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July 1998 No. 168

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21 Tough Reviews

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FEATURES

Age of Empires II

It may seem odd, but it's by featuring the Dark Ages that Microsoft continues its gaming renaissance. The sequel to AGE OF EMPIRES has everything that made the original so addictive, with the addition of wicked medieval weaponry, staunch castles, and a more robust economic model. Join "Genghis Khan" Brown as he fiddles with newer battle formations, assigns aggressiveness levels to his faithful serfs, and makes the world safe for ore miners everywhere. And don't miss the special guest appearances by wolves, outlaws, Celts, Vikings, and everyone's favorite party crashers, the Mongols. .... 52

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Tuning a Game Engine

Why Companies Can't Win With Game Upgrades and Expansion Packages

I would like to take a moment to explain the lose-lose scenario that game companies experience whenever they decide to build upon an existing game engine. No game publisher has asked me to write this, and it may upset some of the good folks on the newsgroups, but sometimes an observer has to share his observations.

Let's say that you're a game publisher that has just released a fabulous 3D LACROSSE sim in your sports line. It's selling incredibly well for a lacrosse game (both of the U.S. fans bought it!), but it's time to decide what to do about next season. The game came out late enough in the year that you don't have time to create a new engine before the next lacrosse season, so you decide to put out an expansion disk. No problem.

No problem, that is, until you try to get it on a retail shelf. You suddenly discover that retailers don't really want $19.95, or even $29.95, expansion products. They want full retail products because they get a certain percentage from each sale, and smaller prices equal smaller margins equal smaller profits for the retailer.

So, as a game publisher, you now have limited options. You could raise the price of your expansion to standard retail price. As a result, you'll anger your customers, because they aren't really getting an entirely new game—even though they're paying the price of a full game. Bad idea! You could give the expansion data away free, eating the development costs and, if you've gone too far down the road, manufacturing costs. Not a particularly sound business model! You could try to sell the expansion package over the Web. You'll sell some, but it won't have the impact of a retail product.

Finally, you get a brilliant idea. You'll put all the inevitable patches you've created since the engine was released onto one CD. You'll tweak the engine a bit to add some new animated sequences and maybe a cool league feature or two. Then, you'll put it all together with the old game and expenses, end-cap costs) without having the advantages of fresh reviews and media excitement. You lose again. Worse, even though you've improved the product, all of the journalists have played the old product and reason (and I use that verb loosely) that you haven't made near as many improvements as you should have if you're marketing it as a "new" product.

Recently, Ocean and Activision faced this dilemma. Ocean originally promised a dynamic campaign for F-22 AIR DOMINANCE FIGHTER that would be distributed as an add-on. (Actually, the dynamic campaign was supposed to be part of the original game, but as development became more difficult, gamers were told that F-22 ADF would be released at a reduced price [surely] and the add-on would be released at the typical $19.95 [or so] data disk price.) Few were expecting a downloadable freebie, but few were expecting the campaign to be released as a full-priced product called TOTAL AIR WAR, either. Now, F-22 ADF has already hit at full price, and TOTAL AIR WAR has become a full-priced product as well. Fortunately, the company has responded to the anguished cries of betrayal on the newsgroups and announced that there will be an upgrade program for the original owners. The reality is that there is no way Ocean could have successfully launched TOTAL AIR WAR as a reduced-price product on retail shelves. However, its marketing decision may cost it hordes of once-loyal customers who are angered by their belated upgrade decision.

Activision opted to bundle the newly accelerated I-76 engine with the NITRO PACK and market it as a full-priced product. They offered an upgrade path for loyal game owners right from the start, and were rewarded with angry customers on the Internet claiming that it was too much trouble to send in the rebate.I love to see new scenarios, campaigns, data disks, and adventures for old products. Unfortunately, until Web distribution proves to be a little more secure, I don't think these add-ons and campaigns are a very good bet for game publishers. Publishers are better off giving their customers the editing tools and watching the proliferation of expansion products hit the Web. That way, the games have legs, but publishers don't have to absorb the development costs.

Retailers don't really want $19.95, or even $29.95, expansion products!
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The Fogs of War

Why do so many real-time strategy games have hidden maps? Hiding the map makes sense in games like Age of Empires or Civ II when you start out as a new civilization with primitive technology. However, when I loaded up StarCraft and saw that the map was once again covered, I couldn’t help but wonder why. I mean, supposedly I can build flying craft that go into space, but I don’t have the capability to make aerial maps?

—Chad Sorrell via the Internet

Conflicted Strat Gamer

I am not a strategy gamer. Yet here I sit, dreary-eyed and exhausted after a marathon evening with LucasArts’ Rebellion. That I have a hard time remembering the last time a newly purchased game held me into the wee hours of the morning (or a work night, I might add) surprises and pleases me. I say that because Rebellion has reminded me both why I love gaming and how many crummy games I’ve had the displeasure of buying lately.

I said above that I am not a strat gamer—long hatred them and the space you continually devote to them. I can’t shake the static look and feel of most strat games. I suppose the “real-time” innovation (or bastardization, depending on your viewpoint) has helped some gamers see the light, but I can’t help but think that, even more importantly, a great story (like the Star Wars mythos) and attention to detail can engross gamers of any stripe.

The last time I was this feverish over a game was Diablo. (Was that a strat game? I waited months to buy it fearing that it was...) I find myself saying I am not a strat gamer yet I sit here with my (also new copy of StarCraft) staring me in the face like a jealous pet while I toil away in the universe of Rebellion. Good games elevate their genres and bring gamers across boundaries. In other words, Rebellion is not just a great strategy game, but just a great game, period.

Any game that expands your appreciation of the form and its different genres deserves high praise. Thanks to LucasArts, you don’t have to be a strategy gamer to become engrossed in Rebellion; you just have to be a gamer.

—Joe Kva via the Internet

CGW Article Index

I have been reading Computer Gaming World cover to cover since October 1992 (Issue 99) and still have even this issue on my overstuffed bookshelf. Over that time, I have enjoyed many fine articles and reviews. But, I hate remembering that I read something and not being able to locate it, especially over such an extended period of time. Is there a comprehensive review index somewhere?

Lately, I have noticed review indexes that cover the past several months of reviews and have bookmarked them in case I would like to go back. But is there an index of hardware reviews and other articles?

—Donald Nell via the Internet

Don, we’d like to provide a comprehensive article index, but it would require much more resources than we have available. Instead, we have chosen to provide more recent indexes that will serve a wider percentage of readers. Two indexes can be found every month: the Reviews Index in print, and the 12-month software and hardware reviews index on the CG-ROM. Near the end of the year, we provide an index of all reviews, previews, strategies, and feature stories from the past year. Perhaps in the future, we will be able to provide a comprehensive article index. On the web, we’d certainly like to be able to reward loyalty such as yours.
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- GameSpot

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The Prince Flies Again!

The PRINCE OF PERSIA Series Returns in a Brand-New Dimension

It's been nearly 10 years since Jordan Mechner's PRINCE OF PERSIA was unleashed upon unsuspecting gamers, ensnaring and enthralling all who took on its winning combination of platform-style action and devious puzzle solving. Despite its age (the sequel, PRINCE OF PERSIA 2, is itself five years old), it's a game that continues to have a strong influence today, inspiring recent games like TOMB RAIDER and TWINSEN'S ODYSSEY.

Mechner has veered off in a totally different direction in the last few years, creating the critically acclaimed (and vastly under-appreciated) mystery-adventure THE LAST EXPRESS. Hence, it seemed as though the Prince might have forever hung up his sword. But, happily, Mechner is now returning to the franchise that made him famous, serving as design consultant and co-author on Red Orb's upcoming PRINCE OF PERSIA 3D. The game promises to convert everything we knew and loved about the original PRINCE titles into an immersive 3D world. You'll still dodge rotating blades and hoist yourself up to ledges, but, as in TOMB RAIDER and SUPER MARIO 64, you'll do it from over the Prince's shoulders, exploring the world from within.

"The timing is definitely right," says Andrew Pederson, the game's producer at Red Orb. "We've thought about this for a long time, and pitched the game about a year ago. Now, with 3D acceleration, we know we can make a 3D game worthy of the PRINCE OF PERSIA name." Red Orb is not designing the 3D engine from scratch, nor are they licensing the QUAKE II, UNREAL, or another existing engine. Instead, the team is working on merging two existing technologies: NetImmerse, a 3D rendering engine from Numerical Designs, and The Motion Factory's Motivate, a character animation and authoring tool. This strategy gives them the flexibility to tweak things as they see fit, while still being able to concentrate on the game's design.

"Everything that separated PRINCE OF PERSIA from other games at the time, we wanted to keep in the new game," says Pederson. "Fluid character animation; an integration of a cool story line with the game's action; easy, intuitive character controls and interface; and a good hybrid of action and adventure."

Apart from authoring the Arabian Nights-style storyline, Mechner's role among the 17-plus team is largely to ensure that it adheres to the "classic" PRINCE OF PERSIA style. He is actively involved, along with co-designers Tom Rettig and Todd Korpelman, in creating the action, puzzles, and traps within the game's 15 levels. The game will take you through seven environments: an interior prison/tower, outdoor rooftops, a palace, a floating dirigible city, floating ruins, and a stronghold.

"Now, with 3D acceleration, we know we can make a 3D game worthy of the PRINCE OF PERSIA name." —Red Orb's Andrew Pederson

"Now, with 3D acceleration, we know we can make a 3D game worthy of the PRINCE OF PERSIA name." —Red Orb's Andrew Pederson
Lynched

David Lynch to Create Game Content

The king of cult, David Lynch, is unleashing his talents in a new arena. The director of such critically acclaimed movie hits as Blue Velvet and The Elephant Man has teamed up with Tokyo-based multimedia company Synergy Inc. to create an upcoming computer game with the intriguing title WOODCUTTERS FROM FIERY SHIPS.

It comes as no surprise that when Lynch expressed an interest in entering the gaming market, he was immediately wooed by some of the industry’s largest developers. Impressed by the work that Synergy had done on its last project, GADGET, however, Lynch opted to sign up with the smaller company.

Lynch and his Hollywood-based interactive company, SubStation, will create content for the title. Lynch will develop the storyline, and, as with his movies, both visual effects and music will play a huge part in the final product. Natalie Fay, president of Synergy’s U.S. operations, confirms that Lynch will contribute to every step of the project, from start to finish. “He really wanted to be a part of the project,” she says, “not just lend his name to the game. . . . It should be vintage Lynch.”

Although at this early stage it’s hard to categorize the game, it will be in real-time 3D, and it will have multiplayer elements. Fay is quick to point out that this is not going to be a RIVEN or MYST. She is confident that WOODCUTTERS will appeal to hard-core gamers, and she stresses that Lynch is not interested in merely putting together a string of video clips for the PC.

At press time, Synergy was in negotiations to bring a top U.S. designer onto the project, but the company was unable to reveal his name until the deal was complete. Look for more info about WOODCUTTERS FROM FIERY SHIPS in upcoming months.

—Charlotte Panther

Rocking the Boat

3D Realms Employees Jump Ship to Start Their Own Gaming Company

You can add fledgling company Rebel Boat Rocker to the list of gaming companies that have been spawned by fleeing 3D Realms employees. Headed by Billy Zelsnack, who worked on engine design at Epic Megagames and 3D Realms, RBR consists of several DUKE NUKEM 3D and SHADOW WARRIOR team members, as well as a few talented designers and programmers from the online community and other high-tech companies. The team has been working for some time on its secret project, tentatively titled PRAX WAR.

PRAX WAR is a 3D military, action-adventure game with an all-new engine that is being designed by Zelsnack and two other programmers at Rebel Boat Rocker. The game is still in very early development, so we haven’t been able to see the engine running, but Zelsnack hopes to create an engine that will integrate indoor and outdoor environments, offer detailed character animation, and present varied AI behavior.

The game’s fiction posits that the evil Prax Corporation has a stranglehold on the world’s fuel supply and is using its economic influence to gain world domination. What’s left of the ailing global government agency, GATO, wants to eliminate the corporation by employing the elite commando squad Eclipse Team. As the leader of Eclipse, it’s your job to destroy Prax Corporation.

The game is being published by Electronic Arts and is slated for a fall 1998 ship date. We’ll know more about the game, and its shipping status, when it is shown at E3. —Eliott Chin

Mousing Made Easy

Everyone’s had at least one novelty mouse-pad during his or her computing career. Unfortunately, novelty doesn’t necessarily mean quality. In fact, some of these pads actually worsen your mouse’s operation by gumming up the works with threads from the pad itself. A company called EverGlide has a different approach: They have turned the mouse-pad into a mouse-board.

EverGlide is a hard plastic mousing surface that’s designed to make mousing easier, while providing durability. The surface works well for mousing in QUAKE II, and also for the more mundane chores of driving through business applications. If you’re tired of picking micro dust-bunnies out of your mouse’s undercarriage, then take a look at EverGlide. For more information, head to www.everglide.com. —Dave Salvator
**News Flash**

**Sierra to Create Tolkien Game Online**

Lord of the Rings fans will be happy to hear that Sierra Online is developing a new multiplayer online game based on J.R.R. Tolkien’s famous Middle Earth universe. The company plans to beta test a “massively multiplayer” online game in mid 1999, and release it commercially before the turn of the century. Entitled MIDDLE EARTH, the game will let role-players become an elf, hobbit, dwarf or human and play in some of the well-known locales of Tolkien’s fantasy universe. MIDDLE EARTH will use the same online RPG technology as Sierra’s THE REALM, which currently hosts 3,000 players, according to Sierra. The company expects many more users of MIDDLE EARTH and is looking into Sun servers to provide adequate capacity.

**Lost in Space**

New Line Cinema has announced a deal with Sound Source Interactive to bring LOST IN SPACE to the computer. Sound Source will create a series of CD products based on both the classic '60s TV show and the recent hit feature film from New Line. The first product in the series, the LOST IN SPACE ARCADE SERIES ENTERTAINMENT UTILTY, will offer screen savers, audio and video clips, still photos, and desktop themes based on the original TV show. The product will also include an arcade game. Sound Source will also release two children’s titles based on the film. All products are slated for release later this year.

**Activision/Nihilistic Form Partnership**

Activision has signed an agreement to publish the first three titles from Nihilistic Software, the newly formed company headed by industry veterans Ray Gresko, Robert Huevo, and Steve Tietze. The team’s first project will be a 3D role-playing game, which Activision expects to release in the fall of 1999.

**Lode Runner Sequel in the Works**

In related news, iD Software recently announced that it has licensed the worldwide distribution rights for QUAKE III to Activision. QUAKE III will feature a new graphics engine that will take advantage of the latest advancements in 3D acceleration. Hence, the game will be 3D hardware-only.

**Anyone For Tennis?**

Now there’s a way to play tennis year-round, without having to scramble to find an open court. Blue Byte Software, the company behind JIMMY CONNORS’ PRO TENNIS TOUR, is preparing to enter the tennis circuit again with the release of GAME, NET & MATCH. The 3D tennis game will allow players to play against more than 100 different computer opponents, on a number of different court surfaces, each of which will affect gameplay differently. GAME, NET & MATCH will offer training programs, both singles and doubles matches, and tournament play. Blue Byte’s Internet Tennis Server will host tournaments based upon renowned tennis events, including Wimbledon and Flushing Meadows. The game should be available as you’re reading this. For more information, head to www.bluebyte.com.
The Final Frontier

Relic’s Inaugural Project, HOMEWORLD, Could Revolutionize 3D Strategy Gaming

Very few games these days can be counted on to advance the state of computer gaming. Clones have proven so successful that developers try not to stray too far from the original formulas that inspired them. Hence, excellent games like AGE OF EMPIRES and TOTAL ANNihilation offer a handful of new features while staying close to their roots. It is true that many games that try to innovate too much end up failing, but once in a while you get a game that is not only truly revolutionary, but that looks as if it will succeed financially as well. Such is the case with HOMEWORLD, a true 3D strategy game from startup Relic and Sierra Studios.

Eons ago, your benign rule over a federation of planets was interrupted when a mysterious and malevolent race conquered your homeworld and exiled you to the farthest reaches of the galaxy. While in exile, your civilization suffered cultural amnesia, as the evil race killed off your political, cultural, and religious leaders. Having forgotten your heritage, all you have left as a people is a legend of better times in the distant past and a shard of crystal. Now, though, the crystal is resonating with a force that is acting as a beacon, pulling you back to a home sector you have all but forgotten. The game begins as you and your people, adrift in a ragtag fleet, set off on this journey back to your homeworld.

The entire game revolves around this plot of exiled children finding their way home. However, there are various subplots involving meetings with traders, pirates, and more malevolent bad guys. While the story and the mission progression will be fairly linear, Relic hopes to add multiple choices to some of the mission pathways. There will also be plenty of cut-scenes, using the beautiful in-game engine, to punctuate the campaign with narrative and compel players forward.

Not only are all the ships and celestial bodies full 3D objects, but the playing field is full 3D as well.

While the integration of story into the game at this level is fairly innovative, the gameplay is what is truly unique about HOMEWORLD—it’s true 3D. Basically, all the missions take place in deep space, and combat occurs between a plethora of space ships, from small fighters to gigantic capital ships. Not only are all the ships and celestial bodies full 3D objects, but the playing field is full 3D as well. In HOMEWORLD, you can come in at opponents on the z-axis, attacking from above or below. Even games with 3D terrain, like TOTAL ANNihilation, don’t have full 3D combat. And games with true 3D engines, like MYTH, haven’t taken their gameplay into outer space, where 3D combat can really come into play.

HOMEWORLD will be unlike any other real-time strategy game you’ve seen. There’s a lot more to say about it, so be sure to read next month’s full-blown, hands-on sneak preview. —Elliott Chin

Player Stats

How Many Gamers Have Access to the Internet?

How Many Hours a Week Do Gamers Play Online?

<table>
<thead>
<tr>
<th>% of Gamers</th>
<th>Core 78%</th>
<th>Casual 68%</th>
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<tbody>
<tr>
<td>Less than 5</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>5 to 9</td>
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<td>10 to 14</td>
<td>15</td>
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<td>15 to 19</td>
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</tr>
<tr>
<td>20 or more</td>
<td>10</td>
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</tbody>
</table>

* Source: The Strategy Group
Blizzard Accused of Email Snooping—Privacy Suit Ensues

If you tried to play STARCAST over Blizzard's online gaming service, battle.net, recently, you may have been in for an unpleasant surprise. In what can only be described as a serious invasion of privacy, the company appeared to be extracting email and name data from gamers' Windows 95-based machines.

Blizzard Entertainment confirmed gamers' suspicions and explained why it had taken the information without gamers' knowledge. The company says that shortly after STARCAST shipped, it began receiving customer complaints from a small number of users who were having trouble connecting to battle.net for multiplayer sessions. Many users were complaining that their CD keys—the special numbers on the jewel cases that ship with most software—were not allowing them access to the online service.

In an attempt to solve these gamers' problems, Blizzard gathered email and name information from people who couldn't log onto the service. Blizzard says this took place over a single seven-day period simply to help those users who were denied access to battle.net. Collecting this information, Blizzard says, helped the company to determine whether the problems stemmed from a manufacturing glitch or from piracy. It also allowed Blizzard to use email to contact users with CD problems.

Blizzard says that outside this seven-day period it has never collected any user information. The company says the information that was obtained during the seven days didn't go beyond what is typically extracted by Internet browsers or registration cards.

Blizzard pointed out that it keeps "no user database of any kind in conjunction with battle.net."

Battle.net is one of the only online services that requires no personal data to play. "We believe that our track record proves our respect for gamers' privacy," Blizzard says.

Just as we went to press, however, an Albany, California, attorney filed suit against Blizzard and its parent company Cendant Corp. The suit, filed by attorney Donald D. Driscoll in San Francisco County Court, is based on two sets of statutes: the California Business and Professions Code, and the California Penal Code.

The lawsuit alleges that Blizzard used a program to transmit user information without the users' permission. Driscoll told us that he had contacted Blizzard attorneys by phone and fax, and they had indicated to him that they would not destroy records of Blizzard's past information acquisition activities. These records would be essential in determining culpability.

"We believe that our track record proves our respect for gamers' privacy"—Blizzard

Driscoll, who represents a non-profit consumer watch-dog organization called Intervention, Inc., is not asking for money damages but wants Blizzard to accept returns from STARCAST buyers for a full refund. He also wants Blizzard to supply a new copy of STARCAST without the part of the program that can upload registry information. Driscoll said that a class action suit isn't out of the question, but that if Blizzard has deleted the uploaded information, it would be tough to prove who was damaged. Despite that, Driscoll says he has received some interest in a class action suit. Commenting on the fact that Blizzard only continued the practice for a week, Driscoll had this to say: "[It] sounds like Blizzard's lawyers got involved. There is a practice in defense cases where the defense makes sure that it deletes any information that could be used to incriminate itself. Why else would Blizzard collect this information for seven days, stop, and then start deleting it?" In response, Blizzard was only able to release the following statement: "We have been notified that papers have been filed. We have not been served. We cannot discuss matters in litigation."

We should add, that Cendant already offers a 30-day money-back guarantee on all of its products, which makes some of Driscoll's requests seem rather strange.—Michael Mullen

For up to the minute news on the latest developments in the Blizzard saga, head to www.gamespot.com/news/news/index.html

Blizzard announced recently that its current president, Allen Adham, will be promoted to chairman, and Mike Morhaime, formerly Blizzard's executive vice president, will become president of the company. The two co-founded the company in 1990.

Blizzard says the move will "allow Adham to focus entirely on development, while Morhaime assumes the day-to-day responsibility for the success of Blizzard."

Adham said in a statement, "My first love has always been making games. After we completed STARCAST, I realized I wanted to devote more of my time to game design. By relinquishing control of day-to-day operations, I can focus all my efforts on development. "Mike was the natural choice to take over the reins as president. He has been a driving force in the company since day one. Mike is the right person to build on our successes and shape our direction," says Adham.

Blizzard is currently riding a few fast-breaking waves with the recent release of STARCAST, the ongoing development of DIABLO II, and the successful implementation of battle.net.

—GameSpot


Adham to Become Blizzard Chairman

Blizzard Chairman Allen Adham
You’ve Always Looked Down On Orcs...
Time for a New Perspective.

Shed your pathetic human skin and descend into an all-new dimension of the world of WarCraft. Through the eyes of the captive Orc, Thrall, you'll come face-to-face with over 70 legendary WarCraft characters as you unravel the mysteries of the land that millions have fought to conquer. Over 40,000 frames of handcrafted animation and actual Orc voices combine to bring the Kingdom of Azeroth closer than ever before. As the last symbol of honor for the Horde, you must lead your warriors onto the field of battle and write the pivotal next chapter in the epic WarCraft saga.

Over 20 minutes of animated cinematics

Explore over 60 richly illustrated locations

Unravel the pivotal next chapter in the epic WarCraft saga

WARCRAFT ADVENTURES
LORD OF THE CLANS

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Going Global
Rule the World in GLOBAL DOMINATION, Psygnosis' New Real-time Strategy Game

If conquering a mere town or even an entire country has lost its appeal, perhaps it's time to set your sights higher—how about ruling the whole world? You can do just that in GLOBAL DOMINATION, a new real-time strategy game in the works at Psygnosis.

Set in the year 2015, you're a new recruit working for the Universal Tactical Response Agency (ULTRA). The idea is to climb the career ladder and replace the current top dog as commander-in-chief of the planet. As you work your way to the top, you must protect the earth from the clutches of the evil breakaway empire of WOE (World Order Enterprises).

The game begins with a three-minute FMV sequence, which serves to fill you in on the backstory and explain your mission (each scenario thereafter will also start with a short FMV sequence outlining your goals). There are 20 preset single-player missions. An in-game editor allows you to tweak everything from who owns which countries to the level of technological skills available.

You can choose to attack with either land, sea, air, or space units. Your weaponry will include basic intercept missiles, electronic missile jammers that cause missiles to drop on whatever country they happen to be over, and advanced reverser missiles that will reprogram a missile to go straight back down the head of the launcher it came from. Successful completion of missions will allow you more technologically advanced weapons as well as promotion through the ranks. There are several technological upgrades, including one pick-up that can save your country from a nuclear missile attack. If a player sets off the Doomsday Device and no one else is able to intercept it, however, that player achieves a strange sort of victory: all that is left is a rock, in the player's color, flying through space.

Each time you replay a mission, the power-ups will be located in different places. Replaying missions can improve your overall score, as your ranking is based upon your percentage score in each level. If you've completed 12 levels, for example, you may find you have a lower-ranking title than a friend who has only completed eight; if you tackled the missions more strategically, he could receive a higher overall percentage than you.

A tactical zoom allows you to see exactly where everything is, so that you can be sure to attack an important country. If you alone attack a target, you'll take over a nice healthy country. If you attack along with three or four other enemies, however, you can expect the target to have lots of damage from each of the countries attacking it.

The game will support up to 16 players (or eight-player empires or teams) in multiplayer, and you can also choose to ally with fellow gamers against the AI players. In single-player mode, there is an Academy training session, which offers various playable scenarios to bring you up to speed. There's also an Arcade mode, for those who prefer to focus less on the strategic element of the game.

This is a real-time strategy game with a different feel from the C&C clones. Look out for it in stores this fall.—Charlotte Panther

Also in the works...

Dragon fans, get ready for DRAKAN (working title), a 3D action/adventure game in which you take on the role of Rynn—a tough heroine whose mission is to defeat the evil sorcerer Kulrick and his evil minions. Assisting and protecting Rynn throughout her quest is the fearsome dragon Arokh. Players can control Rynn alone—the sword-wielding warrior possesses more than 50 other weapons, including spears, crossbows, maces, and swords, and can run, swim, and climb—or you can move both heroine and dragon together with Rynn riding on Arokh's back. (Arokh has the advantage of being able to destroy anyone in its path by breathing fire, ice, and lava.) You can engage in either ground-based or aerial combat and exploration, as you travel through five different fantasy worlds and 14 levels. Look out for DRAKAN in early 1999.

Psygnosis is also working on OOT—OR DIE TRYING (working title)—another third-person action/adventure set in outer space, scheduled for an October release. You play one of four characters who land on the planet Kali, and must save its people from a terrible disease. Weapons will include lightning bolts, and fire, and magic and potions.

Look out, too, for SENTINEL RETURNS, the sequel to the early-'80s Amiga game SENTINEL. Your mission is to knock the sentinel off his pedestal while avoiding his gaze. To do so, you must build boulders to hide yourself as you cross a checkerboard-type landscape. If the sentinel sees you, he'll absorb your energy. The game attempts to maintain the feel of the old Amiga game while incorporating today's 3D graphics and sound, including a score by horror maestro John Carpenter (Halloween). SENTINEL RETURNS may prove to be just a little too weird for today's audience. Find out for yourself when the game hits stores in August.
IF YOU CAN’T BEAT ‘EM, CRUSH ‘EM.

Monster Truck Madness 2 is here, with more ground-pounding, trash-talking fun than the original. Featuring 20 trucks that show the damage you dish out, including four new WCW™ and nWo™ WrestleTrucks like “Hollywood” Hogan. Risky night racing and nasty weather options. Thumping force-feedback support. The Summit Rumble, an outrageous multiplayer game of “king of the hill.” And 11 wild new tracks. Get your free demo and start crushing the competition at www.microsoft.com/games/monster/
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Race through a burning spaceport.
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THE ASSAULT BEGINS
AUGUST
Windows 98: Good for Gamers?

As this issue went to press, Windows 98 was scheduled for release on June 25. Assuming the Department of Justice and numerous state attorneys general don’t have their way and the product is indeed released then, should you upgrade? CGW will run a full review of the product once we get our final copy, but in the meantime, here’s my initial impression.

I tested release candidate versions of Win 98 on a variety of systems ranging from a Pentium 133 notebook to a Pentium II/400 desktop. On systems with less than 32MB of memory, Win 98’s larger memory footprint made for more disk swapping and thus jerky performance in games. If you have less than 32MB, make sure you have room in your budget for some RAM in addition to the OS upgrade.

In addition to its controversial integration of Internet Explorer 4.0, Win 98 includes a number of enhancements to support the latest PC hardware. These include AGP and DVD support, as well as USB support that actually works. If you have a large hard drive, you can gain space by using the FAT32 converter to change your disk format. Sim fans will dig the ability to hook up two monitors simultaneously. And on the newest systems, you can simply “suspend” your desktop computer just like a laptop, so you can avoid the wait for Windows to boot.

If your system’s hardware specs sport all the latest acronyms—AGP, DVD, and USB—then you may see some real benefit from Windows 98. For older systems, though, you may just want to download Internet Explorer 4.0, which will give you most of the non-hardware-related improvements found in Win 98. Unlike the upgrade from MS-DOS/Windows 3.1 to Windows 95, this time there are no major underlying changes to how the operating system functions, so you’re unlikely to see titles that require Windows 98, and on older machines the $100+ could better be spent on a RAM or 3D card upgrade.—Denny Atkin

Playing Lately

CGW Survey *

<table>
<thead>
<tr>
<th>Game</th>
<th>Last Month</th>
<th>Months on Chart</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quake II (Id Software/Activision)</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Age of Empires (Microsoft)</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Jedi Knight (LucasArts)</td>
<td>3</td>
<td>4</td>
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<tr>
<td>Civilization II (MicroProse)</td>
<td>7</td>
<td>25</td>
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<tr>
<td>Wing Commander: Prophecy (Origin/EA)</td>
<td>8</td>
<td>2</td>
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<tr>
<td>Total Annihilation (Cavedog/GT)</td>
<td>6</td>
<td>2</td>
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<tr>
<td>Diablo (Blizzard/CUC)</td>
<td>4</td>
<td>14</td>
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<tr>
<td>Fallout (Interplay)</td>
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<td></td>
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<tr>
<td>Panzer General 2 (SSI)</td>
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<td>3</td>
</tr>
<tr>
<td>Duke Nukem 3D (3D Realms/GT)</td>
<td>24</td>
<td></td>
</tr>
</tbody>
</table>

* Check your mailbox. We mail a survey to 1,500 randomly chosen subscribers each month. The results of Playing Lately indicate what games readers are blowing the most time on, as opposed to the readers' overall “quality ranking” in the Top 100.

