the field command's name. Clicking on the officer's portrait will allow you to select a new commander from the pool of available leaders. Hovering your mouse over his portrait will display the officer's stats. (Details of how to change an officer and the meaning of his stats are described in a later subsection).

Overall Size, Strength and organization: The number of divisions of the field command is listed immediately below the commander's name. In brackets beside this is the total force strength and their average level of organization.

Current Mission: The current mission that this command is engaged in will be listed in a small box. Clicking here is one of several ways to change their mission (details about missions is also in a later subsection).

Quick Status Icons: A variety of icons may appear in the space below the mission box. Most relate to the command's current conditions of supply, whether they are dug in or not, etc. (and all have tool-tips to identify them).

Supply Source: If the field command is in supply, then the source of that supply will be listed. If it isn't, then you will see a warning to this effect, and the location from which it is attempting to draw supplies.

Command Location: You will see the current location of the field command. Clicking on the location box will display the province information panel. If this field command is currently engaged in battle then this display will change quite dramatically, showing the "Combat Quick View" summary instead. This is similar to the summary that you will see for each battle when you click the Active Combats Hot Button.

Effective Supply Efficiency: This is the field command's current effective supply efficiency (details follow shortly, in the Transport Capacity subsection).

Division Listing: The majority of the information panel below this point will display a scrollable listing of each division that is currently part of this command. Clicking on one of the divisions will display the Division Details information panel (described in the previous subsection). Each division will also display the following basic details:

Division Type: An icon indicating the type of division (infantry, mech- infantry, etc.) and its technology level.

Strength Bar: A red bar that indicates the division's approximate strength. If you hover over this bar a tool-tip will appear that displays the exact numerical strength value.

Organization Bar: A green bar that indicates the division's approximate organization. This, too, has a tool-tip that will give the division's exact numerical organization value.

Fuel Status Icon: A small oil icon below the strength and organization bars will show the division's fuel supply status. This will be blue if the division is in supply and red if it isn't.

Division Name: The division's name.

Division Main Stats: Below the division name you will see a summary of the five main division statistics that you will refer to most often. In order from left to right these are the Hard Attack, Soft Attack, Air Attack, Defensiveness, and Air defense values.

Brigade Icon: If there is a brigade attached to the division, there will be an icon at the right edge of the division listing to indicate that this is the case and what type of brigade it is.

Prioritized: It is possible to assign a priority to a field command to ensure that divisions in this command are the first to receive any available reinforcements and upgrades. Click this button to identify that this command should be treated as a priority in this regard.

Offensive Button: This allows you to allocate additional fuel and supplies to this command for a major offensive. This locks the supply efficiency at 120% for the next 30 days, but will consume a large amount of supplies and fuel (details of supply and supply efficiency are in a subsequent section).

Load Button: This is a quick way to issue an order for the entire command to be loaded onto transport vessels (if they are present and sufficient space is available). The load button will not be displayed unless you are in a province that contains a port or naval base.

Reorganize: Clicking this button opens an interface that allows you to easily remove divisions from this field command and assign them to a separate command that will be created.

Field Officers

The officer that you assign to lead a field command will have a significant effect on the performance of your troops in battle. Each nation begins with its own pool of officers that can be assigned to command its forces, each with his own unique characteristics and holding one of four possible ranks. As a commander's forces participate in battle, he will become progressively better at his job and may eventually be suitable for promotion.

When you select a field command the current commanding officer will be identified at the top of the information panel. If you hover your mouse over his portrait, a tool-tip will display his personal stats and clicking on his portrait will show your officer pool, which contains a detailed list of all officers that are currently unassigned to commands. If you click on any officer in this list, he will be assigned to replace the current field commander and the existing commander will be returned to the officer pool. Each officer has five personal values:

Rank: An officer's rank determines how many divisions he can effectively command without the divisions incurring penalties. There are four distinct ranks used in AoD: Field Marshal (commands up to 12 divisions), General (9), Lt. General (3) and Maj. General (1). If he commands more than this number of divisions during an attack, he will be considered to be over-stacked. A field marshal or general whose army includes an HQ division will also enjoy a large command bonus (as well as several other benefits). You can promote an officer to the next rank if he has a skill rating of at least one. This will enable him to control more divisions but will reduce his current skill level (by one), and reduce the rate at which he will gain further experience. This is done by clicking the promote button.

Skill: The skill of an officer indicates his overall performance ability. As he gains more and more combat experience, he will gradually increase in skill level. This confers a special combat bonus on his troops that increases as his skill increases. An officer who is over-stacked cannot effectively command his troops and any skill bonus he provides will be ignored for all of his forces. When you promote an officer, his skill is reduced by one level.

Historic Skill: There is also a value relating to each officer's skill that is buried within the game design (shhhh... don't tell the designers that I told you this secret!) and reflects the individual's historic accomplishments. The historic skill level acts as a modifier to the rate at which he will accumulate experience. If he is significantly below his historic levels he will tend to accumulate experience much more rapidly; and once his skill exceeds this he will tend to be much slower in accumulating more (this is a modifier and not a cap).

Experience: Each time an officer commands a force in battle and is victorious, he will gain a small amount of experience. Eventually, he will gain enough experience to increase his skill level by one point. The rate at which an officer accumulates experience depends on his rank and how often he is in combat (and shhhh! - his historic skill rating). The higher an officer's rank, the more slowly he will gain experience.

Trait: Each officer may have a particular doctrine or area of expertise that is listed at the bottom of his stats. These traits, described in the next subsection, give special abilities or bonuses that are applied to any division that is directly under his command, unless he is over-stacked, in which case they are forfeited for all divisions.

Beware of over-stacking an officer! It is probably the single most damaging thing you can do to your chances of winning a battle. An officer who is over-stacked forfeits all bonuses that his traits and skill would normally give to the divisions under his command. Further, the "extra" divisions that are assigned to him will be subject to an additional, severe combat penalty.

You may, if you wish, delegate the task of assigning and promoting officers by clicking the Auto-Promote or Auto-Assign leader buttons at the bottom of the officer selection interface. If you do so, then your Chief of the Army will see to these functions as best as he is able. If you are using this function, the officer assignments are checked

and updated at midnight each day, based on the number of divisions the officer currently commands.

If you have a very large number of field commands, it is possible that you will exhaust your pool of historical leaders. If this happens then "generic" officers will be created as required, however they will be of very poor quality, do not gain experience, and will "disappear" again once removed from command. In that situation, you may need to remove a historical leader from one command (which returns him to the pool and replaces him with a "generic" officer) and then assign him to a new command that is in more urgent need of his abilities. When a division is first deployed from the force pool, it will also be commanded by a generic officer unless it is deployed directly into an existing command. Don't forget to assign a "real" officer to any division that is likely to see combat action as soon as possible.

Field Officer Traits

A field officer may have specific traits that will characterize his style of command or identify areas where he possesses exceptional abilities. If he has such a trait, it will be identified in the tool-tip that appears when you hover your mouse over his portrait and will benefit any divisions under his direct command. Warning! This bonus is lost if the officer is over-stacked

Ambusher: Officers with this trait increase the chance of the Ambush combat event occurring.

Assaulter: Officers with this trait increase the chance of the Assault combat event occurring.

Blitzer: Officers with this trait increase the chance of the Breakthrough combat event occurring.

Commando: This officer is best suited to lead, mountaineers, marines or paratroopers who receive large bonuses to both their attack and defensive values when under his command.

Counter Attacker: Officers with this trait increase the chance of the Counter Attack combat event occurring.

Defensive Doctrine: This officer is very good at preparing his troops to defend against enemy attacks and counter-attacks, improving their defensiveness and toughness values.

Desert Fox: When in the desert, officers with this trait receive a +5% movement speed bonus and a +10% combat bonus.

Disciplined: Officers with this trait increase the chance of the Delay combat event occurring.

Elastic Defense Specialist: Officers with this trait increase the chance of the Tactical Withdrawal combat event occurring.

Encircler: Officers with this trait increase the chance of the Encirclement combat event occurring.

Engineer: Divisions under the command of an engineer are able to cross rivers without incurring the normal movement or attack penalties that other units will suffer.

Fortress Buster: Officers with this trait reduces the penalty inflicted by fortifications (by 25%).

Hills Fighter: When in hilly terrain, officers with this trait receive a +5% movement speed bonus and a +10%

combat bonus.

Jungle Rat: When in jungle terrain, officers with this trait receive a +5% movement speed bonus and a +10% combat bonus.

Logistics Wizard: This officer is able to achieve impressive economies of both supply and fuel efficiency. Divisions under his command will consume both at a reduced rate (-25%).

Mountaineer: When in mountains, officers with this trait receive a +5% movement speed bonus and a +10% combat bonus.

Offensive Doctrine: This officer is very good at maneuvering his forces to gain maximum tactical advantage, giving them bonuses to all attack values.

Old Guard: This officer is of the old school and not particularly imaginative. Neither he nor the divisions under his command will learn as much during combat, thus reducing the rate at which they will gain experience.

Panzer Leader: A panzer leader is able to increase the movement speed of his forces and if he commands predominantly armored divisions he is able to improve their attack abilities and may even achieve sudden and devastating victories by blitzing through enemy lines.

Ranger: When in forests, officers with this trait receive a +5% movement speed bonus and a +10% combat bonus.

Urban Warfare Specialist: When in urban areas, officers with this trait receive a +5% movement speed bonus and a +10% combat bonus.

Trickster: An expert at camouflage and deception, divisions under this officer's command will always gain the advantage of surprise, are very difficult for enemy aircraft to target, and are usually completely invisible to enemy intelligence activities. Officers with this trait increase the chance of the Surprise combat event occurring.

Winter Specialist: This officer excels at winter warfare, guiding his forces with such skill that they incur no penalties to movement or combat in those conditions.

Selecting and Organizing Field Commands

Selecting a field command can be done in a variety of different ways:

- Click on its sprite on the Main Map. If there is more than one field command present in the province, then you will see a series of small bars appear below the sprite. Repeated clicks will cycle through the field commands in the province or you can click on one of the small bars to select a specific force.
- Left-click and drag your pointer to highlight a portion of the map. When you release the mouse button, any command that is inside the highlighted area will be listed in the information panel; then simply click on the command to select it from the list.
- Click on a province on the Main Map to display a list of the field commands located there, then click on the command in that list to select it.
- Click the Land Forces Hot Button and then select one of the field commands from the list of all commands. This will also center the map on that

command's location.

- You may also use a number of the tables in the Statistics folder to select a command by double-clicking on the unit's name in the chart.
- Hold down the shift key on your keyboard to select multiple field commands (they don't have to be in the same province). While doing this if you click on a selected command then it will be de-selected.

Note that the "left-click and drag" method will also select multiple commands.

You can merge multiple field commands into a single new force if they are all located in the same province. To do this, select the field commands you want to merge using one of the above methods and then click the Merge button at the bottom of the information panel. Remember that the highest ranking officer will assume command of this force (all other commanders will be returned to the leader pool). If you have elected to select your own officers, then don't forget to check that he is capable of leading the total number of divisions that you have assembled and replace him if necessary. If you are using auto-assign for officer assignments, then you should wait until after midnight to issue orders to them. This is because your Chief of the Army will not change officer assignments until midnight, and if a field command is currently carrying out a mission or is in the midst of combat then he will not change the officer assignment.

You can split a field command into two separate commands by selecting the force and then clicking the Reorganize button in the information panel. A list of each division in the existing command will be displayed in the information panel. Click the small "+" button beside any division that you would like to remove from this command and add to the new one. If you are allowing the Chief of the Army to place leaders for you, then he will assign an appropriate officer from your leader pool to take command, who will assume command at midnight. If you have chosen to assign your own officers, then this new force will be commanded by a "generic" leader, so don't forget to assign a more competent leader after creating the new force (assuming one is available in the officer pool).

Shortcut Keys

Arsenal of Democracy allows you to assign up to ten different force selections for rapid access at a later time using a shortcut key. To set the assignment select any division, field command or even multiple field commands using the method described above. While they are selected, hold down the Ctrl key on your keyboard and then press any number key on your keyboard (not on your numeric keypad). You may, at any later time, return to that selection by pressing the number key once more (without holding down the Ctrl key), and pressing the number key a second time will center the map on that selection. You may also use this same technique for your air forces and naval forces, and up to a total of ten such selections may be stored. If you assign a new selection to a shortcut key that already has an assignment, then the old assignment will be overwritten by the new one. While this feature is mostly a

matter of convenience, it is vital in multiplayer games where your house rules discourage (or even forbid) pausing the game since you can set up these shortcut keys to allow you to quickly jump to major theaters that are separated by a considerable distance.

Deploying Divisions from the Force Pool

When a production order has been completed, the newly created division will be placed in the force pool to await deployment. Begin by clicking on the Force Pool Hot Button to display a list of all forces that await deployment and then select the unit you wish to deploy. The main map will change to display all valid deployment locations in green and the information panel will now display a list of any field commands that the unit can be added to. If you click on a province on the map, then the division will be placed there. If you click on a field command, then the division will be added to that command. In both cases this happens immediately.

You should deploy new forces fairly promptly in most cases, because they will not begin to gain organization until you do so, nor will they be upgraded to take advantage of any technologies you might have finished researching from the time that the production order was initially placed. There is also no supply-consumption advantage to leaving a force in the pool, since it will consume its daily requirement whether it has been deployed or not. It will also tie up 2 points of transport capacity (see below) until it has been deployed.

If you gain enough productive IC (about 10) in remote places, you will be able to directly place units there from the Force Pool. This comes in handy for places like India (UK) or Korea (Japan).

Attaching Brigades

Attaching a brigade can be done in almost the same manner as adding a new division to an existing field command. There is one additional step, however, since you must identify which division in that command is to receive the brigade. A second method of attaching a brigade, and the one that I would recommend for ease of deployment, is to locate the division that you wish to attach it to first, then click the attach brigade button to display any brigades that are currently available in the force pool, and then simply click on the brigade to attach it. You may only attach one brigade to each division, and there are limitations to the type of brigade that a division may accept. These are detailed in the charts in the accompanying .PDF file and are generally limited to being of a similar overall type of unit.

Transport Capacity and Supply Efficiency

Now that we've looked at the internal details of divisions and commands and how to deploy new ones, let's look at the next important component of a successful military venture: supply. To do this, we must first look at the subject of your nation's transport capacity and supply efficiency.

As you may recall from the Production section,

transport capacity (TC) is an abstraction that Arsenal of Democracy uses to represent a nation's overall ability to move goods and materials. It is the product of your nation's industrial capacity, as modified by available technologies, and is consumed by sending supplies and fuel to your armed forces. It is also used by any items currently awaiting deployment from your force pool and by any divisions that are being strategically redeployed. A further drain is placed on TC by each enemy province that you occupy. As long as you are careful to ensure that the total available transport capacity exceeds your total use of that capacity, then you should run into the fewest possible problems when it comes to supplying your troops in the field.

If you hover your mouse over the TC icon in the Top Bar, you'll see a breakdown of your current TC usage and below this you'll see your base supply efficiency (BSE). This is the theoretical maximum efficiency that you could achieve under ideal conditions, however for the troops in the field this is then modified by the local infrastructure, representing the ability to deliver supplies to those units.. The effective supply efficiency (ESE) is therefore the base supply efficiency modified by the amount of infrastructure in the province. This can be further reduced if an enemy bomber force is conducting certain types of bombing campaigns against the province (these missions are detailed in the Air Combat section).

Because of its wide-ranging effects, it would be hard to overemphasize the importance of the effective supply efficiency value. A division that is located in a province with low ESE will suffer increased attrition rates, reduced movement speeds, and will take much longer to upgrade or to regain its strength and organization. During combat, low ESE will also tend to result in more rapid loss of morale and organization, making it more likely that your forces will break off their attack more quickly and will sustain higher casualty rates. When combined with other possible modifiers (due to terrain, weather, climate and enemy logistic strikes), this could easily result in a persistent rate of loss that makes it virtually suicidal for a division to remain there.

Only two things can be used to offset this potentially devastating effect. A headquarters division has the effect of increasing the ESE noticeably for all divisions within a one-province radius of its location. You can also use the option of placing a field command on the offensive, which will increase their supply efficiency by 120% for the next 30 days but will double the amount of supplies they consume.

Attrition

This is the harmful effect that a low supply efficiency will have on your forces. Any force that is not receiving enough supplies will begin to suffer attrition, which reduces both your troops' strength and their organization. In "real life" this didn't necessarily mean that soldiers perished, but lack of supply can lead to all sorts of ailments that resulted in soldiers becoming too ill to fight or in equipment being used in conditions that exceeded their

design specifications and breaking down. The degree of attrition is determined by the effective supply efficiency in a province as modified by the terrain, weather conditions and climate. All of these will take their toll on your forces and can deal just as crippling a blow as any direct enemy attack can achieve; so you should do everything you possibly can to avoid placing your troops in a situation where attrition levels will be high, unless there is a very large strategic advantage for doing so that cannot be achieved in any other way.

Supply Chains

Now that we've looked at transport capacity and supply efficiency we can address the overriding issue supplying your forces. In "real life" the logistics involved in supply chain management are very complex and time consuming, but it's not one of the more interesting or entertaining roles for a player to assume so Arsenal of Democracy abstracts this using the previously described transport capacity and supply efficiency systems. What remains and what you must pay close attention to is the issue of supply chains. For the sake of clarity (and convenience) I'll be using the term "supplies" in this section to refer to both the supplies and the fuel (oil) that your divisions require to operate. You will need to concern yourself with both.

A supply chain is the actual path that your supplies will take in order to reach your troops. It must start at a depot that has the necessary supplies and then follow an unbroken chain of adjacent provinces until it reaches your divisions. If that chain is broken then the supplies will cease to reach your troops and they will begin to suffer rather nasty attrition effects that will reduce their strength and organization. A supply chain must be traceable through friendly provinces: ones that you control, that your allies control, or provinces belonging to nations with whom you have a treaty of military access. You cannot trace a path through enemy provinces, or provinces belonging to neutral nations (unless, as just mentioned, you have a military access treaty with them). You cannot trace supply directly across water but you can create a new depot in a coastal province that you control and then use convoys to ship supplies to that depot from somewhere else (usually your capital).

You can also be supplied by one of your allies, provided that they have the necessary supplies in their depot. Of course this can put undue strain on their supply capabilities, eventually causing problems if there is a large concentration of allied troops in an area. Keep in mind that the reverse is true as well, that your allies may draw supply from you if they need to (and they won't ask you before they do it so this is a good reason to maintain extra supplies in a depot).

Supply chains are created automatically for you if your divisions can trace an unbroken path of provinces to a friendly depot that has the necessary supplies. It is assumed that the necessary supplies can reach the provincial border without much trouble, so the ESE calculation is only applied to the province that your divisions

are currently occupying, not to each province in the chain. This abstraction (and somewhat incorrect assumption) is necessary to prevent undue CPU load that would slow the game to a crawl, and to avoid forcing you to micromanage the exact route that every single one of your supply chains uses when there are multiple possible paths. When the supply chain is created, it will always use the closest available source of supply first. This could easily be an allies depot rather than your own, as long as it has the necessary supplies. If that depot lacks the necessary supplies, the next closest depot will be used, etc. As long as you or your allies have a depot somewhere that has the supplies and can be linked, you will remain in supply.

While the Supply Map-mode will display all provinces that currently could receive supplies, this doesn't necessarily mean that the supplies are actually in place. If you become cut off from your capital, or if you lack the supplies and fuel in your national stockpile, or an allied source of supply then you will be in very deep trouble. The best way to check a division's current supply status is to select the field command and look at its status. A small dot appears in the status area to indicate that the field command is in supply and the source of that supply is listed immediately below this. If it isn't in supply, this will be indicated as well.

Overseas Supply

While supply chains are established automatically, overseas supply also requires that a flow of goods move from your capital (where supplies are manufactured and collected) to whichever depot is acting as the supply source for your forces. You can have this done automatically for you by selecting the Auto-Create/Destroy Supply Convoys option in the Convoy Management interface (which is accessed via the Production Folder). You may prefer to manage this yourself using the same interface to build up extra supplies. Don't forget to correctly identify the materials that this convoy should transport; and if that depot is also a collection point for oil from local provinces then you will also need to ensure that any convoys that are shipping goods back to your capital don't end up taking oil away from this location.

Resources are now used for IC on a provincial basis – meaning that you can produce locally and don't need to ship resources from colonies back and forth. Supplies now are produced at a province scale, the need to transport supplies to IC rich remote areas (for example India) has been greatly reduced. This also makes surrounding the capital ineffective, as the supplies are still produced in the remaining part of the country just as before.

Air Supply

In an extreme situation your field command may become completely cut off from supply. In such a case it is possible to use transport aircraft to ship supplies to your encircled forces but this is extremely expensive and very inefficient, not to mention that enemy fighters will do their best to blow your transports out of the skies. Using air supply will create a new depot in the province that your

transports are shipping to, a depot that could subsequently be captured by the enemy, and should be considered as only a short-term emergency measure. Details of how to assign this mission are given in the Air Combat section.

Reinforcement

Any unit that is in supply and that has sustained casualties may be reinforced back up to full strength by allocating some of your national IC to reinforcement. The details are then handled automatically for you by deducting the necessary manpower and IC and gradually replenishing your divisions. This can take some time and the newly added strength will reduce your unit's experience a bit since these reinforcements are new recruits, not battle-hardened veterans. If you check the prioritize button for a field command it will be given top priority for reinforcement but it will still take a bit of time for the losses to be replenished. There is no way to prevent reinforcements from being made to a division other than to allocate no national IC at all to reinforcement, but in that case none of your divisions would be returned to full strength.

Upgrading

New technologies will be made available to your forces as soon as the research has been completed. To upgrade your units you must allocate some of your national IC to this purpose, and the units must be in supply to receive the advances. This does not dilute their experience but can take a little while to achieve. As with reinforcements, units can be given precedence by clicking the prioritize button in the field command information panel. Units in the force pool are not upgraded until they have been deployed, and any units that weren't in supply at the time that the new technology became available will be upgraded once they are back in supply.

Disband

To disband any division, go to the division details information panel and click the disband button. This will return some manpower to your national manpower pool (if there's room in the pool) but their experience is lost, as is the original investment in IC that you made to produce the division. You will probably not need to do this very often unless you are seeking to reduce your overall national force strength to conserve transport capacity, or minimize the amount you must spend on manufacturing supplies. Remember that divisions that consume oil do not do so unless they are moving or in combat, so oil stockpiles may be maintained simply by keeping those forces stationary.

Basic Army Movement

As long as no combat is involved, you can order field commands to move from one province to another with relative ease. Select the force (or forces) that you wish to move and then right-click on the province that you would like it to move to. A movement arrow will appear and the force will immediately begin to move to that province (the color of the arrow will always be blue if you're moving to a

friendly province or red if you're advancing into enemy territory). The province does not need to be adjacent to the province they currently occupy, however it must be possible for the field command to move to the new province without crossing water or entering a neutral country's territory. You may only move into one of your provinces, your allies' provinces, a province belonging to a neutral country with which you have a treaty of military access, or into enemy territory.

The length of time it will take to move into an adjacent province depends on the terrain and weather conditions of the province that it is moving to (not the province that it currently occupies), the movement rate of the slowest division in that command, and the ESE of that province. The ETA will be displayed in the Field Command Details display, just below the mission box and the mission will be updated to indicate that the force is moving. If any of these movement conditions change the ETA will be revised to reflect this. As the movement occurs, the blue movement arrow will give a graphic indication of its progress (the arrow turns darker). If you want to stop the unit from moving and cancel the order, select it and then right click in whatever province it is currently located.

If you hold down the Ctrl key when you right-click on the "target" province the Orders Interface will appear (you will use this extensively for combat). For simple movement you should use the "attack" mission since an attack on a friendly province is automatically recognized as an order to move there. You will see the date and time that the force is expected to arrive if the conditions do not change and may adjust this to any (later) time or date if you wish; a useful means of synchronizing the arrival of multiple units. The unit will not begin to move until you click the OK button to issue the order.

When you are moving to a more distant location the path that is chosen automatically for your force may not be the one you wish it to use. This might be due to the terrain it must traverse, or you might wish to keep it away from an enemy's border to keep its presence a secret, or you may wish to avoid a location that is subject to frequent enemy bombardment. Whatever the reason, you may easily select the path that a force will use by holding down the shift key and then right-clicking on each province you wish it to use. You may combine the use of the shift and Ctrl keys to further refine the orders.

Transporting Troops on Ships

To move land forces across water you must transport them using your naval transport vessels. Each naval transport has sufficient carrying capacity to handle one full division and, if necessary, an attached brigade. To be able to transport a field command you must either have a sufficient number of transports or you must reorganize your force until it is the appropriate size. Once you have done this, there are two ways to load a field command onto a transport vessel. If the force is in a port that also contains the transports you intend to use then you can select it and click the load on transports button. The force will be immediately loaded and you can then issue orders to your

transport as to where to take them. The other option for loading troops is used when the transports are in an adjacent sea area (usually because your troops are not in a port). In this instance, select your force and then right click on your transports to issue an order for them to begin loading. This process will take some time and leaves both your field command and your transports open to enemy attack. Should this happen, the process will be halted until the enemy has been repelled and then it will resume. If your navy fails to successfully defend against the attack then the entire process is canceled (but, fortunately, no portion of your field command will be damaged). Once loading has been completed you can select the transports and issue them their orders.

Unloading of transports will occur automatically if their destination is a port. If you wish, you may unload your force from a transport when it is in the sea zone adjacent to a desired friendly province. To do this, select the transports and then click unload button. This will automatically select the field command that you are transporting and you may then right click to designate the province you want them to unload to. Again, this will take some time to complete and is subject to enemy interference. Unlike the loading process, failure here can be catastrophic if a transport is sunk since your troops will go down with the ship. As you will have gathered from the comments above, it is much faster and safer to load and unload your troops in a friendly port if at all possible, and to reserve "adjacency" loading and unloading only for emergencies.

Unloading troops to an adjacent province that is in enemy hands can be done by using the adjacent sea zone unloading method or by using the naval "amphibious assault" mission. To launch such an attack the province must have a beach.

Strategic Redeployment

For basic redeployment of land forces to more distant locations it is usually easiest to issue them a strategic redeployment order instead of physically moving them there. While this usually takes slightly longer than marching, there are several advantages to this technique. The first is purely a matter of convenience since the order is very simple to issue. A less obvious one is that during the course of their redeployment they are not subject to attrition losses or enemy attack, both of which can take their toll. Strategic redeployment will use 2 TC of your national transport capacity for each division being redeployed this way.

Issuing a strategic redeployment order is remarkably easy to do. Simply select the field command that you wish to redeploy, then hold down the Ctrl key on your keyboard and right-click on the province where you want the force to redeploy. It must be a province that you control, not one that is controlled by an ally, and there must be a land link through friendly territory between its current and intended locations. Because you are using the Ctrl and right-click combination the order interface will be displayed, from which you need only select the strategic redeployment option. The exact arrival date will be displayed (in this

instance it is exact, but you can't adjust it) and you can then click the OK button to issue the order (or click Cancel if you change your mind).

The field command will be immediately removed from the map and placed in the force pool with a notation as to where it is being redeployed and the date that it will arrive. During this time you cannot change or abort these orders. If their destination province falls into enemy hands before they arrive then they will be placed in the first available friendly territory that is along the route that they were taking to the originally intended province.

Transporting Paratroopers

Unlike naval transports which can carry any type of land division, air transports are only able to carry airborne infantry. Each air transport can carry one division of paratroopers and the method for loading and unloading is more or less exactly the same as it is for naval vessels. The only difference is that you must select the target province for the paratroopers to jump into, or select an airbase for the transports to land at to deliver their troops.

Basic Land Combat

Overview

Now that we've looked at the details of your forces, deployment, basic movement and supply, we can finally begin to discuss combat. To avoid throwing too many options and variations at you all at once, we'll start by looking at what happens when one of your land forces engages an enemy's land force: a simple one-on-one engagement between two opposing field commands. This will introduce the basic rules that make up the core of Arsenal of Democracy's combat system. In subsequent sections we'll look at more complex situations where multiple forces are participating, and where air forces and navies get involved.

Combat, in Arsenal of Democracy, represents the struggle for control of large provincial areas and should be thought of as a series of engagements, rather than a single battle between two large forces. Battles can often last for many hours, days, or even weeks, depending on the size of the forces involved and how well the enemy has prepared to defend the province. It will continue in a series of combat rounds until one side is either victorious or is ordered to disengage. If the defender is victorious or the aggressor breaks off the attack then things will remain status quo. If the defender chooses to flee or has been forced into full retreat, the attacker will begin to move into the province to clean up the last pockets of resistance and begin the occupation of the newly-conquered province.

Entrenchment: Digging In

Before we look at initiating combat and how it's resolved, we need to quickly touch on two subjects: entrenchment and provincial defenses. Entrenchment is an indication of how well prepared the defending force is to repel an attack and will be available after you have researched the appropriate technology to enable it. You can

check the status of your land forces by selecting the field command and looking for a small shovel icon in the status area. If there's a shovel then your force is entrenched or "dug in" to at least some degree. If you hover your mouse over the shovel a tool-tip will appear to show your dug-in status. The higher the number the better prepared they are and the greater their defensive bonus will be. A force that remains stationary in a province for a while will become increasingly dug-in, raising their bonus until it reaches its maximum possible value. The bonus is immediately lost if it begins to move.

While there is no way to check an enemy's status you could make an educated guess if you know roughly how long they have been there. A well-entrenched enemy will be considerably harder to defeat; and attackers do not receive a dug-in bonus, obviously, since they are moving.

Province Defensive Structures

While entrenchment can help a defender repel an attack it is a poor substitute for a network of fixed defensive structures that are designed specifically for this purpose. A force that is in a province that contains land fortifications will gain a very large edge in combat, proportional to the size of the fortification, in addition to any entrenchment bonus they receive. A division that is entrenched, in supply, at full strength, and well organized can be an almost unbeatable opponent so it is best to find a way of reducing at least a few of those factors before launching an assault against them.

Land fortifications only aid a defender against an attack from another province, not against one that comes from the sea. Coastal fortifications perform the reverse function, repelling sea invasions but having no effect against an army that is advancing from an adjacent province; and neither of these defenses have any impact unless there are forces present to man them, and neither of them are used against any paratroopers who attack you: although paratroopers are subject to a separate combat penalty. Anti-aircraft and radar installations require no one to man them but have no effect whatsoever on advancing land forces (though they will help you against any supporting enemy aircraft).

Initiating Basic Land Combat

All land battles in AoD involve two sides: an attacker and a defender. Combat is initiated whenever a field command is ordered to move into an adjacent province that contains an enemy field command. The defender is always the force that occupies the province and is attempting to hold it; and the attacker is always the force that is attempting to capture the province. When you order a field command to move into an undefended enemy-controlled province there will be no combat and a movement arrow will appear. The arrow will be red to indicate that the command is moving to occupy an enemy province.

In all cases where the province is defended, right-clicking on a province will automatically display the Orders interface so there is no need to hold down the Ctrl key as

you do so (though it isn't a bad habit to use the Ctrl key anyway, just to get into the habit for other situations where you do).

The Orders interface will have a list of all context-sensitive orders that the field command is able to perform and the attack option will be preselected. The interface will also indicate the day and time that the attack is to begin and will usually display the current date and time. This won't always be the case because the game tracks your recent orders and if it seems appropriate the default time will be set to coincide with the others. It might take a little getting used to but this feature is an incredible time-saver... and the default attack time can easily be overridden by adjusting the values using the "+" and "-" buttons. To simply go ahead and launch the attack, click the OK button. The Orders interface will close and the field command's orders panel will be updated to reflect its new mission. If the attack is to begin immediately then the red movement arrow will also appear on the map (as long as you have the unit selected) but if you have set a delay on the timing then the arrow will not appear until the attack actually begins.

As soon as the combat begins a variety of game interfaces will also be updated to reflect the fact that a battle is taking place. In any interface where the field command is listed (e.g. if you click on the Land Forces Hot Button) you will see a small red battle symbol at the right edge of the display. If you click the Province Hot Button you will see the same symbol beside the province name. This same symbol also appears in the border type display of the Province Details information panel. Depending on your current message settings you may get a pop-up message box to inform you that battle has been joined. The easiest way to view battle locations, though, is to click on the Active Combats Hot Button which will display the combat quick view (see below) for any battle or provincial occupation that is currently underway.

Timing Your Attack

It is usually best to launch an attack that is timed to begin at daybreak (or at least during daylight hours) since most forces don't fight very well at night. This is easily done on the Orders Interface where you can adjust the exact date and time that you would like the attack to begin. The time displayed in the Orders Interface is always GMT, not local time, but a small symbol in the interface will indicate whether this will be a daytime or night time attack. In more advanced combats you will frequently use this interface to time the various components of your attack (e.g. to conduct preliminary aerial bombardment to soften up the enemy before your land forces begin to advance) or to gradually escalate the scale of the conflict.

Basic Combat Resolution

As soon as battle is initiated you will notice that the Field Command details in the information panel changes to display a "combat quick view" at the top (in place of the usual province details). The mission box will display the unit's current orders ("Attack" if it is the aggressor) and below this will be a brief graphical summary of the current

status of the battle with the province name and battle icon in the center. On either side you'll see the portraits of the opposing commanding officers, their current strength and organization, the number of divisions involved on both sides, and their nationalities. The attacker will always be listed at the left side of the summary and the defender at the right. Below this is a bar that stretches from left to right across the bottom of the battle summary, indicating which side currently seems to hold the advantage. If this is mostly red then the attacker seems likely to win. If it's green then the defender would seem to be prevailing. This status is not a guarantee of victory, however, since many things may happen during the course of a battle that could tip the balance.

This same combat quick view also appears in the list that is displayed when you click on the Active Combats Hot Button (remember that you can filter this list to display only a particular type of battle). If you click anywhere on the combat quick view display on either interface the information panel will change to display the combat details view. As is the case with the quick view, the attacker is always listed on the left side of the display and the defender on the right.

The name of the province that the two forces are vying for is listed at the top. The portrait of each commander will be displayed below his national flag, along with two numbers: the number of divisions that he currently commands and the maximum number of divisions that he is able to command. If the first number is smaller than the second, then the commander's capabilities are not being exceeded, but if the first number is greater he is commanding too many divisions and is deemed over-stacked. The severe penalties received for over-stacking are detailed later in this section.

There is a small "event box" just below this that stretches between the two leaders' portraits. Normally it will be empty; however there are special combat events that may occur during the course of battle. These are far more likely to be in your favor if you have a high-ranking leader who commands an HQ division somewhere in the vicinity. If an event does occur, it will be listed here (details on combat events may be found a little later in this section).

In the next section of the information panel, you'll see a series of symbols that will change as the battle progresses, and the same red-green battle status bar that appears in the quick view. The symbols that appear in this area will indicate various special combat conditions that are affecting the battle, conditions such as entrenchment, night time combat, river crossing, over-stacking, weather conditions, and more. Each of these will have an effect on how combat is resolved and are shown as quick visual "clues" as to what factors might be influencing the battle. Details concerning the exact bonus or penalty will vary somewhat depending on unit type, and a unit's technology, so the precise values of the modifiers are not displayed here, but are incorporated into the next part of the information screen.

The balance of the information panel displays a complete scrollable listing of the units involved on both

sides of the conflict and a graphic representation of each one's remaining strength and organization. An expanding tool-tip is available for each division that contains precise details about the various bonuses and penalties that it is receiving to its combat values and which are totaled to give its current attack and defense effectiveness (i.e. the attack effectiveness and defense effectiveness values shown in the tool-tip include all of the various modifiers that are listed below them). These will change, and are updated, on an hourly basis as the combat progresses.