PC Data Best-sellers **

<table>
<thead>
<tr>
<th>Game</th>
<th>Last Month</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deer Hunter (GT Interactive)</td>
<td>1</td>
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<tr>
<td>Titanic: Adventure Out of Time (Cyberflix)</td>
<td>7</td>
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<tr>
<td>StarCraft (Blizzard)</td>
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<tr>
<td>Myst (Red Orb)</td>
<td>3</td>
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<tr>
<td>Star Wars: Rebellion (LucasArts)</td>
<td>5</td>
</tr>
<tr>
<td>Flight Simulator '98 (Microsoft)</td>
<td>6</td>
</tr>
<tr>
<td>Cabela's Big Game Hunter (Read Games)</td>
<td>8</td>
</tr>
<tr>
<td>Quake II (CD Win 95) (Id/Activision)</td>
<td>5</td>
</tr>
<tr>
<td>Age of Empires (Microsoft)</td>
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<tr>
<td>Riven: The Sequel to Myst (Red Orb)</td>
<td>4</td>
</tr>
</tbody>
</table>

** This list indicates what the top-selling PC games were, as calculated by PC Data, for March, 1998.

“Every Location Gorgeously Drawn and Flawlessly Textured”

—MSNBC.com

Actual screen captures from Rex Murphy:

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So let's go, soldier
Your country needs you.
MechCommander
Iron Cocoon No More

by Johnny L. Wilson

14th-century chronicler described a medieval knight as a “worm in an iron cocoon.” For fans of the Battletech universe and players of the MECHWARRIOR series of computer games, the vision of futuristic knights may be more like “worms in a ferro-ceramic alloy cocoon.” These fans are accustomed to looking out their cockpits in first person and taking in, as well as contributing to, the pyrotechnics exploding around them.

In MECHCOMMANDER, the universe gets a new perspective. Instead of commanding from a pilot’s couch inside a behemoth built for maximum destructive power, the player controls the action from a command module—seeing the situation from a satellite view and monitoring the action from an imaginary, third-person perspective. MECHCOMMANDER is true to the Battletech miniatures game than is the MECHWARRIOR computer simulation (whether on PC or in the popular Battletech Centers).

In other words, MECHCOMMANDER is another real-time, science-fiction strategy game in a market that is already crowded with real-time, science-fiction strategy games like TOTAL ANNIHILATION, STARCRAFT, COMMAND & CONQUER, and DARK REIGN.

MECHCOMMANDER does have the advantage of being set in the rich universe of the Battletech novels, specifically within the universe set forth in Michael Stackpole’s novel Grave Covenant.

Still, why would any non-Battletech aficionados want to play MECHCOMMANDER?

First of all, MECHCOMMANDER offers a different style of play from the other real-time games, as well as enhanced realism. At CGW, the real-time strategy games just listed are sometimes called “horde” games. In most of these games, you win by building up a massive army or horde of units and assaulting your enemy with an attack wave or, more likely, attack waves. Terrain—as one example of realism—has some impact in all of the games, but you don’t usually see the artificial opponents using it as well as you’d expect. Also, terrain doesn’t always impact speed and line-of-sight as much as you’d expect. Further, even in real-time games involving armor, facing (that is, the direction a target unit is facing) doesn’t usually matter. Although armored units have maximized front armor to the detriment of side and rear armor for as long as tanks have had treads, most real-time games ignore the impact of armor, further reducing the “realism” (a strange word when dealing with fictional futures) of the combat.

The Difference Engine

In horde games, those levels of realism probably don’t matter as much as in a tactical game like MECHCOMMANDER. That sort of realism also might not be practical in a game where mass-produced units might not last for more than a few seconds. That’s not the case in MECHCOMMANDER. You guide a limited number of persistent pilots and units throughout a campaign for the liberation of Port Arthur, a planet in the Smoke Jaguar territory. With a more narrow focus, MECHCOMMANDER can afford to indulge in all those options for increased realism.

To succeed at some missions, you’ll need to avoid combat, either by making use of superior speed or more-efficient sensors. You’ll also have to effectively use terrain as cover.

At times, you’ll have to deform the terrain (by burning forests or stamping down trees) in order to accomplish certain objectives, such as throwing off enemy sensors, avoiding enemy lines-of-sight.

BARNSTORMING Some missions require your squad of mechs to defend terrain like this barn, currently under siege by Smoke Jaguar vehicles.
taking out enemy units through collateral damage, or creating a shortcut through an obstacle.

For example, in the second mission in our prerelease build, your squad of mechs lands in a forest. You’ll eventually have to burn down a section of forest in order to reach your objective. Before doing that, however, you can use the trees to keep the armored cars and J. Edgars (heavier armored vehicles) away while picking them off with your long-range and medium-range weaponry. Burn down the terrain too fast and they’ll have an unobstructed path to your mechs, inflicting unnecessary damage that could hinder your chances against the scenario’s main opponents: tougher mechs. Since salvaging from enemy mechs offers the chance to pick up some of the superior technology from the clans, you may not want to destroy the enemy mechs completely.

To win the battles, you’ll need to efficiently choose between the different available weaponry ranges and types. You’ll also need to use the combined-arms capacity of your 18 different mech types in order to win when outgunned. You’ll even need to keep your mech pilots alive long enough to improve their targeting capabilities. And don’t forget to learn to flank and surround your enemies to take advantage of their weaker rear armor.

Naturally, the artificial opponents are programmed to avoid letting you get behind them. The game’s AI mechs are also very good at retreating in order to keep you at long range whenever they are armed with long-range weaponry. They don’t simply close and conquer.

**Unreal Time**

A further difference between MECHCOMMANDER and the leading real-time strategy games currently on the market is that while MECHCOMMANDER’s combat is in real-time, the resource management of individual mechs (purchase, repair, refitting, and weapon load-outs) is handled without the clock running. This will give you the chance to both savor an individual victory and get solid reports on your weapon systems, mech pilots, and the overall campaign.

Everything in the mission-briefing screens, mech-purchase screens, and mech-bay screens is handled elegantly with a “point, click, drag, and drop” interface. Further, every screen pictured in this management portion of the game is dynamic. It changes as you lose mechs, repair them, or strip them to support other mechs. Since you are part of a larger military force, the amount of resources you have to spend will depend upon the reputation you are building. As you succeed in each mission, your pilots gain skill and you gain the resource points that drive every purchase from weaponry to repairs to mech acquisition.

**What, Me Worry?**

Of course, as a BattleTech fan, I have a few worries. First, I’m not sure that the standard cloaked map makes sense in the BattleTech universe. After all, air support has been a major factor in the BattleTech universe since the battles of House Davion versus the Draconis Combine. In fact, given the existence of orbiting satellites, wouldn’t there be periodic updates to the fog-of-war?

Second, there are times when I’d like to have just a little larger scope, in terms of what I can see on the screen. My build didn’t offer a lot of zoom options.

Finally, there’s the question of the tech levels. It is purely abstracted in MECHCOMMANDER, but it is a vital part of the BattleTech paper game and the novels.

Nonetheless, I’ve been playing a version of the game in which the pilot development hasn’t yet been implemented and I’m still spending plenty of time in that universe. MECHCOMMANDER looks like the kind of game that BattleTech fans won’t dare let slip by, and the kind of game that tactical gamers of all kinds can’t afford to miss.

MECHCOMMANDER looks like it will bring BattleTech a little closer to the real. Let’s hope it succeeds in its mission.
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Commandos
Relive World War II as the Allies' Most Prized Crack Commando Team

by Elliott Chin

Do we need any more real-time strategy games? If they're going to regurgitate the same gameplay we've seen for the past three years, then no. But the answer will always be yes if the game adds something new and fun to this crowded genre. Thankfully, Eidos' newest real-time strategy game, COMMANDOS: BEHIND ENEMY LINES, does this. COMMANDOS—which Eidos plans to ship in July—is more like a smart, squad-level role-playing game than a mere COMMAND & CONQUER clone.

This Is Not Your Father's Real-time Game

The big difference between COMMANDOS and other real-time games is its gameplay. We've seen and played squad-level games before, in the forms of the hit X-COM and JAGGED ALLIANCE series. You know the drill: You command a team of specialized units, moving cautiously across a range of environments as you try to outmaneuver and kill your computer oppo-

ANTS. COMMANDOS' basic gameplay follows that same principle. You lead from one to six commandos, each with his own specialty, through obstacle-packed levels while evading enemy detection and trying to achieve your goals. Of course, should you be discovered, you can always engage the enemies. But be careful, because you aren't here to take the enemy head-on, and you're not equipped for that; your essential aim is to sneak behind enemy lines and attempt sabotage or espionage.

Sneakiness is key in this game. Your commandos are the only troops you'll get, and if one is gunned down, he's gone for the duration of that scenario. And because each commando has a special role, if one dies too early, that might mean you have to restart the mission. To avoid such an outcome, you have to learn guards' patrol patterns, sneak by guards, and either evade sentries or shoot them in the back. Occasionally you'll be spotted, and then you'll have to take cover, trading fire with the enemy while you find some way—perhaps by employing a flamable barrel near the approaching bad guys—to even the odds.

COMMANDOS' other distinction is that it's set during World War II. Your crack commando team is here to neutralize key German military installations on behalf of the Allies. You'll journey to the North African desert and to wartorn urban landscapes all over Europe.

Many of the missions you'll undertake are what you'd expect from a commando team—taking out radar installations, freeing POWs, eliminating key weapons facilities, and so on.

Surgical Strikes

The combat engine is fairly realistic, and line-of-sight plays a huge role. Since you need to sneak around, you must take advantage of what the German sentries can and cannot see. There is a handy hotkey that shows the sight cone of any single unit, and you'll have to time all your evasive actions to these moving cones.

While realtime enhances the do-or-die feel of the game's missions, it also presents some unique problems. The biggest difficulty is that you have to jump between commandos frequently, especially if they have different objectives or starting locations. This wouldn't be a problem if you could trust your commandos to behave themselves on their own, but they don't. If you leave one commando and jump to another, that first commando will stand dumbstruck. If anyone shoots him, he won't shoot back. And there's no way to get messages when your commandos are under attack or spotted. (An alert for when your idle soldiers are spotted would be a welcome addition to the game.) Further, you can't trust your commandos to pick the best path to a given location. In this build of the game, commandos get hung up on rocks and trees. (Eidos, however, is working on improving the pathfinding.)

A few other drawbacks turned up in the build I played. Although the graphics engine is pretty to look at, the speed has to be optimized. The game could benefit from a rotatable camera; sometimes I lost my commandos behind buildings. The line-of-sight needs tweaking; there were cases where I could draw a straight line to the enemy but couldn't fire at him because a little tree branch blocked my whole line-of-sight.

However, the mission design, WWII setting, and basic gameplay set this game apart. Overall, the game is incredibly promising, and if the company ironed out the wrinkles, it could become a real-time strategy sleeper hit. CGW
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DAWNING OF A
NEW AGE

Ensemble's Encore, AGE OF EMPIRES II, Advances to a New Era

by Ken Brown

By any measure, Ensemble Studios belted one out of the park with its 1997 hit AGE OF EMPIRES. To most real-time strategy fans, it was the best looking, most balanced, and, at times, the most vexing game to come along since Warcraft II. The game delivered a near-perfect blend of strategic and tactical considerations in an elegant interface that was accessible to everyone. It earned numerous awards around the world, including CGW's Multiplayer Game of the Year award, and, at the moment, it's on the verge of breaking the million-copy sales mark. Not bad for Ensemble's first game, eh?

Of course, AGE OF EMPIRES might've been a home run, but it wasn't Bruce Shelley's first time at bat. Shelley has been a game designer since 1980, and he served an important role as an assistant designer on Sid Meier's CIVILIZATION. In addition to designing RAILROAD TYCOON. (See the interview with Shelley on page 55). Beginning in 1995, Shelley began roughing out the design for AGE OF EMPIRES with co-designer Rick Goodman. During the ensuing two years, Microsoft and the development team at Ensemble put such a deep polish on the game that players still see themselves reflected in its gorgeous graphics as they boot up yet another random map to fail.

Age of Empires II

RELEASE DATE: Q1 '99
GENRE: Real-time Strategy
DEVELOPER: Ensemble Studios
PUBLISHER: Microsoft
the belligerent intentions of those evil priests.

But AGE OF EMPIRES II looks even better. The development team remains intact, it's just been augmented with new designers and programmers, and the new game's design is significantly more ambitious than that of the first game. Some of the new features include an entire economic game, historical campaigns, a larger scale, greater differentiation between cultures, deeper combat options, better AI, unit facing, new victory conditions, and all-new artwork. Clearly, this is not your typical game sequel. But will it preserve the accessibility and addictiveness of the first game? Let's take a closer look.

It Takes a Pillage

Players will once again lead one of several civilizations through four historical eras. But this time you'll play through the Dark Age, Feudal Age, Castle Age, and Imperial Age. You can choose from the English, Byzantines, Celts, Chinese, Franks, Goths, Japanese, Mongols, Persians, Saracens, Germans, Turks, and Vikings. Each civilization will have unique attributes, as in the first game, but Ensemble has tried to further differentiate the cultures by giving each one a unique unit. If disc space permits, units from different cultures may also have different speech prompts.

Shelly says the unique units will give the game more personality. "That unit is not just the waterboy, but the quarterback of your football team," he says. "For example, the Samurai warrior will have a bow and a sword. He shoots at you for a while, he rides, and then he closes up to your guy with a sword. That's something new. No one knows how to deal with a unit like that."

NEW CRUSADE Here are some units issuing from a castle in formation. Heavy cavalry in a wedge lead paladins, compound bowmen, crossbowmen, scorpion ballista, and battering rams.

Unlike in the first game, some of the civilizations in AOE II will be raider civilizations. The raiders—the Mongols, Celts, and Vikings—can move their town centers, and, although they can't build a

"The greatest pleasure is to vanquish your enemies and chase them before you, to rob them of their wealth and see those dear to them bathed in tears, to ride their horses and clasp to your bosom their wives and daughters." —Genghis Khan
wonder, they can certainly destroy one. Mark Terrano, the lead designer for AOE II, makes the raider obs sound endearing:

"They live in lean-tos that they can pack up into carts and move across the map, and settle down somewhere else. They have really poor resource gathering, but they can pillage—they go to your buildings and pillage things and try to get away with them. They can pick up your goods, and they can pick up villagers to take back to their town centers, and then they become their villagers. They steal right out of your treasury when they go into your marketplace. They’ll wreak havoc, take your stuff, and try to get away with it.

"Of course, you can attack them and get them to drop what they picked up. They don’t have much of an economy to build up, other than to explore around the map and find more stuff to raid. They’re slower to expand, but they should be kind of fun to raid with. Combat is your only objective."

No matter which civilization you choose, you’ll have to satisfy one of five victory conditions to win. These have changed from the first game to allow players to win through conquest, through the accumulation of wealth, by having the highest score, or by protecting a king or queen. You’ll still be able to win by building and defending one of four wonders.

**Getting Around Town**

The town center remains the central starting place and villager-production facility. You’ll now be able to produce military units from the town center to repel any early attacks. In addition, the all-male villager cast has been replaced with a 50-50 gender split, presumably boosting morale. You’ll need to provide housing for everyone, but Ensemble may let you expand the town center to house up to 50 people. To increase capacity, just build more town centers.

As your villagers start exploring, they’ll encounter new opportunities and new dangers. The lions and crocodiles of AOE I have been replaced with wolves. The wolves will stalk units for a while and attack if they see an opportunity. You can still hunt deer, but the new deer have antlers and look realistic enough to advertise for Hartford. You’ll also see flocks of birds wheezing through the air, and perfectly detailed dolphins leaping from the water.

Villagers will have better path-finding ability in AOE II, thanks to some programming changes. Lead Engine Programmer Dave Pottinger says that all the units—both human and computer-controlled—will know the lay of the land. As a result, if you tell a unit to go across an unexplored map, he’ll get there without getting blocked by terrain.

Villagers remain the basic production unit for gathering resources and performing other basic roles. But now they will be upgradable. With the advent of the loom, for example, villagers will be able to make cloth armor and manufacture trade goods (more on this in a moment). Villagers can also be used as farmers, and, thankfully, in AOE II you won’t need to keep throwing down farms—they’ll last as long as you can support them. Also, farms will spread across larger areas, but units will be able to traverse them.

**Hoarding & Trading**

Resource gathering and production are going to be more complicated than before. In addition to wood, food, stone, and gold, you’ll have trade goods and ore to worry about. Trade goods are produced at a trade workshop. Villagers assigned to a trade workshop automatically begin making trade goods, using one unit each of stone, food, wood, and ore. (The actual "goods" are generic and can’t be selected.) Ore essentially takes the role of gold in the first game. Higher-end units need ore for steel and iron in their shields and cannon. Gold has become the currency of the realm, and you won’t find it lying on the

---

**Model Village: A Closer Look at a Feudal Japanese Town**

- Temple
- Deer
- Stable
- Female Villager
- Janissary
- Trade Cart
- Market
- Wolves
- Mill
- Siege Workshop
- University
- Monk
Et Tu, Bruce?

An Interview With Bruce Shelly, Designer of AGE OF EMPIRES

CGW: What led you to become a computer game designer?

Bruce Shelly: I had been developing and designing boardgames for a number of companies since 1980. I played my first computer games in the late '70s. In 1988 I was hired by MicroProse to work on the database and 3D maps for F-19 STEALTH FIGHTER. I worked there for five years. For most of that time I was assigned to work with Sid Meier as his assistant designer. We didn't have job titles, but that is how I saw my job.

How do you define "fun" for a computer game?

Sid [Meier] once defined a game as a series of interesting decisions. I expanded that definition to require a competitive environment and a satisfying conclusion. The rocket-science stuff to me, though, is the interesting decisions. A good game presents decisions after decision to the player. To be interesting, they cannot be trivial or random. Pacing influences how interesting decisions are to make. Arcade games (and to some degree real-time games) would not be as fun if you had all the time you needed to take a turn or make a decision. Part of the responsibility of a game designer is to present decisions that are sufficiently interesting to a wide spectrum of game players, so the game sells well. Interesting decisions have been fundamental to making games fun for thousands of years and always will be, regardless of technology.

What were your goals for AOE II?

We believe that 12 to 18 months after the release of AGE OF EMPIRES people are going to want more of that experience. By then a significant number of people will have explored most of what the first game has to offer. We believe that a similar game—but in a new time-period with new artwork, buildings, units, technologies, and civilizations—will be a good thing for our customers, Microsoft, and Ensemble Studios. We will take the opportunity to learn from the first game and add some new features that improve the gameplay. We want to build on the success of the first game with more of the same, but better. We want to build a franchise of "AGE OF" games that people will look forward to and that give them a very satisfying entertainment experience for their money.

How has your role changed from AOE I to AOE II?

I am less involved at this point in AOE II than I was in AOE I. That is partly because we were starting from scratch the first time and beginning with a very successful base the second. I do not live in Dallas [Ensemble's location] and am not available on-site, other than about one week out of every month. Mark Terrano is the lead designer on AOE II and Ian Fischer is assisting. I am part of the design team, and I work with Mark and Ian on framing new concepts, but they are mainly responsible for the specification and communicating within the team. I am doing a lot of the research that underlies the game, and I am working on the historical notes, from which come many of our game ideas, civilization choices, and new units. Ensemble Studios would like to develop more than one game at a time eventually, so we want more people to get experience in the design side.

You indicated that there will be historical campaigns in AOE II. What will they be?

The campaigns and scenarios are still in the planning stage. Some ideas we are considering concern Arthur of Britain against the Saxons, the Hundred Years War (England versus France), the Crusades, the Vikings, the Mongols, the unification of Japan, and Charlemagne.

What sort of design challenges emerged as a result of progressing to the Middle Ages?

Concepts that we hope offer more of an opportunity than a problem include charging knights, immobile siege artillery (trebuchets and others), longbow archery barrages, the beginnings of gunpowder, a generally new paradigm for naval combat, Greek fire, the importance of castles, and barbarian raiders like the Vikings and Mongols. Since much of Europe reverted to a very basic tribal culture following the fall of Rome, starting with very little and building up continues to work.

Is there any truth to the rumor that Microsoft will integrate AGE OF EMPIRES V into Windows Millennium? Will there be a Bill Gates campaign?

Why wait? We would like to see AOE II bundled with Windows 98, but Microsoft is pushing back on that idea. We see it as a killer productivity app combined with a productivity killer app. We have gates in AOE II at this point, but not Bill Gates. Maybe we'll call open gates "bill gates," inviting the player to take the road ahead.

See much more of this interview online at gamespot.com/features/shelly.
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regenerate if they aren't exhaust-
ed. If you clear-cut the forest (as
we all did in AOE I), it'll never
return. But if you leave a few
trees, they'll continue to grow and
spread. The same goes for fishing
areas. This is just one example of
the attention to detail the team is
bringit to the project.

The Economic Game
The economic game in AOE II is
a major new component, and it
just might help
you in the
spousal rational-
ization depart-
ment, so it's
worth knowing.
There are also
some interesting
surprises.
Ensemble
received a lot of
feedback asking
for an alterna-
tive to the fight-
ing and blood-
shed of the first
game. The
game's pastoral
scenery and
peaceful vil-
geuses certainly
suggested an
economic path,

but, alas, it was the stone age,
and the only certainties were
death and axes.

The result is, you'll be able to
play AOE II purely as an economic
game, without raising armies and
going into battle.

Of course, business isn't
always friendly, and one would
presume it was even less civil in
the Dark Ages, but it is a viable
option, should you choose to go
that route.

PAINTED HORSE This Paladin, like all the units in both AOE

games, was built as a 3D object. The wire-frame views reflect
the level of detail in the 3D geometry. Ensemble's artists have
become so proficient at making these models that they can
usually do them in a day or two.

TRIBAL BY DESIGN Mark Terrano, Bruce Shelly,
and Ian Fischer (left to right) divide design
responsibilities. Terrano is the lead designer,
and he coordinates the art and programming
teams; Shelly reviews the design and does
historical research; and Fischer, the assistant
designer, keeps the design documents current.

BUILDING A SIEGE ENGINE After the
wire frame is built, textures are
applied to give the object realistic
coloration and shading. Then the unit
is animated for gameplay motion.
Finally, the unit is rendered, stray
artifacts are cleaned up, and it's
ready to be used. The whole process
takes about two to three weeks.
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The marketplace is the center of focus for economic players. You can effect two kinds of trade there: commodity trade and player trade. Commodity trade is when you exchange materials for gold at your own marketplace. This lets you buy materials like wood or ore. The more you try to buy, the more the price goes up, because each market has its own economy. Player trade occurs between players, via trade routes. Set up a trade route between any two markets or docks, and the carts or boats will go back and forth carrying trade goods out and returning with gold. You get income when people trade at your market, as well as when you trade at other players’ markets.

Be prepared for some surprises. There are not only wolves in the wild, but outlaws as well. Outlaws can attack your trade routes and carry off gold or goods.

But worse things than outlaws are eager to prey on you. "One of the things you can do to add some spice is hire mercenaries to go harass your economic opponent," says Lead Designer Mark Terrano. "You can go beat on his trade route and destroy and pillage his buildings."

Terrano's team is also experimenting with off-map trading, where you'll send your boats off the map with trade goods, in the hope that they'll come back with gold. He says, "You'll get a very good value for your goods, depending on how risky that trade route is. We've experimenting with that. We wanted to have an economic option, if it's a two-player game, to have a third player who's not on the map with whom you can trade. So you send your boats off to explore a trade route, and then you get to pick which trade route you want."

My Name Is Inigo Montoya...

How has the combat changed in AOE II? Let me count the ways.... Since we've advanced to the Dark Age, all of the military units will

New Units in AOE II

HEAVY SWORDSMAN Good armor and a large shield make this unit versatile against archer and infantry attacks.

PIKEMAN Best used defensively to block areas and protect units, they are extremely effective against cavalry.

TWO-HANDED SWORDSMAN Gives up the shield to gain extra reach and attack power.

HAND CANNONEER This first gunpowder unit is slow to fire but has a strong ranged attack.

BOMBARD CANNON The "ultimate" siege weapon makes quick work of fortifications and castles.

WOLF This neutral unit hunts in packs, and mostly attacks lone units.

TEUTONIC KNIGHT A German superunit with a devastating hand-to-hand attack.

PALADIN An elite religious warrior, the Paladin is a skilled fighter and is nearly impossible to convert.

(More next page)
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be new. The basic fighting units are infantry, cavalry, archers, and siege units. Advanced infantry include spearmen, pikemen, swordsmen, heavy swordsmen, and two-handed swordsmen. The cavalry line progresses from scout to lance cavalry, knights, and paladins (religious knights resistant to conversion). The archer line has archers, composite archers, crossbowmen, and heavy crossbowmen. Siege units include scorpion ballista, mangonel, trebuchet, hand cannon, bombard cannon, and, perhaps, a battering ram. There are also special units unique to each civilization.

To help facilitate production, Ensemble has added the unit queues and gathering points that have become standard equipment on most real-time strategy games. They've also added retreat points, where you can have monks standing by to heal your injured troops.

There'll be new settings to give you greater control. Ensemble has replaced the ineffectual settings in AOE I with three new aggressiveness stances: passive, defensive, and aggressive. Passive units will not attack unless others come within range; defensive units will rush forward to engage, but will return to their station when the threat is past; and aggressive units will pursue enemies until they lose them, destroy them, or die trying. Expect the basic units to be smarter and easier to control than those in AOE I.

In addition to the stances, you'll be able to give your units orders, such as follow, scout, or patrol. Units ordered to follow will track

**KNIGHT** These swift and deadly mounted units use a lance on the battlefield.

**SAMURAI** A unit unique to the Japanese civilization, the Samurai attack and move with amazing speed.

**OUTLAW** A neutral unit, the outlaw—like Robin Hood—preys on trade units with the intent of theft, not killing.

**AXE THROWER** This unit hurls an axe a short distance, but with incredible force.

**JANISSARY** The military elite of the Turks—they were disciplined troops who lived only for battle. They terrified their opponents with sound (drums and horns) as well as their fighting prowess.

**DERVISH** The Saracen elite fighting unit has a devastating attack against heavily armored units.

**CROSSBOWMAN** Though slower than an Archer, these units train quickly and have a good ranged attack.

**MANGONEL** A small field weapon that uses tension to fire a head-sized stone, it is effective against slow-moving units and buildings.

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other units and try to stay out of their line-of-site. You can follow villagers back to their town center, or you can follow trade units and fishing boats. Units ordered to scout will explore areas and signal you if they detect enemy activity. Patrol lets you use waypoints to patrol a designated area—around a city or up and down a narrow crossroad.

Time to Die, Cur!

Combat should be very interesting in AOE II. You'll be able to assemble your troops in formations such as a line, column, square, or wedge. This will provide a greater sense of historical realism, as well as facilitate battlefield management. It will be a nice change from the chaotic melee combat of the first game. Ensemble is still working on the troop formations, but they sound committed to supporting multiple rows of combatants. Says Bruce Shelly, "Obviously, people would like to see swordsmen out front and archers behind them, with a priest in the middle, in a kind of wedge—going around like a giant meat slicer."

But there are even more intriguing possibilities. Now that Ensemble will be modeling unit facing, you'll be able to inflict 25 percent more damage to the flank and 50 percent more damage to the rear of your opponents. This means you'll be able to sweep in your cavalry from the side, roll up an enemy's flank, and inflict severe damage to his formation in a pseudo-historical, real-time battle. Is this a cool time to be a computer gamer or what?

Ensemble has vowed to significantly improve the combat AI, which was one of the most criticized weaknesses of the first game. The company has hired two new programmers, and part of their responsibility is schooling the units. Says Terrano, "The unit AI is certainly an area we're going to focus on. We're going to make units smarter. Your siege engines won't fire in the middle of your formations. And we'll definitely allow the player to set aggressiveness stances for the entire formation or for individual units within the formation." In addition, you can expect the enemy leaders to be fairly adept at formation tactics. It's one of the priorities on Engine Lead Dave Pottinger's list.

Storming the Castle

There comes a time in every despot's life when he has to conquer foreign cities. Their rulers can be a little touchy about these things, so they sometimes build castles and fortifications to discourage attackers. In fact, the fortifications in AOE II are imposing: the buildings are larger and lend a better sense of perspective, the towers are larger, and the portcullis can be lowered on your enemies' virtuous heads. You won't find archers on the battlements, which is disappointing, given their realistic appearance, but you will encounter archers in castles and towers. And if you're vulnerable, beware of garrisoned infantry that can sortie out at any moment.

In such cases, the best-dressed gate-crashers learn to be prepared. You can find out how many archers are lying in wait with the aid of spy units (dressed like villagers). You can also hire a horde of mercenaries to go beat on the back door for a while and try to divert the enemy's attention. You can then roll up a few giant trebuchets and hurl some nice greeting cards into your friend's house. If the defenders are dead-set on staying, you might also be able to try making your own door with a battering ram. Expect heavy casualties on both sides, as was the case historically. Given enough time and enough men, the attacker may have the advantage with his powerful siege weapons, but the defender has the benefit of healing garrisoned units. Churches and castles can house quite a few units, and they heal them much more quickly than does a monk in the field.

Siegecraft might be a little easier if you rule a culture sophisticated enough to develop the cannon. The same holds true for naval vessels: some civilizations will be able to develop ships equipped with cannon in the bow and stern.

Waiting for Battle

I've tried to cover the most important aspects of the game, but I'm afraid there just isn't enough room to cover everything. As you can see, the design spec for AGE OF EMPIRES II is more ambitious than that of most sequels, and judging by what I saw during my visit to Ensemble—not to mention the design team's track record—it's a safe bet they'll implement most of what they showed me. But do keep in mind the game is months away from completion (which is estimated to be early next year), and some features may not survive the final cut.

In the meantime, save your gold, study your formation maneuvers, and be ready when the fated day dawns to slaughter the infidels—for God and country! CGW
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conussions, contusions, lacerations, jammed or sprained digits,
carpal tunnel syndrome, electrical burns, compound fractures, cranial
fractures, maxillofacial fractures, choking, maiming, gunshot wounds, evia-
ceration, dismemberment, removal of my spine, disembowelment with a
spear, fatigue, soreness of the buttocks, whiplash, collapsed lungs,
kidney failure, seizures due to strobing, nose bleeds, ringing ears,
detached retinas, hair loss and/or flatulence as a result of the
overwhelming and dumbfoundingly realistic 3D graphics capabilities
of multimedia systems equipped with the Savage3D Chip.

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Seemingly Lost for Years, World War II Flight Sims Have Returned in Force

by Denny Atkin

Many simulation players feel that World War II is where the real action is. Unlike in today’s high-tech jet simulations, which are as much exercises in computer-systems management as in dogfighting, WWII air combat was up-close and personal. Rather than mastering the intricacies of radar or learning how to get missile lock, the WWII pilot had to rely on quick reflexes, situational awareness, and pure maneuvering skill to put his guns on the bad guys.

Despite the more personal—and some would say more exciting—feel of WWII combat, for years the era has been ignored by software companies. Certainly, there have been some good online multiplayer WWII sims, but for single-player action, sim players were limited to AIR WARRIORS II and III (which wedged solo play into a design optimized for online flight) or now-dated classics such as FIGHTER DUEL and 1942: PACIFIC AIR WAR.

Software companies finally saw the pent-up demand and started work on a variety of WWII sims over the course of the past year or so. And come this fall, WWII sims will be even more abundant than F-22 sims on store shelves.

Given the major advances in technology that have taken place since the releases of such classics as PACIFIC AIR WAR and ACES OVER EUROPE, World War II air combat will be a whole new ball game. With today’s hardware, you can look forward to more planes in the virtual skies, more realistic flight models, better artificial intelligence, and, of course, dazzling 3D graphics.

In this, CGW’s exclusive WWII sim round-up, you’ll find information on 11 new sims slated for release between now and early 1999. So no matter what you look for in a simulation—historical realism, maximum dogfighting action, ultra-realistic flight models, or the chance to change the course of the war—we’ll show you which WWII sim is in the works for you.
Combat Flight Simulator

Microsoft Finally Puts the Guns to FLIGHT SIMULATOR

Way back in early 1997, when I first heard that Microsoft was going to do a World War II combat simulation based on the FLIGHT SIMULATOR engine, I have to admit that I was not enthused. After all, even with yearly upgrades, FLIGHT SIMULATOR was starting to show its age. Plus, the engine could barely provide the frame-rates to convincingly pull off sightseeing in a Cessna, never mind dogfighting in a Spitfire.

To say I was pleasantly surprised when I visited Microsoft to spend some hands-on time at the controls of the game code-named "Spitfire," then, would be an understatement. MICROSOFT combat flight simulator is definitely not just FLIGHT SIMULATOR with hotter planes and working guns. The development team has done some serious re-engineering of the game's engine to optimize it for historical air combat. With a redesigned terrain system, an optimized 3D engine, innovative AI pilot programming, and unprecedented expandability, COMBAT FLIGHT SIMULATOR looks like it may just have what it takes to carve a significant niche in the soon-to-be-crowded WWII sim market.

Combat Revisited

Longtime fans of flight simulations will remember that FLIGHT SIMULATOR was not always such a peacable game. In its earliest incarnations, the game included a World War I air combat scenario. It was nothing spectacular—you basically chased a tiny wire-frame biplane across a small, flat landscape—but it was a pleasant diversion to occasionally have the chance to shoot at something when you got bored with trying to find VOR radials. And compared to the other sims of the day, it wasn't that primitive. But rather than updating that module to keep pace with dedicated combat sims, FLIGHT SIMULATOR's developers eventually pulled the minigame from later versions of the program.

COMBAT FLIGHT SIMULATOR has very little in common with that primitive early effort. Although there is some code in common with FLIGHT SIMULATOR 98, there's just as much here that's new. Set in the European theater of war, the sim allows you to fly a variety of fighter aircraft in two campaigns. An optimized 3D engine and a new terrain system make for a more realistic combat environment. But what will likely separate this sim from the pack is something brought over from FLIGHT SIMULATOR: the ability to import user-created aircraft, scenery, and scenarios. Given the hundreds of aircraft and scenery areas available for COMBAT FLIGHT SIMULATOR'S peacemaker civilian counterpart, one can only imagine the potential amount of third-party support this historical sim will garner.

The sim focuses on fighters, and in various campaigns you'll be able to fly the Spitfire Mk. I, Hurricane Mk. I, Messerschmitt Bf-109E, Messerschmitt Bf-109 G, Focke Wulf 190 A8, P-47D Thunderbolt, P-51D Mustang, and the Spitfire Mk. IX. In addition, there will be about 30 computer-flown aircraft, such as the B-17F, B-24J, Mosquito, Ju-88A, and Hawker Tempest.

Each of the player-flown aircraft will feature a full cockpit with authentic instruments and instrument layouts. Instruments will use appropriate measuring systems, such as kilometers per hour. So if you plan to fly non-American aircraft you'd better brush up on your foreign rules. If you were disappointed with the virtual cockpit in FLIGHT SIMULATOR 98, which was terribly slow and didn't feature instruments, fear not. The virtual cockpit here pans very quickly, and features a full suite of working instruments.

INSTRUMENTS OF DESTRUCTION COMBAT FLIGHT SIM will include detailed bitmapped instrument panels for each plane, as well as virtual cockpits with functioning instrumentation.

SHATTER DAY Planes will come apart if you hit them right, with multiple parts spinning to the ground. LITTLE FRIENDS As you take the flight to Germany, you'll escort B-17s and B-24s in the long-range P-51D Mustang.

FACTORY FRESH Ground objects in the sim exhibit a realistic scale; look for plenty of historical buildings around London, Paris, and Berlin.

COMBAT FLIGHT SIMULATOR

RELEASE DATE: Q3 '98
DEVELOPER: Microsoft
PUBLISHER: Microsoft
Situational awareness is one of the biggest limitations in flight simulations. In a real WWII plane, searching for enemies was a simple matter of continuously pivoting your head around looking for bogeys. (Trivia point: "bogeys" are aircraft of unknown affiliation; "bandits" are planes that are definitely enemies.) A computer screen shows only one direction, and has much narrower field of view than do human eyes—limitations a good simulation compensates for. COMBAT FLIGHT SIMULATOR should please players no matter what their view system preferences. Along with a virtual-cockpit padlock view, there's also a very complete set of fixed views.

Although the view system is based on the keypad-controlled layout popularized by AIR WARRIOR and WARBIRDS (which is quickly becoming a standard, happily making for one less set of commands to learn when flying a new sim), it's actually more flexible than that old layout. Also, the COMBAT FLIGHT SIMULATOR view system features new view combinations such as 45 degrees up/right. As with its civilian counterpart, COMBAT FLIGHT SIM will allow you to fully customize all keyboard and joystick functions.

Because of the role that just spotting the enemy played in WWII air combat, the sim's designers have also tried to give the enemy pilots realistic situational awareness. AI pilots have realistic field of view, which is broken down into six arcs, and their spotting is affected by the sun and cloud layers. There are five AI skill levels; expect the more talented AI pilots to do a better job of scanning the skies around them. Just like real pilots, the AI flyers can become target-fixated. If you spot a BF-109 closing in on a Spitfire, for example, there's a chance he'll be working so hard to get on the tail of his target that you'll be able to sneak up on him unnoticed. Similar attention is given to the abilities of gunners in bombers. The firing arcs of the various guns in a B-17, for instance, are based on a diagram that was issued to German pilots who were likely to encounter the bomber.

**Model Citizens**

There's a legion of civilian sim fans out there who swear by FLIGHT SIMULATOR 98's flight modeling. I've always found it a bit touchy to fly the Cessna in the civilian sim than to fly a real small aircraft (although the high-wing demon can be tamed through careful tuning of the sim's control settings), and trimming aircraft for level flight is far less natural in the sim than in the real world. I was happy, then, to see the tuning that has gone into COMBAT FLIGHT SIMULATOR's flight models. The planes are displayed as touchy as you'd expect from a WWII sim, but not more. There are toggleable concessions for more casual players, such as automatic trim, but there's also plenty there for the expert pilot. Because of the prop and torque, for instance, aircraft will have different lift-turn tendencies. In some early-war aircraft, such as the Spitfire Mk.1, the engine will cut out if you push the nose down into negative G forces, or if you fly inverted for too long. The sim uses a new piston engine model that supports supercharging, critical altitude, and different prop directions. Drag from a windmilling prop is now simulated, and atmospheric and weather conditions can affect engine performance. Look for detailed simulation of some of the problems of high-speed flight, such as airflow reversal and compressibility.

Of course, gathering the data to insure proper performance for aircraft more than five decades old isn't easy. In fact, Mike Schroeter, the team's flight model guru, said part of the fun of developing this game has been learning to understand the engineers from the '40s. Among the information the team dug up was original wind-tunnel data, engineering documentation, and pilots' handbooks, as well as anecdotal data from pilot reports. They even obtained reports from NACA's (the predecessor to NASA) testing of captured BF-109s and FW-190s.

AI pilots use the same realistic flight models that you do. Don't expect to see any "super" maneuvers from the computer-piloted planes. The sim actually simulates the position the AI pilot is moving the control stick of his plane to and then applies the flight model to that control input. Do expect to see computer pilots utilizing the strengths of their aircraft. They're aware of their energy state, and better pilots are likely to turn or boom-and-zoom as appropriate to the combat situation. Although there are five AI skill levels, expect a realistic mix of pilots. Even with everything cranked up, you'll see a mix of aces, good pilots, and newbies.

The action will lean toward furballs, with lots of "many on many" encounters. Computer pilots use a sophisticated process to logically determine which targets to go after, taking into account distance, the energy situation, direction of travel, and whether other friends are already on the target. And, of course, if a juicy new target suddenly appears, they can change their minds. Some AI details, such as whether severely damaged planes will make a run for home, are still being worked out.
Mission Critical

COMBAT FLIGHT SIMULATOR will offer two campaigns. One is set during the Battle of Britain, in which you'll be able to fly for England or Germany, and the other in the later air war over Europe, where you can fly as a German or American pilot. Each campaign is broken up into three phases, each phase consisting of eight missions.

Pilots for the Allies start the Battle of Britain campaign assigned to a Spitfire or Hurricane squadron. The first phase of the campaign is the war over the English Channel, followed by the Axis attacks against aircraft factories. Finally, you'll defend the skies over London during the Blitz. The second campaign starts with "Close Escort," missions from England to France and Germany, in which you'll be tasked primarily with escorting bombers (or shooting them down, if you're flying for Germany). The second phase, "Free to Roam," lets you strafe fields and targets of opportunity after you've escorted bombers out of danger. Finally, "Closing In on the Reich" focuses on fighter/bomber missions over Germany in the last phase of the war.

Microsoft is trying to stick as close to history as possible with these missions. They're based on real mission records from files found at Wright-Patterson Air Force Base, as well as a variety of other sources. The airfields, times and dates of the missions, and aircraft used are accurate whenever possible. Of course, while finding records of flight makeup, squadrons, and the like wasn't too difficult for the RAF and U.S. missions, it proved more difficult from the Luftwaffe side.

In addition to the campaigns, there will also be a series of single missions, as well as a quick-action mode that lets you set up a combat situation, such as an attack on enemy bombers, and jump into the action. However, the missions are scripted, so what do you do after you've played through all the campaigns from every side?

By the time you get to that point—if the third-party support for this sim's civilian counterpart is any indication—you're very likely to find a host of new missions available on the Internet, created by other COMBAT FLIGHT SIMULATOR users. There's no graphical mission-creator interface, but Microsoft is making a software development kit available (possibly even before the sim's release) that will include details on mission building (as well as on converting FLIGHT SIMULATOR 98 aircraft, and on creating terrain). Mission data is actually stored in a fairly easy-to-understand text file (which can be created in Excel or manually), containing actions, waypoints, formation instructions, ground unit details, mission summaries, and so on. Actually, there is a way to get an almost-graphical interface, at least for locating waypoints: Mission designer Kris Shanker uses Microsoft's Encarta Virtual Globe product to place pushpins at each waypoint, and then takes the data from that program to assign waypoints for Allied and Axis aircraft. Third-party commercial and shareware mission editors are also likely if the game is successful.

In addition, you'll be able to bring in aircraft designed for FLIGHT SIMULATOR 98 with minimal modifications. I watched as one of the team members replaced the B-17s in one mission with the 737 from FLIGHT SIMULATOR 98, after performing a simple file copy and a quick edit of a mission file. While FW-190s attacking 737s is likely to be only a briefly amusing diversion, the real potential here is that the huge library of combat aircraft available for FLIGHT SIMULATOR 98 can be quickly brought into COMBAT FLIGHT SIMULATOR. Of course, aircraft created with FLIGHT SHOP may not have the flight model and damage fidelity of the built-in planes; but it's hoped that Microsoft will release all the details on the updated aircraft.
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Simulation Game of the Year
-Computer Gaming World, March '98

Simulation of the Year
-PC Gamer, March '98

Special Achievement in Graphics
-PC Gamer, March '98

Gamecenter’s Sim of the Year
-CNET Gamecenter, February '98

Simulation of the Year
-GameSpot, February '98

Reader’s Choice: Sim of the Year
-GameSpot, February '98

Simulation of the Year
-Online Gaming Review, January '98

Kick Ass Product
-Boot, February '98

Best Simulation
-Computer Games Strategy Plus, February '98

Reader’s Choice: Best Sim
-OGR, January '98

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format so talented third-party designers can create aircraft that fly as well as the ones that come with COMBAT FLIGHT SIMULATOR.

**It's the Little Things**
There are a host of other enhancements to the engine to optimize it for the combat regime. Of course, one of the biggest concerns is frame-rate—the screen updates in FLIGHT SIMULATOR 98, on most systems, were far too slow for combat play. The good news is that a number of changes have been made to the 3D engine to ensure good performance on a wide range of systems. In fact, the pre-alpha version I flew was managing over 70 frames per second on a mid-range Pentium II (in an area with fairly simple scenery). When all the details and AI are implemented, frame-rates will slow down a bit. The team’s goal is to maintain 15–20 frames per second in software mode on a low-end machine, and 30–50 on a faster machine equipped with a 3D card.

Some of this performance boost comes from the new ground-texture system used in the sim. Mapping the ground with satellite imagery proved to be a major performance inhibitor, especially on 3D cards with only 2MB of texture memory. The engine now uses creatively titled “generic” textures in most areas. While not as exacting as satellite imagery, the textures are based on real terrain data, so you’ll see rivers, farmland, cities, and towns in all the right places. They’re also wrapped over accurate elevation data. Textures are now 16-bit color, and transition textures put an end to the sharp breaks between terrain tiles you’ve seen in earlier incarnations of the game’s engine. The game’s appearance is further enhanced through the placement of 3D objects and hand-crafted coastlines.

Another graphic enhancement is the damage detail. One annoyance of FLIGHT SIMULATOR 98 was that most of the planes remained intact after crashing. Not so here—planes shatter nicely. The team watched lots of gun camera footage from World War II to see how planes came apart, and they’ve done an admirable job of recreating that effect. Come in behind an enemy fighter and start firing and you’ll see flashes as the bullets hit, as well as small fragments of the plane streaming off the wing. Hit the target just right and you may saw off the wing and be rewarded by an explosion as the plane comes apart at the fuel tanks.

COMBAT FLIGHT SIMULATOR’s damage model is very detailed, and individual systems or flight controls may be knocked out, depending on where you hit. Alpha-blended smoke will pour out of damaged engines—it’s even white or black, depending on whether the engine or cooling system was damaged.

While Word and Excel users may be happy with an electronic manual, Microsoft learned with the release of FLIGHT SIMULATOR 98 that sim pilots want paper documentation. You can look forward to a 224-page document containing historical background, combat tutorials, and, of course, program operation information.

**Reach Out and Shoot Someone**
Once you get the feel for the planes, you’ll want to try COMBAT FLIGHT SIMULATOR’s multiplayer mode. Microsoft hopes to be able to support up to eight players in games over the Internet Gaming Zone, but that will depend on how things play out in testing. In addition to a free-for-all combat mode, there will also be team play. Particularly intriguing are plans to include the voice support introduced in MONSTER TRUCK MADNESS 2, which would allow you to communicate with your wingmen.

Even at this early stage of the game’s development, it’s evident that Microsoft’s COMBAT FLIGHT SIMULATOR is a significant product in its own right. It’s picking up the good points of FLIGHT SIMULATOR 98—the extensibility and years of flight model development—without bringing along much of the baggage of what’s essentially the most upgraded game in the history of computer gaming.
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Luftwaffe

Eagle Interactive’s German WWII Sim Comes With the Backing of a Company That Knows Simulations

Some may think the German Luftwaffe a controversial focus for a flight sim. But from the perspective of the sim pilot, it makes perfect sense. After all, it’s the only service in which you can realistically start the war flying a biplane and end your career at the stick of a jet fighter.

LUFTHAUFEN is being developed by Eagle Interactive, the designers of SABRE ACE. That product met with a cold reception amongst the core simulations crowd due to a number of factors, including a poor view system and publisher Virgin’s shortsighted decision to strip the realistic flight models from the game in a failed attempt to appeal to a wider audience. This time around, Eagle is producing the game for SSI, a company that understands flight sim players, and that has no problem with producing very realistic sims. Add to that Eagle’s careful attention to feedback from players of the earlier game and you’ll find a sim that’s likely to make gamers forget about the missteps in SABRE ACE.

Start to Finish

LUFTHAUFEN covers the longest time span of any of the games in this roundup: from the Spanish Civil War (in which the Luftwaffe developed the tactics that gave it such an advantage early in WWII) through the final defense of Germany. The game features training missions, a campaign mode, quick-combat custom missions, and two multiplayer modes.

The campaign is broken down into five segments. You’ll start flying biplanes in the Spanish Civil War, progressing to early-model BF-109s. Next is the blitzkrieg over France, where you’ll encounter a number of French aircraft never before seen in a flight sim, followed by the Battle of Britain. Then it’s off to Colonel Klink’s worst nightmare: the Russian Front, where you’ll start flying in the frigid conditions of January, 1942. Finally, it’s back to Deutschland for the defense of Berlin. Although the campaign missions are pre-scripted, Eagle is looking at a variety of techniques to introduce random aspects to the missions to add to replayability.

You’ll start in the Heinkel He-51 biplane, and then fly the Messerschmitt BF-109 D, E, F, and G models. Finally, you’ll get the chance to fly the Me-262 jet. Of course, you’ll see a wide variety of hardware (at last count, Eagle Interactive had 58 different aircraft models in the game) in the different campaigns. You’ll also see changes in pilot A: Opponents get progressively more challenging as the war progresses, and you’ll have to deal with the influx of inexperienced pilots into the Luftwaffe. The AI pilots will take advantage of their aircraft’s particular strengths, and when they’re heavily damaged, out of ammo, or low on fuel, they’ll realistically break for home.

The Quick Combat mode lets you set up custom encounters against any of the sim’s planes, as well as ground-attack missions. There’s also a multiplayer mode similar to the Quick Combat mode. More intriguing, however, are the cooperative multiplayer missions, where groups of human players can fly for each side in a wide variety of historical missions. One side may fly P-51Ds in escort of B-17s while the other attempts to down the bombers using BF-109s and
The graphics engine will require a 3D card, and looks much better at low altitudes than the one used in SABRE ACE. Along with the snow-covered Russian front, you'll also fight over the mountains of Spain, Madrid, Toledo, Berlin, London, and other detailed cities.

Eagle Interactive's first effort started out with a lot of promise and ended up disappointing many due to a series of bad marketing decisions by its publisher. LUFTWAFFE looks ready to redefine the developer's reputation in the sim market, and with the support of the publisher who unleashed SU-27 FLANKER—the hardest of hardcore sims—behind it, this time the promises should be kept.

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**Crowded Skies**

LUFTWAFFE includes an amazing variety of aircraft, including a number of planes never before seen in a flight sim.

### Flyable Campaign Aircraft

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<th>Aircraft</th>
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### Additional Network and Custom-Combat Flyable Aircraft

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<th>Polikarpov I-16</th>
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### Computer-Piloted Aircraft

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See who got to wear the King’s crown for day. Behold the winners of the casting call at www.gltgames.com.

All hail the true King, baby!
Nations
Psygnosis Gets Serious and Shows You the War From All Sides

Although Psygnosis has flirted with the simulations market over the years, the company's efforts have tended to be casual, arcadish efforts, such as AIR SUPPORT. Hence, NATIONS, a World War II sim being developed by the same Psygnosis division that gave us G-POLICE, should come as a pleasant surprise to serious sim pilots.

As the name implies, NATIONS is geared toward letting you experience the European air war from the perspectives of three of the major players: England, Germany, and the U.S. While the game has the flash and dazzle you'd expect from a Psygnosis title, the alpha version I tested showed promising customizability and realism.

Custom Combat
NATIONS will offer a campaign mode, instant action, and a very detailed custom mission creator. Cooperative multiplayer missions will also be included, tasking you with missions ranging from V1 buzz bomb intercepts and bomber escort to simple squadron-versus-squadron turbulences.

OUT OF THE SUN You'll be able to use sun glare to your advantage in NATIONS—it should come in handy in multiplayer dogfights.

Luftwaffe pilots will fly the Bf-109, Me-163, Me-262, and FW-190; and British chaps can choose the Spitfire, Hurricane, Typhoon, or Mosquito. Each plane features a detailed 3D virtual cockpit, complete with working rear-view mirrors in appropriate craft.

Flight modeling was impressive in the alpha version, with good modeling of energy, maneuvering, and departures. You'll also find convincing turbulence in stormy weather; a full particle system makes for very convincing rain. Look for some of the most accurate height-mapping yet seen in the terrain—Psygnosis wants to properly simulate combat down on the deck, so you won't see rapid, unrealistic jumps in elevation. You'll be able to hide from both AI and human opponents by using clouds and sun glare; the 3D volumetric clouds here look even more realistic than the super "puffy" clouds in EA'S FIGHTER LEGENDS. Real-time lighting means you'll be able take off before the sun comes up for dawn patrols.

The version I flew was still pretty preliminary, but it looked very promising. The team is hoping to wrap up the game before Christmas, although (of course) the release could slip into the first quarter of 1999. Look for a hands-on preview as NATIONS develops—it's definitely a surprise standout in this roundup.

Wings of Destiny

Unveiled at the 1997 E3 show, Psygnosis' WINGS OF DESTINY now looks as if it's not going to ship until early 1999. Targeted more at the casual sim buyer (although the pre-alpha I flew did have decent flight modeling), WINGS uses a 1940s comic book as the wrapper for its missions, with a story that unfolds as you progress. Once in the air, the missions are more serious—the sample mission I flew put me in a Bf-109 tasked with protecting Ju-52s dropping paratroopers into Allied territory from Hurricanes. Graphics are impressive, reminiscent of the 3D version of EF2000, but with a more vibrant color palette and far more detailed aircraft. The game will feature multiplayer support, although it will be limited to head-to-head and squadron-versus-squadron action.

DELAYED FLIGHT Set for release in 1999, WOD may appeal to the more casual WWII gamer.
WARNING: Getting stuck with the wrong Voodoo game board can be painful.

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Fighter Legends

Jane's California Team Breaks Out With the Most Impressive Visuals Yet Seen in a Sim

VIRTUAL NIRVANA The virtual cockpits have unprecedented detail, and all the instruments are fully functional.

As is the case with most of the sims in this roundup, FIGHTER LEGENDS: EUROPE 1944 is set in the European theater. But where most of its competitors send you on missions running the course of years of the war, FIGHTER LEGENDS concentrates simulating one battle in exacting detail. The game's 70-odd missions all take place over the first week and a half of the Battle of the Ardennes in December of 1944.

New Dimensions

By far, the most impressive aspect of FIGHTER LEGENDS is its visual engine. While all the games in this roundup look good, at this point in development only FIGHTER LEGENDS 2 comes close to matching the amazing visual detail of FIGHTER LEGENDS. The game's 3D-only engine will work on a system as limited as a Pentium 2000 with 32MB or a Matrox Mystique, but it can also take advantage of the features in a setup as advanced as a Pentium II with dual Voodoo² cards. On the latter rig, you'll be able to run the sim at an amazing 1024x768 resolution while maintaining a smooth frame-rate. The game supports all the major 3D APIs—Direct3D, OpenGL, and 3Dfx Glide—so you'll be able to use whichever one performs best on your machine. You'll be able to adjust detail levels as well, so whether you want to sacrifice frame-rate for impressive 3D clouds is up to you.

The attention to graphics detail is amazing, from 3D virtual cockpits with working instruments to shell casings flying out the bottom of wings as guns are fired. As planes are damaged, you'll see bullet hole textures, but they can also lose elevators and other control surfaces. Blow a plane apart and it shatters, with parts spinning...
to the ground. You can even tell which way an enemy pilot is looking by using the external view—the pilot's head follows the AI's scan direction. Sounds are impressive as well, and there are over 2,000 lines of radio calls—that's 2,000 for each language.

In the sim, you can fly the P-47D Thunderbolt, P-51D Mustang, P-38J Lightning, Spitfire Mk. IX, Bf-109G-6, FW-190A-8, and Me-262. Unlike the relatively simple flight models in this team's previous effort, the U.S. NAVY FIGHTERS series, the planes here have a full six-degrees-of-freedom model. There are other sims here, such as LUFTWAFFE, that are more likely to satisfy the hard-core purist, but aircraft performance promises to be fairly convincing.

**ALUMINUM OVERCAST** B-17s approach a target; check out the "puffy" clouds, which are realistically alpha-blended when you fly near them.

**LITTLE FRIENDS** P-38s protect B-17s from an FW-190. The mission creator will easily let you add more than 30 planes to a formation—the real limitation is your computer's horsepower.

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**CGW Interview**

**Bud Anderson: To Fly and Fight**

Clarence "Bud" Anderson flew two tours with the 357th during World War II, garnering a total of 16 1/4 kills. He later went on to work as a test pilot and he also flew F-105s over Vietnam. Today he can often be seen at air shows, flying P-51s with former squadron mate Chuck Yeager. Anderson provided some background on the P-51 for FIGHTER LEGENDS' video sequences. I talked to him in April about simulations and World War II combat in general. His excellent book, To Fly and Fight, is currently out of print, but it's well worth tracking down a used copy.

**CGW** Having spent a little time at the controls of an F-15 and a T-34, I realize that games can only simulate a tiny portion of the real experience. But purely from practicing in sims, I had the basics down in the real planes.

**Anderson** I think the trouble with the games is that they really need to balance realism with making them fun to play. If you made it fully realistic probably nobody would play it. It would be very difficult to fly. You just can't simulate the whole flying environment on a screen, a static situation. So there has to be that balance to make it interesting enough to keep people wanting to do it. You know, when you read about how realistic they are you have to take that with a grain of salt. Some of them are very good, though, a lot of fun to play.

**CGW** The biggest complaint I've heard from pilots is lack of situational awareness—looking at a screen versus being able to turn your head.

**Anderson** I don't know what the solution to that is on a little-screen simulator. I would say that probably is one of the biggest drawbacks—not being able to know exactly what's
random elements in missions, such as varying starting locations for units. Triggers let you set up things to happen when various other events occur, so missions can play out differently depending on player strategies.

Ground-level units aren't sitting-ducks—they have AI. Tanks will roll into enemy territory and engage. The editor can also be used to create missions for multiplayer play over Jane's online gaming center. When you're creating missions for others, you can hide enemy locations. You'll also find a Quick Mission creator where you can set up to four flights on each side, and jump into the action.

**FIGHTER LEGENDS** has a full complement of Jane's reference material, and there's a whopping 50 minutes of video, including a number of pilot interviews. While I did get some time with an early version, at press time (late April) the sim wasn't slated to go into alpha testing until around the very end of May, so a full-fledged preview would be premature at this point. Look for detailed, hands-on coverage in an upcoming CGW.

**CGW**

going around in your area. There are ideas on it. The games are getting really sophisticated. I can dial up some friend clean across the country, tell him to hook up, and he and I can go at it. God, that's incredible!

**CGW** Was there much of a difference between the B- and the D-model P-51s?

**Anderson** Yes. The B, of course, was the first production model with the Rolls Royce Packard Merlin engine, and it had a birch canopy. It had four 50 caliber guns, and they were mounted in the wings in a slant. Consequently, we had a lot of gun problems. Then we go to the D model, and that had six guns, and they were mounted vertically. And of course, it had the big bubble canopy. Now, to offset that canopy problem in the B models, we immediately modified all the Bs with what they called a Malcolm hood. And that was tremendous. It was, in some senses, better than the D canopy. You could stick your head out because the whole canopy was a fishbowl.

**CGW** In WWII, it sounds like you primarily faced Messerschmitt 109s and FW-190s.

**Anderson** Yes. As a matter of fact, I never saw any twin-engine fighters the whole war. Our group got into some of these battles where they just cleaned them up. I wished I'd helped. I think the only twin-engine airplane I saw was the Heinkel (He-111), an old Battle of Britain thing probably converted to a transport.

I later saw a couple of Me-262s—our group shot down 17 of those things, but I never did. This was getting on into the war and Yeager had already shot one down. Of course, he didn't tell anybody he got it with the gear down. He got it in the traffic pattern, which is not very sportsmanlike. But it's war.

**On the Battle Front**

The sim uses a branching campaign system, with about 70 missions. You can fly for either side, and your squadron's performance can affect the outcome of the battle. Top-notch newsreel video sequences play at strategic points in the game; if you do very poorly, you'll be treated to a newsreel (in subtitled German) showing Panzers rolling to victory.

There is also a series of single missions, as well as a full-fledged graphical mission creator. The mission structure addresses the chief complaints about mission creators in the USNF series: mission goals can now center on destroying a certain percentage of targets, rather than specific aircraft, and there can also be

**BANDIT HIGH** Bud Anderson says that tactics didn't differ much whether you were engaging an Me-109 or an FW-190.
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Behold, the day of the Lord comes, cruel, with wrath and fierce anger, to make the earth a desolation and to destroy its sinners from it.