A combat can last for as little as a few hours or possibly for as long as a few weeks, though the majority will probably be waged for a matter of days. Battles are subdivided into "rounds", with each round lasting for one hour. During each round a variety of things will occur:

- There is a chance that a combat event may occur at the beginning of the round, representing a special advantage that one side has managed to achieve over the other. The likelihood of one happening that favors your side is determined by the land doctrines that you have researched (which may increase the odds of a specific event occurring) and are also considerably more likely if you have an active HQ division in a province that is adjacent to the battle or involved in the battle. (To be active, it must be commanded by a general or by a field marshal). If an event occurs, then its effects will remain active for eight hours (i.e. for the next 8 rounds) and no other combat event can occur until it has expired.
- The attackers will inflict some damage to whatever provincial assets exist in the province. If the defenders have a land fortification (or a coastal fortification in the case of an amphibious assault) then it will sustain some direct, intentional damage. The amount of damage is tripled for divisions with an engineer brigade attached to them. There will also be some collateral damage to infrastructure, factories, and other structures that will reduce their operational conditions until the damage has been repaired.
- The combatants will exchange fire, with each side likely sustaining some level of casualties and probably experiencing a slight reduction in organization and morale.
- Both combatants will also draw a measure of supplies and oil to sustain them for the next combat round. This will be at a somewhat higher rate than their normal hourly consumption, and if there is a lack of either then their combat organization and morale will begin to drop quite sharply. Running out of supplies or fuel is a sure way to lose a combat.
- At the end of each round, the operational status of each division is checked to see whether it is able to continue fighting. A division that has sustained enough casualties to reduce its operational strength to zero will be eliminated. More often, though, a division will reach a point where its organization has been reduced to a level where it cannot continue to fight (below 5%) and will begin to withdraw. It may

still be fired upon (and will try to defend itself) but it will no longer attempt to inflict casualties on its enemy.

This cycle will repeat each hour that the combat continues until either one side has been completely eliminated (which is quite rare unless the battle is very lopsided), or until at least 50% of a side's divisions are in the process of withdrawing from battle. You may, however, elect to disengage from combat at any time if you feel that your chances of winning are slim and you would like to preserve as much of your force as possible. If you are the attacker then you can do this by selecting the field command and then right-click in the province that they currently occupy. In the case of a defender, you can select the force and then right-click anywhere, since there are special rules that govern retreat from a province.

Exchanging Fire

In the above description I simply indicated that the two sides "exchange fire" each hour. This is actually a very complex process whose precise mechanics are embedded in the game engine; but you need to have at least some idea of how it works in order to be able to make an informed decision about whether to initiate a combat and what forces might be useful for you to build, deploy, and order into the battle. Here's roughly what happens...

The firing phase of the combat is subdivided into a number of "shots"...shot 1, shot 2, shot 3, shot 4, etc. until all possible shots have been fired. For each of those shooting rounds, each division on both sides will randomly select an enemy division to fire at and then will target either its hard or its soft component. The likelihood of it picking a soft target is equal to the enemy division's softness value, so if your division is shooting at an enemy division with a softness of 70% then there's a 70% chance that it will target the soft component and a 30% chance it will target the hard component.

Your division then checks whether it is "allowed" to shoot by checking its hard or soft attack value. Whether a division is allowed to shoot depends on what shot number it is and on the attack value it has against the target type it has selected. For example, if it chooses a hard target and has a hard attack value of 5, then it will be allowed to shoot if it is presently shot #5 or earlier. If it's shot #6 or later, then it is not permitted to shoot. That doesn't necessarily mean that its attack is over for this round of combat, because if it happens to have a soft attack value that is higher then it might still select a soft target for a later shot and be able to shoot. For example, if that a division has a soft attack value of 12 then it will be allowed to shoot if it happens to select a soft target any time up to round #12.

If a division is allowed to shoot then it will so, but the target division will also have a chance to avoid being hit. Whether the target is able to avoid the shot is determined by either its defensiveness value or its toughness value, depending on whether it is the defender or the attacker in the overall combat. If it is defending a province then it uses its defensiveness value; if it is a division on the attacking side then it will use its toughness

value. This value is the number of times that it may attempt to avoid being hit during each full combat round. For example, an attacking division that has a toughness value of 10 may attempt to avoid being hit on the first ten times that it is targeted by defending divisions during each combat round. If it is targeted by 5 enemy divisions in the first shot, then by 4 divisions in the second shot and then by 4 divisions in the third shot then it can only attempt to avoid 10 of those 12 shots. It would not be able to avoid any subsequent shots that were fired at it until the start of the next combat round. In normal combat situations, a division will be able to avoid a majority of the shots directed towards it, so it is unlikely to sustain significant damage unless its avoidance opportunities have been exhausted while its enemy still has additional shots remaining.

A shot that successfully hits its target will inflict damage on the target division. The extent of that damage depends on the type of the division that fired the shot and on the type of target it selected. Foot soldiers (infantry, marines, militia etc.), cavalry and motorized infantry will generally inflict a bit more damage to a soft target than a mechanized infantry or armored division will achieve; however the latter are more effective against hard targets than their "weaker" brothers in arms. There is also a strength component to the damage, with the percentage of strength that the shooting division has lost being applied to the amount of damage it can inflict.

But wait... there's one more twist! You might have been wondering what the tool-tip values of "attack effectiveness" and "defense effectiveness" mean and then guessed, incorrectly as it turns out, that these values might represent your chances of hitting a target or avoiding getting hit. They don't. The attack effectiveness modifies your division's soft and hard attack values by that percentage, while the defense effectiveness is applied to your defensiveness or toughness value (depending on whether you are the attacker or defender). This means that they will increase or decrease the number of shots that each division may fire in each round, and the number of shots that they might be able to avoid when they are targeted. Attack and defense values must be whole numbers (you can't partially shoot or partially defend) so any fractions that result from the effectiveness modifiers are ignored. That means that a soft attack value of 5.99999 would restrict a division to firing at a soft target only during the first 5 shots of the round; and that a defensiveness of 5.99999 would allow you to try avoiding a shot only five times during that round.

All of the above occurs every combat round until the battle is over, and is thus repeated, and are likely to change to at least some degree, on an hourly basis. What will tend to have the greatest impact on a battle, therefore, is the quality of the forces that you employ and the modifiers that come into play during the course of the engagement.

Modifiers That Affect Battle

There are a great many factors that will play a role in the outcome of a battle. Almost all of these are modifiers

that are applied to the attack and defense effectiveness values, thus altering the number of possible shots you can fire or avoid each round. Some of these will remain constant throughout the course of a battle, things such as terrain modifiers, while others may have shorter durations (night time penalties, or possibly changing weather effects). It isn't practical to list them all here (and many have already been mentioned earlier in the manual) so I will only highlight a few of the more significant ones.

Leadership will have a very large impact on the effectiveness of your forces. Some officers have traits that will give significant bonuses that can offset other penalties or give certain types of divisions an advantage; and an officer with high levels of skill can also give a substantial boost to these values. The biggest issue you'll encounter, though, will be the nearly catastrophic penalties incurred if your leader is over-stacked. As you'll recall, each leader has a rank and this rank will determine how many divisions he can command without penalty. This number is doubled when an officer is within a one-province radius of an active HQ division. If he exceeds his limit then all of the divisions under his command will forfeit any bonuses that his trait or skills would normally have given them. Worse still, the "excess" divisions will receive a 75% penalty to both their attack and defense effectiveness values. This will make them very easy for the enemy to hit and also means that they aren't likely to be able to shoot very many times during a round. When we move on to look at more complex combats, we will discuss the effects of having multiple officers participating on one side of a battle.

Beyond the possible weather and terrain modifiers, which, as detailed earlier, can occasionally be nasty, there is a large penalty applied to night time attacks and, to a somewhat lesser degree, defense. Making an amphibious landing, crossing a river or parachuting out of the sky will also limit your effectiveness, although the latter has the benefit of avoiding the very substantial penalties incurred for attacking a fortification.

National dissent will also impose a noticeable penalty on your forces if you allow it to rise. At low levels it may only hamper your forces slightly, but the higher it rises the more painful its effects will become. If you expect to be involved in many combats, you would be very well advised to deal with your domestic situation as rapidly as possible... or face the consequences.

There are a host of modifiers supplied by various technological advances, particularly by combat doctrines, as well as by such things as your current ESE, the experience of your forces, and so on. While it might seem that most large modifiers favor the defender, and that is actually the case for simple battles such as the ones we're considering here, when we look at more complex combats you will find that this can easily be offset by an envelopment factor, which is applied when the attack is launched across multiple provincial borders. It will take some time to become familiar with all of the possible situations and resulting modifiers, so my advice to you is to play the game, try various alternatives, and learn from experience. Pay close attention to the tool-tip details during combat as you're learning, and

you may want to pause periodically to spend some time reviewing them for each division if a combat isn't going quite the way that you think it should.

Combat Events

During each round of combat, there is a small chance that a special combat event will be triggered. When this happens, the Combat Details will display the event name in a small box that extends between the two leaders' portraits. Only one combat event can be in effect at a time, and the effect lasts for the next 8 hours. The chance of a favorable (for your side) event happening increases if you have an HQ division participating in, or adjacent to, the battle.

Counterattack: This is a concerted attempt by the defending side to launch a minor counter-offensive to disrupt the enemy's plans. While the defenders will suffer somewhat higher strength losses during this period, they will inflict significant organization losses on the attacker.

Assault: This represents a particularly forceful sustained attack, where the attackers will suffer higher strength losses than normal but will inflict much higher organization damage to the defenders.

Encirclement: This indicates that the attacking force has briefly managed to pin down and encircle the defenders in a small area of the province. While this effect lasts, the defenders will suffer much higher strength losses and the attacker will rarely suffer very much loss of organization (although they may sustain the normal strength losses).

Ambush: The attacker has managed to ambush the enemy forces, inflicting much higher rates of strength and morale damage to the defenders, while at the same time greatly reducing the amount of those same types of losses that they sustain themselves.

Delay: The defending side is employing a delaying action that greatly reduces the amount of strength loss it sustains during this time.

Tactical Withdrawal: During this period, the defender is making a careful tactical withdrawal to a preferred combat location in the province. Both sides will sustain reduced levels of strength and organization loss, but the defender will sustain even lower organization losses than the attacker.

Breakthrough: The attacker has managed to overrun an enemy's defenses in part of the province. This will seriously disrupt the defender's organization and reduce the strength losses sustained by the attacker. If the defender has an HQ division involved in the combat, it is likely to sustain heavy casualties as a result of the breakthrough.

End of Combat

Combat ends when one side breaks, is eliminated, or when one side is ordered to disengage. There are several possible outcomes:

Attacker Breaks or Disengages: The simplest outcome occurs when the attacking side either breaks or is ordered to disengage. In this instance, the battle will cease and the forces of both sides will remain exactly where they are. A defender who wishes to pursue this advantage would now

have to make an attack of his own against the enemy forces.

Defender Eliminated: This is also a straightforward (though rare) situation. If the entire defending force is destroyed, then the combat stops, the defender's divisions will disappear from the map, and the attacker will begin moving to occupy the province.

Defender Breaks or Disengages: The third possible outcome is that the defender loses the battle and is forced (or elects) to retreat. The combat ends and two things happen: the attacker now begins moving to occupy the province and the defender must withdraw from the province. The direction of the defender's retreat is not something that a player can decide (even if he is the defender and voluntarily disengages) but is determined automatically by a set of rules that govern retreat. The defender must retreat to an adjacent province that he is permitted to enter (it must be controlled either by him, by his ally, or by a nation with whom he has a treaty of access). If there is more than one of these then the choice is made more or less randomly. If there isn't a province that meets those criteria, then the defender may retreat to an adjacent sea zone if he has sufficient transport vessels available there to carry the number of divisions that are retreating. If there is nowhere for the defender to retreat to then his entire force will surrender and will be eliminated.

Occupation of Enemy Territory

Once a defender has been defeated, or in a situation where there is no defending force, the attacking army now begins to move into the province to occupy it. You can view its progress by selecting the field command and looking at the red movement arrow. It will take a little time to accomplish the occupation, and this process could be delayed by the arrival of new defenders in the province. If that happens, a new combat immediately ensues and must be resolved before the occupation can continue (but the extent of the attacking force's occupation is saved and will resume from the point it left off, if it is victorious). Once the field command has finished occupying the province, it will complete its move and control of the province will change.

Occupation will cause some degree of additional damage to all provincial structures (air and naval bases, infrastructure, factories, etc.), even in cases where there has been no combat involved in the province's capture. This represents an enemy's rearguard or last-ditch actions to make as few of these assets available to the enemy as possible, so you will need to allocate some IC to repairs (reinforcements) before these will become operational once more.

More Complex Land Combat

Overview

We will now look at somewhat more complex battle planning and actions. It is rare that a simple, direct assault by a handful of divisions will gain much ground on a front or do much to defend one. This section looks at

coordinating attacks from more than one province, advanced defense options, and some special orders that you may wish to issue, and a few perks associated with some of the elite units available in the game.

Multiple Attacking or Defending Field Commands

The first thing we'll look at is the fairly common situation where there are two or more field commands located in the same province, and thus more than one officer, and they both engage in the same battle. This is handled differently depending on whether they are attacking or defending. When attacking, the highest ranking officer determines how many divisions may participate in the battle without receiving the nasty effectiveness penalty for being over-stacked; however all other combat modifiers that a division receives are based on the trait and skill levels of their immediate commander and will be forfeited if he has too many divisions assigned to him. Be sure to double check that in any instance where you use more than one field command to attack from a single province that there is an officer of sufficient rank to command all of the divisions involved in the attack.

When two or more field commands are defending, however, the field officers are treated individually, and their ranks' stacking limits are added together to determine the total number of divisions that may defend without incurring a stacking penalty. Remember, though, that even if one officer has "empty spots" in his command and can "assist" another officer who is over-stacked to eliminate the combined forces' over-stacking penalty, the divisions that are directly assigned to the over-stacked officer will lose any benefit from his skill or traits.

Let's look at a situation where you have a lieutenant general in a province with 3 divisions assigned to his command, as well as a major general in that same province with one division. While neither is individually over-stacked, if they jointly attack another province then the lieutenant general will command the entire force of four divisions and thus, for the purposes of the attack and defense effectiveness values in the attack, he is over-stacked and one of the divisions will receive a 75% penalty. However, since each individual commander is within his command limit, any traits and skill bonuses that they have will be applied to the divisions that they command directly. If they are defending against an attack, however, their ratings are combined and they would not be over-stacked.

If we take a similar situation, but suppose that in this instance the lieutenant general has 2 divisions and the major general also has 2 divisions, things get messy. If they are attacking, then the lieutenant general commands the entire force and will be over-stacked (thus one division will receive a -75% penalty). Further, because the major general is personally over-stacked, neither of his divisions would receive his skill or trait modifiers. The lieutenant general is not personally over-stacked, however, so his two divisions would benefit from his traits and skill. If they are defending then their ratings are combined together and the 75% over-stacking penalty would be removed (since jointly they can command 4 divisions); but since the major general

is personally over-stacked, neither of his two divisions would benefit from either his skill or his traits. In that instance, the one division that is being "handled" by the lieutenant general (for over-stacking purposes) would not benefit from the lieutenant general's skill or traits either. As you can see, the best rule of thumb is to never over-stack an officer!

Envelopment and Multiple-Front Attacks

One of the most effective tactics that can be employed by an attacking force is to launch their attack from several different provinces against the same target. This is for two very important reasons: the defender will suffer an attack and defense effectiveness envelopment modifier and the attacking leaders may stack their division limits to bring a much larger number of divisions to bear against the enemy.

When a province is attacked across more than one border, the defending forces will receive a 10% envelopment penalty for each extra angle of attack. For example, if you can attack a single enemy province from four different adjacent provinces then that enemy will receive a 30% envelopment penalty to his attack effectiveness and his defense effectiveness. If you have paratrooper divisions then you may also use them for "vertical envelopment", meaning that this airborne invasion is treated as a separate angle of attack for the purposes of determining an envelopment penalty. Keep in mind, too, that while paratroopers are not nearly as effective in combat as some forces, they are also not subject to any penalties from defensive fortifications. A naval invasion force also counts as an angle of attack, although they are subject to penalties if the province contains coastal fortifications.

The other benefit is that each province's attacking force is handled separately for the purposes of determining over-stacking. If two generals were to attack from the same province then they would be able to use only one of those general's command ratings and could only attack with nine divisions before incurring an over-stacking penalty. If those same two generals attacked from two different provinces then they are not considered to be combined so each of them could command nine divisions in the attack, enabling a total force of 18 divisions to participate without penalty.

Be careful though. This doesn't let them stack their ratings to eliminate a penalty. For example, if a general with five divisions and a major general with two divisions attack from the same province then there would be no over-stacking penalty applied to the major general's "extra" division because the rating of the overall commander of the attack is used for determining that penalty (although neither of the major general's divisions would receive his skill bonus or trait bonuses). If those same two officers attacked from different provinces, then the general is no longer able to take command of the major general's "extra" division. So not only would the major general's two divisions forfeit his skill and trait bonuses, but one of them would also receive the 75% penalty for over-stacking.

It is fairly easy to overlook such an error, because

the leadership summary at the top of the Combat Details will display the sum of those two commanders' ratings. In the above example, the general and major general attack from the same province the summary would indicate that the general is in command and that he has seven divisions with a leadership capability of nine divisions. If they attack from separate provinces, then the general would still be identified as being in command and having seven divisions, but his total command allowance would be listed as ten divisions (his nine, plus the major general's one) so you might not notice that there is actually a situation where one of those divisions is being heavily penalized.

Attacking an Attacker

There is a rather curious situation that can arise quite often where an attack has been launched against a province and then the attacker is, itself, attacked from a different province. In this case the field command that is both attacking and defending will actually participate in both battles simultaneously. It will perform normally in the combat that it initiated, but for its defensive battle it will have forfeited any advantages that entrenchment or provincial fortifications would have given it, and it will receive an additional 50% flanking penalty. Needless to say this is a situation that you should avoid having happen to you if at all possible, and that you should look to exploit if the opportunity arises.

Special Orders: Support Attack

There will be occasions where you'd like a field command to participate in an attack against a province but not move to that province if you are victorious. This can be done by issuing a support attack order. Select the field command that you would like to have support the attack and then right-click on the province that is being attacked. The Orders Interface will appear and you will see the default "attack" pre-selected. Change this to select the "support attack" option instead. The divisions will then participate normally in the battle; however, if you are victorious they will not begin moving to occupy the province. You may also issue this order by clicking the orders box for the field command and then selecting the "support attack" option from the drop-down list. You will then be given a list of possible provinces that you may support the attack against and you then need only select the appropriate one from the list.