Isaiah 13:9
European Air War

The Long-Anticipated Sequel to 1942: PACIFIC AIR WAR Is Getting Close...Really!

I'm not sure what it is with MicroProse's sims, but EUROPEAN AIR WAR has seen about as many delays and restarts in development as the fabled FALCON 4.0. It's been four years now since the release of 1942: PACIFIC AIR WAR, EUROPEAN AIR WAR's predecessor. The good news is that the current incarnation of EAW is far more advanced than the original design for what was going to essentially be an SVGA version of PAW. The even better news is that it looks as if it's really going to ship this time—MicroProse even provided us with a playable beta version, so we know it's real.

New Starts

A promising sign that this incarnation of EAW is on its way to becoming real is the addition of Tsuyoshi "TK" Kawahito to the development team as designer and lead programmer. Those of you who read game credits will recognize Kawahito as a significant contributor to the Jane's LONGBOW series. As this article went to press Kawahito and the team were working on beefing up the flight models—they'll be dramatically more realistic than those of PAW, with proper low-speed handling characteristics, compressibility effects on the P-38, and so on.

MicroProse is bucking the photorealistick cockpit trend embraced by other developers; EAW uses hand-drawn cockpits. That's not to say the graphics won't be immersive, however. I set up an instant-action mission against a flight of Bf-110s and suddenly found myself in the midst of impressive, semi-transparent bursts of flak exploding around me. Smoke was a bit cheesy in the early version, but the game's designers should improve it as they add special effects.

The sim features 20 flyable fighters from American, German, and British air forces. You'll find multiple models of some planes, such as both razorback and bubble-canopy versions of the P-47 and P-51. Other flyable craft include the P-38, Bf-109, Bf-110, FW-190, Me-262, Hurricane, Spitfire, Typhoon, and Tempest.

Dynamic Campaign

EAW is the only sim previewed in this feature that uses the holy grail of the hard-core flight sim fan: a dynamic campaign system. The world is persistent between missions—bombed targets remain destroyed—and new missions are based on the current war situation. You can indeed win the Battle of Britain for the Germans (or lose it for the British). In addition to the Battle of Britain, there are two other campaigns: Europe 1943 and Europe 1944.

There's also an impressive single-mission designer, which is simple, but effective. You can choose the time of day, your flight makeup, the makeup of other Allied and Axis flights, mission type, targets, and so on. Any of these can be random, offering virtually unlimited replayability. There's also a multiplayer mode, in which you and up to seven other players can participate in a variety of mission types—including search and destroy, interception, ground attack, and the like.

The interface feels very much like the MicroProse classic sims of years past, and, as you'd expect, you gather medals and promotions as the campaign progresses. Game briefings are in the appropriate language (and accent, if you're playing the British), with English subtitles. It's been too long since we've seen a sim from MicroProse Hunt Valley. From what we've seen so far of EUROPEAN AIR WAR, it appears they still have what it takes.
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Fighter Duel 2.0

The Premier Dogfight Sim Is Back, This Time With Real Missions

The FIGHTER DUEL series has a long heritage of top-notch graphics, superior flight modeling, and multiplayer support that goes back to its initial release on the Amiga. However, the sim has always concentrated purely on dogfighting, and has been weak in the mission department. That's about to change.

In addition to dogfight modes and single-mission types such as Scramble, Escort, and CAP, the game now features a branching campaign system. Although the sides are realistic, the missions have a historical flavor without necessarily being based on particular events. All missions are playable in either solo- or multiplayer mode.

Start to Finish

FIGHTER DUEL 2.0 includes a whopping 44 flyable aircraft (at last count), which range from the AT-6 Texan and Brewster Buffalo to the high-tech Me-262 and J7W2 Shinden jets. For the first time, there are bombers as well—albeit bombers with noses packed with machine guns, such as the Mosquito and B-25 Mitchell. The attention to detail is amazing, all the way down to landing gear that cycles precisely at the same speed and order as on the real planes. The 3D cockpits are top-notch, easily as attractive as those in FIGHTER LEGENDS.

A particle graphics system will make for impressive special effects, from smoke puffs when guns fire to explosions as planes come apart. Aircraft are very detailed, and you'll be able to customize the planes' paint jobs.

The graphics engine supports OpenGL and Direct3D, and has native drivers for 3Dfx (including enhancement for Voodoo2), PowerVR PCX2, Matrox, Rendition, and Pyramid 3D cards.

Look for more details about FIGHTER DUEL 2.0 in a full preview in an upcoming issue of Computer Gaming World.

Fighter Squadron

The Focus Is on the Fighting and Physics

FIGHTER SQUADRON: THE SCREAMING DEMONS OVER EUROPE, is a sim that puts you in a world a bit smaller than the real thing in order to get you right into the combat. With an unprecedented level of physics detail, a powerful-mission builder, and detailed terrain, it promises lots of fun to the dogfighter and test pilot alike.

If you flew A-10 CUBA, you know Eric Parker has a knack for physics. The detail is even greater here, as was evidenced when I shot down a plane and its detached wheel rolled across the landscape, eventually spinning to a stop like a quarter on a table.

More pertinent to gameplay is watching your wings flex as you pull heavy Gs—this is the first sim that lets you literally bend your aircraft. Many players will get hours of fun out of just shooting things to see what happens, or damaging their own planes to see how they fly. The game simulates 10 different planes: the U.S. P-51D, P-38L, and B-17G; the German Me-262A, Ju-88A, and Fw-190A; and the British Typhoon Mk. 1B, Lancaster Mk. II, Mosquito Mk. VI, and Spitfire. Parsoft's Open Plane Interface will allow the addition of third-party and shareware planes.

There are several areas—Dover, North Africa, and the Rhineland—are compressed in size, it will take 15 minutes to traverse the terrain. The goal is to get into combat quickly. Three campaigns are included, and the mission editor can be used to create solo missions or sorties for up to 16 players. Although it's running almost a year late, I think that the fall release date is possible.

www.computergaming.com

MEMPHIS BELLE This is the only sim we previewed that lets you fly heavy bombers.

STRAFING RUN The 3D instrument panels are simpler here than in some competing products, but they can even be viewed from outside the plane.

OH DAM A P-38 surveys the results of an enemy attack: damned dam damage.
You have only

It's your fault if you can't design and build battle-savvy units from scratch. Extreme Tactics offers a massive palette of design options giving you the chance to build the ultimate war machine.

And if you had any real talent, you'd take one of your inventions out for a spin against a friend and bust his real-time ass.

Look, you've logged countless sleepless hours playing traditional strategy games. It's time to take it up a notch.

EXTREME TACTICS
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Warbirds 2.01

Already an Acclaimed Game, a Direct3D Graphics Update Makes WARBIRDS the Online Sim of Choice

by John Nolan

It's an exceedingly welcome but, unfortunately, rare feeling to know that you're looking at a winner only 10 minutes after loading the beta version of a game. This is one of those times. Interactive Magic's WARBIRDS 2.01 is uncommonly good. Considering the daily refinements I've seen, it should be exceptional by the time it's released.

WARBIRDS is a well-established online WWII air combat game that accommodates up to 200 players from around the world in a single arena. Divided into four competing countries, players pay about $2 per hour to fill each other with lead. Free head-to-head play capability via Internet is also included.

The latest upgrade to the WARBIRDS franchise improves the game across the board. While Direct 3D capability (a 3D card is not required but does improve graphics) is headlined, in this download there's more than eye-candy alone. The flight models, which were already good, get better, cockpit art is completely redesigned with more functional gauges, and 11 new aircraft debut. This is a carefully thought out, well-executed advance in online WWII flight simulation.

Looks Good!
The Direct 3D capability delivers some of the best terrain visuals yet seen. From 1,000 feet it looks good, and from 5,000 it's outstanding. At very low altitudes it's a bit undefined, looking as if you're flying over mottled green frog skin, but you can easily judge your height without having to check the gauges. Sky coloring and cloud effects are exquisite, although you won't be logging any actual instrument time; this is still a visual flight rules (VFR) game. Aircraft interiors are superb, with translucent canopies, squadron markings, oil smears, and gun-smoke smudges. Many special effects are present: Gun barrels flash, torpedoes hit the water with realistic splashes, and flak explosions are just right. The light-sourcing effects as the sunshine slides down a turning wing are near perfect.

Some of the best graphics are not 3D at all. The 2D cockpits have been completely revised and improved. The colors are deep and true and the gauges, with bit-mapped needles, look just like the real thing. More instruments are available now: Working G-meters and oil-pressure and engine-temperature gauges help you perform to the max—as well as tell you when to run for home.

Feels Good!
The improved flight model makes the G-meter particularly welcome. The airplanes depart controlled flight into spins more realistically now and respond better to standard spin-recovery techniques. Monitoring airspeed and the G-meter will give you a much better feel for riding the edge. Now, the aircraft's overall feel is closer to actual flight; a plane's feel is properly sluggish at slow speeds and it requires trimming as speed changes. Take a Zero up a few thousand feet and do a few slow, coordinated barrel rolls; this is the way it's supposed to be.

While the new graphics and flight model tweaks steal the show, there's more in store. The 11 new aircraft are primarily variants of aircraft already in the game (for example, a new P-40B joins the existing P-40E), but two all-new Russian Yaks and the Me-262 jet also join the party. Even the game's sounds are new.

Is Good!
Beta versions of games are never rated, but when this story is finished, I'll relaunch WARBIRDS 2.01. Despite being tired, bleary-eyed, and hungry due to playing it non-stop for the last six hours, the craving just won't quit. It's that good. You should be able to try it for yourself about the time this article sees print. The program will be available for free download at www.imagicgames.com.

The Only Show in Town?
The online skies are beginning to look like Chicago's O'Hare at 5 p.m. on a Friday night: there are airplanes everywhere you look! For virtual pilots in search of WWII air combat, the Internet offers direct vectors to Kesmai's AIR WARRIOR II, Interactive Magic's WARBIRDS, and the newest challenger, Microsoft's FIGHTER ACE. If WWII action makes you itch for a silk scarf, AIR WARRIOR currently has a separate arena for that and a Korean-era choice as well. SimGulch has FLYING CIRCUS, another WWII game in free online beta testing, and Interactive Magic has a WWII simulation in development, as well.
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Other WWII Sims

There's a Squadron of Other Sims on the Horizon

The eight sims previewed in this feature are just the first wave of upcoming WWII sims. After a long drought, this deluge doesn't look as if it's going to stop any time soon.

There's good news and bad news from Sierra/Dynamix. The good news is that the company is now working on ACES OF THE PACIFIC 2, a modernized version of their classic Pacific simulation. ACES 2 is due for release in the first half of 1999. The bad news is that ACES: X-FIGHTERS, the intriguing "modify your own plane" design, has been pushed back on the schedule and will be released after the completion of ACES 2. More good news is that this delay is due to Dynamix's new commitment to finishing its sims: the X-FIGHTERS team has been tied up with major flight-model patches for RED BARON II, and they plan to release a 3D patch for that game this summer.

Believe it or not, CONFIRMED KILL is still in the works. In addition to the online component, which may be in testing by the time you read this, the Eidos team is also developing a stand-alone boxed version of the game for release late this year (or in early 1999); much of the technology from the shelved FLYING NIGHTMARES 2 will make an appearance here. More details in an upcoming CGW.

Finally, we hope to have details next month on FLIGHT: COMBAT, the first simulation from Looking Glass that will let you actually shoot things. The company is mum on the WWII sim for now, but the buzz we've heard is that the graphics and physics will make the same kind of impact on the market as did the original FLIGHT UNLIMITED.

Coming Next Month

Part II of our Simulation Roundup

In our next issue, we'll continue the flight-sim fest with coverage of all the post-World War II sims in the works. In addition to updates on titles such as MiG ALLEY and APACHE vs. HAVOC, we'll bring you a first look at the new F-16 sim from Novalogic, and an exclusive hands-on sneak preview of Jane's WORLD AIR POWER: ISRAELI AIR FORCE. This sim promises gameplay similar to FIGHTERS ANTHOLOGY, but with more authentic flight models, more realistic mission goals, and a richer environment. With some of the most authentic terrain we've ever seen, it's dazzling. And it's being developed by a team that includes active IAF pilots.

X MARKS THE DELAY ACES: X-FIGHTERS has been shelved while Dynamix works on Red Baron II enhancements and ACES of the PACIFIC 2.

CONFIRMED TO EXIST Eidos swears that CONFIRMED KILL will ship someday.

MIG MAYHEM In ISRAELI AIR FORCE, you'll face modern aircraft, such as MiG-29s, and dated planes, such as this MiG-17.

DESERT MIRAGE Set in modern times, ISRAELI AIR FORCE includes a range of fighters from the Mirage to the F-15I.

INSTRUMENTAL INTERLUDE Although it has some elements of a modernized FIGHTERS ANTHOLOGY, IAF's all-new engine includes actual instruments, such as this F-4 panel.
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GenX 700 by QuickShot is all that and more. This programmable stick comes complete with switches to move between digital and analog modes for the HAT, rudder, handle fire buttons and X & Y axes. Plus a 3D rotational handle and multi-view HAT switch. Your hands won't give out in the middle of battle 'cause this stick's super-ergonomic with a contoured BioThrottle™ complete with extra fire buttons. And the GenX 700 is a really cool metallic purple color—sure to look perfect anywhere.

But wait, there's more! Check out our streamlined GenX 500 and the extra-special GenX 500L—the world's first joystick made for lefties!

Punish yourself no more. Enter the generation of extreme control. GET THIS STICK!
HARDWARE
IN SEARCH OF THE ULTIMATE GAMING MACHINE

ViRGE to Go Gently Into That Good Night...

And there was much rejoicing, S3 has certainly taken its fair share of
lumps over its ViRGE accelerators.
The only chip in the industry to be
dubbed a "3D de-celerator," the
ViRGE’s 3D performance was
sorely lacking. Well, after briefly
circling the wagons, S3 is set to
unveil its next-generation accel-
erator: the Savage3D.
The Savage3D’s 3D core is
completely new. S3 threw out the ViRGE
architecture and started from scratch.
Actually, the card’s 2D core is the same as
the one developed in S3’s Trio3D chip-set,
but it should be more than adequate for
handling Windows 9x 2D GUI chores. On
the 3D side, the Savage3D has around
125Mpixels/sec of fill rate, which is 25 per-
cent faster than the anticipated fill rate of
Matrox’s upcoming G200, and
about 38 percent more than with
one 3Dfx Voodoo² board. S3 is
planning on the 128-bit, 125MHz
Savage3D supporting single-cycle
trilinear filtering, and being fully
AGP 2X-compliant.

If the Savage3D hits all these marks
upon its release, S3 could be a strong
force in the market. As soon as we can get
our hands on a reference board, we’ll let
you know how it fares. —Dave Salvador

Technology Horizon Watch

nVidia RIVA TNT This is nVidia’s next-generation
2D/3D graphics accelerator, which may well
out-perform two—yes two—Voodoo² boards
running SLI. The company anticipates that the
TNT will have a fill rate of 200–250Mpixels/sec, as
compared to twin Voodoo²’s, which are generally
in the 180–200Mpixels/sec range. ETA: Q3 ’98

3Dfx Banshee This is 3Dfx’s first integrated
2D/3D accelerator. Banshee will be 3Dfx’s first
large-scale entry into the lucrative OEM/system
makers’ side of the graphics business, where
about two-thirds of all graphics chips are sold.
Performance numbers on the as-yet-unnamed
part are very sketchy, but we’ve heard rumors
that its 2D performance will be very competitive,
which was a weakness in their Voodoo Rush chip-
set. ETA: Q3 ’98

FireWire Also known as IEEE 1394, this is a
high-bandwith bus (400MegaBits/sec, or
500MegaBytes/sec) that will support high-quality
digital video, hard-drives, and other storage
deVICES. All FireWire devices will be hot swapp-
able, meaning you can attach or detach devices
immediately and be able to use them while your
machine is still turned on. ETA: Q4 ’98

AMD K6 3D+ This is AMD’s next X86 CPU,
which will feature AMD’s own set of floating-
point instruction extensions designed specifically
to accelerate Direct3D’s geometry engine. These
new instructions could very well give AMD a
floating-point performance edge over Intel—an
industry first—at least until Intel’s Katmai
processors ship. ETA: Q2 ’98

Intel Katmai Katmai will be Intel’s next round
of CPUs, with anticipated clock speeds of
450–500Mhz. In addition to the higher clock-
speeds, Katmai CPUs will also feature what Intel
has clumsily dubbed ‘Katmai New Instructions,”
a name given to avoid calling these new instruc-
tion-set extensions MMX2. Among other things,
these instructions will speed up Direct3D’s
gometry engine (in DX6), which will allow the
Katmai to crank out more polygons per second.
ETA: Q4 ’98

Intel IA-64 Intel’s next-generation of
processors, the IA-64 will be a substantial depart-
ure from the company’s traditional X86 CISC-based
architecture. This new 64-bit CPU will use a new set
of Very Long Instruction Word (VLW) instructions,
and use a technology termed EPIC (Explicitly
Parallel Instruction Computing) to execute a num-
ber of instructions in parallel. ETA: Q4 ’99

Micronics Launches Righteous Gaming PC

Micronics, a longtime maker of
motherboards and add-on cards,
had decided to get into the sys-
tems business. Its first system, the
Righteous Game Machine, is targeted
right at hard-core gamers.
The Righteous Game Machine has an
impressive set of features: a pair of
12MB Righteous 3D IIs (using 3Dfx’s
Voodoo² chip-set), the Orchid NuSound
3D (which uses Aureal’s Vortex A3D
sound chip), and a Micronics 440BX
motherboard. The preliminary system we
looked at had a 400MHz Pentium II.
Some details, such as the primary AGP
card, hasn’t been finalized yet. Pricing
hasn’t been set, either.

As soon as we get the final product,
we’ll write up a full review. However,
based on what we’ve seen so far, the
Righteous Gaming Machine may have the
righteous stuff, indeed. —Loyd Case

THE NEW STANDARD? This graph illustrates the new 3D architecture used by S3
in its new Savage3D card.

Computing Gaming World • July 1998 115

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SCIENCE FICTION
THE YEAR IS 2829. IT IS A TIME OF GREAT DANGER AND DESTINY. FOR DECADES, THE EMPIRE HAS PREPARED FOR THE NEXT CYBRID INVASION. YET WE ARE NOT UNITED. MILITANT REBELS ON THE COLONIES OF MARS AND VENUS DISRUPT OUR PURPOSE AND BLEED OUR STRENGTH. THEY MUST BE CRUSHED.

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I Need Input!

**The Changing (Inter)Face of Game Controllers**

1998 will be a transition year for computer-game controllers. The arrival of Windows 98 will see real Universal Serial Bus (USB) support moving to the forefront. USB has many implications for gamers—not the least of which is a brave new world of game controllers. Macintosh users are no doubt chuckling knowingly, "We've had ADB for ages." Now if they could only get top-shelf games in a timely manner....

**The Hardware Side**

Back in the dark ages when the first IBM PC shipped, IBM saw fit to include the PC's game port as an option. This immediately made the PC a desirable gaming platform, and joysticks began appearing. The PC's game port, however, is an aging, flawed device, and one that often uses many CPU cycles in the game port polling process. The game port needs to be polled, because it measures the changing resistance presented by the joystick's potentiometers, yet transmits nothing directly to the system. On top of that, you have a maximum of four axes and four buttons. Newer devices have gotten around this problem, but it's all been something of a kludge, and it's no surprise that support for various digital optical game controllers is sometimes spotty. So, gamers need something more flexible and robust, and that's where USB comes into the picture.

Those with newer machines have no doubt seen on the back of their systems those two small connectors that don't seem to have any visible use. Intel began supporting USB in their chip-sets starting way back with the 430HX chip-set, although USB support was broken in some of the earliest motherboards. Microsoft took tentative steps toward USB in DirectX 3.0, then promptly broke away from it in DirectX 5.0. So USB has been something of a mystery to some users and a frustration to the few companies brave enough to try to ship USB peripherals.

430HX chip-set, although USB support was broken in some of the earliest motherboards. Microsoft took tentative steps toward USB in DirectX 3.0, then promptly broke away from it in DirectX 5.0. So USB has been something of a mystery to some users and a frustration to the few companies brave enough to try to ship USB peripherals.

**The Software Story**

Until Windows 98 shipped, the software story was far less robust. USB support in DirectX 3.0 worked, after a fashion. However, something mysterious happened in DirectX 5, and USB no longer worked properly, causing a number of vendors some anguish.

ThrustMaster finally developed its DirectConnect technology because they couldn't wait for USB to be fixed. Both Windows 98 and the upcoming DirectX 6 offer a more robust tale.

We need to begin the story with something the USB technology folks call Human Interface Devices (HID). HID hardware can consist of anything that users interact with, from mice and keyboards to game controllers to more exotic gear, such as VR helmets. A HID device-driver will have a set of capability bits (cap bits) that present to DirectX all the capabilities of the devices. These could hypothetically include number of axes, number of buttons, type of buttons (for example, toggle, hat), and so on. Since USB (and HID's) are digital devices, controller makers are no longer constrained by the number of axes supported by the lowly PC game port. In addition, USB promises to be less CPU intensive than the analog game port. So we have greater flexibility and efficiency—in theory.

This doesn't mean your analog joystick has to be tossed—the thought of discarding an expensive, nearly new, high-end controller is enough to make you choke. There will still be support in DirectX 5 for the good old analog game port. In fact, analog devices will still be supported as though they were HID devices (with some limitations) in DirectX 6. Plus, the VIJOY VX driver will...

**USB supports up to 128 devices on a chain. If only I had room on my desk...**

USB, as implemented on PCs, has a maximum throughput of 12MBits/sec. Let's put that in perspective: A CD-quality wave file (44.1kHz, stereo, 16-bit) takes up 1.4MBits/sec. If we then add a joystick that's sending out 2,000 16-bit words per second, that's another 0.031MBits/sec. At the same time, we'll also have an ISDN modem on the same bus, connected to an ISP using STAC data compression, which adds about another 0.5MBits/sec. This means that even a lot of peripherals on USB won't saturate the bus. This concept is illustrated in the graphic at right.

New disk interfaces, digital video, and other high-bandwidth applications that are too demanding for USB will use IEEE 1394, also known as FireWire. This means that they would blow the 12MBits/sec of the USB bus. So, USB can't do it all. But it can do a lot, and it does it well.
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- Brag about your full AGP2x performance?
- Couch surf with DVD video and PC to TV displays?
- Ride the 128-bit DualBus?
- Thank God you didn't buy that expensive 3D-only card?

> Answer "YES" to everything this summer with MGA-G200. For more information, visit our web site at www.matrox.com/mga
continue to exist, so your old Windows 95 games will run as well. (Keep your fingers crossed.)

The issue of multiple controller support becomes much easier with USB, since it can support up to 128 devices on a single chain. Each can (if the hardware developer supports it) daisy chain to another device. Connections can become a bit more convenient, through the use of USB hubs. That way, you can have a single cable coming out of the back of your computer into the hub, and multiple devices (joystick, throttle, rudder, MFD controller) all linked through the hub. There's even the potential for more robust wireless devices.

Brave New World

Of course, I don't necessarily recommend that you rush out, buy the Windows 98 upgrade, and begin hunting for USB controllers, since many aren't even out yet. But 1998 will be the transition year for digital controllers, and by this time next year, many of us will have full USB setups on our desktops. Now if only I had room on my desk for all this stuff....

**Tech Tips**

**ThrustMaster Pro Panel**

If you're using joysticks or analog gamepads, do yourself a favor and head over to the ThrustMaster Web site (www.thrustmaster.com) and download a copy of ThrustMaster's Pro Panel. It installs into your control panel, and is a somewhat easier-to-use and downloadable alternative to Microsoft's Game Controller control panel.

**Multiplayer Support**

If you want to hook up two controllers to play multiplayer (and you don't have those cool new gamepads that daisy-chain), then get a joystick Y-cable. Note that to work properly with many sound cards, you need to get a Y-cable specially designed to work with sound cards. Also, each pad or joystick will only have two buttons available.

**CH Joystick Drivers for Windows 95**

If you've been running your F-16 Combat Stick or other CH products, download the latest Windows 95 drivers from the CH Web site (www.chproducts.com). DirectInput games will now have access to the full range of button options supported by the CH sticks. There's also a DirectInput driver for the CH Force/FX force feedback joystick.

**BATTLEZONE Joystick Support**

If you've been frustrated by BATTLEZONE's inability to remember that you use a joystick, download the 1.01 patch from the Activision Web site (www.activision.com). After loading the patch, you'll no longer have to specify a joystick every time you start the game.

This is the 125th Anniversary of Arbor Day, the tree planters' holiday. This year The National Arbor Day Foundation asks you to plant Trees for America, and provide for their care.

Trees Make a World of Difference. Thanks to trees we enjoy shadier streets, greener city parks, and friendlier neighborhoods. Trees also produce oxygen, absorb carbon dioxide, and help keep the atmosphere in balance.

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Screenshots of Shadow Warrior™ courtesy of 3D Realms® Entertainment.

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On the Righteous Path Again

by Loyd Case

Houghly 18 months ago, Orchid’s Righteous 3D was the first 3Dfx Voodoo Graphics board out of the starting gate. After a brief blaze of glory, the Righteous 3D dropped off a lot of radar screens. This was mainly because Orchid’s parent company, Micronics, encountered some financial hiccups and cut back on marketing.

Well, Orchid’s back, and this card proves that the company is serious—its 12MB card hit the streets just ahead of Diamond’s version.

As with Diamond’s, Orchid’s control panel provides you with a performance slider, though it doesn’t tell you what the minimum and maximum clock speeds are. There’s also only a single slider to control V-sync. At first, I thought it turned off V-sync for all APIs. In fact, there’s a bug in the control panel—the V-sync slider only affects Direct3D apps. Orchid should have a fix by the time you read this.

Performance was pretty good, with the usual set of impressive QUAKE II numbers. As with the other Voodoo2 cards, the Direct3D apps didn’t fare as well as Glide and OpenGL games, probably because Direct3D doesn’t yet take advantage of the second texture mapping unit (TMU) on the card.

The Righteous 3D II comes with the best bundle we’ve yet seen in a Voodoo2 card. There’s the full version of BATTLEZONE—definitely one of the cooler games out this year. There’s a limited version of JEDI KNIGHT, and full versions of both INCOMING and G-POLICE. So you get some decent games and a lower list price than that of Creative’s 12MB board. Whoever said that good things come to those who wait must have had the Righteous 3D II in mind.

Righteous, dude Orchid’s newest 3D graphics board isn’t much to look at, but it posts some impressive numbers.

Absolutely Marble-ous

by Loyd Case

I have to confess up front that I’m mouse-centric, but if I ever convert to a trackball, this will be it. I’ve used a variety of pointing devices (including trackballs), and have always been disappointed—until now.

The Trackman Marble/fx looks sleek and streamlined. However, unfortunately, as with many ergonomic devices, it’s for right-handers only. At any rate, if you are right-handed, your hand will wrap itself very comfortably around the Marble/fx. This particular trackball is unique in its having a cut-out on one side so that you can control the trackball with both your fingers and your thumb. In fact, for really precise control, you can grip the ball with your thumb and forefinger. So as a Windows pointing device, it’s great.

As a gaming device, it’s pretty good, too, though it did have a high learning curve for this veteran mouse-user. I checked it out with QUAKE II and JEDI KNIGHT. You have to play around with the mouse speed a bit, but the buttons are nicely placed for three-button play. The extra precision in aiming is nice, though I tended to get sidetracked by trying to carefully aim, and occasionally got shot up in the process. Still, it was great to be able to grab the trackball and line up your shot so that the first one hit home. This was really handy with weapons like QUAKE II’s rail gun, which has a narrow field of fire, does a lot of damage, but has significant recharge time. You want that first shot to kill.

The only downside I’ve found is that my palm gets a little sore on the palm rest after a long session, but it’s partly because of the odd placement forced by my desk layout. Overall, I’d recommend this to anyone who’s looking for a mouse alternative, and especially for those who might be getting mouse elbow.
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Improved combat AI for friends and foes alike. Most of the people in your own group won’t take that burst shot with the Flechette-gun, but a couple are probably just aching for the opportunity.

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If you want to, you can upgrade any traveling companions with more dangerous weapons, tougher armor, or even teach them new skills and abilities. Of course, you’d better make sure they’re on your side.

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Bigger, smarter, nastier enemies than you’ve ever fought before. We’ve given you a few pals that are just as ugly. You didn’t think you were the only Bad-ass in town did you?

SEX & ROMANCE AFTER THE BOMB
Fall in love, get married, and then pimp your spouse for a little extra chump-change. Hey, it’s a dark and dangerous world.

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Over 100 new skills, called perks, available to learn during the course of your travels. Better to learn the Flaming Dragon Punch from the crazed tribal shaman or how to squeeze the trigger on your spiffy new Gauss-rifle faster than the next guy? Decisions, decisions...
Sequel to the RPG of the Year

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A POST NUCLEAR ROLE PLAYING GAME

www.interplay.com
Industrial Strength Sim Driving

by Loyd Case

If the Extreme Competition CDS 5000 is too rich for your blood, then take a look at Thomas Enterprises' Thomas Super Wheel. The TSW has fans among hard-core sim racers, who rave about its rock-solid feel.

The Super Wheels are made-to-order, depending on which features you like. The basic wheel starts at $270. There are a number of different wheel combinations. If you're looking for a truly realistic look, then TSW even offers Italian-made Momo racing wheels—the same ones used in real Grand Prix cars, but that option costs an additional $195.

The TSW behaves like any standard two-axis, four-button joystick, and it's compatible with most driving games. The device has a full, 270-degree rotation and has a nice, stiff wheel. It's not force-feedback enabled, but the nonlinear springs have a good feel. The potentiometers seem stable—and road courses with many sharp turns, you get accurate response in cornering when you turn the wheel.

The base of the wheel looks somewhat industrial, but is weighty enough not to shift on your desktop. And while it takes up less space than the monster Extreme Competition Wheel, it can't be described as "svelte." The floor unit is sufficiently weighty. There are a variety of options, including floor pedals (instead of the roller type), paddle shifters on the steering wheel, and so on.

Thomas Enterprises also offers a series of upgrade kits. If you really want, you could have multiple wheels for different sims. After all, you wouldn't want to drive a 3,000lb. NASCAR stock car with a Grand Prix-style open wheel, would you?

PEDAL TO THE METAL The TSW floor unit can be customized.

GET YOUR MOTOR RUNNIN' You can order a customized TSW to suit your individual driving needs.

APPEAL: Hard-core racing sim fans with big, but not extravagant, budgets.
PROS: Good feel; accurate potentiometers; numerous configuration options.
CONS: Option choices can be confusing; no force-feedback option; pricey.
Price: $320 (stock model), $500 (Formula, with Momo wheel)
Vendor: TSW Enterprises (310) 462-2396
http://isali.isav.net/u/~thomas/

Actual screen captures using Lindb LS 1998

133 COMPUTER GAMING WORLD • JULY 1998
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Make your way through alpine, desert and bayou terrains or play against your friends on special multiplayer maps.

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Alienware's Area 51: High-Flying UFO

Dedicated Gaming System Delivers Performance and Value

by Loyd Case

There must be more computer gamers out there nowadays. How else can you explain the appearance of all the new PCs created specifically for gaming? The latest hardcore gamer's system is from Florida computer maker Alienware PC.

To be honest, I was skeptical. I've run across a number of PCs ostensively marketed for gamers. The ones from the big boys (IBM, HP, et al) usually demonstrate the companies' ignorance of gamers' needs. The best gaming systems tend to come from boutique companies like Falcon Northwest, but even many of them often drop the ball.

So, when the FedEx guy arrived with these three enormous boxes, my trepidation only increased. One of the boxes had "Alienware" in huge, green, stencil-painted letters on the side. I half expected a little green man to pop up out of the sea of Styrofoam pellets.

A look at the Area 51's list of components tells you that the Alienware folks seem pretty serious about gaming. Now, I've seen impressive laundry lists of components in the past, but they often didn't play well together. Here, however, we certainly encountered a few glitches, but some were simply due to the fact that we had one of the first 440BX-based, 100MHz motherboard out there. After upgrading the Hercules Hercules graphics, most of the glitches disappeared. The techs at Alienware color-coded most of the connectors, speakers excepted. This was particularly handy with the complex graphics setup. Not only did we have to contend with the primary card-to-Monitor II SLI connection, but also the output from the master Voodoo² card then goes into the DVD decoder. DOS real-mode drivers for the DVD drive and mouse were installed, although the Alienware techs had forgotten to remove the comment from the MSED32.EXE line that was put in by the Windows 95 setup. Still, the drivers were there and a few strokes of the delete key gave us CD access in DOS.

Performance was simply stunning. Part of this was due to the fact that Alienware overclocked the system slightly, setting the bus speed of the P2B mainboard to 103MHz. At this slight increase, the PCI clock was still 33MHz, so none of the peripherals were affected. QUAKE TimeDemos were in excess of 80fps, except at 1024x768, at which point the system dropped to a "mere" 70fps. TURK'S Glide scores were a staggering 159fps. The only time the Thriller outperformed the dual Monster IIs was in FLIGHT SIMULATOR 98, where the Thriller's extra RAM probably helped out.

The one serious downside to this system is a lack of free slots. However, company sources indicate that Alienware will be moving to Quantum3D's Obsidian line of single-board SLI accelerators, freeing up a PCI slot in the process. Documentation was nicely done, though a diagram of the rear panel connections would have been a plus. Also, a true AGP card might have been better, but that's a quibble; the Rendition card is certainly a good choice. All in all, the Area 51 is a solid system, slightly rough around the edges, but clearly well thought out. The mass-storage system is a bit of a compromise in terms of speed, but there's a lot of storage space available. At under four grand for this virtual hot-rod, it's worth giving up a little transfer rate.
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2  Crumple into ball.
3  Toss over your shoulder.

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Attention Boys: Enjoy the last days of supremacy you’ll ever have in computer gaming. The ‘more delicate sex’ has decided enough is enough. They want respect among the multiplayer gaming elite, and they want it NOW.

Arguably the best of the all-women teams, The Femme Fatales is very likely among the top 4 or 5 teams in the entire league. Here’s the scoop on the deadliest all-female Quake team ever assembled:

Kornelija
Real Name: Kornelija Takanis
Honors/Awards: CGDC Quake Tournament - Champion; All Female Quake Tournament - Champion; Queen of the Hill Tournament (PBP) - Champion; QuakeCon ‘97 - 8th Place; Frag came 7th through 32nd; First Rocket Birthplace: Budapest, Hungary
Residences: Los Angeles, CA Age: 21 Connections: 546 Favorite Level: DM4, Favorite Hobbies: Swimming and hanging out at my dad’s place in the summer. (lake, river, hiking.) Hanging out with friends, watching movies, and listening to music, the usual stuff. Visiting the countryside and castles of my homeland in Hungary.

POOKIE
Real Name: Christina Chan
Preferred Weapons: Rocket Launcher and Lightning Gun. Also Plays: MUD, Doom, Doom II, Diablo, Warcraft, Subspace, Duke Nukem, Ultima Online, Tetriss, Quake 2, Starcraft
Honors/Awards: Red Annihilation (Ferrari) Tournament finalist; All Female Quake Tournament finalist
Birthplace: Denver, CO
Residences: Berkeley, CA (attending UC Berkeley) Age: 23
Connections: T1 CPU Speed: 233mhz Favorite Level: DM3, DM6, EsMz
Hobbies: Miniature figurines, piano, violin, volleyball, basketball, swimming, literature, anything concerning computers

MYSTIQUE
AKA: Firesea
Real Name: Shawna Brown
Preferred Weapons: Rocket Launcher, Grenade Launcher. Also Plays: List is too long :)
Honors/Awards: Founding member of PMS (Psycho Men Slayers), original all-female Quake clan
Birthplace: Salmon Arm, British Columbia, Canada
Residence: Victoria, British Columbia, Canada
Age: 18
Connections: T1
CPU Speed: 300mhz Favorite Level: DM3 (Abandoned Base)
Hobbies: I play games, what “gamer” doesn’t?

JASP
Real Name: Kristy Pallan
Preferred Weapons: Rocket Launcher — OHH BABY
Also Plays: Warcraft and Starcraft
Birthplace: Victoria, British Columbia, Canada
Residence: Victoria, British Columbia, Canada
Age: 18
Connections: 28.8 or T1
CPU Speed: 180mhz Favorite Level: DM4 (fka), DM3
Hobbies: Gaming, IRC, Magic: The Gathering (card-based version)

TIKA
Real Name: Mabelene Ng
Preferred Weapons: Rocket Launcher, Lighting Gun
Also Plays: Descent, Hexen 2, Duke Nukem 3D, Heroes of Might & Magic
Birthplace: Singapore
Residences: Palo Alto, CA (attending Stanford University)
Age: 22
Connections: Ethernet CPU Speed: 200mhz Favorite Level: None
Hobbies: Reading, swimming, anything computer-related

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This Month  CGW Editors' Choice games are indicated in red.

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The Game Genres

Our reviews are categorized by genre. Not every game fits neatly into a single genre, but here's how we define the categories in general:

- **Action**: Games that emphasize fast gameplay over story or strategy.
- **Adventure**: Games that require you to solve puzzles, to move through a story line.
- **Classics/Puzzle**: Classics are old stand-bys such as Chess and MONOPOLY. Puzzle games emphasize problem-solving without requiring games to follow a story.
- **Role-Playing**: A subset of adventure games that stress character development through attributes. The game world tends to be large, and the plot less linear.
- **Simulations**: Highly realistic games from a first-person perspective, including flight sims and space simulations.
- **Sports**: A broad genre encompassing action sports games, such as NBA LIVE, strategic sports games, such as FIFA and even driving games, such as CART PRECISION RACING.

**Strategy**: Problem-solving and planning are the keys here. These games emphasize resource management and risk-management. Includes conflict-based sci-fi and fantasy games as well as construction programs like SimCity.

**Wargames**: A subset of strategy games, these recreate historical conflicts from a command perspective. They may be tactical, operational, or strategic.

How Do We Rate?  We review only finished products, not prerelease versions. The ratings are as follows:

- **Outstanding**: The rare game that gets it all right. A must-play experience.
- **Very Good**: Worthy of your time and money, but there are drawbacks.
- **Average**: Either an ambitious design with major flaws, or simply vanilla.
- **Weak**: Seriously lacking in play value, poorly conceived, or just another clone.
- **Abysmal**: The rare game that gets it all wrong. Pathetic. Coaster material.
turn, run, turn, turn run, turn, run, turn run, turn, run, run run, turn, run, run, turn run, run, run, turn, run, run, run run, run, run, turn, run, run, run run, run, run, slam door breathe, breathe

feeling safe?
Think again. You can run. You can hide. But they’d like to get a taste. Change course. Get up to flush you out. Slam a door, they’ll find you. So ask yourself: Is your will to live strong enough?
hide. But these guys can smell you. And so, they’ll follow. Take cover, they’ll team up to get it open. They’re hunting you down. Are your reflexes longer than theirs?

SHOOT TO KILL. THINK TO LIVE.
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It's Wafer Thin...
This Arcade Racer Could Have Been a Contender

by Greg Fortune

I honestly don't know where MicroProse's ULTIMATE RACE PRO fits into the scheme of racing games today. It doesn't begin to have the detail and complexity of NASCAR 2 or GRAND PRIX RACING. It also doesn't have the exotic cars and widely varying locales of the NEED FOR SPEED and TEST DRIVE group. The question becomes, "Who is this game for, anyway?" If you love racing just for the thrill of the race and find the rest unnecessary, this may be the game for you.

In Control
The first thing of note in ULTIMATE RACE PRO is a definite positive. When it comes to configuration interfaces, this game gets top marks. The controller configuration is pretty standard, with support for Windows 95-compatible joysticks and wheels. The real beauty is in the game setup menu. The menu features a frames-per-second slider bar that will tell you what frame-rate you can expect given your video card and your current options. Alternately, the FPS slider will suggest the viable game options, based on the frame-rate you select. I found this feature to be pretty accurate and very helpful.

Car selection is also very straightforward. This is in part due to the fact that all of the cars are identical with the exception of the paint, and that any car can be configured to perform like any other car. In the end, car selection all boils down to which color scheme you like best.

Completely Off Track
Track selection is an exercise in minimal choice. There are five basic tracks, including a test track. The four non-test tracks are repeated with different weather effects. The different effects have you either racing on the track in the reverse direction, on the track after it has been flipped over, or both. The net result is you get to see the same scenery and the same course, but from a new angle in severe weather. Now, if the designers had seen fit to add a track designer to extend the playability beyond these basic four, I could see the reasoning behind the decision to make such a limited number of courses. In this case, I couldn't shake the feeling that MicroProse took the very cheap route to boost the number of courses.

I must say, however, that the courses are beautiful. They are nicely rendered and there are cool touches around every turn. But, after the novelty wears off, you are left wanting more tracks.

The weather effects while interesting, again left me asking what the designers were thinking. Your environmental choices fall into four categories: day, night, rain, and storm (for anyone thinking that rain, wind, and darkness make a good combination). Another interesting phenomenon was that despite selecting a day race, after a couple of laps it would grow dark. Then I would start a rain race.

Before I knew it, I was racing in a pitch-black storm, despite the fact that four laps earlier there was daylight. I'm curious: Where do these programmers live?

The standard multiplayer game flavors are present, with an added wrinkle. There is also a DESTRUCTION DERBY-style deathmatch, in which you can compete on one of the tracks or in an arena. While this does add a bit of longevity to the title, I still have to recommend other games for multiplayer vehicular combat.

Finish Line
If ULTIMATE RACE PRO had a track and car editor, or came packaged with an expansion pack at no charge, I'd say this product might be a winner. But making you drive in a storm just so you can get a change in courses is a cheap shot, and is no substitute for building additional tracks. Looking at the things that were either left out of this game or just done cheaply, I'd say that rather than stand behind this product, I'll have to pass.
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All Looks, No Brain
Good Art Can't Make Up for Bad Gameplay

by Thierry Nguyen

There is no denying it: Psygnosis makes some of the most beautiful PC games. Whether it's the fully AGP and 3D-accelerated glory of G-POUC, or the humble, but gorgeous, SHIPWRECKERS!, you're guaranteed a beautiful play experience. SHADOW MASTER succeeds in introducing another good-looking engine, but it definitely lags a bit in actual gameplay.

Shadows Over Sci-fi

In SHADOW MASTER, as in so many other games, an evil man will conquer the universe unless you do something about it. The twist, though, is that you aren't piloting some super car or ship to save humanity, you're driving a mighty, all-terrain buggy.

The game's 16 levels are spread across several planets and different environments, and are mission-based in design. Your buggy fires a main laser that can be augmented with additional weapons by acquiring power-ups during battle.

Psygnosis' biggest selling point for SHADOW MASTER is the involvement of fantasy artist Rodney Matthews, best known for his fantasy book jackets and album covers for '70s rock groups such as the Scorpions, Nazareth, and Thin Lizzy. The game sports Matthews' unique fantasy/sci-fi look: a world filled with bizarre biomechanical spiders, apes, and other critters. Top this off with the usual 3D-accelerated features, such as lens flare, colored lighting, translucency, and smoothed-out textures, and SHADOW MASTER proves to be one of the prettiest games around. It's fast, too—frame-rates still remain high when fighting more than 10 enemies on the screen.

Bad Buggy

Everything else about this game is bad, however. The gameplay, the controls, the design, and the saving system all have flaws that pull this shooter down.

SHADOW MASTER is more like a pure arcade action game than a QUAKE clone: you progress linearly through simplistic levels while fighting up to 10 enemies at a time. The levels do have alternate paths, but all in all, they're too linear. They are also weak in design; levels are really just glorified holding pens for groups of enemies.

Probably the most aggravating design element of the game is its save feature. As in DARK FORCES and many console games, you can only save at the end of each level. But unlike console games, there aren't even checkpoints to let you restart midway through levels.

The buggy has problems as well. It's sometimes hard to handle, and it also tends to roll to one side and sometimes won't fall off edges. That's right, you can ride to the edge of a cliff, and the buggy simply stops. Sure, you escape death, but this is completely unrealistic. And since you are stuck in the buggy, you can't "use" anything. This means the already minimal puzzle interaction consists of shooting doors and buttons in the pre-arranged order.

The controls can't be mapped. Instead of defining your commands, you select them from a menu of prefabricated schemes. SHADOW MASTER is a game that focuses too much on art and sacrifices gameplay. It may be a good bargain buy for you if you don't mind indiscriminate shooting and can bear with the bad save system. CGW
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Ten Levels in Tibet

PORTAL OF PRAEVUS Doesn't Break New Ground
But It Should Satisfy HEXEN II Fans

by Thierry Nguyen

The HEXEN franchise has always taken the 3D-shooter genre into more beautiful and fantasy-gearied directions. While these games didn't really add a lot of innovation to the crowded genre, they did show that you can combine aesthetically pleasing levels with decent gameplay. Such is the case with the new mission pack for HEXEN II: PORTAL OF PRAEVUS.

Serpent Riders...Again?

PORTAL OF PRAEVUS begins where HEXEN II ended; in fact, the introduction is a replay of the defeat of the final Serpent Rider, Eidolon. But now, trouble has started to stir in Eidolon's castle. So, it's back to the fray.

In this mission pack, you'll be playing through two new hubs: a revised Blackmarsh that spans 5 levels, and Tulku, which spans 10 levels. You can either play through the game as one of the original four classes from HEXEN II, or try out the new Demoness class. There are only two all-new enemies, the rest are versions of old favorites (albeit altered to fit in the Tibet-style Tulku levels).

The Tulku levels also sport some engine enhancements, such as falling snow and pseudo colored lighting for the spell attacks.

SMASH THAT SKULL WIZARD This large bundle of polygons is the corpse of a Skull Wizard I just killed; they are supposed to disintegrate, by the way.

---

**CGW Rated**

**APPEAL:** Fans of the HEXEN series.

**PROS:** Beautiful levels; cool Eastern influence in level design; improved single-player, action-RPG experience; faster in software.

**CONS:** Still HEXEN II; Pentacles is too unfair; slow in GL; some GL graphics glitches.

**DIFFICULTY:** Intermediate.

**REQUIREMENTS:** Pentium 50, Windows 95, 16MB RAM (24 for GL), 45MB hard drive space, 2x CD-ROM, Windows 95-compatible sound and video cards; original HEXEN II.

**3D SUPPORT:** OpenGL.

**MULTIPLAYER SUPPORT:** LAN, Internet (2-16 players); CD not required for multiplayer.

**Price:** $26.99

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While the single-player experience isn’t groundbreaking, it is an improvement over the QUAKE model. Not only are there now mission objectives for the hubs, but there is also a mystery to solve, as your character rifles through journals and papers to see just what is happening in Eidolon’s abandoned home.

**Down With the Demoness**

As for the game mechanics, they are essentially the same. The Demoness is basically the female Necromancer: a woman with powerful ranged attacks to counter the Assassin and the other melee attackers. She can also cushion her falls with her tiny wings and absorb mana from her enemies’ attacks.

Besides the ice-altered enemies, the new monsters include the Gygak (a minotaur-like yakman) and the Pentacles, which is perhaps the most irritating enemy in 3D gaming. Imagine a living mine that can shoot at you from a distance and blends into perfectly with its surroundings. While I thought the Gygak was a fine enemy, the Pentacles was a bit too annoying for my taste.

The new levels are akin to HEXEN II’s, but with more puzzles involving fancier objects (which are still just glorified keys). However, these new puzzles often significantly alter the architecture of certain rooms. For example, they reveal new stairways and trapdoors in previously empty rooms. And Raven still has some of the most beautiful levels in the genre. The Tibetan influence on the Tulku levels is wonderful.

Despite the pleasing level design, new class, and new enemies, it’s still HEXEN II. It’s the same game style, has the same loading times in GLHEXEN (the software engine does load a lot faster, though), and has the same limited weapon variety.

Another slight annoyance is that playing in GL mode tends to give lots of “mishmashed” models for characters, which is a bit sloppy of Raven. Still, if you liked HEXEN II, you’ll probably like this expansion pack. Though it doesn’t really add anything new, it’s still a well-done effort.
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Crime Doesn't Pay
Take Away GRAND THEFT AUTO's Controversy and You Have a Mundane 2D Shooter

by Scott A. May

GRAND THEFT AUTO (GTA), imported from Europe by ASC Games, signals the conspicuous return of DMA Design. This legendary British developer put Psygnosis on the map with groundbreaking Amiga titles, such as LEMMINGS and BLOOD MONEY. Filled with cartoonish depictions of carjacking, drug running, car bombs, and mangled pedestrians, GTA has, understandably, generated a lot of controversy. Part of this is deserved, but most is simply game-selling hype. My response: Get over it. It's only a game...and not much of one.

Mob Warfare
Delivered with a roving top-down view of the action, GTA unfolds across three fictional cities and 6,000 simulated miles of urban streets, freeways, elevated tracks, and sidewalks. Whether played in low-res, high-res, or with a 3D card, the game's graphics are simplistic and dated; it's as if the game is a holdout from the 8-bit era. Luckily, gameplay is strong enough that you probably won't notice.

You begin the game as a small-time thug, roaming the streets of Liberty City, looking to make it big in the local mob. Missions basically involve one or more of the following: stealing something, retrieving and delivering something, killing someone, and avoiding police. The more points you earn, the more difficult your assignments become. Earn enough points and you'll move on to new, more difficult cities—first San Andreas and then the ultimate urban cesspool, Vice City.

What the game lacks in visual acuity, it makes up in little details. For example, sound effects are superb, with incessant traffic noise and the chatter of multiple radio stations. More than 20 types of vehicles are accurately modeled in each city, from motorcycles and sports cars to school buses and elevated trains. Not only can you drive them all, but each drives exactly as you'd expect (different acceleration, braking, top speed, and turning radius). Each of GTA's linear missions is open-ended. You can walk or drive wherever you like, at whatever speed you desire. But if you don't take assignments you won't advance in the game. Played by the book, this is an extremely long game.

The Rap Sheet
The game's length brings up a big sore point: Games can be saved only between stages, each of which can take hours to complete. Another of the game's stumbling blocks is control. GTA defaults to keyboard controls that are fairly intuitive and can be modified to suit your personal preference. However, traversing the game's mean streets via keyboard can be frustrating and awkward. Precision steering, particularly when you're being pursued by wailing police cars, is critical to your success. Using the keyboard is not an easy task, especially when your directional orientation shifts every five seconds.

GTA supports analog joysticks in DOS mode, but only digital sticks—specifically, Microsoft's Sidewinder gamepad—in Windows 95. Regrettably, using an analog stick can be even worse than the keyboard, prompting such wild oversteering that you'll feel like a drunken Shriner in a clown car. On the other hand, Sidewinder control in Windows 95 is tight and responsive.

Another item worth noting is the skimpy documentation, with foldout city maps that are mostly useless for navigation. Multiplayer support livens things up a bit, with street racing and deathmatches, although both modes have limited long-term appeal.

ASC Games desperately needs a hit on the PC, but I'm not sure GRAND THEFT AUTO will be it. It's a fun, mock-deviant diversion, but one whose reputation ultimately exceeds its significance.
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Black and Blue
The Story Is Compelling, but BLACK DAHLIA's Puzzles Make for a Deathly Experience

by Scorpio

During the late 1930s, Cleveland was terrorized by a serial killer called, variously, the "Mad Butcher" and the "Torsos Killer." Twelve murders were attributed to him, and another five were possibly linked. The carnage stopped shortly before World War II. Officially, the case was never solved, and remains open to this day.

On January 15, 1947, the tortured and bashed body of Elizabeth Short, a wannabe actress, was discovered in Los Angeles. She was strikingly beautiful, with a preference for wearing black. A reporter covering the crime nicknamed her "the Black Dahlia." Her murder, in several ways, resembled the gruesome killings in Cleveland. And as was the case with those earlier deaths, the Black Dahlia's was never officially solved.

Through the years, many unofficial solutions to both cases were put forth. Now Take2 has tried its hand at it with the mystery adventure BLACK DAHLIA. The results are mixed, at best.

A Thickened Plot

The story begins in Cleveland in late November 1941. Jim Pearson is appointed to the newly created COI (Coordinated Office of Intelligence) to replace the hastily retired Walter Pensky. He isn't taking over Pensky's work, however; Pearson's assignment is to investigate the Brotherhood of Thule, an organization suspected of being a front for subversive Nazi activities.

It isn't long before Pearson realizes the Brotherhood is something far more sinister, and that it's somehow connected to both Pensky's case and the Torsos murders. Add in a rivalry between the local police and the FBI, then throw in some Nazi spies, and the complications pile up fast.

A resolution of sorts is reached just at the time of Pearl Harbor, but the matter is far from finished. The action picks up again at the end of the war, beginning in a Nazi vault, then moving to an Austrian monastery, an American air base, and a cross-country train. The story finally concludes in Los Angeles in 1947.

The tale is a skillful blend of fact and fiction, using, or based on, many actual events in both the Torsos Killer and the Black Dahlia cases. Jim Pearson, of course, is fictitious, though much of what goes on around him, or what he investigates, is part of history. The designers really did their homework here; the fictional and real-world elements are seamlessly integrated—at least for game purposes—into a plausible whole.

Rune, Don't Walk

In terms of mechanics, the interface is simple. The basic cursor is a diamond-shaped rune. As it's moved around the screen, it can change to a large pointing arrow for movement, a small spinning arrow for actions, and (when the left mouse button is held down) a circle with small arrow for turning in place.

Despite the ability to turn a full 360 degrees, however, movement is actually rather limited. You can only go in certain directions to pre-designated points, rather than walk around the screen at will. This is basically the same system Take2 used in RIPPER, though here it's faster and much less aggravating.

Traveling to various locations is quick and easy. A "world map" displays photographs of places you can visit; clicking on one takes you right there.

Typical for adventure games these days, the action cursor automatically performs the appropriate function when clicked: it opens a door, picks up an item, talks to someone, reads a document, and so on. The cursor has a secondary use of moving items, but it's not always obvious when this should be done. For example, there's a notepad in a desk drawer. Clicking the pad shows you what's written on it. However, you can also hold down the mouse button and drag the cursor, thus moving the pad to reveal something under it. But there's nothing special to indicate the pad can be moved.

Talking to people is simply a matter of clicking on them and then going down a list of topics.
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change. or die.
You can sometimes ask about items by opening the inventory box, highlighting an object, and clicking "use." If the item is relevant to the situation or person, you get a response; otherwise, nothing happens.

Saving and restoring can be done at almost any time, and the number of save slots is extremely generous. Very likely you will go through the entire game without having to overwrite an old position.

BLACK DAHLIA is linear not only in its story but also in its progression across the eight CDs. Whereas some games make you constantly swap discs, here you move through the discs sequentially. Near the end, you will go back a couple of times to an earlier disc (the game actually finishes on CD #1), but for the most part, when you're done with a CD, you won’t need it again.

There was occasional stuttering in the FMVs; this was somewhat annoying, but was not a major problem. I did have a lot of trouble with CD #7, which I suspect was faulty. It didn’t sound right in the drive, which seemed to have trouble reading it, and several times the game crashed to the desktop. Once I finished with that disc, the difficulties cleared up. Other than that, the game ran flawlessly. Sad to say, the game is completely auditory; there are no text subtitles here. Anyone with hearing problems will have a difficult, if not impossible, time playing it.

 Naturally, all the puzzles have to be solved for the game to progress. If you don’t like this type of enigma, or have a hard time with such things, BLACK DAHLIA will be that much more difficult for you, and you won’t find it to be much fun. I should point out that there are other puzzle types in the game, both traditional object-oriented adventure puzzles and some logic/deduction problems. There is variety here, but the manipulation puzzles are, by far, the most numerous.

Jim Pearson’s character was another sore point. At the start, he is near perfect as the new agent on the block: a bit naïve, but not unduly so; occasionally brash and overeager, but in the main, fairly intelligent. Hence, we expect that four years in the COI would bring him some maturity and smarts.

Unfortunately, his secret service experiences seem to make him more gullible than before. He mouths off to the wrong people, falls for the most obvious tricks, and allows the main villain to lead him around by the nose. After Cleveland, Pearson’s abilities take a severe downhill slide, making some events late in the game rather painful to watch.

Speaking of painful to watch, the ending is definitely in that category. At the penultimate moment, you have a choice between two actions. One leads to the "good" outcome; the other to the "bad" outcome. The supposedly "good" outcome is far from satisfactory. This is, after all, a game, not film noir. The player deserves something better, if only as a reward for making it through to the end.

The Big Sleep

Overall, BLACK DAHLIA is yet another in a long line of games that leaves me with mixed feelings. The period flavor is good, the story is interesting, the research is well done. But many of the puzzles are tedious and frustrating; the main character doesn’t develop; and the finale is a disappointment, to say the least. This is a pity, because with a bit more attention to the adventure side of the game, and with a less dismal conclusion, this could have been a superior product. As it is, anyone who plays BLACK DAHLIA should be prepared for an uneven ride.

Monkly Business

While the story is interesting, it is easy to become bogged down, mainly because of the puzzles. There are far too many mechanical manipulation puzzles in the game, most of which have no clues or hints toward their solutions. For example, you have to open a puzzle box in the shape of a mill by pushing and pulling various parts, such as windows, doors, and the like. The only way to do this is by trial and error.

Later in the game, in the Nazi vault, you are faced with four difficult problems, of which getting the door open is only the first. Inside are three small safes, each requiring an elaborate set of movements to unlock. Again, you have no guidance toward the answers; you just have to experiment.

Even worse, there are times when you solve a difficult puzzle and find that the payoff was hardly worth the effort. At one point, you have to open a door by pressing panels in a certain order. The order is on a card that can be folded in various ways, as well as flipped over (thus folded from either side). When you finally get into the room, it’s just to look at something you probably examined on an earlier visit.

LET’S GO BLACK DAHLIA’s elegant interface includes an easy-to-use travel map. Click on any photo to travel to previous locations.
Eliminate distractions.
Like sleep, for example.

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The Eagle Has Landed
This Strike Eagle Sim Hits the Bull's-eye for Beginners and Experts Alike

by Robin G. Kim

Entering its ninth year of service, the F-15E Strike Eagle remains a remarkably potent and versatile aircraft. Crammed full of the best technology U.S. tax dollars can buy, the plane boasts impressive all-weather ground-attack capabilities. Yet, the F-15E retains much of the air superiority of its renowned "not a pound for air-to-ground" cousin, the mighty F-15C. The sophistication of the jack-of-all-trades Strike Eagle makes it a natural choice for a seriously deep flight sim, and that is just what F-15, the latest release from Jane's Combat Simulations, delivers.

Mideast Mayhem
Set in the Persian Gulf region, Jane's F-15 provides two separate campaigns—Operation Desert Storm and a near-future scenario hypothesizing a U.S. response to Iranian expansionism—plus multiplayer deathmatches and a variety of single missions. Additional missions (but not campaigns) can be created using either a fully customizable quick-mission generator or a powerful mission builder.

The two campaigns are composed of branching scripted missions with provisions for random elements, mid-flight assignment changes, and other triggered events to keep you on your toes. Continuity is enhanced by damage that persists across missions and the need to manage scarce aircrafts, airframes, and ordnance inventories. Failed missions can't be restarted if you take losses; you must fight on with what you have left. This campaign structure doesn't offer as much replayability as does a fully dynamic campaign. However, this is offset by the richer content characteristic of handcrafted scenarios. Its biggest drawback is a lack of any substantial role-playing element; with no cumulative statistics kept, it's hard to become especially attached to your crew members.

As you fly, there are always other allied and enemy aircraft going about their business, which may or may not have anything to do with your objectives. Unfortunately for sightseers, it's rarely possible to watch them do their thing; the sim lacks a flight recorder feature and the external views generally cannot focus on distant objects. Voice communications suffer no such restriction. Interactions with AWACS, JSTARS, Tankers, FACS (forward air controllers), your WSO, and your wingmen are extremely well done, and add tremendously to the immersiveness of the sim.