Special Orders: Support Defense

Just as you may support an attack, you may also support a defense, although the effect is somewhat different. To issue this order you must be adjacent to the province that is being attacked, or that you think might be attacked. Select the field command, then click its orders box and select the "support defense" option, then select the province you wish to support from the drop-down list of possible orders. The Orders Interface will then be displayed, allowing you to specify how long you would like the support defense orders to remain in effect. If the province you

intend to support is already under attack then you may simply click the OK button. If you are setting this order as a contingency against a suspected attack then you will need to specify how long you would like the field command to continue waiting for the attack to occur. When you click OK the field command will not begin its support until the province it is supporting is attacked by an enemy. If this doesn't happen by the time the order expires, you will receive a message to inform you that your order has been completed.

You may also issue this order by holding down the Ctrl key and right clicking on the province you wish to support. This will immediately display the Orders interface, but you will need to change the order from the default attack order to the support defense order and then set the mission parameters exactly as before. I find this a more convenient method to issue the order.

The effect of the support defense order is that the field command will wait until the province it is supporting has been attacked, at which time it will immediately (and automatically!) march to the aid of the defenders. Because it was anticipating the attack, it will be able to reach the battle in half the normal time it would take for it to move into that province. This may be a particularly effective means of withholding a portion of your forces back from the front lines, and thus enticing your enemy to attack what he perceives as a weakness. Once he has committed his forces, you will then have your supporting divisions arrive and hopefully turn the tide of the battle.

Special Orders: Artillery Bombardment (AB)

You are now able to bombard the next province over and damage Units stationed there. Larger Artillery, like the Big Railroad Guns, are also able to seriously damage fortifications and the province itself. There is no automatic counter-battery fire, but if you are in AB mode and your unit is attacked, you will lose some of your artillery defense bonus because your artillery is otherwise engaged. Every Division has artillery in some form or the other - so INF without brigades can artillery bombard to an extent... However the effectiveness is much higher with large and heavy Artillery brigades - but be aware that supply usage is directly affected by the bombard value (the more bombard stats - the higher the supply cost to do the mission). Leaders and units will not receive experience for AB. This is a powerful new tool for softening up units and reducing fortifications, but it uses a lot of supply.

Special Orders: Reserves

This order is very similar to the support defense order, except that you will exchange the speed of response for an added degree of versatility. The reserves order does not require a province to be specified. You simply select it from the orders menu or hold down the Ctrl key and right click on the province in which it is currently located. You will then need to set the expiry date for the order to tell the commander how long you would like him to maintain this order.

A field command that is operating as a reserve will

wait until any province that it is adjacent to is attacked, and then immediately march to support it. It does so at its regular rate of movement, however, so it will take longer to get there. While the reserves order might not seem all that useful in a single player game where you may pause and issue orders any time you like, if you play in a multiplayer game that has a "house rule" that prohibits pausing during the game (and most MP games have this to some degree) then this order becomes invaluable!

Special Orders: Anti-Partisan Duty

You may order any type of division to engage specifically in anti-partisan duty. Doing so will double their suppression value and thus greatly reduce the effects and likelihood of partisan activities in any occupied provinces. This order is given just as each of the other special orders is done, using the Ctrl and right-click Orders Interface or by selecting it from the drop-down list when you click the orders box. You will almost certainly wish to assign your garrison divisions to anti-partisan activities, since this will maximize their suppression abilities.

Special Units: Garrisons

A garrison force is a somewhat unique division that is limited to one very important specialized function: anti-partisan duties. Garrison divisions can only move via the strategic reinforcement order (which allows them to reach any other province that is linked by a friendly land route to their current location) or by loading them onto a transport and then off-loading them at a destination port. They can participate defensively in a battle if they are attacked, but otherwise they are exclusively used for suppressing partisans - a task at which they excel. Placing a garrison division in an occupied province and assigning them to anti-partisan duty will provide at least double (if not triple!) the suppression value of any other type of unit. If you are pursuing an aggressive course of conquest, make sure you have lots of these forces available.

Special Units: Marines

Marines are a special type of infantry division who are trained specifically for assaulting coastal provinces (although they also enjoy some benefits when operating in swampy terrain). While any type of division may be carried by transports and may participate in an invasion, marines receive greatly reduced penalties during an amphibious assault. Remember also that it is a province's coastal fortifications, not land forts, that are used when defending against an invasion from the sea. An additional consideration is that there is a cumulative penalty for amphibious assaults where each division committed to the attack receives a progressively higher penalty. This may be offset by having your larger naval vessels conduct a shore bombardment mission during the assault, which will reduce the defenders' effectiveness.

Marines are also treated as having a limited degree of intrinsic self-transport capability over short distances of water, allowing them to conduct attacks along chains of

islands without the need for dedicated naval transport vessels. They cannot traverse large stretches of water, but they can move short distances by themselves. If you're fighting in the Pacific, marines are nearly indispensable.

Special Units: Paratroopers

Paratroopers are lightly armed infantry divisions that are quite weak and ineffective when on the ground; however this is the only unit in AoD that is capable of being loaded on an air transport and it is when they are used for airborne invasions in support of a larger offensive that they truly shine. As we discussed in the envelopment subsection above, paratroopers present an additional angle of attack that will give the defenders an extra 10% envelopment penalty to both their attack and defense effectiveness. Paratroopers also ignore the normal penalty for attacking a province with land or coastal fortifications, although they are subject to an airborne attack penalty themselves, representing the rather "hit and miss" disorganization of such missions in that era.

Airborne assaults can be made behind enemy lines if you feel that you can gain a strategic advantage by cutting off supply or capturing an enemy base. Keep in mind that they will be out of supply and in a very perilous situation, so their chances of survival will be very slim. On occasion, though, the sacrifice may be worth it.

Special Units: Mountaineers

Another specialized infantry division is the mountaineers. These units perform just like regular infantry divisions in most cases; however, they excel at moving and fighting in rugged terrain or bad weather and suffer much lower penalties to supply efficiency. If you must engage in battles in these conditions, consider assigning the task to your mountaineers.

Special Units: HQ Divisions

An HQ division is a large, mobile command and logistic control center that must be assigned directly to a senior ranked field officer (general or field marshal) for their effects to become active. All three effects will apply to all land forces that are either located in the same province or in an adjacent province; and they will apply even if an adjacent force is attacking into a more distant province!

The three effects are:

- All officers will be able to command double their rank's normal limit of divisions before over-stacking effects occur (i.e. before divisions that they command lose the trait and skill bonuses, or suffer the nasty 75% over-stacking combat penalty).
- All divisions will receive a modest boost to their ESE. They will move faster, suffer lower attrition rates, regain their organization more rapidly, have a small combat bonus, etc.
- The chance of a favorable combat event occurring during battle will be significantly increased.

I should point out that an HQ division's intrinsic combat capabilities are very poor. This is a unit that

represents strategic and logistics personnel, communications, supply management, rear area medical recovery facilities, etc. I would recommend keeping it away from the front lines and using its tremendous capabilities to greatly improve your abilities across a much broader front.

Advanced Land Combats

Overview

While most players develop styles of their own, I will briefly present a few common tactics that might be worthy of your consideration. I should also point out that there are special leadership and stacking issues that should be considered when ground forces are attacked by enemy aircraft. Those are detailed in the air combat section, rather than here.

Troop Mix, Terrain and Weather

While it might seem aesthetically pleasing to assemble that "killer" 12 division super-tank army with heavy armor brigades attached to each, a well-balanced mix of troops with support from the skies can very quickly turn the tables against you. Your tanks will be at the mercy of enemy tactical bombers and anti-tank brigades, and land forts can provide more than ample protection for the defenders to shrug off your attack. You should take great care to assemble armies with the "right mix" of equipment and personnel if you want to win most of your battles. A few brigades of engineers, for example, are invaluable when attacking enemy fortifications or crossing rivers, but are only marginally effective when on the defensive. Against a determined enemy, you can never underestimate the importance of controlling the skies and carrying some extra AA defenses for those times when your airplanes have to refuel.

Terrain and weather should never be ignored. Armor is usually devastating in open plains but more or less useless in swamp, mountains or jungle, and all the tactical bombers in the world aren't going to help you in the midst of the winter's worst blizzards. Rivers can be vitally important as defensive barriers and are often obstacles that get overlooked when planning attacks. The combat penalties should make you think twice about attacking across a river, unless you have lots of engineers to assist you. If you fail to take any of these factors into consideration, then you are likely to find yourself on the retreat far more often than your enemy. Soldiers and leaders gain very little from defeat (dead soldiers and ruined equipment aren't going to win you any wars, either) and this has the additional effect of bolstering enemy confidence and adding to his troops' experience, which is often a devastating combination.

Softening Up the Enemy

A well-entrenched enemy force is a very difficult foe to defeat, particularly one that occupies a province with appropriate fortifications. It will usually be crucial to soften up the enemy to the greatest degree possible prior to launching your attack, and then continue to damage them

as much as possible as the combat progresses.

The easiest means of doing this is to delay the timing of your attack by an hour or two and to conduct as powerful an aerial bombardment as possible first (at dawn). You should send in a mixture of bombers with a variety of missions to try to inflict heavy organizational damage and impair their supply efficiency. You will probably not inflict very much strength damage, but casualties should usually be considered a secondary objective. Maintaining a persistent bombardment during the ensuing land combat will greatly increase the likelihood of your troops being able to defeat the enemy, and remember that you can always bomb for casualties later (as they retreat). You may also use naval bombardment during combat if the province is coastal, if you have some large capital ships in the vicinity, and if you include an amphibious assault as a component of your attack. This also has the benefit of adding to the envelopment.

Of course the same strategy is likely to be applied against you, so you should try your best to build up your AA defenses and keep a strong fighter presence in the air, which will disrupt the enemy bomber formations and limit the damage they can inflict. If you lack the sea power to force an enemy fleet away from your shores, then you may need to devote some of your air power to making them pay for being so close. When you're on the defensive you should also remember to use bombers of your own to disrupt enemy supply and damage their organization.

All Land Units can now bombard the next province over, inflicting damage upon any units there. The amount of damage depends on the size of any attached artillery. Larger artillery, like the Big Railroad Guns, are also able to seriously damage fortifications and the province itself. This is a powerful new tool for softening up units and reducing fortifications, but it uses a lot of supply.

Staggered Attack Strategy

If you simply must attack a well-defended province because there is no other alternative, your only option may be to use the above strategy and hope for the best. Against a well-established defense you may still fail to capture a province, but if you have the manpower and resources to spare then your next approach would be to set up an unrelenting series of attacks from a succession of armies. While you might fail the first few times, you may eventually be able to grind the defenders down to nothing. This is a very costly, and at times dangerous, technique that should only be used if you are confident on all other fronts. If applied doggedly, though, it will eventually gain you that province you so desperately want. Be very careful in your timing, however, to avoid committing too many divisions simultaneously to a battle.

Advanced Command Organization:

HQ and Leadership

The most common error a new player will make is to fail to pay close enough attention to his leadership. There is a false sense of power that assembling a huge mass of troops will engender (after all, there's a schoolyard bully

mentality that comes along with putting 50 or 60 divisions in a large stack) so you must always remember that the penalties for exceeding leadership capabilities will make any excesses almost meaningless. In fact, the likelihood of you losing a battle increases dramatically when you are significantly over-stacked, because those excess units will eliminate the commander's skill and possible trait bonuses and will contribute virtually nothing to your offense. They are also very likely to sustain serious casualty and organization losses and break, thus taking the rest of the army with them. If you absolutely have to bring large numbers of troops to bear against an opponent then your best, and perhaps only, chance at victory is to ensure that you have an HQ division nearby to double your command capabilities, bolster your supply, and possibly produce a combat event that could turn the tide.

The other thing that players often overlook, or fail to capitalize on, is the traits of the various field officers. You may easily find that a small number of divisions commanded by a "lowly" Lt. General with the commando trait can push back an enemy in a situation where a succession of Field Marshals with 12 divisions each might easily fail. Look at the context of the battles you expect to engage in and then try to ensure that you have the right officers on hand to fight them. Don't forget your Chief of the Army's traits either, since he may give an overall benefit that can be employed if you structure your forces to take advantage of it.

Broad Front Defensive Counter-Attack Initiatives

When fighting along a broad defensive front with many interlinking provinces, it sometimes pays to disrupt an enemy's attack by launching attacks of your own against his advancing or supporting troops. While those aren't battles you'll necessarily win, the flanking effects and additional strength and organization damage you inflict might be enough to disrupt the enemy's troops and blunt the main thrust of his advance. Remember, too, that in such a situation he will not have the benefit of using fortifications against you, nor will he have an entrenchment bonus.

You should carefully consider holding forces in reserve behind your front lines. Not only does this keep them fresh and ready to step up to help meet a concerted attack, but it can also be used as a luring tactic if the enemy is unaware of their presence. Presenting an apparent weak spot in your front line may induce your enemy to take a chance and attack you in what might otherwise be a poor choice of battlegrounds. Once he commits, take advantage of the support defense order to quickly move your main forces into position and inflict nasty casualty levels. Once you have won the battle, which is very likely, you can then press the advantage by following up with an attack of your own against his now-weakened forces. In many cases this is your only good chance to punch a hole through a strong enemy front. Needless to say, this is yet another situation where having an HQ division nearby can have an enormous effect.

Envelopment, Encirclement, and Supply

Another all-too-common error made by new players is to forget the nasty effects of envelopment. There will be times when it would be more prudent to withdraw from a situation than to allow your enemy to assault you from multiple angles of attack. If you're very lucky you might even be able to turn a well-considered retreat into a situation where you may turn the tables and envelope your enemy's over-eager advance.

Troops can't fight if their stomachs are empty and they have no more rounds of ammunition in their machine guns and rifles. Even the largest tank doesn't present much of a threat if it lacks the fuel to maneuver or power the rotation of its turret. Ensuring a steady, uninterrupted flow of supplies to your troops is absolutely vital, just as finding methods to cut your enemy's supply chains can inflict a more devastating blow than any frontal assault could do.

I've already stressed this point at least once, but I'll repeat it here: do not allow yourself to run out of or become cut off from supply. It is the single most damaging thing that can happen to your troops. Without supply you will see your forces' organization plummet and their strength decline. That impenetrable defensive line of fortresses and men that you've assembled will rapidly crumble, and, after a couple months of patiently waiting for starvation to set in, your enemy will overrun you like a searing-hot knife cutting through butter...and of course that is exactly the situation you should be looking to exploit yourself (particularly if you're playing Germany in 1939 and are faced with the massive French fortifications of the Maginot Line).

Changes to AoD Land Combat

First of all, we gave every existing brigade a useful task. With HoI2, most players just didn't see any sense in building brigades like Anti-Air, Tank Destroyers (TD) or Rocket Artillery other than for historical flavor. As softness is now calculated in percentage terms and there are no more in direct subtractions, brigades like Antitank (AT) attached to Infantry or Commando Units give now greater possibilities to win a battle against Armored Units.

Increased Technology will now effect casualties, as GDE is now directly influenced by the units defense value. Highly valuable and excellently equipped units can now also defeat masses of poor equipped units. You are now more likely to win with a lower unit count if you go for quality rather than quantity. The actual firepower is also dependent on the softness and enemy hard attack. This makes AT or TD extremely useful to prevent being overrun by Infantry combined with armored brigades or armored divisions early on.

So for calculating battle results, a lot more factors are now taken into account to encourage the player towards a broader unit diversification. In the new system, combat delays movement and forces the aggressor to slow down depending on the battle progress.

Combat Events have more impact on the actual outcome and can be decisive. Unit speed has a more direct correlation to the combat outcomes, for example, the

breakthrough or encirclement event. So it is more likely you will see such events happen with mobile units like motorized, mechanized and armored units.

The combat modifiers themselves have been completely remodeled for historical accuracy. Of course all of them are now editable in the misc.txt for maximum flexibility.

In contrast to earlier versions of HoI, battle outcome was and loss calculations were based on the well known mathematical laws of military theorists'. Lanchester, for example, said that the combat power of a force was proportional to the square of its size; that was always the case with HoI (BWA was effectively attack value times ORG). What have done is take into account Dupuy and other Operational Researchers' results that show that, for a sizable force, the firepower actually does *not* increase in proportion to force size, it increases roughly in proportion to the *square root* of the force size.

Conceptually, you can get a picture of this if you realize that a force takes up depth as well as width, so that as a force gets bigger, it operates over more depth and keeps a larger proportion of its strength in reserve or otherwise disengaged at all times. Because this is (roughly) an area effect, and the firepower comes from one "side" of the area, it works out as a square root (actually, some sources (notably Dupuy) say it is harsher than that, as it tails away to be almost flat – added firepower for added troops - eventually).

This has several game effects; it means that brigades and powerful units are more valuable, because just buying lots of cheap units gives diminishing returns. If division A is twice as powerful as division B in attack, two of division B are not as powerful in attack as one division A - they are about 0.7 times as powerful, where before they would have been as powerful. This effect is a small mechanical tweak, but it has big effects!

It also means that, if you go above a commander's command span, adding extra units actually *reduces* the force attack value! 10 divisions under a General with no HQ are less effective in attack than 9 divisions. This makes commanders and HQ's even more critical than before.

The "diminishing returns" factor is based on number of divisions, so brigades represent an addition to combat power that is *not* affected by the diminishing returns factor. This may not be entirely "realistic", but it is much simpler this way and partly offsets the lack of a separate ORG and STR for the brigade.

Basically, the diminishing returns makes *all* the higher-value units more useful because they represent not just more combat power but more *concentrated* combat power - that makes them worthwhile even if they are more expensive.

The fact that GDE is now a function of Defensiveness or Toughness (for defenders and attackers, respectively) means that brigades that increase those values are now more valuable and add some "virtual strength and organization" by slowing down losses.