The Long Road
Flight distances are realistically lengthy, occasionally exceeding 1,000 miles, round trip. Even with 8x time compression, such sorties take a while to complete. The game lets you jump to the next stage of a mission, but because the actions of all objects are still calculated during the jump—which can take minutes to complete—little time is actually saved. Fortunately, you can skip the return trip with no negative consequences.

Determining how far you must fly is impossible with the mission-planning map because no scale is given. Worse yet, information can only be obtained for half of your waypoints! At the end of a mission, the bare bones textual report you get really puts the "brief" in debrief. Although these preflight and postflight stages lack polish, what counts most is the part in between, when you are at the controls. This is where the sim really begins to shine.

In terms of overall technical accuracy, F-15 has no peer. Its flight model—based on actual USAF data—combines a realistic performance envelope with a truly authentic feel. The F-15E isn't as nimble as an F-16, and hard maneuvering bleeds energy rapidly. As airspeed drops, handling becomes progressively more sluggish. Unlike in most sim, roll rate also degrades markedly in tight turns. This forces you to ease off the Gs when you need to reverse your turn quickly—exactly like the pros do. Takeoffs and landings are
less believable, due to an artificial pitch limit imposed when on the runway and a tolerance for fantastically hard touchdowns, but everything else seems just right.

Hands-On Cockpit
Both the pilot's and weapon system officer's instrument panels have been recreated in exacting visual and functional detail. Almost all the switches and knobs can be operated with the mouse, including the 20 buttons surrounding each of the seven multipurpose displays. Stepping through the different modes by pushing virtual buttons like a real crew member would not only draw you into the experience, it greatly reduces the number of key commands you must memorize. Because you're doing the work of two crewmembers, F-15 lets you manipulate the controls even while the game is paused. Four ground and 13 air radar modes are available in the sim, and the advantages and disadvantages of each are modeled with exceptional accuracy. Unfortunately, F-15's infrared and electro-optical targeting modes are less impressive. Although workable with practice, they tend to be imprecise and difficult to use without pausing the game. The game's thick, densely packed manual does a reasonable job of explaining most systems and procedures, but it also contains several misleading errors and omissions.

For less hard-core types, a "casual" play mode is available (complete with its own shorter manual) featuring greatly simplified avionics and an alternate set of key commands. The latter difference can be confusing when trying to tailor a difficulty level between "casual" and "expert."

Voodoo Magic
F-15 supports only 3Dfx accelerator cards—if your machine does not have one you'll be stuck in 2D mode. The game's unaccelerated graphics look fine, as they benefit from software filtering that eliminates pixelation at low altitudes. But, of course, they can't hold a candle to the dazzling effects and smoother screen updates possible with a 3Dfx card. Severe frame-rate slowdowns occasionally occur in either case, but not often enough to impair playability. More annoying are the periodic in-flight pauses that occur when loading terrain data in-flight (unless you install 450 MB on your hard drive) and the way distant ground appears to sink and flow in mountainous regions.

For cockpit views, the designers took the kitchen sink approach. F-15 supports a variety of padlock views, a manual-panning virtual cockpit mode, and a quick-panning 3D variant of AIR WARRIOR's system of 24 fixed views.

Big Pros, Little Cons
No flight sim is perfect, and this one is no exception. Perhaps because it tries to do so much, the game contains numerous minor flaws, ranging from esoteric technical errors and niggling graphical glitches to infrequent game crashes on some systems. Despite these annoyances—most of which will go unnoticed by the majority of gamers—Jane's F-15 clearly excels in many areas that contribute most to an immersive gameplay experience. If you can overlook its shortcomings, you may judge it to be one of the best air combat sims ever made. CGW
Raptor Redone
Fine-tuned Features Make This F-22 Sim More Playable Than the Original

by John Nolan

F-22 PERSIAN GULF V5.0 introduces a totally new "spin model" for the entire flight-simulation industry. This "spin" has nothing whatsoever to do with the game's flight model, though. Although this is only the second release of the program, Interactive Magic decided to count the three patches to the original game as full versions, and thus named this release v5.0. Creative marketing, indeed.

The original game took heavy flack in several areas. Installation problems, slow frame-rates, game pauses, uninspired graphics, and lack of a virtual-cockpit padlock view were the most frequently mentioned beefs. I-Magic Labs took the criticism seriously and "Persian Patch v5.0" is the result.

Raptor-Ready
The widely reported installation problems seem to have been essentially tamed if your computer is properly prepared. Current drivers for video cards, sound cards, and controls are mandatory to launch this sim. Even so, some tweaking may be required. A CH CombatStick (with current driver) simply wouldn't calibrate; launching under these conditions resulted in spiraling death-augers. When a simple two-axis, two-button stick was substituted for the CombatStick driver in the Windows Control Panel, everything worked fine. There were no DirectX problems using current drivers for the Stealth II 5220 3D card.

Still, the shakeup flight revealed a potential show-stopper; my Pentium 166 with 64MB of RAM and a Diamond Stealth II looked like a steam-powered slide projector. Fortunately, it was simply operator error; the README file suggests setting at least 80MB of virtual memory in the Windows 95 Control Panel. After the reset, the game was almost totally slick, even with all the graphics options toggled on and detail maximized.

Eye of the Beholder
After clearing these hurdles, the game ran well, providing a chance to check out the refined graphics and the new Persian Gulf theater. The terrain is what you'd expect in a desert—miles and miles of sand in varying shades of brown. The old terrain heating and shifting in the first version is gone, and the view from high or low altitude is much more believable, thanks to the new perspective-correct textures.

While there are few buildings or other objects (which one might easily mistake for a desert environment), except for the fact that Bosnia and the Ukraine are also sparsely detailed, the terrain is definitely enhanced. Aircraft and missile models received some attention; wing leading-edges lost most of their "jaggies" due to improved anti-aliasing, and planes show more panel seams and other detail touches. On the other hand, missiles under the wings still hang in space without the benefit of hardpoints. Overall, the terrain and game objects are improved, but still can't match current standards set by other sims.

Help From Your Friends
The bone-headed wingmen that used to fly "welded wing"—to the point of in-formation augering into the ground with their leader—have been to school. Their urge to self-destruct is gone, and wingmen are now smarter and more agile, breaking out when the flight lead goes stupid.

Flight commands remain essentially unchanged, but you can now check the stores and aircraft status of the rest of the flight with the Flight Weapons Status MFD. It's also easier to lead your mates into the furball by using the new padlock view in the full virtual cockpit; you can even padlock incoming missiles. Chalk up more successful refinements to the program.

All that was good about the initial game remains, and there's a lot to like. There's plenty of action; the dynamic campaign is quite detailed, with great replayability; the multiplayer options are excellent; and the flight model is believable. With all the improvements, this is a fun, enjoyable game. But it's more like version 1.5 than 5.0—it's the game IF-22 should have been last year.

CGW Rated

APPEAL: Jet-sim fans more interested in good dynamic campaign system than flash and dazzle.

PROS: Eliminates most complaints about original release; easier installation; smoother graphics; better A3; excellent dynamic-campaign engine.

CONS: Terrain is sparsely populated; aircraft and other objects lack detail.

DIFFICULTY LEVEL: Intermediate.

REQUIREMENTS: Windows 95, Pentium 133, 16MB RAM, 4x CD-ROM, 640x480 SVGA monitor, keyboard, mouse.

3D SUPPORT: Direct3D.

MULTIPLAYER SUPPORT: Modern, serial, LAN, and Internet (2-8 players); 1 CD per player.

Price: $59.95

Publisher: Interactive Magic

(919) 451-0722

www.imagilgames.com

LOW PASS Terrain is no longer blocky or splotchy at low altitudes, but ground objects are still sparse. This airbase seems deserted.

SMOKIN'! This Sukhoi is trailing smoke (as displayed by a Rendition VZ200 chip); the 3D effects may vary depending on which card you have installed. Note the angular look of what should be a smoothly contoured aircraft.
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Number 1 in F1

Ubi Soft Goes Racing and PC Drivers Are the Winners

by Gordon Goble

Gentle wisps of cloud floated across the blue sky as I gunned the throttle and anticipated the starting lights at Belgium's storied Spa-Francorchamps. I heard the blast of the horn and watched all five lamps illuminate, then grow dark. It was time to go. I was off. Too much power and unwanted wheelspin at first, so I eased off the accelerator before cranking hard to the right, hoping to snare at least a couple of spots before the dreaded La Source hairpin. Up through the gears, back down again, then hard on the brakes. A little too hard, actually, and suddenly, tires sliding and nowhere to go. I was headed straight for a pair of Ferraris. But up ahead, the two drivers were taking evasive measures, zigging and zagging to make room for my misdirected machine.

Downhill now through the slippery Eau Rouge dip, I watched in shock as two cars ahead tapped one another and left the track, spinning through the deep sand in a smoky, dusty haze. I streaked past the accident site and approached the rough-and-tumble section known as Raidillon. Here, my car bobbed and grounded and shook me about.

With Raidillon safely behind, I was afforded my first opportunity to take stock. Pinpoint car control, lightning fast frame-rates, and the best visuals I'd ever seen in a racing sim. I realized I'd never experienced racing quite like this.

Road Rage

The above scenario is indicative of F1 RACING SIMULATION's singular purpose: to thoroughly convince you that you're at the controls of an extremely fast and nimble Formula 1 bullet. The fact that you'll be competing with AI drivers of unprecedented intelligence while snaking through eerily realistic terrain only adds to this marvelous experience.

Still not convinced? Then take it from someone who's compared it to the strongest F1 sim to date—MicroProse's GRAND PRIX II. In a back-to-back test, the GP2 cars feel sluggish, the AI drivers need a crash course on situational awareness, and the environments are yawningly drab. How things change in just 18 months! Though the MicroProse game remains a classic, its wrinkles are showing and its reign has ended.

F1 RACING SIMULATION has a lot going for it, the most critical of which is its incredibly snappy physics. Head down to your local go-cart track, take a few spins, imagine moving at 10 times that speed, and you'll get the picture.

Just how touchy is this driving model? So touchy that a joystick is not—repeat not—recommended. The key to driving an F1 car is subtlety and control over wheel-spin, something that will take even seasoned sim veterans quite some time to master. Needless to say, you'll be feathering and tapping pedals faster than you can say FOCA, but that's just one of the joys of this game.

Another comes through the realization that you'll simply have to drive "on the edge" all the time or be relegated to a less-than-desirable finishing position.
I don’t think I’ve driven a racing sim yet that so convincingly portrays the huge power-to-weight ratio these high-end, open-wheeled race cars possess.

To compete here, you must pay absolute attention at all times, be fully familiar with each nuance of each track, know the capabilities of your current setup, and never, ever miss a shift. Oh yeah, light-speed reflexes are a prerequisite.

Artificial, but Intelligent

Of course, it helps when the AI drivers recognize your presence out there, and F1’s racers are smart, accident-conscious, and one might even say...mannerly. Only the most foolhardy of maneuvers will result in contact. And that’s a good thing, because contact may result in some rather bizarre impossibilities. In one race, I bounced up against the rear tire of another car only to be inexplicably launched backward and airborne, end-over-end and off the track. What the...?

But if you play it smart, you’ll find the opposition consistent enough to make even a single pass extremely rewarding. Yet even those single passes will be few and far between, should you opt to contest the Pro or Expert difficulty levels, in which extensive car preparation and an ultra-hot setup are a must.

Fortunately for you grease monkeys, F1 provides an ample garage, one that’s at least as intricate as those found in any racing sim to date. I’ll freely admit that there are areas of the hideously deep F1 setup area I still don’t fully understand, though the results of the modifications I have made have proven quite plausible.

In terms of graphics, your eyeballs are going to pop out of your skull when they see what F1 RACING SIMULATION has in store for them. A 3D accelerator card is a necessity, but this game may just be enough reason to go out and procure one, if just for the trackside Jumbotron screens that continually run a rough, but fully animated, look at the race from your perspective. Wow!

Jumbotron aside, the game’s depiction of environmental conditions is especially gorgeous. Inclement weather, more prevalent in certain climates than others, is particularly impressive. Fog, rain, and blackened skies are nothing short of TV quality.

There’s not enough room here to go into detail about the detail, but suffice it to say that the scenery is livery, intricate, and dotted with brake markers, signage, and all the necessary peripheral elements. Paveinent, in particular, is exceptional. It varies in shading and texture from track to track and from section to section.

The cars themselves are festooned with colorful, authentic logos and paint schemes, and are very solid in appearance. Of course, being 3D-accelerated, the game sports killer frame-rates in all but the most crowded spots.

Audibly, F1 RACING SIMULATION mostly rocks. From the “sksksksk” of bottoming out to the “ft...ft... ft...” of a flat tire, the “swish” of a wet track, and the rough metal-to-metal grind of shifting gears, the sound is ferociously realistic. Your own engine notes are unfortunately stepped, jumping abruptly from pitch to pitch, and I did miss the exhilarating whine of 22 F1 cars as they reared for a standing start, but those are relatively incidental complaints.

The Last Lap

In terms of amenities, F1 RACING SIMULATION supplies just what you’d expect from a game of this caliber, and then some. Ghost cars, multiple play modes, variable race distances, cool real-time 3D pit stops, setup tutorials, and head-to-head play—it’s all here and it’s supported by an excellent Web site (www.ubisoft.com/f1us/f1racing.html).

Even crashing your car brings up a number of options, including relieving the whole thing through the replay, hitting the Instant Restart button, or perhaps hopping into a competitor’s cockpit to watch what he’s doing right. Just don’t go ALT-TABbing somewhere else, because the game has a tendency to bring your system to a near standstill.

With all 16 tracks and 22 drivers and cars from the ’96 season, the game offers lots of variety, although I was disappointed that I always had to race as another driver instead of under my own name. And although the game does support force-feedback equipment, that support is mired in a blur of unwanted wheel tension and limited effects—a patch is apparently on the way.

But don’t let those last couple of knocks fool you. This is a game that’s been making the rounds in Europe for some time now, and there is no doubt that this is where you want to be right now if you want Formula 1 racing. There is a new king, and F1 RACING SIMULATION wears the crown. CGW

HEY, I'M ON TV! Drafting hard at Japan while a Jumbotron (top left) details every move you make.

IT'S RAINING, IT'S POURING... But you'd best not be snoring, because these guys are fast even in the wet.
Big Lame Hunter
This Hunting Game Needs Its License Revoked

by Joe Vallina

BEFORE I GET STARTED, LET ME SAY UP FRONT THAT I'M A COUNTRY BOY. WEST VIRGINIA BORN AND RAISED, AND I'VE HUNTED FOR MOST OF MY LIFE. I MENTION THIS ONLY TO DISPEL ANY RUMORS THAT I MIGHT BE SOME BIRKENSTOCK-WEARING, TREE-HUGGING, ANTI-GUN, BERKELEY-WANNABE WHO HATES ANYTHING TO DO WITH HUNTING. THAT'S NOT THE REASON I DIDN'T LIKE DEER HUNTER. THE REASON I DIDN'T LIKE DEER HUNTER IS BECAUSE IT'S BORING, REPETITIVE, UNREALISTIC, AND ITS GRAPHICS ARE LAME.

DEER HUNTER does some things right. It's the first game to bring deer hunting to a mass gaming audience, and the idea behind the game is a good one. Sportsman computer gamers have made fishing titles very popular in the last few years, so it's only natural for the genre to move into the realm of hunting. Also, at only $20, DEER HUNTER's price point is a good one.

DEER HUNTER promises to give you the complete interactive hunting experience, and it lets you hunt in three different settings (why only three?): an Indiana winter, Colorado alpine meadows, and Arkansas autumn woodlands. In addition to these three locations, you can take target practice at a virtual shooting range.

At the beginning of your hunt, you have several options. You decide if you want to hunt with a rifle, shotgun, or compound bow; if you want to use doe scent or cover scent, or both; and if you want to hunt from a tree stand or from the ground. It's almost impossible to get a deer if you don't use the scents, but I found little difference between hunting from a tree stand and hunting on foot.

After setting your options, you go to an overhead map of the hunting area, where you randomly search (by pointing and clicking) for signs of deer activity, such as rubs, scrapes, droppings, or bedding. This mindless searching process is tedious and, at times, close to maddening. It would have been much more fun to actually walk around in the 3D environment, looking for signs. As it stands, when you do finally find signs of activity on the map, you click the "hunt" button and are magically transported to your site.

The interface in the hunting portion of the game is straightforward. A menu at the bottom of the screen shows wind direction (it actually does matter if you're up- or downwind of the deer) and compass direction; it also lets you use a deer call, antler rattles, and binoculars. This is also where you click to raise your weapon (you use the mouse to aim and fire).

And Then Depression Set In...
The "3D" graphics in the hunting scenes are marginal, at best. The scenes look like 2D-scroller backgrounds layered with pasted-on trees and shrubs, and the deer animation is prone to clipping and blockiness.

Realism also takes a hit in the hunting mode. The game talks about hitting a deer in the "kill zone," but it makes no difference whether you shoot the buck in the side, head, or rump. In real-life hunting, a gut shot results in an extended tracking expedition, in which it can take hours to find the wounded animal. In DEER HUNTER, however, any hit equals a kill, so what's the incentive to make a good shot? Also, in the game, when you down a buck you are instantly transported to the trophy room to see your deer's mounted head—where's the field dressing?

Hunts in DEER HUNTER are just a matter of waiting and watching for the deer to saunter up to your spot. You then shoot the deer and start a new hunt. This waiting and watching may be realistic, but in a computer game it gets really boring, really fast.

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Strategy Supernova
Blizzard Lives Up to the Hype, Delivering the Most Satisfying Real-time Strategy Game to Date

by Robert Coffey

With all the pre-release publicity surrounding STARCAST, it would have been more than easy for Blizzard to tumble off that mountain of hype and fall flat on its face. With expectations at an unprecedented high, anything less than a great game would likely be seen as an utter failure. After months of delays, the game is out and the verdict is in: STARCAST isn’t just a great game; it’s the kind of game that grabs you by the brain stem and compels you to play it. This baby’s gonna stick around.

Race Relations
STARCAST gives you the opportunity to play as one of three distinct races: the scrappy, militaristic Terran (human) forces; the Protoss, with their unusual blend of advanced robotics and mysticism; and the horrid, mucus-slicked Zerg, the much nastier cousins of those critters from the Alien movies. STARCAST’s full-campaign game is spread out over three separate, 10-mission campaigns, one for each race.

Most stories in real-time strategy games simply serve as flimsy props to justify gameplay. Not so in STARCAST. Somehow, Blizzard has found a way to tell an engaging story filled with plot twists and treachery across the three separate campaigns. Told chiefly through stunning cut-scenes and emotionally charged mission briefings, events frequently occur even during the missions themselves, changing mission objectives and the story’s complexion at the same time. It’s a deft piece of storytelling.

But while the story may contribute to that “just one more mission” syndrome we know and love so well, it’s the gameplay that will keep you glued to your computer. No other strategy game has so thoroughly hooked me as has STARCAST. Unlike other games, in which every map is essentially a puzzle that can be solved in basically one way, the missions in STARCAST are wide open to your particular style. Any gamer who has endured repeated defeats in a strategy game until they discovered that “one and only trick will find this a real breath of fresh air. Like other entries in the real-time genre, STARCAST stresses resource gathering and exploration, but the openness of the game introduces a type of exploration rarely seen in other games—an exploration into the subtleties and possibilities of play.

Balancing Act
One of the true marvels of STARCAST is the game’s play balancing. Each race is significantly different from the others, which affects strategy and play. With their lower cost and fast production rate, the Zerg can spew out hordes of units from their bleeding, organic structures. The Protoss units are more costly but deadlier and, with their psionic shields, much sturdier. Terrans split the difference in cost and effectiveness. But, they can build anywhere, unlike the Zerg, who must build on their own excreted slime, or the Protoss, who must build and maintain an energy grid. This lets the Terrans...
line attack routes with
bruising defensive
structures.

With three different
races, it would have
been easy for the
designers to succumb
to that "same unit, dif-
f erent name" syn-
drome you see in other
games. But they didn't.
Instead, they served up
remarkably distinct
unit sets for each race,
each with its own dev-
astating strengths and vulnerable
weaknesses. While trolls and
archers were more or less the
same in Blizzard's own WARCRAFT
II, you can't say that about a
Terran siege tank, Zerg ultralisk,
or Protoss reaver.

Such variety of forces creates
seemingly endless strategy
options, and this is never more
apparent than in the addictive
multiplayer action. On a LAN, it
rocked. Over the Internet on Bliz-
izzard's battle.net servers...it still
rocked. I lost a good six hours my
first night on battle.net, and I'm
still going back for more. The only
knock against online play is that
many goons are inclined to aban-
don strategy in favor of rushes.

**State of the Art?**

With all the hoopla sur-
rounding STARCAST's release, gamers
might well expect it to be unbe-
lievably groundbreaking. Well, it
doesn't feature true 3D graphics
and terrain, as does TOTAL
ANNIHILATION; it doesn't have the
formation options and complex
waypoint system of DARK REIGN;
and it doesn't let you group
scores and scores of units for
those RED ALERT-style tank rushes
(there's a 12-unit limit for
grouped forces). So does
STARCAST redefine the real-time
game? In graphics, command
options, and the like, it doesn't.
But in deep, challenging, and
downright exciting gameplay,
STARCAST is setting a standard
that will be hard to beat. Besides,
aren't real gamers tiring of one-
dimensional tank rush tactics?

STARCAST's AI is both a bless-
ing and a curse. On the one
hand, it is very smart, not only
for a real-time game, but also for
a strategy game in general. The
computer is very good at using
its spells, gathering intelligence,
and reacting to your moves.
However, it's sometimes too
tough with its rushes. A toggle
for AI difficulty would have been
good, as well as the option to
make AI players fight among
themselves in human-versus-AI
deathmatches.

STARCAST could stand
improvement in some areas,
though. It would be nice if hot-
key numbers for grouped units
were displayed onscreen along-
side the highlighted units. Also, a
friendlier spawning feature (like
WARCAST II's) would be wel-
come; as it is, one CD-ROM will

Support eight players in multi-
player-only combat, but those
seven spawned players are locked
into playing solely in games
hosted by that exact CD-ROM; no
other registered disc will do.

But these minor shortcomings are
trivial in light of the game's
powerful mission/campaign edi-
tor, sharp graphics, and extra little
STARCAST games—which
include football, road racing, and
a SPACE INVADERS-style arcade
diversion called GALACTIC
DEFENDER. All of these extras are
included on the CD, and all were
built using the included STAR-
CAST campaign editor.

With its artfully balanced play,
imaginative story line, and a
strategic depth that other games
can only dream of, STARCAST is,
quite simply, a winner.
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Got a Millennium to Kill?
This Galactic Battle Isn’t for the Micromanagement Weary

by Martin E. Cirulis

When word came out that LucasArts was actually going to make a wargame based on Star Wars, two things became evident very quickly: first, most wargamers were thrilled by the idea; and second, almost every one of them had a different idea of the perfect Star Wars strat-fest. Well, now that STAR WARS REBELLION has finally arrived, I think it’s pretty safe to say that this was nobody’s ideal.

Does that make REBELLION a bad game? Not necessarily—but it does mean that this rebellion will have an easier time succeeding against the Empire than it will battling the preconceptions of the wargaming crowd.

These Aren’t the Droids You’re Looking For
The first thing you need to know about REBELLION is that the designers did not go with the light-and-fluffy approach. Despite what you may have heard about this game being in realtime, there is no base-building, resource-scouring, tank-rushing COMMAND & CONQUER-ing to be found here. Instead, what we have is some pretty solid and serious spacepolitiation, combined with a quasi-RPG aspect and a big, big playing field.

REBELLION centers on the conflict between the evil Empire and the Rebel Alliance, and sets the stage directly after the destruction of the Death Star at the end of the first movie. The balance of power in the galaxy is in a state of flux, with only a handful of star systems supporting one side. The vast majority are declaring neutrality and sitting on the fence waiting to see who has the upper hand. As supreme leader of either side, your job is to crush your opponent—but in order to do so, you will need to bring neutral systems under your sway and use their industrial capacity to build up your war machine. And if that proves too difficult, there is always the unexplored galactic rim, with literally dozens of systems, both populated and barren, to be discovered and exploited.

I Dunno Kid, I Can Imagine an Awful Lot!
Each system is abstracted down to a resource capacity, an energy capacity (which denotes the number of facilities the system can support), and three production slots—one for starships, one for ground units, and one for construction of facilities like mines, refineries, orbiting shipyards, training barracks, and ground-based defenses. Players must balance production of military units, which consume “maintenance points,” against infrastructure, such as mines and refineries, which create not only the materials to build units, but also the maintenance points needed to keep them running.

Now, while this is a fairly simple system compared to other spacepolitiation games, the rub is that this is a very big game that runs in a day-by-day progression of “realtime.” This means that the clock is always ticking, and things are always happening no matter what you do—and while the clock can be turned down to the point that one day passes every minute or so, sooner or later you will be overwhelmed by micromanagement woes. Luckily, the designers did provide a decent AI agent in the guise of an advice droid, who can handle most of the minutiae for you, though it takes some practice to know which responsibilities to allocate and when to allocate them.

Luckily for you, the AI for the computer player doesn’t really put up much of a fight.

Once you get your fleets up and running, you will undoubtedly find yourself in the real-time combat cube. This is a 3D space that is used to resolve all ship-to-ship battles, and, basically, it begins with opposing forces facing each other across a cubic space about three times farther across than the longest weapons range. To be
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4. Can you swim?

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6. Do you fear death?

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8. If threatened, would you beat an infant animal with a table leg?

9. Do you have any phobias relating to reptiles?

10. Which is something you might say:
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   - B. Genetic cloning of humans for medical purposes is OK.
   - C. Genetic cloning is wrong and should be illegal.
   - D. Genetic cloning is a real turn-on.

11. Have you ever shot a gun?

12. Are you in good physical shape?

13. True/False: Dinosaurs are extinct.

14. What is the longest period you have gone without human interaction?

15. As a child, were you afraid of monsters?

16. Do you like sleeping outdoors?

17. A velociraptor is:
   - A. A device used to measure velocity.
   - B. A German sports car.
   - C. A singing purple dinosaur who loves you.
   - D. About 6’ tall with a hooked toe for ripping flesh.

18. Do you bleed easily?

19. True/False: Anything can be used as a weapon.

20. Do you have a dirty little secret?
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honest, it was one of the most promising parts of this game, but it feels like the designers left it unfinished. The graphics are good enough to be useful, but they won't wow anybody. The maneuvering commands are useful, but this 3D combat had so much more potential. If the combat field had included a planet or other celestial phenomena, then driving forces past defenders for troop landings or bombardments would be an important tactical consideration, and maneuvering of ships and fighters would take on greater meaning.

The final, and probably most distinctive, part of REBELLION is the use of various characters from the Star Wars universe as agents. Players can send Leia out to swing a world over to the Rebels; Vader can lead commandos in covert acts of destruction; Solo can be promoted to admiral and lead your fleets to victory; Luke can train other Jedi knights.

While other strategy games use heroes, this is one of the only games outside the play-by-mail venue to use them in such an intrinsic fashion. While it is possible to get through a game ignoring your characters and their development, I wouldn't recommend it.

I've Got a Bad Feeling About This

Despite all this wealth of strategic and tactical potential, REBELLION's fatal flaw will probably turn most gamers away before they can see just how much game is here. The problem is that REBELLION offers some of the most information-intensive gaming I have seen on a computer. Unfortunately, you have to view it through an interface that can only be generously referred to as both crude and intricate. The lack of a high-resolution mode means that only two sectors and two system windows can be open at the same time—and they overlap each other. In a game in which seeing where your forces are at a glance—and moving them around ASAP—is crucial, this is not the best arrangement of information.

The long and the short of it is that when you combine these problems with a large manual that can be more than a little vague, you get a strategy game with a learning curve that rivals the most obtuse of board-based wargames.

If you have the strength and desire to get a handle on the interface beast, you will find one of the largest, most novel space exploitation games made yet. REBELLION is fully equipped when it comes to multiplayer capability, but I wouldn't recommend starting a game with anybody who isn't a stable friend, as the average-sized conflict can easily go 5 to 10 hours. But, as a bonus feature, LucasArts has generously taken us back to the days of yore and produced a virtually bug-free product, a rarity in these patch-obsessed times.

So if you want to join this war, be prepared for a tough gig in boot camp, because REBELLION is definitely not for the casual, quick-thrills crowd.

---

**Learning When to Let Go**

REBELLION takes place across such a large playing field that even without real-time action it is still micromanagement hell after the 1,000th day or so. The key to surviving your own success is knowing when you have built up to a point where the computer can take over your more mundane chores without undermining your entire strategy.

Basically the key is to concentrate on only two or three planets in a sector as far as production goes, and leave the rest for infrastructure. A good, but risky, strategy is to put all your eggs in one basket and specialize each of these worlds for your needs. The first should have four or five construction yards so you can quickly build up and ship to other facilities around the sector. Your second and third worlds should have multiple shipyards and training barracks, respectively.

Once you have done this for two or three sectors, you can safely allocate infrastructure chores to your AI assistant. At this point, the only production messages that need concern you are warnings of idle shipyards and training barracks.
A Good Omen

The Warhammer Universe Comes Alive as Role-playing Meets Real-time Strategy

by Elliott Chin

Before there was MYTH, there was WARHAMMER: SHADOW OF THE HORNETED RAT, a real-time strategy game that did tactical 3D two years before MYTH even appeared on the horizon. Not only did SHADOW OF THE HORNETED RAT have bleeding edge technology, but it also mixed a good dose of role-playing with its strategy. Unfortunately, its 3D engine had trouble running even on the best of that day's machines, and its sluggish gameplay caused the game to pass into obscurity with a whimper.

The same won't be said about its sequel, WARHAMMER: DARK OMEN, which is an excellent 3D RTS game that's much more fun than its predecessor.

Waking From a Fantasy

DARK OMEN is a gorgeous 3D strategy game set in the fantasy Warhammer universe. The game reprises your role as mercenary commander Morgan Berhardt. The peace you achieved after beating the Skaven in SHADOW OF THE HORNETED RAT has been shattered by the rampaging greenskins (orcs and goblins). Normally, greenskins would never attack humans so boldly, but something has scared them away from their usual hunting grounds. That something is an undead legion that is vast and frightening enough to destroy the Warhammer world. So, at the behest of the Emperor (who stands to lose much to the undead and greenskin hordes), you strap on your magical sword, round up your troops, and sally forth against the combined might of orcs and zombies.

DARK OMEN has a fairly linear campaign of more than 20 missions. There are a few optional scenarios, but for the most part, you follow a narrow path. I didn't mind that much, since a good story unfolds within the linear missions.

Between each campaign scenario, you see a static screen in which up to four character portraits engage in conversation. Sometimes, it'll just be a short and obvious setup for the next scenario (as when Morgan cries out "orcs ambush"), but other times, it will be a big session in which more plot details are revealed (as when Morgan, the Emperor, and the court wizard spend several minutes discussing the rising threat of the undead in the realm). What's great about these briefings is that, for the most part, they don't seem like the canned mission briefings of other games. Instead, you get to see your mission objectives, and the story, come together as the characters talk amongst themselves.

SHADOW OF THE HORNETED RAT's one great feature was its role-playing aspect; you commanded the same band of troops throughout the game, nurturing them from battle to battle as they gained experience and gold. DARK OMEN continues in that fine tradition. You start the game with the Grudgebringer mercenary army, which begins with an initial four regiments: you, your horsemen (the Grudgebringer cavalry), infantry, crossbowmen, and a cannon team. As you progress through the game, you get opportunities to add more regiments to your army. These regiments include mercenary ogres, dwarven axemen, and elven guerrillas. All your regiments can grow as they gain gold and experience after each victory. The experience goes toward level increases, which enhance a regiment's strength, while the gold buys armor and replacements for fallen warriors. However, if an entire regiment falls in a scenario, it's lost for the rest of the game. Each regiment has a name, follows you from scenario to scenario, and can die, making it seem more real.
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War Is Where It's At

While the role-playing adds personality, the heart of the game is its combat. Unlike in other real-time strategy games, you don't command individual units, you command regiments. While they can be of varying sizes, you never break regiments into individual components. As in MYTH, you start with a set number of troops per scenario, and never build more during the course of a mission. However, unlike in MYTH, you always know which regiments you are bringing into the scenario, since you carry your army from battle to battle.

At the beginning of each scenario, you deploy your regiments and issue preliminary orders in the deployment phase. Once you finish deploying your troops, the battle is joined in real-time. Typically, once you spot enemy troops, you click on each regiment tab to tell it to engage the enemy, fire its ranged weapons, cast spells, or move. Then, you just sit back and watch the regiments follow orders until they, or the enemy, die. Battles between regiments can last for a while, and there isn't much to do once two regiments lock horns except order retreat or pick at idle regiments.

DARK OMEN'S combat isn't as frenetic or active as in other real-time strategy games. Its pace is definitely slower, and there is no speed slider to liven things up. Also, combat is on a smaller scale (you rarely command more than a dozen regiments per scenario). However, combat is tactically focused and fairly deep, as facing terrain, and line-of-sight come into play. For instance, ranged units need to establish a line-of-sight with their targets before they can fire, units facing the opposite way from their attackers can be mangled from behind while they turn around, high ground allows units to see better, and objects—such as houses and trees—can be used for cover and concealment.

Morale is also important in this game. Regiments can break rank and flee if they suffer heavy casualties or come under the influence of undead-induced fear. Regiments can also benefit from hatred, wherein they fight to the death against mortal enemies (as is the case with elves versus orcs).

Magic plays an even bigger role in combat here than in other fantasy strategy games. DARK OMEN'S many spectacular spells can turn battles, but they cost anywhere from one to three magic points to cast. The game uses a concept called the "Winds of Magic" for its magic system. Magic storms continually rage during battle, generating potent magic points. The battle begins with between zero and three points already stored in the magic well, and as each storm passes, more magic is added to this pool. As you cast magic, the pool becomes exhausted. If the pool runs out, you have to wait for the storms to replenish your well before you can cast new spells.

Some Bad Luck

I enjoyed DARK OMEN, but it did get frustrating. This game is quite difficult. The later missions throw over a dozen regiments at you, and start you off at a tactical disadvantage, such as when the game positions you at the bottom of a hill while green-skinned archers on the hilltop arrows down on you. Because the missions are so hard, you end up losing lots of men. If you lose more men than you can replace (given your resources), you'll be stuck. If this happens, you have to start from a previously saved position (before you got into the hole) and try to win with less casualties.

My biggest request is a replay button after each scenario. Currently, if you want to replay a scenario, you have to quit back out to the main menu and then reload from your last saved position. This also brings up the point of saved games. There should have been an auto-save feature and an in-scenario save feature.

Also, the software renderer could have been faster. On my Pentium 133 system at home, I had to turn off all the details and play with the sound off, and even then, I sometimes had to wait a half second before my clicks were reflected as action on the screen (especially when trying to pump up my troops' morale). On my work system (a Pentium 200 MMX), the game ran smoothly. Still, the game should have been faster on my Pentium 133, as this is still higher than the minimum system requirement.

Also, while DARK OMEN's interface is much improved over SHADOW OF THE HORNED RAT's, it still isn't good with feedback. I could tell how many men were left in a regiment, but not how many hit points units had or how much damage they'd dealt. When a wizard (which is considered a regiment of just one unit: itself) was attacked, I didn't know when to pull him back, because I never knew how many hit points he had left. Hot-keys for the individual spells would also have been nice.

WARHAMMER: DARK OMEN is a good game, and is much better than its predecessor. Its only direct competition right now is MYTH, and DARK OMEN holds its own with its 3D graphics, deep combat engine, role-playing elements, and story-driven gameplay. If you can stand a more slowly paced real-time game and a steep learning curve, you'll find a redeeming strategy experience in this latest WARHAMMER offering.
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Caesar's Mighty Sword

The GREAT BATTLES Series Ends With a Strong Thrust

by Jim Cobb

The third in a series featuring antiquity's finest generals, GREAT BATTLES OF JULIUS CAESAR portrays the Roman military machine in its prime. This is the army that rolled over Europe, the Mediterranean, and North Africa, and found its ultimate enemy only within itself. CAESAR not only chronicles the great leader's rise to fame in Gaul, it also concentrates on the civil war between Caesar and Pompey.

More of the Same, but Better

CAESAR's mechanics show little difference from the preceding games in the series, ALEXANDER and HANNIBAL. Leaders have initiative ratings that determine when they can move in a turn, how many orders they can give to units, and if they can take multiple actions in a turn. Orders include movement of units, rally, firing missiles, and restoring cohesion. Each order uses an initiative point per unit; thus, a leader with an initiative of six can order six individual units. Alternatively, some leaders can expend all their points on a Group Order, which lets all eligible units of that formation move, attack, retreat, and restore cohesion as one.

CAESAR introduces a critical new level of leader, the Roman military tribune. These junior officers only have an initiative level of two, limiting discrete movement. Unlike their barbarian counterparts, however, they don't have to make an initiative check for a Group Order. Tribunes can thus guarantee that their men will do as they command—at least in their initial maneuver (all that Roman training must count for something). Tribunes' group attacks do sometimes get out of hand, but senior commanders can then rally formations, restore cohesion, and order exposed troops to fall back. Overall, CAESAR does a very good job of showing how the Roman system of command works on the battlefield.

Combat units sport the typical ratings for the GREAT BATTLES series: size, troop quality, and cohesion level. Combat itself starts with an exchange of javelins or other missile weapons to disrupt opponents (very effective if the enemy has just incurred cohesion hits moving up or down terrain). Hand-to-hand combat follows, and is automatically resolved after the leader has finished for the turn. Units' relative size, quality, and cohesion—modified for flank attacks—decide melee. Units are rarely eliminated; they are usually routed instead, and victory is a function of the number of troops retreating off the board.

Cavalry, skirmisher units, and a few artillery units are represented, but infantry is the key to CAESAR, reflecting the changes in tactics from the time of Alexander. Whether formed into a line or their famous "checkerboard," the foot soldiers carry the brunt of the fighting. CAESAR shows that it was troop quality, not raw numbers, that was crucial to success.

CAESAR SALAD SURPRISE

Sabines is a great scenario, showing how the Romans reacted to a sneak attack on their camp—complete with a variety of colorful uniforms.
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For example, Caesar’s staunch veterans, with good play, can hold off Pompey’s conscripts at three-to-one odds, and they snicker at barbarians.

Ten battles make up the game. Two of these represent battles fought before Caesar’s day. Marius in Gaul and Sulla in Greece, but they’re still important in tracing the development of Roman tactics. Two other clashes highlight some of Caesar’s masterpieces in Gaul. The other scenarios represent the knock-down, drag-out clashes of the civil war.

Even the less well-known battles have interesting twists. Sabis shows how the Gauls surprised Caesar while the Romans were erecting their nightly camp. Giving the Gauls a free move long with Cleopatra. (It’s a pity that the Cleo rule is so abstract.)

Rugged Legions, But Rusty, Too

These graphics won’t make anybody forget MYTH or PANZER GENERAL II. Even so, for a year-old engine, there is enough of a 3D effect to clearly delineate the different elevation levels and obstacles—which is key, given the effect terrain has on cohesion in CAESAR. The soldiers’ uniforms and weapons are nicely detailed as well. CAESAR runs faster than HANNIBAL, but the animation still slows play during big battles.

And there are other minor flaws. Siege warfare isn’t shown—even though Caesar’s most famous victory occurred at Alesia—and artillery is more for show than use. The absence of a fog-of-war continues to be a serious flaw in the game: A cursory pass will show you exactly which enemy units are wavering. Commanders may have been able to judge their foes to some extent, but not with the exactitude of this game system. Some may also quibble with the initiative-based phased system, where an entire front line can’t move forward together.

While the AI is fundamentally sound, it doesn’t exhibit the necessary brilliance for a decisive stroke. To be fair, among wargames, this problem is hardly unique to CAESAR, and the Internet option lets you battle against a human general, should you tire of the computer opponent.

If you’re willing to put up with its eccentricities, CAESAR does a remarkable job of recreating ancient warfare. It’s not only the best of the GREAT BATTLES series to date, it’s also the most realistic ancients-era game yet on the PC. That it happens to be challenging and fun as well is a boon for Julius Caesar fans everywhere.
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Bred for Success

Red Orb's Genetic Battleground Isn't Your Typical Real-time Clone

by Scott A. May

Roderbund Software, responsible for some of the most imaginative 8-bit games of the 1980s, has fallen virtually silent in today's gaming era. But not for long. Last year's formation of Red Orb Entertainment, Roderbund's new in-house development team, signals the publisher's belated return to original, adult-oriented computer gaming. Better late than never.

WARBREEDS, Red Orb's first foray into real-time strategy, blends sci-fi and fantasy with one of today's hot-button topics, genetic engineering, to form a truly unique gaming experience. Unlike many games in this overcrowded genre, WARBREEDS boasts a fascinating backstory that's deep, articulate, and totally integrated with all aspects of gameplay. In other words, it doesn't just build up the manual, instead, it pulls you into the game and makes you care about its characters.

Once Upon a Time...

On the planet Aeolalia existed a race of intelligent bipeds known as the Yedda. Their civilization was based on a class system and religious order that stressed Yedda superiority over lesser species. Little wonder, then, that the discovery of genetic engineering was so embraced by Yedda leaders. Ironically, it would later prove to be their downfall.

Charged by their newfound "religion of genes," Yedda shamans engineered new races from the genetic material of three indigenous animals: the desert Tanu, subterranean Sen-Soth, and swamp-dwelling Kelika.

The resulting genetic mutations were kept as pets or slaves by the Yedda. Meanwhile, a radical group called the Magha Dhuerenya (who were opposed to the ancient Imperial Order) created an entirely new race of bootleg beings that were designed to liberate the common people. What they got instead was a murderous race of bloodthirsty supercreatures, named after their creators, the Magha.

Years of civil war followed, resulting in the near-complete genocide of the Yedda. The newly liberated Tanu, Sen-Soth, Kelika, and Magha creatures evolved quickly, eventually learning the secrets of genetic engineering themselves. They became known as the Four Clans, battling each other for the right to rule Aeolalia.

Each Clan consists of five creature types, which are totally different from each other in appearance, speed, strength, and intelligence.

You Started It! This being is a Yedda scientist, one of the former rulers of the planet who started the game's vicious war by breeding three of the four warring factions.

CGW Rated

APPEAL: Real-time strategy fans looking for something different.

PROS: Unique resource management model; challenging computer AI; excellent sound effects; multiplayer support.

CONS: Could have used more polished graphics or 3D support; somewhat redundant background graphics; no map editor.

DIFFICULTY: Intermediate.

REQUIREMENTS: Pentium 90, Windows 95, 168/5 RAM, 34 Mb hard-drive space, 4× CD-ROM drive, mouse, DirectX 5-compatible sound and video cards.

3D SUPPORT: None.

MULTIPLAYER SUPPORT: Modern Internet, Red Orb Zone (2 players); IPX LAN (2–4 players); 1 CD per player.

Peer: 529.95
Publisher: Roderbund Software
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The only creature type common to all clans is the shaman, who serves as the spiritual and scientific leader. Most other creatures serve as scouts and soldiers, each as gruesome as they are deadly. Most are ground-based, except for a few, like the Magha Viper and Tanu Jubjub. Depending on their size, most creatures can hold up to four weapons, which are mounted on their head and torso.

**Sowing the Seeds of Discord**

The crux of play follows four main elements: planting seed pods that are used to draw energy from the planet's core; harnessing that power; building structures, researching genes, and creating new creatures; and leading your warriors into battle. A brief hands-on tutorial is available to familiarize newcomers with this basic process.

As they say, the devil's in the details, and this game has plenty of them. Energy pods can only be planted by the shaman on special crop soil. From there, you must build refineries to harness pod power, which, in turn, provides power to other critical structures, such as psi towers (used to control your creatures). Gene labs are needed to research and create custom creatures, and there are over 35,000 possible variations, according to the game's designers.

Other critical structures include gene collectors, which shamans use to gather DNA from dead opponents for gene lab research. Relay towers can be built to extend the power zone of refineries. Automated defensive structures include rotating turrets; electric towers; mines; plasma cannons; and the summoner, an ultimate weapon that fires explosive crystals capable of mass destruction. Finally, there are listener towers that extend the line-of-sight surrounding your base, and healers who rejuvenate ailing creatures and expedite weapons rearming.

WARBREEDS can be played in a variety of ways, including single-player campaigns or skirmishes; two-player skirmishes via direct modem, null modem, or Internet connection; and four-player games on a LAN. Internet games
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acid, and plasma) to missiles to hand-held explosives. Each does various amounts of damage and some are more effective on some types of creatures than others. The sound effects and animation that accompany each weapon are entertaining in themselves.

The Visual Fruits of Genetic Testing

The graphics in WAR BREEDS are a mixed bag. Viewed from a three-quarter, top-down perspective, the background tiles are often too dark, flat, and redundant. On the other hand, both the creatures and their contraptions sport imaginative, organic detail. For example, as creatures develop in the gene lab, they expand like miniature Macy’s parade balloons. Death is equally animated, as some creatures blow apart, scattering arms, legs, and heads across the desert plain.

Although the game only supports 256 colors, you can change resolution on the fly, to either 640x480 or 800x600. The latter display looks best, but distances players from the action. Even when zoomed, things look too far away, which makes the visual experience less satisfying, especially when you’re first learning the game.

Personally, I found the lower resolution better, zoomed in for close combat and pulled back for movement or strategic planning.

This isn’t the type of game that cries out for 3D acceleration, but it could have used it. The fog-of-war effects, in particular, are pixilated and give the game a rather muddy look. We can only guess how nice this same effect could have looked with 3D translucency and fog, or even STAR CRAFT’s 2D, but polished, special effects.

Overall, WAR BREEDS is decidedly not just another real-time strategy clone. The game features a wealth of detail and depth, with an intuitive interface and incredible variety. It’s guaranteed to keep you coming back for more. Although it has a few nagging problems, it’s worth your time.

CERTIFIED ORGANIC
Everything in War Breeds has a bizarre, organic look, such as this close-up of a Refinery device, used to convert pod power into usable energy.

War Breeds can be played using either direct TCP/IP connection or through Broderbund’s Red Orb Zone. Multiplayer games can be competitive or cooperative.

Two campaign modes are available: Tanu Ascendancy and Magha Uprising. Each consists of more than a dozen individual missions and leads to one of two cataclysmic endings. Skirmish mode lets a single player engage in a random or custom-designed game, set on 1 of 19 available maps, ranging in size from 48 to 96 tiles square. The game’s AI proves very competent.

The essence of gameplay involves building your base, creating new creatures, and eliminating all opposition. Up to 10 custom attack formations can be designed, the effectiveness of which depends on the number and type of creatures in a particular squad. It’s a good idea to build fundamental defensive structures as quickly as possible, otherwise invading clans—especially the stealthy Maghas—will attack and destroy your pod fields and refineries. You can also set up patrols using user-defined waypoints for your sentries to follow.

Battles are fought with close- or long-range weaponry, depending on unit placement and available weapons load. There are 22 weapon types, ranging from melee (hammer, blade, drill, and circ saw) to guns (heat, laser,

SILENT HUNTER This creature is one of the Magha, the game’s closest thing to an evil scourge. They killed the Yedda and began the planet’s civil war.

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This Means Fargin' War!
A Look at New Strategy and War Games

Dark Reign Expansion: Rise of the Shadowhand

Activision whetted our whistles with DARK REIGN, but fell down when it came to scenario variability and strategic challenge. RISE OF THE SHADOWHAND fills the gap beautifully.

In a hostile and isolated corner of the Dark Reign galaxy, a small group of marooned Freedom Guards are giving the SS-like Shadowhand forces a run for their money in a do-or-die script.

This time around, each side's mission set is different, and unlike in DARK REIGN, each mission set forms a contiguous, linear campaign. The end result is the same, though: Win or die.

The beauty of SHADOWHAND is the variability of its missions. The missions encompass everything from escorting cargo APCs and diplomatic envoys to stonewall defenses and flanking attacks. Might does not make right in every mission, however.

Sometimes, instead of building up Cold War-proportion forces, you have to make do with the meager forces you start with. But, you do get some powerful new units to supplement them. The Freedom Guards make use of Ninevah's native species to compensate for their lack of equipment, and the Shadowhand get to play with some new, powerful armored units.

Many of these new missions are difficult. Some are so unforgiving that I had to restart them repeatedly (after only one mistake) in order to find the exact place to position my troops.

Still, with new maps, missions, and challenges, SHADOWHAND can only make DARK REIGN shine brighter. You will need the original DARK REIGN to play SHADOWHAND. —Lance A. Larka

East Front Campaign CD 1

A plethora of unusual battles make this campaign CD a must-have for EAST FRONT fans.

The campaign engine still has some serious flaws, though improvements are visible. German infantry caught in the open can now take casualties, and Russian tanks occasionally blow up. However, there is still a tendency for the AI to move as a disorganized mob toward victory point hexes, and single battalions still seem to receive four or five headquarters units.

However, the heart and soul of this add-on are its new scenarios (battles). There are now Finnish, Polish, Italian, Rumanian, and Hungarian units. The game gives credit to some of these lesser-known forces. The Poles, though outgunned and out-armored, can put up a tough fight when backed into a corner. And the Finns are

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fully capable of bloodying the nose of the oversized Russian bear. Play over the Net or via hot-seat makes for a nice two-player game, especially now that the damage model has been tweaked. The main performance problem has been partially fixed. Before, the AI would often take inordinate amounts of time in large battles, but now a "fast AI" mode has been added, which minimizes the time taken to move units, and shortens AI turns by about a third.

The other big improvement to the game is the manual—this is the manual that should have shipped with the original game. It is now complete (yes, supply is discussed), and contains strategy notes and full sets of weapons tables. Of course, you get the latest update, plus patches of other TalonSoft games. If EAST FRONT has been sitting on your shelf because of previous problems, you might want to dust it off and give this campaign CD a spin.—Loyal Case

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**Dragoon**

![Dragoon Review](image)

**Price:** $29.95  
**Publisher:** Art of War  
**www.boku.simplenet.com/index.html**

**DRAGOON** is a turn-based wargame (at battalion/battery scale) that focuses on the distinctive pace of combat in the era of Frederick the Great. The game's emphasis is on leadership and movement, with activation of troops based on command ratings: If a commander fails his "command check," he cannot order troops that turn. The uncertainty of leaders' ability to move troops reflects the halting pace caused by the rudimentary communications of the period.

Units in DRAGOON sport a wide range of movement, quality, and morale factors, which are further enhanced (or detracted from) by choosing to put troops in line or column formation. In a column, troops can move without disorganization but are more vulnerable to fire. Line formation is essential for combat but can cause disorganization, unwanted facing changes, or crippling disruption.

Combat thus becomes a state-like, if frustrating, series of maneuvers that nicely invoke the feel of 18th-century warfare, with plenty of assaults, long-range artillery fire, bloody defensive stands, and routs. There is a great deal of period flavor in DRAGOON. The Prussians, for example, can use a special assault and gain two movement points, but only if they forgo first-fire opportunity.

The relatively simple interface can be unwieldy at times, and the graphics are dated, to be sure. The computer AI is weak on the attack, so this is best played by PBEM. Still, where else can you find computer games covering Koeltn, Mollwitz, or Hohenfriedburg? DRAGOON is a treat for aficionados of this period.—Jim Cobb

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StarCraft

STARCAST Boot Camp Starts
With Some General Strategies

by Elliott Chin

Lizzard's STARCAST has finally arrived, and, in a few short weeks, the game has proven to have an unmatched wealth of subtlety and depth—much of which isn't readily apparent to first-time players. The single-player game does an excellent job of introducing you to each race's strategic options and specialties, but solo play leaves much of the richer strategy hidden. You can learn the intricacies of each race by getting your butt kicked on battle.net, or you can keep reading. This month's STARCAST strategy guide has basic tips on such topics as hot-key commands and resource-gathering hints. The next several months will also feature race-specific tips and overviews for the units and special abilities of the Terran, Zerg, and Protoss. Next month's strategy guide will feature more advanced tactics, including combined-arms offensive, optimal building orders, and how to stop rushes.

Part One: The Basics

Learn the Interface

The interface can really help you if you use it to its fullest potential. Don't waste your time fumbling with it. A mastery of the interface is key in STARCAST.

Hot-keys Memorize the hot-keys for building units and buildings.

See the Review

IN THIS ISSUE • 5 STARS

Moving your cursor away from the main screen to click on that SCV icon takes more time in the long run than just hitting the S key. Check out the hot-keys sidebar accompanying this article for a complete list of Terran hot-keys. Next month, we'll show you the other races' hot-keys.

Saving Groups and Buildings

You can use Ctrl + [number keys] to save up to 10 unit groupings or buildings. These groupings are extremely helpful in combat. For example, make your marines one group number and your tanks another, and you can quickly select the correct units by hitting a single number key. Keep in mind that the maximum number of grouped units is 12.

These groupings are also useful for saving buildings. I often save my ComSat as 0. When I want to scan an area, I move my cursor to that area, hit 0 and then S (for scan) and immediately scan it. Just two key presses gets me what I want, without diverting my cursor or eyes from the on-screen action.

Selecting All Units of One Type

You can select all units of one type by holding down Ctrl and clicking on one of that unit type. For example, if you want to select all your vultures (up to the unit-grouping limit of 12) out of a marine-vulture-zebra-zebra mash, all you have to do is hold down the Ctrl key and click on one vulture, and all the vultures on the screen become highlighted.

Jumping to the Last Message

Remember that hitting the space bar centers you on the last message, whether it is a completed building or a firefight.

Attack Move

An important interface tip is knowing the difference between the Attack Move command and the Move command. If you use the right-click button or the Move command to move a unit to a designated location, it ignores all targets along the way. If you use the Attack command, by clicking the Attack button or hitting the appropriate hot-key (a), and only then clicking on the destination, the unit will attack any enemies that it encounters along the way. For a better explanation of why you should use this command, see the Attack vs. Move sidebar on the next page.

Resource Gathering

After you have mastered the interface to the point at which it serves you rather than enslaves you, the next things to learn are general building- and resource-gathering strategies.

Optimum Number of Peon Units

Unlike in WARCRAFT II, only one peon unit can mine a resource patch at a time. That includes vespene geysers. If you start next to a cluster of six mineral patches, don't just crank out 20 peons to...
WHAT TO BUILD NEXT? As Zerg, I went for maximum drones and a spawning pool. Then an overlord, extractor, hydralisk den, and a second hatchery.

**Attack vs. Move**

These two sets of screens show just why you should use the Attack Move command instead of the normal Move command.

In the set below, by pressing the button on the cursor's location, these hydralisks will attack any enemy units en route, including this emerging spider mine. By simply right-clicking, the hydralisks move toward their destination, while ignoring any encountered enemies. In some cases, as in this one, it can prove to be lethal.

In the above set, the battlecruisers move only to within maximum range when they first encounter these enemy goliaths because they are ordered to this location with the Attack command. The minute they see their targets, they fire. In the screen below, where an ordinary Move command has been issued, they continue moving to their destination, which is well within the goliaths' range. They won't attack the goliaths until after arriving at the destination, by which time they've taken a severe beating.
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harvest those patches in the hope that each additional peon will translate into extra resources. It doesn’t work that way. You should create twice as many peons as there are mineral patches; in this case, 12 peons would be perfect. That way, once one is done harvesting, the next one can swoop right in and start gathering. This circular cycle ensures that you are harvesting at the optimal speed. Create any more and the extra peons will idly wait in line to harvest. For geysers, it’s best to assign three to five peons to harvest gas, depending on the distance to the geyser—if you see more than one peon waiting in line outside a geyser, you have too many there. Because of this bottleneck, it is essential to get expansion bases up and running as fast as possible, especially if you want more vespene gas.

When you take a peon unit away from harvesting to build a structure, make sure you queue up another to take its place. Otherwise, you could end up disrupting your harvesting flow. This is especially true for the Zerg (although it isn’t as big a concern for the Protoss).

When to Expand: It’s always a good idea to get a second base up and running as soon as you can afford to do so. Pick secondary resource nodes that are in easily defensible positions, such as those on plateaus or islands, and begin your expansion. Also, don’t start another base unless you have enough money to build both a command center and hatchery and some defenses: a few towers or a bunker or shield batteries, for example.

If you only have 400 minerals and no troops, don’t build the expansion. Build up a handful of troops first, and then go for it. Secondary bases are always prime targets, so don’t expand too quickly. Make sure you do get one started, though, because each additional base can double your resource gathering.

---

**Hot-keys**

Here are the Terran hot-keys.

- **Shift + F2-F4** = saves map location
- **S** = supply depot
- **R** = refinery
- **B** = barracks
- **E** = engineering bay
- **T** = missile turret
- **A** = academy
- **U** = bunker

**ComSat**

- **V** = scanner sweep

**SCV**

- **H** = hold position
- **R** = repair
- **G** = gather
- **B** = build standard structure
- **V** = build advanced structure

**Marine, firebat**

- **T** = use stim pack

**Ghost**

- **L** = lockdown
- **C** = cloak
- **N** = call down nuke

**Vulture**

- **I** = lay down spider mine

**Siege Tank**

- **O** = enter siege mode

**Wraith**

- **C** = cloak

**Dropship**

- **D** = unload troops

**Science Vessel**

- **E** = defensive matrix
- **I** = irradiate
- **E** = EMP shockwave

**Battleship**

- **Y** = Yamato cannon

**Building Hot-keys**

- **C** = command center
- **E** = command center

**Advanced buildings**

- **F** = factory
- **S** = starport
- **I** = science facility
- **A** = armory

**Add-on Hot-keys**

- **C** = build comsat, machine shop, control tower, or covert ops
- **N** = nuclear silo
- **P** = physics lab

**Unit Hot-keys**

- **At barracks**
  - **M** = marine
  - **F** = firebat
  - **G** = ghost

- **At factory**
  - **V** = vulture
  - **T** = siege tank
  - **G** = goliath

- **At starport**
  - **W** = wraith
  - **D** = dropship
  - **V** = science vessel
  - **B** = battleship

- **At nuclear silo**
  - **N** = build nuke

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**STARCAST**

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If you’re gonna eat, burp and puke, it’s just more fun to do it together.
Build Orders As a general rule, in the beginning of a game, it's a good idea to crank out four more peon units than you begin with—regardless of which race you play. Tell your eighth peon unit to build a barracks, pylon, or spawning pool, and queue up a ninth peon unit. That ninth unit should immediately start work on a supply depot or gateway. The Zerg should have the ninth peon build an extractor, queue another drone, and spawn an overlord. Terrans should queue up a 10th SCV and have it harvest. Then crank out two to three more peons, build a second supply building (or overlord, for the Zerg) and a second barracks or gateway. Only then should Terrans and Protoss build gas buildings.

The following build order will ensure that you get a good harvesting force up and running and have the money and buildings to defend against rushes:

(a) 4 peons
(b) barracks/spawning pool/pylon
(c) 2-3 more peons
(d) supply/overlord/gateway
(e) 2-3 more peons
(f) a second supply/pylon and barracks/gateway
(g) 2-3 more peons

Depending on which strategy you want to pursue, your build order can change drastically from this point on. You can lay down bunkers or shield batteries to guard against rushes, build a third barracks, or go for a factory or starport. This early build order is just meant to get you up on your feet as fast as possible. Terrans who suspect rushes should insert a bunker after the first barracks, and then build one or two more (depending on the severity of the rush) as the resources become available.

For the Zerg, after the extractor, build a hydralisk den, crank out more peons, and then spawn a second hatchery.

On an island or very large map, though, where you might not be rushed as quickly, you could forge the second barracks and go straight for the gas building. Again, tailor your build order to your current map.