The "square root rule" means, too, that battles between larger forces take longer; if a battle with one

division on each side takes 2 days, a battle with 9 divisions on each side will take 6 days. No longer can Kursk be done with in a single morning...

Another key point to get across is how the new system interacts with attrition. Attrition is now an important part of the picture because:

- All units in provinces adjacent to provinces with enemy troops take attrition (simulating low-level fighting).
- Divisions with zero Organization are no longer targets in combat, so they do not "suck up" attacks, but they still do take heavy attrition losses.
- Retreating units take enhanced attrition losses if combat is over; this should make "rearguard" actions possible (the fact that combat holds up movement makes delaying actions possible, too).
- The greatest factors influencing attrition are position, pursuit, technology, movement, and supply.

Finally, I think it's important to explain that the duration of battles has increased dramatically. This means that defensive reserves, instead of arriving after the battle is over and the original defenders are in retreat, can arrive to actually reinforce the line. It means that the battle situation develops more gradually so that the player can react to how it is going if they have reserves of fresh troops.

It also means that air power can be used to either prop up or increase the pressure on critical parts of the line. Air units are likely to get several missions over the duration of one battle. While air attacks do not dominate combat, they do have enough effect that air superiority can make a key difference in "cracking" the enemy line quickly enough to allow exploitation.

Artillery Bombardment. Every Land Unit has a value for this, artillery brigades increase it dramatically. To not overpower this new feat, you can define in the misc by which factor supply consumptions rises when bombarding and also the efficiency itself on various targets (Soft/Hard/Infrastructure/IC). Also, when bombarding an adjacent province and getting attacked gives the bombardier a severe defense penalty - because his troops were arranged for long range strikes rather than for actual defense.

About Reserves, if you want to have reserves be effective, you have to hold them in reserve until "space" develops in the front line. As divisions drop to zero Organization (and thus drop out of the battle) or retreat you can add reserves in without penalty.

Combined together, these changes mean that the experience of land combat for the player is radically different from that with previous versions of HoI.

The Naval Forces

Introduction

In many respects, you will find that Arsenal of Democracy's naval system is very similar to the land system with only a few rather major distinctions; the concept of

"basing", naval missions, and the mechanics of the actual naval combat. Deployment and general control interfaces are almost identical, but the flexibility of the missions that you can order your navies to perform will greatly reduce your need to micromanage them. As with the land section, we'll begin by taking a detailed look at individual units and then look at how to use them in combat.

Flotilla Types

The naval flotillas you will build and use are generally divided into four distinct classes of ship which will largely determine how they behave in combat. Each unit, regardless of type, is called a flotilla and multiple flotillas can be assembled into larger groups which may be variously called "squadrons", "fleets" or "task forces" depending on size and composition. Squadrons are usually smaller groupings while fleets are usually larger. For the sake of clarity I will use the term "fleet" throughout this section to denote any group of two or more naval flotillas.

A Capital Ship is a large naval vessel such as an aircraft carrier, battleship, battle cruiser or heavy cruiser and may also sometimes be referred to as a "core vessel". Unlike all other units in AoD, where a division represents a large number of soldiers or a full division of tanks, these naval units are actually individual ships (despite the fact that they are called a flotilla). A Screening Vessel is a smaller ship type whose primary function is to protect and escort other ships. The destroyer is the standard screening vessel and each destroyer unit in AoD represents a flotilla of similar ships. A light cruiser also acts as a screening vessel, even though each unit represents an individual ship. You should try to ensure that you have at least one screening unit for each capital ship in a fleet, or you will be subject to combat penalties. The third class of vessel is the submarine. Again, a single unit represents a flotilla of subs and will usually perform the duties of convoy disruption or act as a stealthy, predatory component of a larger fleet. The final class of vessel is the transport: a flotilla of non-combat vessels used for ferrying troops across the seas. If a transport flotilla is forced into combat, it will behave as a core vessel and try to maintain the greatest possible distance from the enemy forces.

Carrier Air Group

While land forces have a wide variety of possible brigade attachments, there is only one unit that serves such a purpose in naval combat: the Carrier Air Group (or CAG). The production of CAG's is ordered from the Air Wing section of the Production Orders interface and then may be deployed from the force pool to any available aircraft carrier (using the same method you use to attach a brigade to a division). A CAG may only be attached to a carrier, however, and a carrier may only have one CAG attached to it at a time.

The CAG represents a standard complement of aircraft that can operate from this moving nautical platform and are able to perform a variety of functions. These roles include spotting, direct attacks against enemy vessels, providing air cover for the fleet, and also shore assignments

that are normally conducted by tactical bombers (although they lack the sheer impact of their land-based cousins). In effect a CAG is a multi-purpose air wing and, without one, a carrier is just a very large and costly piece of flotsam.

Flotilla Details

You can access the Flotilla Details information panel by selecting any fleet and then clicking on one of the flotillas. I will not provide a detailed description of any data listed here that is equivalent to a land division's statistics.

Flotilla Name: This is assigned automatically, but you can change it if you wish.

Flotilla Type: You will see a representative picture of this class of vessel and a description of its type and specific model.

CAG Attachment: If the flotilla is an aircraft carrier that has an attached CAG, then the type and model name of the airplanes will appear immediately below the carrier's name. There will also be an inset picture of the aircraft in the lower right of the picture.

Commander: The commanding officer of this fleet. You can click anywhere on this bar to return to the fleet details.

Fleet Strength and organization: A graphic display of the percentage strength (orange bar) and the percentage organization (green bar) of the entire fleet. The exact values are displayed in the accompanying tool-tip

Fleet Name, Size, and Command Box: The name and the number flotillas in the fleet. If the fleet is currently executing orders, then an order summary will be shown in the command box. You may issue new orders directly from here, but keep in mind that it will be issued to all flotillas in this fleet.

Location Details: The current location of this fleet.

Strength: The flotilla's current percentage combat strength.

Organization: The flotilla's current combat organization.

Morale: The flotilla's current morale.

Sea Attack: This flotilla's attack value against enemy naval vessels except submarines.

Shore Bombardment: The attack value used by this flotilla when targeting shore defenses.

Air Attack: Attack value that will be used against any enemy aircraft that attack you.

Sea Defense: The flotilla's defense value against other naval attacks.

Air Defense: The flotilla's defense value against aerial attacks.

Maximum Speed: The flotilla's maximum speed.

Supply Consumption: The daily supplies required by this flotilla.

Fuel Consumption: This flotilla's daily oil consumption rate when moving. It will use half of this amount if it is sitting idle at sea, and consumes no fuel at all when in base or at a port.

Range: The flotilla's effective mission range is the maximum distance it can travel from its assigned naval base during naval operations. When combining flotillas into fleets, the flotilla with the shortest range will be used to impose the fleet's range restriction.

Sea Detection Capability: The flotilla's ability to detect other naval vessels. Surprise and maneuvering plays a very large role in naval combat, and the ability to spot an approaching enemy can be particularly important.

Air Detection Capability: The flotilla's ability to detect aircraft in the vicinity.

Sub Detection Capability: The flotilla's ability to detect enemy submarines.

Sub Attack: The flotilla's attack value against submarines.

Visibility: This is how easy the enemy will find it to spot this flotilla.

Experience: This flotilla's current experience level.

Maximum Firing Distance: Naval combat in AoD requires that a ship close within range of its target before it may commence firing. This value is the maximum possible range of this flotilla's guns. For carriers this is the CAG's maximum attack range.

Effective Supply Efficiency: The flotilla's current ESE.

Ship's Log: AoD keeps track of the vessels that a flotilla has sunk. Click on this button to view your ship's log of recorded kills.

Attach/Detach Brigade Button: This can only be done by an aircraft carrier and is used to attach or detach a Carrier Air Group.

Disband Button: Click this button to disband the flotilla and recoup some of its manpower.

Fleet Details

The Fleet Details information panel is almost identical to the one used for field commands, with only two major differences that should be pointed out here:

Base and Range: Just below the orders box you will see the usual supply icon (a small circle) but below this you will now see the current naval base assignment and effective mission range of the fleet. A fleet may never be further away from its assigned naval base than its mission range value, thus limiting the overall distances it may travel unless re-basing

Primary Statistics: The main statistics shown for each flotilla are also different. From left to right they are the Sea Attack, Air Attack, Sea defense and Air defense values.

Leadership

Just as with land forces, a suitable officer should be assigned to lead each of your fleets. The number of flotillas he can command without over-stacking penalty depends on his rank, with the possible ranks being Rear Admiral (who can control 6 flotillas), Vice Admiral (12 flotillas), Admiral (18 flotillas) and Grand Admiral (30 flotillas). In naval combat, both sides are treated as "attackers" and since the battle takes place in a single sea zone there is no "envelopment" or "multiple angle" consideration. The highest ranking officer on each side will determine the maximum number of flotillas that may participate before over-stacking penalties apply, but individual officers' abilities will still be used for determining skill and trait benefits. Just as in land combat, these benefits are forfeited if an officer is personally over-stacked (even if the total combined force is within the most senior officer's stacking limit). Note, also,

that there is no naval equivalent of an HQ.

Leader Traits

Naval officers sometimes possess a trait that will enhance the abilities of each flotilla in the fleet they are assigned to command. This advantage is lost if the officer is currently assigned to command more flotillas than his rank allows.

Sea Wolf: This officer is a superb submarine tactician.

Every submarine in a fleet he commands will be much harder to spot and will gain additional attack bonuses (+10%). Note that the fleet can be of mixed classes, but only submarines will benefit from his special bonuses.

Blockade-Runner: This commander is particularly adept at avoiding combat, particularly with enemy subs, when he wishes to. Of course he will have a hard time "hiding" a capital ship, but his transports and screens can often slip past a submarine pack undetected.

Superior Tactician: A leader with this trait excels at naval maneuvering tactics. His flotillas will enjoy combat bonuses to both their attack and their defense values (+10%).

Spotter: This officer has an uncanny ability to predict the location of the enemy, increasing the detection capabilities of all flotillas under his command.

Old Guard: This leader gains experience at 1/3 of the normal rate, units are not affected by this reduction.

Ports and Naval Bases

Many coastal provinces have a port, but only a few of these will be full-blown naval bases with the ability to outfit and provision naval vessels. Each fleet must be assigned to a specific naval base, a large port with appropriate facilities, which will ferry supplies and fuel to the fleet when it is engaged in a mission, and to which a fleet must return to be repaired after combat or refitted with the latest technological advances. A simple port appears on the main map as a small anchor icon, while a naval base is a larger but similar icon. The icon will be blue if there is at least one vessel currently located in the harbor, or gray if there are currently no vessels located there.

Any number of flotillas may be assigned to the same naval base, including allied vessels, but the speed with which any repairs and upgrades occur will depend directly on the size of the base and the number of vessels it is prepared to service. You may place a production order to build a new base or enlarge an existing one. This will take some time to complete and is limited to a maximum size of level 10. The operational size of a base may be reduced if the base is subjected to enemy attack (and is severely damaged if captured) and may require an allocation of IC to repairs (reinforcements) before it is fully operational once more. Allied vessels that avail themselves of your naval base will draw their supplies from your stockpiles, which can result in some unexpected demands on your supply chains at times. Of course the reverse is true, if you base your vessels out of an allies facilities and your ally might take a little time to adjust to your increased demands (assuming that he has the stockpiles to even meet those demands).

The location of a fleet's base will determine what

sea areas it can patrol, since each flotilla's mission range is limited and cannot be exceeded except when re-basing. You will need to assign the fleet a new home base (using the re-basing order described in a subsection below) to allow it to operate in some of the more remote areas you may want it to patrol. A fleet may enter any friendly port (a province that lacks a base) to load and unload troops, or to avoid an enemy, but it cannot take on supplies or be repaired or refitted there. The combination of the above rules can lead to a very common player error: simply moving a fleet to a different port or base will not re-base it. You must either return to your home base or use the re-basing order to assign it to a new naval base.

Naval Supply

Arsenal of Democracy assumes that there are support vessels that are able to re-provision a navy while they are conducting their missions, even if they are in the middle of the ocean, but the base must have access to supplies and fuel in order to do so. Simply assigning a fleet to a base does not guarantee the fleet's supply. A base acts as the last link in a supply chain that must stretch unbroken from a depot that contains the necessary supplies and oil. If you play the USA you will find that this is a common oversight, particularly in the Pacific, where you will have fleets operating many miles from the continental USA. Don't forget to set up a convoy to ferry supplies and oil to each of the depots you will need to create in each of the many islands where you base your fleets. You will need quite a few convoys to do this and may find it easier to set up a few larger depots somewhere close (possibly Hawaii, Midway, Wake Island, etc.) and then have smaller convoys ship goods from there to the various forward naval bases you are using in the theater. Remember, too, that allies may occasionally re-base their vessels to your naval port facilities and that they will be expecting you to meet their provisioning needs.

The mission range value prohibits you from ordering a fleet to perform duties beyond its maximum range; however it will allow you to move your fleets within that range restriction even if you are out of supplies and oil (the assumption being that at least a bare minimum of food and fuel can be scrounged to keep them moving). Operating without the full availability of supplies and fuel will greatly reduce your movement speed and will cause your fleet to become disorganized very quickly. Engaging enemy vessels when you are operating in under-supplied conditions is a very good way to suffer rapid defeat and lose a lot of ships.

Deploying Flotillas from the Force Pool

Deployment of flotillas is done in the same way that land divisions are deployed; except that the allowable locations will, of course, be limited to provinces with naval bases. You may attach a flotilla to an existing fleet or deploy it to a suitable province's naval base. The newly deployed flotilla will use the base assignment of the fleet it has been added to (or the base you deploy it to directly). Caution: Naval vessels cannot use strategic redeployment to move to a different theater of operations, so choose your

deployment location carefully if you wish to avoid being forced to sail half-way around the world to move into position.

Attaching/Detaching Carrier Air Groups

Carrier Air Groups represent an air wing that has both fighter and torpedo plane capabilities and is able to base itself on an aircraft carrier. These are effectively treated as a "naval brigade" and are attached and detached in exactly the same way that land brigades are attached to divisions. A CAG may only be attached to an aircraft carrier and a carrier may only act as a base for one CAG at a time. Without a CAG, a carrier effectively loses its military value. Since CAG's are aircraft, a carrier's effectiveness is also greatly hampered by adverse weather conditions.

Reinforcement, Upgrading and Obsolescence

As mentioned above, a fleet may be resupplied during its missions, but it must return to its assigned naval base and remain there for a while if you wish to repair any damage that your flotillas have sustained and to upgrade to any new technologies. This requires an appropriate allocation of IC (to reinforcements and upgrades respectively) and time. The amount of time required to complete these tasks depends on the size of the base and on the number of flotillas that are based there (even if some of them aren't in port at the moment).

New technologies will begin to make improved ship designs available, and unlike land units, your existing naval vessels cannot be upgraded. You may wish to keep an obsolescent flotilla in active service for a while, particularly if it is highly experienced, or you may decide to mothball (disband) it to recoup some of the manpower for your national pool and free up resources for newer, more advanced vessels. CAG's are treated as an air force unit for upgrade purposes, and are able to be fully upgraded, given enough time and resources.

Selecting and Combining Flotillas

Flotillas are assembled into fleets (and removed from them) in the same way that land forces are managed, but you should take particular care to ensure that you include at least one screening vessel for each capital ship in a fleet to avoid incurring combat penalties. The varieties of options for selecting fleets are virtually identical as well, except that the listing of all national fleets is accessed through the Naval Forces Hot Button. When you click on the button, the display in the information panel will change to provide a complete listing of all naval bases that currently belong to your nation. You will see two numbers beside the base's name: the base size and its current operational size. Below each base's name you will see a list of the fleets that are currently assigned to use this as their home port, as well as their size and a graphic representation of their current strength and organization. Just because a fleet is listed under a base does not mean that it is currently located there. It only indicates that this is their home naval base assignment. Allied naval bases will not normally

appear on this display, however if you have assigned one of your fleets to an allied base then it will be included in the list until such time as you reassign the fleet to a different location.

If a fleet is carrying out a mission, then its mission box will provide a summary of the mission and a tool-tip will give you additional details of the mission's parameters. You may click directly on the fleet name to select the fleet and center it on the map, or you may click on the mission box to assign it a mission directly from this interface. If a small red combat icon appears in this listing, then your fleet is engaged in battle (and thus might be worth having a look at, if you weren't previously aware of this).

Basic Naval Movement

Basic naval movement is done using the normal game controls, but in some ways is even easier since sea zones (the naval equivalent of a province) aren't subject to national control. Right-clicking in any sea zone will order your fleet to move there and attempt to engage any enemy vessels it encounters. If you move multiple sea zones then your fleet will also engage any enemies it meets along the way. There are only two limitations on sea movement:

Fleet range: You cannot exceed the maximum range of the "worst" flotilla in the fleet. AoD makes this simple to avoid by prohibiting any order that would take a fleet out of range of its assigned base. When a fleet is selected, you will see a tool-tip for each sea zone that displays the fleet's range and the distance from the fleet's naval base to that sea zone.

Denied Zones: There are several sea zones that represent very narrow straits, canals, or channels. Enemy control of the adjacent province will deny your fleet passage through that zone. These include the Panama Canal, Suez Canal, Kiel Canal and Sea of Marmara.

If you wish to move your fleet to a province that contains a port or a naval base, then simply right click on the province. Because there are a several possible options in the way that a fleet and province can "interact," you will see an abbreviated list of these orders. Select the move option to enter the harbor. Even if the province contains a naval base, this will not re-base your fleets; nor will a base or a port that you move to be able to offer you fuel or supplies when you arrive. Ports cannot meet the needs of military vessels and you must use the re-base option to allow a naval base to offer you supply.

As you will soon discover (in the Naval Combat section), opposing fleets do not necessarily engage when they are both in the same sea zone. Each zone represents a fairly large expanse of water and it is entirely possible that two fleets may simply fail to detect one another's presence unless they have excellent spotting capabilities. Even when you have spotted an enemy fleet, it is rarely safe to assume that you've sighted its entire complement of ships.

Re-basing a Fleet

You may assign a fleet to a different naval base by issuing it an order to re-base. If you select a fleet and then right-click on a province that contains a naval base (it must

belong to you or to an ally) then the re-base option will appear as one of the options in the context-sensitive list of possible naval missions. A second method of re-basing is click on a fleet's mission box in any interface that displays a mission. Select Re-base from the list of available missions and then select the base you wish to assign from a new list that is displayed of all possible bases. Be careful when re-basing (using either method) because the maximum range is ignored for this order. Fleets will proceed to their new base, but if this exceeds double their range value then, depending on the total distance traveled, they may suffer a very large temporary organization loss. While it is moving to this new distant base your fleet could be attacked by enemy vessels or aircraft (which could easily have disastrous results).

Basic Naval Combat

Overview

When two (or more) enemy fleets are located in the same sea zone, there is a possibility that a naval battle will ensue. Whether a battle occurs or not depends on whether one of the fleets successfully spots the other and is currently under orders to engage. Like land combats, naval combats represent prolonged engagements that can take some time to resolve. The method of resolving a battle is a bit different, however, due to naval combat's positioning and range concepts. As I mentioned above, both sides are treated as "attackers" when determining the maximum fleet size before there are over-stacking effects (see the naval leadership section above). The underlying concepts of attack values, defense values, and combat efficiencies are the same, but the targeting is also handled somewhat differently (and more selectively).

When the fleets first spot one another there will be some distance of ocean lying between them and each fleet will have a starting positioning value. Think of this as being an indication of how well a ship is positioned relative to an enemy in order to bring its main weapons to bear on a target. As the battle progresses, the fleets will begin to close the distance between each other and try to maneuver for better positioning; something that will be seriously hampered for a side that lacks sufficient screening vessels. Each ship will begin to fire at the enemy's vessels once the distance that separates it from them is within the range of the ship's weapons. Carriers will usually begin their attacks first, since their weapons (airplanes) have the greatest range; then the battleships will open fire, and then cruisers, and so on. At some point one side will be either sunk or will wish to disengage - though it will take some time to disengage, during which further damage is likely to be inflicted on the retreating fleet. Let's look at the details.

Visibility

Before combat can begin a fleet needs to first detect the enemy fleet. When (or whether) this happens is determined by the visibility and detection abilities of each flotilla, is further modified by their officers' abilities, and can then be reduced by weather conditions. A "spot check" is

made periodically until one fleet detects the other, or one of them leaves the sea zone. If a spot check succeeds and the fleet has orders to engage, an enemy combat will begin.

Initiation of Naval Combat

When combat is first initiated, the positioning of each fleet will be determined as well as the distance between them. This depends largely on the officer's skills and on the naval doctrines that have been researched, though weather will also have an impact. You will be notified that combat has begun and the fleet information panel will display a combat quick-view that is similar to the one used for land combats. The same quick view will also be added to Active Combats Hot Button listing. Clicking on the quick view will display the detailed battle view.

Naval Combat Resolution

At first glance, the naval details will look very similar to the land combat version and in some respects it is. You will see the flags of the nations involved, the leader portraits (with detailed tool-tip), the battle status bar and conditions icons, and a complete list of units involved on both sides (also with detailed tool-tip). What won't look familiar is the range and positioning information displayed between the two flags, and the very small targeting icons that appears just below the strength and organization bars of each unit, each of which is an essential component of naval combat (and there are additional vital details in each one of these items' tool-tips).

Naval battles progress on an hourly basis. Each hour both commanders will try to maneuver their fleets into a more favorable position and will try to attain what each feels is the optimum range to achieve maximum effect. Their skill level and rank will have a great impact on their ability to achieve this, as will having a sufficient number of screening vessels to protect the capital ships.

The starting distance between the two fleets will usually (though not always) be greater than the maximum range of any of their vessels' attacks capabilities, so the first hours of "combat" are likely to be a succession of maneuvers with the gap between the fleets slowly closing. You can tell at a glance whether a flotilla is in range yet by looking at the small targeting icon. If it has a red bar through it then the range is still too great for it to begin attacking any vessels that the fleet has spotted. You can find out the unit's maximum targeting range by looking at the tool-tip that is displayed when you hover your mouse over the icon. The same tool-tip will also indicate the flotilla's current attack and defense effectiveness.

The commanding officer will decide upon an overall fleet range that he feels is the optimum separation based on his fleet composition and what he knows of the enemy's fleet composition. He will try to close to this distance and then maintain it throughout the course of the battle. This will be nearly impossible if he has insufficient screening vessels to work with. At the same time, he will attempt to maneuver his ships into an optimum attack and defense position. The current distance between the two fleets is displayed in the center of the small black box between the

national flags. If you hover your mouse over this value, a tool-tip will report the separation that each commander considers to be his fleet's optimum.

Each fleet's current positioning is displayed on either side of the distance value. Positioning will become very critical once the fleets have come within range of one another, so you may want to watch both values as the fleets begin to close to get a sense of the two commanders' relative skill levels as they vie for an advantage. The positioning values will change by small amounts each hour and if you find that yours remains much lower than your enemy's then you may want to break off the combat to avoid sustaining heavy losses.

Once a ship is in range of an enemy fleet, it will attempt to fire upon the enemy vessels. Its ability to do this successfully is based on the positioning of its fleet (not the enemy fleet). If your positioning is 20%, for example, then you will have a 20% base chance of successfully hitting an enemy vessel. If you miss by a very large margin you might even accidentally hit one of your own fleet's flotillas, so the higher your positioning the better. The number of attacks each flotilla may make each hour is determined by its naval attack value.

If a flotilla succeeds in scoring a hit, then its target will be determined. The likelihood that it will target a screening class of ship is based on the enemy's positioning so, for example, if your opponent's positioning is 30% then there's a 30% chance that you will target a screening vessel and a 70% chance that you will target a core vessel. There are a couple exceptions to this rule, though, carriers are very much more likely to target a core vessel, submarines are also very likely to target a core vessel and may decide to withhold fire if they aren't able to do so (until a submarine fires, it remains hidden and will be very hard to spot) and screening vessels will always target an enemy submarine if they are aware of its existence. Screens that are part of a very well-positioned fleet also have a chance, each hour, of detecting a hidden submarine. Even if a hit is scored, it will still be necessary to determine whether (and how much) damage is done to the enemy vessel (based on the same methods used in land combat). Once a ship has targeted a vessel, it is very likely to continue firing at it until it has been destroyed; although there is a possibility that it will switch targets, particularly if a "preferred" target presents itself.

As the battle progresses, the flotillas will gradually suffer loss of organization or be sunk. When the organization of a flotilla drops low enough, the flotilla will break and attempt to withdraw. Just as in land combat, a fleet that has more than 50% of its flotillas in retreat will break off combat automatically and attempt to sail out of range. Enemy ships will continue to fire on them until the maximum range of all enemy ships has been exceeded, at which point the combat will reach its conclusion. You may, if you wish, manually order your fleet to break away at any time by selecting it and ordering it out of the sea zone.

Time of Day and Weather Effects on Naval Combat

Just as with land combat, night time hours and poor

weather conditions are generally very bad for naval combat. Positioning will be greatly affected and there is a significant reduction in the chance of inflicting damage. Unlike land combat, however, the defender and attacker suffer equal penalties, unless one has a technological advantage over the other in this area. Carriers will be highly ineffective in poor weather, since their CAG's are severely penalized in these conditions. In very adverse weather (storms and blizzards), CAG's cannot fly at all.

Out-of-Supply Effects on Naval Combat

If a fleet is operating without supplies or fuel, then it would be well advised to turn tail and run as soon as it becomes aware of an enemy presence in a sea zone. If it stays and fights, it is probable that it will suffer a particularly humbling defeat and will be very lucky if it manages to escape in anything larger than a life boat.

Force Composition Effects

I have stressed the importance of having a good balance of screening vessels to support your capital ships, but I will do so again. You will receive a positioning penalty unless you have at least one screen for each capital ship. Your capital ships will also be unable to maintain a safe engagement distance from the enemy, and are thus far more likely to be sunk.

End of Naval Combat

Once the fleets have disengaged from combat, the vanquished fleet must retreat from the sea zone. This will be to a randomly selected adjacent zone that is usually (but not always) in the general direction of its base. If there is a friendly port or naval base adjacent to the sea zone then it will retreat there instead. The victor of the combat may elect to stay in the sea zone or continue whatever mission it was engaged in when "interrupted" by the combat. Unlike land combat, sea zones are not assigned control so no territory changes hands.

Enemy Occupation of a Port or Base

If an enemy land force manages to gain control of a naval base or port that contains a fleet, then that fleet will be scuttled. Any fleets that are assigned to a naval base that is captured will be unbased and will rapidly lose supply and organization until they have been given a new, valid base assignment. Your personnel will sabotage the naval base before fleeing, though, so it will take a little while before the enemy will be able to make effective use of that facility.

Naval Orders

Overview

When a fleet isn't in port, it is fairly rare that you won't want it to be doing something, anything, rather than just sitting around in a sea zone. Submarine packs will probably be used to disrupt enemy convoys and transport movement, surface fleets will want to continually patrol

certain portions of the ocean... and for a player with a large number of fleets, this would quickly become a nightmare of repetitive mouse-clicking. Arsenal of Democracy allows you to do this if you really want to, but it also includes a number of extremely useful naval missions in the Naval Orders interface that allow you to automate such routine chores. There are also some specialized naval orders that usually require an element of either timing or special targeting - for instance a carrier may send its planes to attack a province's naval port facilities or its air bases and you will need to identify which of these is your intended target. The Naval Orders interface allows you to do this as well.

In most cases, you will issue "standing orders" to carry out a mission for a specified period of time, under certain conditions, and in a particular part of the world's oceans or possibly against a target province's assets or forces. Once you've issued the orders, you can largely leave those fleets to their own devices, even if they run into an enemy force, which goes a long way toward eliminating the micromanagement and complexity that would otherwise plague a naval nation. An additional reduction to potential micromanagement is the assumption of additional support vessels that will resupply and refuel fleets that are on an assigned patrol. Rather than forcing you to keep track of the distance each fleet has traveled and then return it to base, naval missions are restricted to targets that are within the mission range of the fleet and they will only need to return to base for repairs or upgrades (or for a faster rate of organization recovery).

All of the naval orders may be accessed by selecting the fleet and then either holding down the Ctrl key and right-clicking on the target or by clicking in the naval orders box in the information panel. The second of those methods will display every naval mission that is available (some may not be, due to fleet composition or insufficiently advanced technology levels) and will usually require you to specify a target zone, area or region from a list of valid potential targets. After selecting the target, the Naval Orders interface will appear. If you use the "Ctrl and right-click" method to issue an order, then only context-sensitive missions will be displayed and the Naval Orders interface will appear as soon as you have chosen the mission (since you have already identified the target by clicking on it).

Naval Orders Interface

This interface is used to set specific mission parameters whenever you issue a naval order. We will see an identical set of controls when we take a look at the possible Air Orders.

The top portion of the interface has three toggle buttons on the left (day/night/both) that are used to specify when a fleet should initiate combat after detecting an enemy. You should probably keep this set at "day" for most naval combat missions (unless you have advanced night technologies), since most vessels perform very poorly in the dark. To the right of these buttons, you will see a slider where you may set the condition parameters for the mission. This is used to establish a minimum level of

strength that each flotilla in the fleet must maintain in order for the mission to continue. If any flotilla's strength level falls below this value, then the fleet will return to its naval base for a period of time, until all flotillas in the fleet have been repaired to a suitable strength level, and then resume its mission.

The lower half of the interface allows you to adjust the mission's time parameters, possibly delaying the date that it should begin the mission and setting its duration by assigning an end date. The default values are usually for the mission to begin immediately and to continue for one month, but these can be changed to whatever values you desire by clicking the appropriate "+" and "-" buttons. If you have recently set parameters for another fleet's mission, then the default settings will be identical for the next fleet's mission. Once the mission is complete, the fleet will return to its assigned naval base to await new orders. If you use AoD's default message settings, you will be given a mission status report when it arrives back at its base, informing you that it is ready for new orders. This message has a "select" button that allows you to quickly select the fleet and issue it a new mission.

You can now select the Range of Engagement. You can decide to target a single province, a whole area or even a complete region. But, units will only fulfill missions in provinces, areas, and regions that they have range to. A new option is you can now set the mission length for several years. The new "Infinite" time length button, which will result in a non-stop mission until the player aborts, should come in quite handy.

Re-base

I've already described this order, so I'll simply remind you that moving a fleet to a new naval base or to a port will not reassign it to be based there. You must use the re-base order.

Move

This order is one of the available alternatives when "targeting" a province. This instructs the fleet to enter the port or naval base of that province, but since this is not its assigned naval base it will not take on any fuel or supplies. The move order is most often used to send transports to a port to pick up a land division for a subsequent sea transport or amphibious assault mission.

Attack

Although this isn't a mission that you can select from the menu, this is the mission type that will be displayed when you use a simple right-click to move a fleet to a new sea zone. The fleet will move to that sea zone via the most direct path and will engage any enemy vessels that it encounters there. Because it is steaming at full speed to its destination it is quite unlikely that it will spot an enemy fleet during its voyage, but it will engage any that it manages to detect.

ASW (Anti-Submarine Warfare)

Since enemy submarines pose a terrible threat to your supplies, you may wish to issue a fleet an order to patrol a sea area and specifically look for submarines. This mission is ideally suited to carriers, destroyers, and light cruisers, which are particularly good at locating and engaging submarines, though this reduces the likelihood that they will spot and engage an enemy surface fleet.

Naval Interdiction

This is a naval order that instructs your fleet to patrol the sea zones within a particular area. It will randomly move through those zones and will initiate an attack against any enemy surface fleets it encounters. The chances of it spotting a fleet are slightly less than the chances of it doing so when stationary in a single sea zone, however this allows you use a single fleet to cover a somewhat larger area of water (but you are less likely to spot any submarines).

Naval Combat Patrol

This order is nearly identical to the naval interdiction order; however, a naval combat patrol is designed to cover a much larger section of the ocean. It will move randomly through the sea zones in a specified region, but because it is covering a much larger region it is somewhat more likely that an enemy fleet, and particularly enemy submarines, could escape its detection or slip by unobserved.

Convoy Raiding

This order instructs your fleet to patrol a sea area with the primary purpose of disrupting enemy commercial shipping. Any enemy convoys that trace their path through a sea zone that is currently patrolled by a navy with this mission must attempt to slip past the patrol. There is a reasonable chance that at least some of them will fail to do so and will be sunk; although if they are accompanied by escorts then their chances increase significantly. These limited actions are not displayed as battles in the game, but are reflected by a reduction in the convoy efficiency and trade efficiency values that are now displayed in the Trade Folder. A country that relies on foreign shipments and trade to obtain the necessary resources is in great danger from this action, as are any troops that depend on those convoys for their supplies. Submarines are particularly effective at this mission and should be feared by all merchant vessels. Caution though, A fleet that engages in this order will not attempt to detect an enemy's naval forces.

Shore Bombardment

Shore bombardment is an order that can only be given to a fleet that contains at least one capital ship (heavy cruiser or larger). The fleet will be instructed to train its main batteries on the specified province during an amphibious assault, which will result in the enemy receiving a penalty to both attack and defense effectiveness during the battle. This can help to considerably offset your landing

force's invasion penalties. Furthermore, ships will now automatically support any friendly unit in combat in a coastal province that is adjacent to them.

Carrier Strike on Port

This order may only be given to a fleet that has at least one carrier with a CAG attachment. The carrier's airplanes will be ordered to attack an enemy port or naval base and attempt to sink any ships that are docked there (but they usually lack the armaments to damage the base itself). Enemy fighters and AA defenses in the vicinity are likely to take exception to this action; and this mission cannot be flown at all if the carrier is located in a sea zone that is experiencing very adverse weather conditions.

Carrier Strike on Airbase

This is also an order that may only be given to a fleet that has a CAG attached to a carrier. This order is the same as the Air Mission "Airport Strike" (explained in the Air Combat section below) and is an attack against a province's air base in an attempt to reduce its operational strength. Again, keep an eye on the weather, and on any enemy AA and fighters in the vicinity.

Sea Transport

A sea transport mission is used to transport land forces to a friendly port once they have been loaded on board the vessels. They will unload automatically upon reaching their destination.

Amphibious Assault

This mission is used to instruct transport vessels to take the land forces they are carrying to a sea zone just off an enemy province, in preparation for an invasion. When the transports arrive in position, the land troops will then automatically begin their invasion of that province. To invade a province from the sea, the province must have a suitable area for the troops to land, which is indicated by the presence of a beach icon on the province's shoreline. It is not possible to invade a province that does not have a beach. If you prefer, you may load troops on the transport and then manually position the vessels in the adjacent sea zone. Then click the unload button on the transport and then select the province you wish your land forces to invade.

Amphibious assaults are conducted in the same manner that normal land battles are handled, however there are significant penalties for the invading forces (although considerably less for marines) and it is a province's coastal fortifications rather than its land fortifications that will assist the defending troops in repelling the attack. Be aware that launching a successful large scale naval invasion is extremely difficult since each division participating in the invasion will increase the total amount of the invasion penalty. If the beach is well defended, then you will probably need to conduct a very strong aerial and naval bombardment campaign in support.

Advanced Naval Strategies

It is arguable that Arsenal of Democracy's greatest combat emphasis is on land battles; however you should not discount the importance of your navies. Land troops are nearly useless without supply, and in many cases this supply must be traced across water and is in jeopardy of enemy anti-convoys activities. Those same actions will also cut off sources of natural resources and greatly reduce trade efficiency, resulting in a shortage of the materials needed to keep your industrial base operating at maximum capacity. Tactically, therefore, it is prudent to patrol your convoy routes and dispatch any enemy vessels you may find there; and also to employ this technique to weaken your enemy before attacking.

There will be instances where your land combats take place in coastal provinces with beaches. Don't underestimate the potential impact of launching an amphibious assault as part of that combat, and supporting it with naval bombardment, particularly if you can arrange for a large number of capital ships to shell the enemy position. The extra shore bombardment and envelopment penalties to the enemy land force's effectiveness could easily swing the battle in your favor.

Naval invasion is a risky affair, although one that may reap great rewards if the location and timing are well chosen. Remember that land force encirclement will cause great losses to enemy organization so it may be worth considering a naval "flanking" maneuver to get in behind an enemy defensive line rather than trying to assault it directly. If you must make a direct assault, usually because the target is an island with no alternate means of approach, it is better to be patient if possible. Try blockading the target for a while with a fleet devoted to destroying convoys. The enemy supply depot will probably dissolve fairly quickly and his organization will then begin to drop. Then, after a little preliminary aerial bombardment, your forces can move in with support from your capital ships' shore bombardment. Just as land divisions may block a handful of narrow straits, naval vessels are able to prevent land forces from crossing them as well. Don't miss this great opportunity to hold an enemy at bay (particularly in the Pacific island chains) until you are able to assemble the necessary forces to begin making direct attacks against those pockets of resistance or launch a full scale invasion of your own.

Changes to AoD Naval Combat

First off, there is a new unit class called heavy subs. They are available around 1939-40 and are modeled from the large Japanese submarines - some of which were capable of carrying up to 3 airplanes (submersible carriers). This is a very neat special unit with generally better overall stats than regular subs and have a huge range of operation, which gives you opportunities to operate early in the game in faraway parts of the world.

In terms of interchangeability between regular convoys and transports, destroyers and escorts, we made them in one way convertible. You can now always choose to use your DD's or TP's in regular trade relationships. But once they are converted, you won't get them back. To avoid

exploits we integrated some conversion rules, like how many escorts you get from one destroyer flotilla depends on the current tech level of the destroyer. So you will, for example, get 1 Escort from an old fashioned DD-1 and around 5 from a shiny new DD-5.

We also made attachments detachable and attachable at ports, so now you can refit your ships to your own needs. Nevertheless, we also integrated a whole lot of new brigades: from Heavy-Artillery Secondary Armament, Reconnaissance Planes, as well as Smoke Launchers and Camouflage Equipment for Lower Visibility. A rather broad selection range of attachments for your ships. After you research the Nuclear Propulsion tech for ships, you may be able to fit them with an engine based on nuclear technology.

In the combat system you are now allowed to define a minimum engagement time. We set it to 8 hours, which turned out to be pretty good. Single units of a fleet in combat now also have a small chance to escape the battle against an overwhelming enemy before the end of the minimum combat time – their underlying counter color will turn gray in case of success. Target selection and the overall mechanics of engagement, detection, and positioning have been tweaked and modeled to achieve outcomes which are now generally in-line with historical and realistic dimensions. Former "Second-Class Stats" like Speed, Visibility or Detection values now play an enormous role in combat itself and are for some smaller units even more important than the big ones, like "Sea Attack" or "Sea Defense."

The combat mechanics have been tweaked to eliminate and/or avoid the known exploits, like "fleet-beaming" or "transporter blocking." We also did a lot in terms of balancing and, of course, we have done a lot of research for adding historically correct ship attachments to each scenario for the major nations.

Visibility is now a cat-and-mouse game where each opponent is trying to maximize its own assets.

Don't expect Battleships to be able to fire 30km anymore without some form of long-range detection. Radar/scout planes now are vital to finding the enemy. It's really a bad thing for a proud WWI fleet to be taken out from a distance - never being able to find the ships that fire because of their advanced radar technology.

Also it is largely affected by weather conditions... So Battleships can now also use night cover to close in on Carriers. Of course, the closer the Battleships get the higher the chance of detection... prepare to get pummeled in the clear sky at daybreak if you didn't make it close enough. Carriers inflict Organizational and small Strength damage in its attacks while the surface ships defend themselves against the fighters.

This system also makes subs behave more naturally as they remain hidden and wait for their chance to strike... As electric subs and later have good speed and very low visibility, they can attack and hide without the outdated Destroyers ever knowing what hit them.

Also, as always, the combat mechanics have been totally remodeled and defense now actually protects the

host from a portion of the damage, while having superior firepower against low-defense targets does extra damage. So now even a fleet of 30 Destroyers with their pop guns will not make a big dent in the armor of a Battleship... while the other way around... well, not a pretty sight....

Convoy Raiding with single raiders is now also very efficient. Battle Cruiser's have become specialists in this task when the proper doctrines have been researched. Detection through Reconnaissance Planes (as attachment called "Spotters") and radar or cover through smoke-launchers are now absolutely crucial to the outcome of a fight.

The Air Forces

Overview

Air Combat in Arsenal of Democracy is a blend of the land combat and naval combat systems. Air forces are assigned missions to patrol the skies for enemy aircraft, or to conduct extended bombing campaigns against enemy ground forces, installations and infrastructure. Air transports, normally used by your paratroopers, can also be used for temporary air supply of encircled forces if absolutely necessary. These missions are assigned through an order interface that is virtually identical to the one we just looked at for naval orders. Combat between aircraft, though, is handled much more like land combat, but with only a limited number of combat rounds being possible due to limitations in fuel. Never underestimate the devastation that will occur if you lose control of the skies.

Air forces, like navies, must be assigned a base from which to operate and may only land in provinces that have such a base. Like naval bases, air bases have limited available space to handle a flow of aircraft, so exceeding this limitation will greatly reduce the flow of supplies and fuel, and will significantly increase the length of time required to complete repairs and technological upgrades.

Air Force Types

Air forces are made up of individual air wings, each of which represents a number of similar-type airplanes that have an area of expertise. The Air Combat equivalent of a division is called an Air Wing (or wing). Groupings of wings are usually called squadrons or sometimes air groups or air forces. The precise wording will vary somewhat from nation to nation, but their function is identical. For the purposes of this section I will use the term "squadron" when referring to any combat group of air wings.

Air wing types can be categorized by their size, range and general function. Strategic bombers are the largest of these and are relatively slow-moving aircraft that can carry very large bomb loads over fairly great distances. Their missions are usually flown against large fixed emplacements such as infrastructure, factories, fortifications and other such targets that require the impact of larger payloads and have no ability to avoid being hit. Tactical bombers are somewhat smaller and more maneuverable, specializing in precise targeting which is much more effective against moving targets (land forces). Close Air

Support craft are inexpensive, very short range dive bombers which can inflict very high casualty levels on ground forces, but are unable to defend themselves particularly well against either ground defenses or other aircraft. Naval Torpedo Attack Planes are land-based aircraft that are specially outfitted with munitions suited to attacks against naval vessels and convoys.

The smallest, fastest and most maneuverable aircraft available fall under three different general types: fighters, interceptors and escorts. Escorts are the slowest of the three types, but they also have the greatest range, so they are suited to the task of escorting bombers. More than anything their function is to tie up enemy fighters and distract ground defenses, allowing the bombers they escort to succeed with their missions. Interceptors are the bomber pilot's worst nightmare. This airplane has excellent weaponry and speed for bringing down the larger aircraft, but is limited by its range and maneuverability. The fighter is something of a multi-role aircraft. It has slightly greater range and slightly better attack capabilities than an interceptor but is much more likely to be shot down itself. It can also participate in limited attacks against ground and naval targets, but is unable to stand much in the way of return fire.

There is one last class of "wings" that are ordered from the Air Wing menu of the production folder. These are the flying bombs and flying rockets that historically began with the German V1 and V2 and would eventually (in the post war years) lead to ICBMs. All of these are included in AoD's technology tree (since some war technology is deemed possible, although difficult to attain) and are handled through the Air Combat interface.

Air Wing Details

The sprites for squadrons are only displayed on the main map when they are in flight, so they can be a little harder to locate and select until you are used to handling them. You can easily spot an air base with a squadron in it because it will be blue in color instead of gray. You will also see the squadron listed in the information panel when you select a province that contains one. The Air Forces Hot Button displays a complete list of all squadrons and their current base assignments and is probably the fastest and most convenient method of rapid selection.

You can access the Air Wing Details information panel by selecting any squadron and then clicking on one of the wings. As with land and naval divisions, the data displayed in the information panel will reflect any technological upgrades that this unit has received, so it may vary slightly between otherwise identical units. I will not provide a detailed description of any data listed here that is equivalent to a land or naval division's statistics.

Air Wing Name: Assigned automatically, you may change this to anything you like.

Air Wing Type: Below a representative picture of this class of airplane you will see a description of its type and specific model.

Commander: The commanding officer of the squadron this wing has been assigned to. You can click anywhere on

this bar to return to the squadron details.

Squadron Strength and Organization: A graphic display of the percentage strength (orange bar) and the percentage organization (green bar) of the entire squadron. An expanding tool-tip gives precise details of these values.

Squadron Name, Size and Order Box: The name and the number of wings in the squadron. If the squadron is currently executing orders, then a summary will be listed in the order box. You may assign a new order by clicking on the box and selecting a new mission from the scrollable list.

Location Details: The current location of this air wing.

Strength: The wing's current combat strength.

Organization: The wing's current organization.

Morale: The wing's current morale.

Strategic Attack: This is the attack value against strategic targets such as infrastructure, factories, fortifications and other provincial assets.

Soft Attack: The attack value used when conducting tactical attacks against soft land targets.

Hard Attack: The attack value used when conducting tactical attacks against hard land targets.

Naval Attack: The attack value when this wing attacks a naval target.

Air Attack: This is the attack value used when the target is another aircraft.

Surface Defense: This is the defense value used when being fired upon by AA, land forces or naval forces.

Air Defense: This defense value is used when the wing is being attacked by another aircraft.

Maximum Speed: The wing's maximum speed.

Supply Consumption: The daily supplies required.

Fuel Consumption: This wing's daily oil consumption rate when in flight. It will use no oil when on the ground.

Range: The wing's maximum range is the maximum distance it can travel from its base. When combining wings into squadrons, the wing with the shortest range will determine the squadron's range.

Sea Detection Capability: The wing's ability to detect naval vessels.

Air Detection Capability: The wing's ability to detect other aircraft in the vicinity.

Experience: This wing's current experience level.

Effective Supply Efficiency: The wing's current ESE value.

Attach/Detach Nuke: This button will only appear once you have achieved a technology level that allows you to deploy a nuclear bomb on a rocket or strategic bomber. Clicking it will ask you to confirm that you wish to remove a bomb from your nation's nuclear arsenal. If you confirm this, the next mission flown by that unit will include the option to deliver the bomb against the target. You may later detach it and return it to your arsenal, if you wish. The button will be grayed out unless the wing is able to carry a nuclear bomb.

Disband Button: Click this button to disband the wing and recoup some of its manpower.

Squadron Details

The Squadron Details information panel is nearly

identical to the one used for naval commands, including the squadron's current base assignment and operational range. The set of primary statistics listed for each wing are (in order from left to right) the values for air attack, naval attack, soft attack, hard attack, strategic attack, air defense, and surface defense.

Leadership

Officers perform a similar function for squadrons as they do for both ground and naval forces. Each leader in your officer pool will have the ability to control between one and twelve wings at a time, depending on his rank, without incurring a penalty for over-stacking. Air officer ranks are similar to their land force counterparts, with a Maj. General being able to command 1 wing, a Lt. General may command up to 3 wings, an Air General may command up to 9 wings, and an Air Marshal may command as many as 12 wings. Since air combat, like naval combat, occurs in a single air zone, the stacking, skill and trait effects are handled in exactly the same way as they are used in naval combat. Defending officers' leadership ratings do not stack to allow larger numbers of wings since, for these purposes, there is no defender.

Leader Traits

Air officers may also possess a special trait that will improve the combat abilities of the squadrons they command, although these are forfeited if the leader is over-stacked

Tank Buster: This officer excels at commanding squadrons that primarily attack tactical land targets such as tanks, mechanized infantry and motorized infantry (+10%).

Superior Tactician: This officer is a combat ace, inspiring his squadrons to exceptional performance in air-to-air combat (+10%).

Spotter: An officer with this trait can spot a needle in a haystack. He is particularly good at aerial reconnaissance, reporting enemy force strengths with remarkable accuracy.

Carpet Bomber: Ideally suited to command squadrons of strategic bombers, this officer has a proven record of effective attacks against large provincial structures such as factories and infrastructure (+10%).

Night Flier: An officer with this ability will negate many of the normal penalties for flying night missions against targets of all sorts (+20%).

Fleet Destroyer: The tricky timing of pulling out of a steep attack and releasing a torpedo takes a special sort of skill...and this officer certainly has it (+10%). Naval vessels beware!

Air Bases

The rules that governing air movement and basing are very similar to those of the naval bases. Each squadron must be assigned to an air base and may only land in a province that contains one (you may use either your own air bases or those of an ally). If you station more wings at a base than the size of the base allows, then you will suffer from reduced rates of strength and organization recovery,

and it will take longer to upgrade your aircraft to the latest technology. Airfields may be damaged by enemy aerial attacks, with runways becoming too cratered to accommodate the normal allotment of aircraft (although this can be repaired over time by allocating IC to reinforcement).

You can review the size and operational status of a base by selecting a province that contains a base and then hovering your mouse over the airbase symbol. A tool-tip will inform you of the maximum base size and its current effective size (which will be lower than the total base size if its runways are cratered). The tool-tip does not indicate how many wings are currently assigned to the base, however, so it may be more convenient to use the Air Force Hot Button to view a list of all bases and the number of squadrons that are stationed in each. New air bases and enlargements to existing bases are most easily ordered by right-clicking on the province and using the Quick Build production order method.

There is one other very special condition that relates to air bases - if the province in which an air base is located is experiencing a storm or a blizzard, then any squadrons that are based there will be grounded until the weather has dissipated.

When conducting normal missions, a squadron is limited by its maximum range. A squadron is able to exceed this range in one special instance only: re-basing. A squadron may re-base to any other base that you control in the world and this is handled in exactly the same way that long-distance naval re-basing is done, except that it must be ordered through the orders box. The route selected may only pass through air zones above friendly provinces or sea zones and once you exceed your normal flight range your organization will drop to nearly zero, so if you are attacked during the balance of your flight you will almost certainly be torn to shreds. (Note: this long-distance re-basing actually represents a combination of air movement and commercial shipments of partially-disassembled aircraft so it's not quite as strange as it seems.)

Air Wing Deployment, Supply, Reinforcement and Upgrades

Air wings are deployed from the force pool in the same manner as other forces are deployed (and they must be assigned to an air base). They also draw their supply from their assigned air base just as naval flotillas do. If the base cannot be kept supplied, then your wings will suffer from these shortages, although they are still able to scrape up barely enough fuel to get into the air. Organization will drop rapidly and they should be re-based immediately, if possible, since they will be almost useless for combat purposes.

Being out of supply also reduces the wing's rate of organization recovery and upgrade, which will be further hampered if there are too many wings assigned to a base that isn't large enough to support them. Unlike naval forces, however, air wings may be fully upgraded to the most recent technologies if sufficient IC is allocated to upgrades. This process will remove the old aircraft from the wing and

replace them with more recent models without losing the experience of the air crews. You will normally only need to consider disbanding a wing if you feel that it is no longer useful and is tying up transport capacity that could be better used elsewhere.

Combining Air Wings Into Squadrons

Air wings are combined and divided into squadrons in exactly the same manner as land and sea units are controlled. If there is a land unit present in the province you will find it easiest to click on the "stack" to cycle through it until an air unit is selected. Then hold down the shift key and select the locations other wings or drag a box around them since the "held" selection of the first unit will filter all subsequent selections to air units only. You shouldn't need to do this very often as the vast majority of the orders you give to your wings will be missions.

Basic Air Movement

The air system is somewhat different than the land and naval system, because there is no "basic" movement order for a wing. If you right-click on a province the Air Orders menu will appear automatically and the items listed are context-sensitive to the location you clicked on and to the type of wings that are in the squadron. This might take a little getting used to, but is due to the basing restriction, all movement must begin and end at a wing's assigned air base.

There is one very interesting distinction that is worth keeping in mind when you are issuing orders to squadrons - most of these are missions which will be flown against a target area (a series of provinces within an area of the map). The specific province chosen by your wing for each sortie will be determined automatically based on what your Chief of the Air Force (a.k.a. your computer) determines is the most beneficial target to select that will maximize the damage, minimize the losses, and still obey your orders. If you use the order box or the "Ctrl and right-click" method of setting the order then he will be in complete control of the operational assignments. If you simply right click directly on a possible target province and then select the mission from the drop-down orders list, the first target he will order the squadron to strike will be against that province, regardless of whether he happens to feel that it is a sortie that is likely to have a favorable outcome. No matter what method you use, your squadron will never target your own forces.

Air Combat and Air Missions

Air orders and combat are integral to one another, since the type of mission will determine the overall type of combat. The general mechanism of combat is the same as the one used in land combat, however each air mission has a specific type of "target" for its attack. I will describe each mission in turn, indicating the purpose of the attack type and the type of damage it inflicts.

Orders are issued by either right-clicking on a province to bring up a context-sensitive list of possible

missions, or you may select a squadron and then click on its order box in the information panel to issue a new order. If you use the latter method you will usually be asked to specify a location (province or area) as the target for your mission. The list of locations will be filtered (and color-coded) by the range of the selected squadron. You may select the target area (or occasionally a target province) from the list, or you may click on the map to assign it.

Air missions are flown in a series of sorties. Each sortie may attack any target that is within the range of the squadron, but all combats are limited to a five hour duration, after which the air unit will begin to run low on fuel and be forced to break off the attack. Be careful when assigning a mission to a squadron since an order will be available for that squadron as long as at least one wing in the squadron has a value greater than zero in the primary attack type prerequisite. Many fighters, for instance, have at least a small tactical attack capability but are generally very ineffective at conducting ground attacks against even the most vulnerable targets. Make sure you select an appropriate type of mission to assign to a squadron.

Beware of enemy AA batteries. Any time that a squadron enters the air zone above a province with AA batteries they will be subjected to a burst of fire as the wings pass, even if the wings are merely flying to a more distant target or are returning from it. This will usually result in a limited amount of strength loss and somewhat more organization loss. If you are attacking targets in a province that contains AA the batteries will continue to fire during each and every round of the combat, which can add up to quite a lot of damage over time. Fortunately air missions use the same mission parameters interface that we saw when we looked at naval missions, so you can specify a minimum strength level below which the next sortie will be delayed until the wing has been suitably reinforced.

You can now select the Range of Engagement. For example, if it shall be a single province, a whole area or even a complete region that shall be the target. Also added is an Option so that you can now set the mission length for several years. The new "Infinite" time length button, which will result in a non-stop mission until the player aborts, should also come in handy.

Air Combat

Three different types of aerial combat are likely to occur during your game: air-to-air, air-to-ground, and air-to-ship. All three use the standard combat mechanism that we've seen before, with the appropriate attack and defense values being determined by the type of target selected. For example, if a squadron spots and attacks a fleet, the squadron's wings will use their naval attack and surface defense values (the surface defense value is used when both naval and land forces return fire), while the flotillas will use their air attack and air defense values. Air combats are limited to a maximum of five hours, after which the wings must return to base. When air squadrons attack ground forces there is one very important issue relating to the ground forces' ability to return fire. Unlike land battles, land

forces do not gain the additive leadership ratings and HQ bonuses for stacking, and the over-stacking penalties are calculated somewhat differently. The rating of the highest ranking officer (exclusive of any HQ modifier) determines the maximum number of divisions that can defend against an air attack without penalty. If the total number of divisions exceeds this, then the air attack and air defense values of every division in the battle will be penalized by 2% for each over-stacked division. For example, a field marshal with 20 divisions including an HQ would not be over-stacked in a land combat; however if he is attacked from the air then he is only able to command 12 divisions. This would result in him being over-stacked by 8 divisions, thus all 20 divisions would suffer a 16% penalty to their air attack and air defense values during combat.

Re-base

This order reassigns a squadron to a new air base. As mentioned above, the base does not need to be within the squadron's range. A squadron will move to the new base location via a route that does not enter enemy or neutral air space, but the squadron could be intercepted while it is moving to its new location. To avoid massive quick re-basing, we introduced a "negative organization" modifier. You get, depending on distance, an organization malus for every re-basing

Ground Attack Mission

This is a standard assignment for tactical bombers and close air support, though any airplane with a hard or soft attack value may attempt this mission. Your squadron will attack any enemy ground forces within the assigned area, selecting their target provinces automatically based on their perceived priority, and the mission's objective is to damage or destroy as many units as possible (thus this attack will primarily affect the enemy's strength, not his organization). Generally any enemy troops that are attacking your own will be assigned the highest priority. The attack values used are the wings' hard and soft attacks, and the defenders will return fire with their air values. Air wings use their air defense values to avoid being shot by the land units, while the land forces use their air defense values.

Interdiction Mission

This order is very similar to the ground attack; however its primary objective is to disrupt the enemy's organization rather than to inflict casualties. This, too, is an area-based attack that is suited to squadrons that contain a large number of tactical and close air support wings.

Strategic Bombardment Mission

As its name suggests, this mission is usually assigned to strategic bombers. Your bombers will be given the assignment of trying to damage province infrastructure and factories within the targeted area. This attack is spread evenly over all the different province constructions. Remember, enemy AA batteries may take their toll on your planes and enemy fighters may be on the look-out for you.

Any wing in the squadron that has no strategic attack value will not participate in the attack and will act as escorts against enemy fighters instead.

Industrial Bombardment Mission

This second type of strategic mission is used to target solely the enemy's industry. This will reduce his ability to produce supplies, new units and also affect his Transport Capacity. This attack will be increased in efficiency through new technologies in the period of 43/44 to avoid too much destruction right at the outbreak of war. This Mission is dependent on the Strategic Bombardment Value of the corresponding Unit and is very effective in Late War scenarios. They can only be performed by strategic bomber units.

Logistical Strike Mission

This third type of strategic bombing sortie targets the infrastructure level of the provinces in the target area. This will hamper enemy unit movement and reduce their supply efficiency. As was the case with strategic bombardment, any wing without a strategic attack value will perform the function of escort for your bombers.

Airport Strike Mission (formally Runway Cratering)

The fourth strategic attack targets a specific enemy air base and attempts to inflict as much damage to it as possible. Successful attacks will reduce the airfields level and damage the aircraft stationed there. Multi-role Fighters are very effective in this Mission and do a lot of damage to aircraft at undefended Airports. You should expect enemy fighters to scramble to intercept and any AA will also attempt to destroy you, so it is wise to send some escorts along to assist you.

Installation Strike Mission

The final strategic mission type is an area-based mission that will specifically target enemies defense installations such as AA guns, radar installations, nuclear and rocket test facilities. This can be a very dangerous and costly mission since it places your bombers in direct conflict with the enemy batteries, but a series of successful missions may bear fruit by greatly reducing the defensiveness of troops or the disruptive effects of AA fire when you return to attack the province's other assets.

Naval Strike Mission

This order instructs your squadron to patrol an area of water and to attack any enemy vessels it can spot. As you would expect, it is the wings' naval attack values that are used for this type of mission, so torpedo planes are the optimum group to handle this assignment.

Port Strike Mission

This is an order that can be given to any wing that has a naval attack value and will strike a port or naval base that you specify, attempting to sink any vessels that are currently in that harbor.

Bomb Convoys Mission

This is an aerial version of the naval convoy raiding order. Your naval bombers will patrol an area of the ocean and attack any enemy convoys that are traversing the area (therefore this uses naval attack values). While these will not be visible as battles on the screen, the convoys will be persistently targeted, thus reducing the enemy's supply efficiency and trade efficiency. Your torpedo planes will gradually sustain some damage if the convoys are supported by escorts, so you may need to periodically reinforce a squadron that is conducting these raids over an extended period of time.

Airborne Assault Mission

Airborne assaults are very risky maneuvers, since your paratroopers will be placed in great jeopardy when they land. As mentioned earlier, the loading of air transport is handled in the same way as naval transport, except that only paratrooper divisions may make this attack. Once loaded, select the province you wish to drop them into and they will carry out their mission. Since transports don't have any attack capabilities and only limited defense abilities, you will almost certainly want to assign some fighters to protect them. We discussed the effects of an airborne assault in some detail in the land combat section, so I will simply refresh your memory by reminding you that paratroopers present an additional angle of attack for envelopment and are able to ignore any land or coastal fortifications.

Air Supply Mission

This is not an attack mission, but rather a temporary means of supplying encircled troops. Only transport aircraft may be used to ship supplies in this manner, and they are generally very inefficient in doing so. Each transport can carry only a small amount of fuel and supplies (and will also consume its own share of both while conducting this mission), so it should be done only in extreme emergencies. If circumstances force you to do this, select the target province that you would like to transport the materials to and they will fly there and establish a new depot (or add to an existing one) before returning back to their base. You should expect enemy aircraft to try to intercept you to prevent you from making your delivery.

Air Superiority Mission

This mission is the standard fare of a fighter squadron. This instructs your squadron to patrol the skies within the target area (usually 2-5 provinces) and to attack any enemy fighters or bombers they encounter. The attack and defense values used are the air values and will reduce both the strength and organization of the enemy aircraft.

Air Combat Modifiers

Overview

Air combats are resolved in much the same way that land combats are resolved and the combat details screen is virtually identical, however there is a time limit of

five hours placed on the combat, due to the range limitations of the aircraft. Once they have exhausted their limit they will return to their base to recuperate for the next sortie. Remember that a squadron cannot capture a province and can only soften up the defenses to assist advancing land forces.

Visibility

Just as naval vessels can be difficult to spot and intercept, the same is true of aircraft. Just because two opposing squadrons occupy the same air space does not mean that they will necessarily engage one another. Visibility is greatly affected by weather and time of day. The same is true of squadrons that have a mission to attack naval vessels, thus they will not be able to carry out their attack unless they successfully detect their target.

Weather and Time of Day Effects on Air Combat

If a force manages to spot an enemy in adverse conditions, it will probably enjoy quite an advantage of surprise, however these conditions are generally very poor (or nearly impossible) for air-to-air combat and will usually end fairly inconclusively. Remember, too, that squadrons are unable to fly sorties if their air base is currently under storm or blizzard conditions. There are some technologies that will improve your night-fighting capabilities and that might give you a significant advantage when tangling with the enemy at night. Otherwise, I would recommend that you use the mission parameters interface's feature to limit sorties to be conducted during daylight hours.

Targeting

While intercepting and engaging enemy aircraft is difficult in adverse weather conditions or at night, it is equally disruptive to aircraft that are conducting bombing missions against provincial or naval targets, since they will have great difficulty locating and effectively attacking their objectives. Until you have researched advanced night bombing and radar technologies, you would be well advised to restrict your campaigns to the daylight hours. No matter how advanced your technology, bombing missions carried out in bad weather will rarely be worth the cost of the fuel needed to reach the target.

Occupation of an Air Base

Occupying an enemy province that contains an air base will allow you to use that base for your own squadrons once the inevitable sabotage damage has been repaired. If you find that one of your own provinces that contain an air base is under attack, you should take steps to find a safer home for any aircraft you might have stationed there unless you are absolutely assured of victory. Wings that are still on the ground when a base is captured are destroyed.

Advanced Air Strategies

Overview

As you read through the various air missions, you

will undoubtedly have realized the tremendous effect that your air force can have on your chances of success. I will outline a few of these in this section to add extra emphasis to their importance.

The Air Force as a Leveler of Nations

While large-scale civilian bombardment is not modeled in Arsenal of Democracy, the impact of a relentless bombing campaign cannot be overstated. Destroying an enemy's infrastructure and industrial capacity with strategic bombing can bring him to his knees by striking directly at his economy and transport capacity. While damage sustained by these targets may be repaired, it requires a time and IC investment that can cripple other aspects of his overall strategy. Look for areas that have very large factory density and preferably as little defense as possible, or conduct a preliminary logistical bombing campaign on your enemy's front line positions to make it painful for him to supply his forces in offensives and hamper his defenses. The reduced ESE alone could easily result in significant attrition, movement and combat penalties.

It goes without saying that you should protect your own industry and forces as much as possible. If you have the ability to concentrate your industry in a remote and fairly inaccessible location, you should probably attempt to do so; and regardless of where you place your factories, you should take care to protect them with AA batteries and possibly even a squadron or two of interceptors that conduct regular air superiority patrols.

The Air Force as a Hammer

Similarly, the air force has an amazing ability to soften up enemy defenses. Used against province defenses or enemy armies, this can make all the difference between the success and failure of a ground offensive. While you might expect a direct tactical ground attack to be an excellent solution to winning a campaign, it is often the disruptive effects of other forms of bombing that will net you the greatest gains if you have a fairly decent ground force to follow up behind your assault. Reducing an enemy's supply efficiency and organization will usually result in far more victories than a direct strike to inflict casualties. Remember, too, that air attacks against very large ground forces tend to be fairly successful and low risk, since air-to-ground combat does not allow defending officers to stack their leadership abilities or to benefit from the presence of an HQ division. Watch out for any supporting interceptors, though, and keep in mind that the enemy may have AA brigades attached to some of his divisions in addition to any provincial AA batteries that you can see.

The Air Force Used Indirectly

Just because aerial attacks on convoys don't result in exciting battle screens does not mean that you should overlook their potential role in disrupting enemy supply and trade efficiency. A large-scale campaign can nearly halt the flow of vital natural resources or make it very difficult to get fresh food and fuel to remote forces. This indirect approach

to inflicting damage can reap great rewards if it is maintained relentlessly over extended periods of time.

Although air supply is horribly expensive and inefficient, it may be able to make the difference between a force being able to hold out long enough for land forces to break through in relief or watching entire divisions be obliterated before your eyes. Don't rely on this technique, but don't overlook it either.

The Air Force on Defense

Given the above points, it should be obvious that losing control of the skies can have a devastating effect. It will reduce your ability to soften up the enemy, thus making all of your land battles much longer and more costly affairs, but will also expose you to a wide range of potentially crippling blows to your industry and supply. There is a temptation to deploy all of your fighters near the front lines, but you should consider saving some for the less glorious role of protecting your provincial assets from an enemy's long range bomber attacks.

Flying Bombs and Bombs

Flying bombs and rocket bombs are treated as single-use air wings. These unmanned arsenals can deliver a large amount of damage to any strategic target in a province. They are not immune to interception or AA batteries, but it is rare that one may be utterly destroyed before it is able to deliver at least a partial blow to a target. When you are ready to use one, simply select the unit and then target it exactly the same way that you would target any other air mission. Since they only have a strategic attack value, you will see an abbreviated list of relevant missions. Select the mission you want and click OK to confirm the order. The unit will then fly to its target and conduct its attack. Once this is over, the bomb will be removed from your arsenal (and the map), so if these weapons are part of your intended ongoing strategy you will need to order a steady stream of production.

The Bomb

The last subject we'll look at in this section (and in the manual) is the one that finally brought an end to nearly seven years of bloody global conflict, and has haunted international politics ever since. Atomic weaponry may be developed by persistently conducting research in the Nuclear technology path of the industry category. This will eventually allow you to build a nuclear reactor which will operate as a test and research facility to speed future research and later for manufacturing the essential, deadly components of your nuclear arsenal.

Once you have completed the Nuclear Power Advance, switch to the Secret Weapons category and begin work on a nuclear waste bomb project. Once that is complete, you will be able to place a production order to increase the size of your reactor to level 6 - the minimum level required to manufacture a bomb. As soon as this enlargement is complete, the reactor will begin to build an atomic bomb which, when ready, will be placed in your

national nuclear arsenal, which is shown on the top bar. Each reactor that you build that is at least this size will contribute to your arsenal.

A nuclear bomb may be prepared for delivery by attaching it to a strategic bomber or a sufficiently advanced flying rocket (a ballistic missile or ICBM). Once the technology is available, if you select one of these wings and look at the details in the information panel you will see a "nuclear" button at the bottom that will appear beside the disband button. Clicking this will remove one bomb from your national arsenal and deploy it on that wing. If you wish, you may later unload the bomb if you have not yet used it.

If you decide to unleash the bombs fearsome power, select a squadron on which the bomb is loaded and then right click on your intended target. Select the nuclear attack mission from the orders options and then confirm that this is really what you intend to do. As long as the wing that carries the bomb survives whatever defenses the enemy is able to muster, it will detonate. Not surprisingly, the effects are devastating... but they also have one additional side effect - the victory point value of the targeted province will drop, most likely to zero, but in a few instances it may still retain a value of 1.

Changes to AoD Air Combat

Air superiority has become a much more important aspect of the game. As your country becomes quickly defenseless in terms of a lacking interceptor or fighter grid, your industrial centers will lie wide open to any strategic bomber force which is now capable to literally bomb you back into the stone age (remember the new infrastructure slider).

But interceptors alone are very inefficient. They have no eyes and no ears without a working radar coverage and intelligence reconnaissance. Radar stations dispersed among one's own territory are now linked together in an invisible network to guide planes on Air Superiority Missions towards enemy bomber and fighter groups.

Radar now directly improves the effectiveness of Anti-Air. AA guns are now a valuable part of a nation's air defense as they do more direct damage to planes flying over them. They also reduce the damage a bomber squadron can actually do to a province by forcing them to fly higher - the result of this is that they miss a lot of targets due to less accuracy because of the greater altitudes.

To avoid massive quick re-basing like in previous HoI versions, we introduced a "negative organization" modifier. You get, depending on distance, an organization malus for every re-basing.

Planes who are disorganized are not able to perform any missions or re-basing - you'll have to wait until they are organized again. This concept tries to model the need to transport spare parts, engineers and the whole logistics and support infrastructure. It tries to avoid the re-basing of complete bomber fleets in unrealistic short time frames, for example, a thousand bombers from the Pacific to Europe in 24 hours. We also added a fix that you are no

more able to give orders, like cancel mission, to planes who are currently engaged in combat. This exploit had led to much frustration in previous Multiplayer games and should now be corrected.

What comes in pretty handy for bombing with planes and also with rockets is our new dispersion and force distribution concept. No more will all bomber planes attack a single stack and avoid all the others around him - they will now split up according to the best chances a unit has in engaging different ground targets.

So for example, the CAS stack will aim for the single ARM division, while those nice Tactical Bombers are engaging a big horde of lightly armed militia infantry in the neighboring province.

When choosing Industrial or Strategic Bombardments with V1 or V2 rockets, you will quickly notice that they will spread nearly evenly on the industrial centers and important backbones of an enemy country. This comes in very handy for late war game-play as the handling is now severely simplified.

When the enemy now approaches an airfield, planes automatically re-base themselves to a near and safe airport. Even though planes flee automatically, some of them will be caught off guard/be too late - so even if the unit manages to re-base to a secure airport, they will take some damage.

"Runway Cratering" is changed (as it is now Airfield strike and does damage planes stationed on the field), added the "Industrial Bombardment" Mission and also added to the "Logistical Strike" the addition that it destroys the carried supply stock of a unit. As mentioned "Strategic Bombardment" now serves as a combination of attacks on all kinds of provincial targets with no special preference.

Being the same as with naval units, you are now able to select for all missions the scale of operation, for example, be it a single province, an area or a region. And you can now also set it on an infinite running length.

The Combat Mechanics themselves have been slightly tweaked, as now more variables are taken into account for determining a winner. Of course all modifiers and values for this can be found and edited in the misc.txt file.

Modding the Game

Overview

Arsenal of Democracy was conceived and built by members of the thriving HoI modding community. A great deal of effort has gone into making this game compatible with previous mods and dedicating specific GUI space for future mods. Modding instructions are beyond the scope of not only this manual, but this author as well.

Some modding notes

The new country ideological/national policies are all editable in a new file, ideas.txt. It uses the same commands as the minister.txt, another new file we also integrated and which makes it now easy to create and change minister traits. You can create new brigades in all three branches.

They are custom definable in the boostertext.csv.

We have removed the country limit, so you can include all the nations you have ever wanted.

And of course we exported hundreds of game variables to the misc.cfg. You can set and define now every piece of the game in this file. From the cost of artillery bombardment through the relative damage a bomber does on installations to gearing times, conversion rates, infrastructure bonuses and so on.

We re-arranged the technology tab in a way that you are now able to mod in more techs if you want. the room available on every tech-section has increased dramatically.

In the events section, we build in various new commands as triggers. For example, a check command if complete areas are under control of an ally/enemy/neutral/etc., which opens up lots of new possibilities for modding.

For map creating purposes, we have removed the province limit. you can now mod your own maps with up to 10.000 provinces.

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Strategy is our game!

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