For more advanced building orders, check out next month's STARCRAFT guide.

The Hidden Battle System: Damage and Target Types

Something that isn't readily apparent to STARCRAFT newcomers is the different damage and target types in the game. Each unit deals one of three different types of damage: normal, explosive, or concussive. Each unit also has a size rating: small, medium, or large. Read the STARCRAFT Readme.hlp file under "Hints, tips, and other information" for a compete list of damage types and sizes.

Normal damage deals full damage to all targets regardless of size. A marine would deal six points of damage to any unit in the game.

Explosive damage does a full 100 percent damage to large targets, 75 percent damage to medium targets, and 50 percent damage to small targets. So a siege tank would do 30 points of damage to a dragon, 23 points of damage to a vulture, and 15 points of damage to a zergling.

Concussive damage is 100 percent effective against small targets, 50 percent effective against medium targets, and only 25 percent effective against large targets. Thus, a vulture is excellent for fending off marines, and terrible at tackling siege tanks. Protoss shields are an exception to this system; they take full damage from any attack, regardless of damage type and target size.
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**Simulations**

**JANE’S F-15**

There are a few undocumented commands that add new functions to JANE’S F-15. To use these, you must edit the keyboard macro file. To access it, use Windows Explorer to navigate to your F-15 directory (default is c:\jane\files\f15 and double-click on f15keys.ini).

To add a frame-rate counter to your heads-up display, add the following line to either the Expert or Casual sections, depending on which control set you use: `KEY_K=DISPLAY_FPS`. Pressing K will now activate the frame-rate counter.

One of F-15’s designers has been known to be active in a WARBIRDS squadron called the “F1g Pigs.” Well, next time someone says, “when pigs fly!” just press the Y key in JANE’S F-15 after adding this key to the .ini file: `KEY_Y=MEET_SMUT`.

In F-15’s mission builder, you can actually change the default aircraft from the F-15E. Just alter the Aircraft type on the aircraft that is set to “Human” to any other plane model. Although your plane will still look like an F-15E from the inside (and will still use the F-15E’s flight model), from the exterior, it will appear to be a B-52—or whatever you choose. Although this isn’t very useful, the fun comes in when you add some wingmen.

Now you can fly as leader of a flight of F-16s, MiG-29s, or even Hind choppers! —Denny Atkins

---

**Tomb Raider II**

I’ve been playing Tomb Raider II for quite some time, and I’ve found a few tricks that might help others.

First, try this: After you’ve completed the game once, play it again on a higher difficulty level. This will increase the number of checkpoints and make the game more challenging.

Second, try jumping on the ledge where the statue of Huygens is located. You can use this to reach higher areas and access new areas.

Finally, look out for the hidden treasures. They can be found in the caves and temples throughout the game. Keep an eye out for these hidden treasures, as they can provide valuable items and powerups.

—Thierry Nguyen

---

**Sports**

**DEER HUNTER**

Sick of waiting around for those elusive bucks to arrive? Here are some cheat codes to get the action started. Type them in at the map screen before you begin your hunt. The downside is that any bucks you kill using a cheat code will be marked as such in the trophy room—oh! —Joe Vallina

- dhbambi: Shows location of deer in map view
- dhdoelnheim: Attracts all bucks to your location
- dhstealth: Deer won’t hear or smell you
SquareSoft's legendary role-playing franchise will make its PC debut sometime this summer. FINAL FANTASY VII, although available for over a year on PlayStation, will soon offer PC gamers a chance to savor what console gamers have enjoyed for years. FF games have always been known for story and gameplay, and they've also been known to have tons of secrets and hidden goodies awaiting the meticulous gamer. We know you're going to want to play the game, so here are some strategies to help you on your quest.

The key to FINAL FANTASY VII lies in two factors: the characters you use in your party, and the materia (items that bestow spellcasting ability) that each member carries and uses. We'll talk about characters first.

by Thierry Nguyen
Characters

Although there are nine characters available, you can only use three at a time; and the three that are active are the ones that will gain levels the fastest. Since Cloud is a constant character throughout the game, you only have two open slots to play with. A good rule of thumb is to have one well-balanced character and one extreme fighter or spellcaster.

One factor that should determine which characters you use is their Limit Breaks. Limit Breaks are special attacks that only become available for use after the character has been severely damaged. Every attack adds to your limit gauge, and when it is full, the character can execute his or her Limit Break. There are seven Limit Break maneuvers per character, divided among four levels (two per level plus the final level-four Limit). All characters start with their first, level-one Limit Break. Gaining each successive Limit Break is not automatic. Here is how you learn them:

**First Limit Break:** Deliver the killing blow on at least 80 enemies in order to learn the next level's first Limit Break (except for the level-one Limit Break, which you begin with).

**Second Limit Break:** Use the first Limit Break of that given level eight times to learn the second Limit Break.

**Level-Four Limit Break:** The level-four Limit Break is a special case. You need to have learned all prior ones, and then use a special item (there is a unique item for each character) that will teach the final Limit Break to your character.

### Cloud

Cloud is the game's main character, and hence will always be in your party (with the exception of one sequence in which Cloud is temporarily incapacitated). Because he's in your party for 90 percent of the game, he is simply your best character. He has excellent attack and magic strength, a solid amount of both HP (hit points) and MP (magic points), and the best Limit Breaks. Also, because the strength of a spell is tied to the magic strength of the caster, you should give Cloud the most powerful materia to use, such as Knights of the Round, Ultima, or your best custom materia combos (described later in this strategy guide). Cloud can only use melee weapons, so he must remain in the front of the party. Keep in mind that characters in the front row suffer full damage from attacks but deal full damage in turn; characters in the back row suffer half damage from attacks, but only do half damage if they employ melee weapons.

### Red XIII

If you don't find Yuffie, Red XIII will be your most balanced character in the game. He has fine attack and magic strength and lots of HP and MP. Red XIII is essentially the party's everyman, perfect in his role as fighter, spellcaster, or both. His attacks are mostly close range, so keep him in the front of the party. He has the HP to survive in the front row.

---

### Cloud's Limit Breaks are:

- **Level 1**
  - First Limit: Brave: Attack on single enemy for moderate damage.
  - Second Limit: Cross-Slash: Single attack on single enemy for moderate damage, plus a chance to paralyze the target.

- **Level 2**
  - First Limit: Blade Beam: Moderate damage attack on primary target, followed by splash damage on every enemy.
  - Second Limit: Climhazard: Heavy damage attack on one enemy.

- **Level 3**
  - First Limit: Meteorolith: Ranged attack on every enemy on screen; four meteor strikes doing moderate damage per strike.
  - Second Limit: Finishing Touch: Percentage chance to instantly kill all enemies; any survivors are then attacked for moderate damage.

- **Level 4**
  - Final Limit: Omnilash: Fifteen strikes inflicting heavy damage, divided along enemies.

### Red's Limit Breaks are:

- **Level 1**
  - First Limit: Sled Fang: Attack on single enemy for moderate damage.
  - Second Limit: Lunatic High Caste: "Huaste" on the entire party.

- **Level 2**
  - Second Limit: Student Ruy: Attacks all enemies for 12 times for moderate damage.

- **Level 3**
  - First Limit: Howling Moon: Caste both "Berzeikt" and "Huaste" on Red XIII.
  - Second Limit: Earth Rave: Five attacks on single target for moderate fire and normal damage.

- **Level 4**
  - Final Limit: Cosmic Memory: Fire attack on all enemies for heavy damage.
**Cid Highwind**

Cid is second only to Cloud in physical strength (and that only because Cloud is usually at a higher level than Cid; if they are at equal level, Cid exceeds Cloud's attack strength). His MP count is more modest, though, and he isn't much better than Barret in magic strength. Use him for his raw physical talents and his excellent Limit Breaks. If you use Cid, it's best to pick a good spellcaster to balance out the party.

**Cid's Limit Breaks are:**

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<tr>
<th>Level</th>
<th>First Limit</th>
<th>Second Limit</th>
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<tbody>
<tr>
<td>1</td>
<td>Boost Jump: Single slash attack to one enemy for moderate damage.</td>
<td>Dynamite: Fire-based attack on all enemies for moderate damage.</td>
</tr>
<tr>
<td>2</td>
<td>Hyper Jump: Attacks all enemies for moderate damage.</td>
<td>Dragon Attacks single target and transfers MP and HP from target to Cid.</td>
</tr>
<tr>
<td>3</td>
<td>Dragon Dive: Attacks all enemies six times, dealing moderate damage.</td>
<td>Big Brant: Attacks all enemies eight times, dealing heavy damage.</td>
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<tr>
<td>4</td>
<td>Highwind: Summons 18 missiles to strike all enemies for light damage per missile.</td>
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**Yuffie Kasagiri**

Yuffie is perhaps the best-balanced character besides Cloud. For one thing, her weapons are all long-range, so she can be placed in the back of the party. Yuffie has tremendous attack strength and her Limit Breaks are awesome. On top of that, she has capable magic strength and MP stores.

Since Yuffie is a secret character, you need to find her. Here's how:

- Yuffie hangs around the forests near Gold Saucer and Junon. Wander around these places until you encounter and fight a "Mysterious Ninja." Defeat her, then convince her to join your cause.
- Don't touch the save point on that screen. If you do, she will run away and steal 200 gil from you. She'll also steal the gil and run if you answer any of her questions incorrectly. This will force you to once again find and fight her. Here is how you should reply to her questions: bottom option, top, bottom, top, bottom.

**Yuffie's Limit Breaks are:**

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<th>Second Limit</th>
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<tr>
<td>1</td>
<td>Greased Lightning: Quick strike at single target, dealing moderate damage.</td>
<td>Clear Tranquil: Restores some HP to the entire party.</td>
</tr>
<tr>
<td>2</td>
<td>Landshark: Attacks single target for moderate earth damage.</td>
<td>Bloodclot: Attacks all enemies 10 times for moderate damage per strike.</td>
</tr>
<tr>
<td>3</td>
<td>Gouge: Attacks all enemies for moderate damage.</td>
<td>Doom of the Living: Attacks all enemies 15 times for moderate damage.</td>
</tr>
<tr>
<td>4</td>
<td>Final Limit: All Creation: Attacks all enemies for heavy damage.</td>
<td></td>
</tr>
</tbody>
</table>

**Cait Sith**

Cait Sith is a unique character. Unfortunately, he is also one of the weakest characters in the game. His main strength is spell-casting, but even his magic isn't as strong as Aeris' or Yuffie's. His physical strength is the second worst ahead of Aerials'. There is one point where he needs to be used, but otherwise, he's not a very good character to develop.

**Cait's Limit Breaks are:**

<table>
<thead>
<tr>
<th>Level</th>
<th>Dice: Rolls dice, and damage is determined by varying factors, such as the number of dice and on which side they land.</th>
<th>3 hearts: Lucky Girl appears, and every party member inflicts critical strikes.</th>
<th>3 moogles: All party members merge to one large Cait Sith, inflicting heavy damage and curing many HP and MP.</th>
<th>3 faces: Instantly kills every enemy, with no exceptions.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3 faces: Instantly kills party. No exceptions.</td>
<td></td>
<td></td>
<td>Anything else: Toy Box attacks enemy for moderate damage.</td>
</tr>
</tbody>
</table>

**Barret Wallace**

Barret is one of your starting characters, but he quickly becomes obsolete. He has good attack strength and massive HP, but is weak with magic and MP. However, many of his weapons are long-range, so you can place him in the back of the party without penalty. Barret is definitely a fighter, not a magic user, and provides good offensive support for Cloud in the beginning of the game. However, his attack strength eventually is eclipsed by heavy hitters like Cid and Yuffie, and his weak magic becomes a huge liability (the other characters are at least as strong and much better spellcasters). He takes a back seat in the latter part of the game.

**Barret's Limit Breaks are:**

<table>
<thead>
<tr>
<th>Level</th>
<th>First Limit</th>
<th>Second Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Big Shot: Single attack on single enemy for moderate damage.</td>
<td>Mindbomb: Single attack that completely drains the target of MP.</td>
</tr>
<tr>
<td>2</td>
<td>First Limit</td>
<td>Second Limit</td>
</tr>
<tr>
<td>3</td>
<td>Grenade Bomb: Explosive attack that strikes all enemies for moderate damage.</td>
<td>Hammerbomb: Attempted instant-kill attack on single target.</td>
</tr>
<tr>
<td>4</td>
<td>First Limit</td>
<td>Second Limit</td>
</tr>
<tr>
<td>5</td>
<td>Satellite Beam: Attacks all enemies for moderate damage.</td>
<td>Ungarman: Attacks all enemies for heavy damage.</td>
</tr>
<tr>
<td>6</td>
<td>Final Limit</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Catastrophe: 10 strikes on all enemies for heavy damage.</td>
<td></td>
</tr>
</tbody>
</table>
Aeris Gainsborough

Aeris provides an invaluable skill: natural healing. Aeris is simply the best spellcaster in the game. She has to be; she's terrible on attack. She has a huge amount of MP relative to other party members at an equal level. Unfortunately, her HP count isn't very high, so she'll need to be shielded by being placed in the back row of the party. Don't engage in physical combat with her; let her cast spells, use various skill materia, and perform Limit Break techniques to aid the party.

**Aeris' Limit Breaks are:**

<table>
<thead>
<tr>
<th>Level</th>
<th>First Limit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Healing Wind: Heals the entire party.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Seal Evil: Casts &quot;Stop&quot; and &quot;Silence&quot; on every enemy.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Breath of the Earth: Cures entire party of any and all status ailments.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fury Blast: Instantly maxes out limit gauges for other members.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Planet Protector: Grants temporary invulnerability upon the party.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pulse of Life: Cures entire party of status ailments, and restores MP.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Great Gospel: Completely restores HP/MP to entire party and makes party invulnerable during combat.</td>
<td></td>
</tr>
</tbody>
</table>

Vincent Valentine

Vincent is the other hidden character, and he is almost as well balanced as Yuffie. Like Yuffie, Vincent uses long-range weapons: guns. So you can place Vincent in the back row, as well. Vincent possesses both good attack power and the MP to cast some decent spells. You can designate him as the party's healer, and give him healing magic and some less powerful offensive spells.

To get Vincent, you need to grab the Gold Key from the safe in the Shinra Mansion in Nibelheim. The hints to the combination are strewn about the house, but in case you can't figure it out, it's Right 36, Left 10, Right 59, and Right 97. Defeat the Lost Number boss, and use the key on the crypt door in the cavern leading to the Shinra Library. Approach the coffin, open it, and speak to Vincent. Make sure to talk to him and reply as follows: "Talk about Sephiroth," and then "Who are you?" (this reply is available after you re-open the coffin). Leave the room and Vincent will follow you.

Vincent’s Limit Breaks are unique. Rather than perform a special move, Vincent morphs into a special creature, depending on the level of the Limit Break. Once in this mutated rage, Vincent becomes uncontrollable, fighting the enemies on his own. The condition expires after the combat ends.

**Vincent's Limit Breaks are:**

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Gallan Beast: Fast and agile monster that deals light, fire-based damage.</td>
</tr>
<tr>
<td>2</td>
<td>Death Gigas: Slow but strong monster dealing moderate, lightning-based damage.</td>
</tr>
<tr>
<td>3</td>
<td>Hell Masker: Defensive monster that deals moderate damage and induces various status ailments.</td>
</tr>
<tr>
<td>4</td>
<td>Chaos: Powerful all-around monster that deals heavy, non-elemental damage to all enemies and randomly attempts an instant-kill attack.</td>
</tr>
</tbody>
</table>

Tifa Lockheart

Tifa is another fighter, and the other starting character (along with Barret and Cloud). Her MP and magic strength are average, but her physical strength is quite good. She is a better spellcaster than Barret, as competent in combat (a little faster and only slightly weaker), and has much better Limit Breaks. She should last in your party a little longer than Barret. However, she could be a sentimental favorite as she is one of Cloud's love interests.

Her Limit Break is unique, in that it is a string of cumulative attacks on the target. When you use it, each stage of her Limit Break is a wheel on a slot machine. As you press the button, you can get either a hit, miss, or "yeah!" result, which translates into normal damage, a whittled attack, or double damage, respectively. Each stage will randomly pick an opponent to perform the move on.

**Tifa's Limit Breaks are:**

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Beat Rush: A series of punches for moderate damage.</td>
</tr>
<tr>
<td></td>
<td>Somersault Kick: A lone kick for moderate damage.</td>
</tr>
<tr>
<td>2</td>
<td>Waterkick: A water-based attack dealing moderate damage.</td>
</tr>
<tr>
<td></td>
<td>Meteoric: A slam causing moderate damage.</td>
</tr>
<tr>
<td>3</td>
<td>Dolphin Blow: Uppercut dealing moderate damage.</td>
</tr>
<tr>
<td></td>
<td>Meteor Slam: Explosive body-slam that inflicts moderate damage.</td>
</tr>
<tr>
<td>4</td>
<td>Final Heaven: A last, explosive strike that inflicts heavy damage on target.</td>
</tr>
</tbody>
</table>
Materia

After assembling a crack party to tackle the game's enemies, it's time to select the best materia. Many weapons and armor items have materia slots paired together so that two materia can be linked together for powerful effects. In the beginning, some combinations are pretty obvious, such as an All materia paired with a Restore materia to cure the whole party or with a damage spell to attack all the enemies. But later on, there are more subtle and powerful combinations you can experiment with; combinations that can land you entire strings of attacks or moves. Here are some combinations that many veteran players use:

**Final Attack linked with Phoenix:** Final Attack will trigger whatever materia it is linked to in the event of the caster's death. Since Phoenix will resurrect the entire party, this means that if you die, the Phoenix materia kicks in and everyone is instantly resurrected!

**MP Absorb linked with a strong offensive materia:** MP Absorb takes a percentage of the damage you inflict and restores your MP by that amount. This can be useful for characters that cast lots of spells. For example,

**KNIGHT STRIKE** Knights of the Round, the most powerful summon spell in the game, requires a Gold Chocobo in order to obtain it.

**A MOST HOLY LIGHT** Alexander does well with MP Absorb, since it deals enough Holy damage (which everything is affected by) to give more MPs back than the number of MPs spent.

Alexander costs about 80 MP to cast, but the damage will yield back about 97 MP (depending on level), so you actually gain MP for casting this very powerful summon spell.

**Added Effect linked to Hades:** This will let you use the attributes of the Hades summon (which curses enemies with such conditions as Stop, Stone, Frog, Silence, and so forth) in either armor or weaponry. Put this combination on armor, and you are protected from all of those ill effects. Attach it to your weapon, and every time you attack with it, you have a chance of inflicting those effects on the target.

There's also the phenomenon of Natural Materia, super-powerful and hidden materia that are accessible only with Chocobos (ostrich-like mounts that you must breed and train). To get the desired Chocobos, you'll need to breed Chocobos on Billy's Chocobo farm and train them in the Gold Saucer races.

**Quadra Magic:** Any spell or summon this is linked to is cast four times in a single casting (basically, you get four castings for the cost of one). You'll need at least a Blue Chocobo (the one that can cross rivers) in order to get to the cave at the end of the...
Final Fantasy V

Eidos and SquareSoft Have a Bonus in Store for American FINAL FANTASY Fans

by Thierry Nguyen

While FINAL FANTASY VII is launching with great anticipation from gamers and much fanfare from the press, FINAL FANTASY V is entering the field as a stealth product. It is, after all, a six-year-old 16-bit Super Nintendo game with old graphics and sound. It is still regarded as one of the best FINAL FANTASY games, in terms of play, though. It also wasn't one of the FINAL FANTASY games to make it to the States, but Eidos hopes to bring it to the PC if FINAL FANTASY VII does well with U.S. gamers.

Never-Ending Fantasy

FINAL FANTASY V starts off like other FF games in a typical fantasy land. This one is called Tycoon. The basic earth-shattering premise behind the game? The wind has stopped. All over the land, the different characters that you have the option of portraying will all simultaneously notice the sudden death of the wind. The king of the land then tells his daughter, Reina, that he must journey to the Wind Shrine as fast as he can. After arriving, the king sees the Wind Crystal shatter.

Elsewhere, we assume the role of the protagonist, a wandering traveler named Bartz. Earthquakes suddenly rock the land, and in the midst of one, Bartz runs into Princess Reina and an amnesia-stricken man named Galuf. The trio decides to travel to the Wind Shrine together, but along the way, they stumble onto a pirate base, and decide to...
sneak aboard one of the pirate ships. The ship's captain, Faris, catches them, but after a lively discussion, he agrees to take them to the Wind Shrine.

The four adventurers eventually reach the Wind Shrine, only to find that Reina's father, the king, has died, and that the Wind Crystal is shattered. The spirit of the king implores the adventurers to protect the other crystals sprinkled throughout the land. And then the real game begins.

Nostalgic Gaming

FINAL FANTASY V will be an exact port of the original SUPER FAMICOM (the Japanese name for the SNES) game. The graphics and sound will remain completely untouched. The only change involved is the translation from Japanese to English.

FINAL FANTASY V won't look or sound pretty (it looks downright primitive), but the feeling you'll get when you play this game is akin to what you feel when booting up ULTIMA IV again. You'll be playing a game with history—one that doesn't have modern polish but has enough gameplay to stay on your shelf.

In describing the FINAL FANTASY series, it's said that the even-numbered games concentrated on plot and character development, while the odd-numbered ones concentrated on the gameplay and battle system (with VII being the melding of both gameplay and story). FINAL FANTASY V follows this basic philosophy, as the plot is simpler than that of FINAL FANTASY IV or VI (II and III in the States), yet its actual gaming system is much more flexible and complex.

A Career in Gaming

FINAL FANTASY V utilizes the jobs system, which allows you to customize your party in terms of stats and abilities. The jobs system is akin to a traditional CRPG's class system, except it allows switching on the fly, and allows you to combine different abilities to make your characters even more unique.

The system divides your character into jobs and abilities. Jobs are classes like Knight, White Mage, Summoner, and Dragoon, and they determine what kinds of weapons and armor you can equip, your general stats, and some base-level abilities, such as the Knight's Block or the Dragoon's Jump.

Abilities make the game even more flexible. Each job will gain abilities specific to that job as the game progresses. You gain these abilities by gathering ability points, which are issued after battles along with experience points. Now, if you decide to switch jobs, the abilities you've already gained will be placed in a pool of available abilities when you change jobs. Then, you can reequip some of these abilities to go alongside your new job's abilities. This means that you can have Black Mages who jump like Dragons, or Ninjas that learn to cast white magic.

The magic system is more traditional than FINAL FANTASY VII's. You don't equip items to gain spells. Instead, you simply learn magic spells innately as you grow in experience. This means that in the heat of combat, your character may suddenly learn the next level of a spell he or she already knows. The magic system is divided into the following schools: White, Black, Blue,
DARK REIGN: RISE OF THE SHADOWHAND

Scouting is everything. What you don't see will kill you. Use drones and scouts, and take advantage of elevation to look beyond the event horizon.

Place turrets at natural choke points. Back them up with some mobile units in case they get surrounded.

Artillery is the king of battle. Use large groups of artillery to support your troops and interdict corridors of travel.

Xenite critters heal themselves. Rotate wounded Gants and Grendels out of combat.

Tired of the steady onslaught of attacks? If you can't get a moment to breathe during battle, nothing breaks an opponent's rhythm like several heavy bombers set to Harass and High Independence.

Always build a few camera towers right next to your turrets. The computer treats them as primary targets and gives your turrets a few more minutes to pick off the attackers.

Use the Temporal Gate in conjunction with the Rift Generator whenever possible. It's the most devastating tactic in the game. —Lance A. Larka

WARBREEDS

To cheat in WARBREEDS, you must already have a game running. Turn the Caps Lock key on and type SPAMSPAMSPAMHUMBUG while holding down the Ctrl key. Then type Caps Lock key off, and hit F9 to enter the following cheat codes (which must be in lowercase):

set none .............. lets you see entire map
cgk max .............. puts your cgk level to maximum
crop pop .............. all croplands on the map receive pods
crop kill .............. kills all pods on the entire map
egg boy returns .............. causes an earthquake
kill ...................... kills currently selected thing
minimap on/off .............. toggles the minimap on and off, but only if you have at least one working listener —Scott May

STORM IN THE WEST

Take advantage of the over-aggressive German AI by using an "armed cul-de-sac." First, leave an opening in your line with a blocking force a few hexes back. The AI will rush a corps of prime mechanized units there but will have to forgo attack. Next turn, slip your armor behind them, damage their rear units, then seal off the remaining Germans with infantry. Supply penalties will leave the remainder of the corps ready for destruction while denying the Germans desperately needed manpower elsewhere. —Jim Cobb

Rewriting History

The winning strategies we listed in May's CG Tips for CLOSE COMBAT: A BRIDGE TOO FAR should have been credited to John Anderson of Atomic Games (the developers of the CLOSE COMBAT series). Our apologies for the error, and thanks again to Mr. Anderson for his excellent advice.

FALLOUT

If your character's intelligence is fairly high, teach a Shady Sands farmer about crop rotation and you'll earn some additional experience.

Save up your bottle caps for some attribute-boosting in the Brotherhood.

Convince Vree to give you evidence of the mutants' sterility and use this to get the Master to self-destruct.

Use a radio to trick most of the mutant patrols around the Military Base into walking away.

This computer's post-control functions in the Military Base can be reprogrammed to view mutant guards as pests. Local sentries can then take care of most of the mutants for you.

You can sneak into the Military Base without alerting the guards or triggering the forcefields.

You can open the door in the Cathedral's basement using your traps skill on an adjacent bookcase.

—Petra Schlunk
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</thead>
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<td>09/06</td>
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<td>07/07</td>
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<td>The Settlers</td>
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<td>Magic the Gathering</td>
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**ROLE PLAYING GAMES**

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<td>Teeny's Heroes</td>
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- An innovative, role-playing game featuring realistic combat and strategic action. Rather than normal battles, characters will be able to design and equip their own weapons and armor, giving you the freedom to shape your own battles according to your preferences.
- Release Date: 01/01 PC
Each month, 2,000 CGW subscribers are selected at random to rate 100 computer games. The results of that poll are combined with the results of previous months to yield a cumulative average for the best plays in gaming. If you receive a ballot, please return it with your ratings so that other gamers and game publishers can benefit from your feedback.

### TOP ACTION GAMES

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<td>45</td>
<td>NHL 97</td>
<td>EA Sports</td>
<td>SP</td>
<td>7.96</td>
<td>5</td>
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<tr>
<td>46</td>
<td>Battleground: Shiloh</td>
<td>TalosTale</td>
<td>WG</td>
<td>7.94</td>
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<tr>
<td>47</td>
<td>Battleground: Napoleon in Russia</td>
<td>TalosTale</td>
<td>WG</td>
<td>7.92</td>
<td>4.5</td>
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<tr>
<td>48</td>
<td>NBA Live 97</td>
<td>EA Sports</td>
<td>SP</td>
<td>7.91</td>
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<tr>
<td>49</td>
<td>Tigers on the Prowl II</td>
<td>HFS</td>
<td>WG</td>
<td>7.86</td>
<td>4</td>
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<td>50</td>
<td>Battleground: Bull Run</td>
<td>TalosTale</td>
<td>WG</td>
<td>7.85</td>
<td>4</td>
</tr>
</tbody>
</table>

Games on unnumbered lines are tied with game on line above. ★ = Top game of the genre. Red = New Game, AD = Adventure, RP = Role-Playing, SI = Simulation/Space Combat, ST = Strategy, WG = Wargame, AC = Action, SP = Sports, CP = Classic/Puzzle. Games are retired after two years and become eligible for the Hall of Fame.
Adventure Editor Goes Berserk
Or, Take My 30 Copies of TEMUJIN—Please!

This month, we begin with a mathematical equation. (Note to American kids: Dude, "math" involves numbers and other lame stuff like that; ask your parents.) It's an inverse law, actually, intended to explain the method in which game companies send new titles to the Computer Gaming World office. The law goes like this: The cooker the game, the less copies we get. I'll give you a good example.

Back at the beginning of December, when five QUAKE IIIs arrived in Action Editor Elliott Chin's cubicle, there was a near fist-fight among the staff over who would get a copy. It was embarrassing and immature, and I, for one, was appalled at such a barbaric display. All that day, as I played the copy that I had forcibly grabbed out of Denny Atkin's hands after knocking him over and kicking him, I shook my head in dismay over the sorry behavior of my co-workers.

On the other end of the spectrum, we have the sad spectacle of TEMUJIN, an FMV adventure game that arrived months ago like a United Nations food drop in three gigantic boxes—containing 10 copies each. As an adventure game editor, these 30 TEMUJINS went to me, and let's just say that the giant food drop probably would have been much better received.

I've tried to get rid of them. I've begged and cried. A couple times I'd slip one on another editor's desk when he was out, only to find it back in my cube with a post-it comment attached like "nice try," or "do this again and you're dead." One day I even threw a few out the window into the streets of San Francisco, but, like something out of The X-Files, they all somehow managed to come back. I think they might be spawning.

Babe: [gaspig appreciatively] Oooh! What's that you have there?
Me: ZORK ZERO. Advanced copy. No one else has one. Just me. PC Gamer won't even be around for another five years.
Babe: Take me now you viking.
Me: Okay.

These days, being the adventure editor seems more like a booby prize. The entire genre (with precious few exceptions) has devolved into cheeseball murder mysteries and quasi-novelgy mystical searches for some kind of foamy glowing crystal or something.

JEFF GREEN

"These days, being the adventure editor seems more like a booby prize."

The point of all this is that I'm beginning to feel like I'm getting gypped here. There probably was a time, in the distant past, when being the CGW adventure-game editor was a cool thing. Had I been here in 1988, for example, I but I could've walked into any bar, holding an advance copy of ZORK ZERO, and been et bebe magnet supremo (look girls — I know Spanish!). I see it going something like this:

Me: [sauntering up to the bar next to an Elizabeth Hurley look-alike] Hey there.
Babe: Hi yourself. [Arching my eyebrows as I casually bring the ZORK ZERO box onto the bar counter]

I don't think a week goes by without some company PR reps wanting to come to our office to show me their new SACRED ARK OF TIME (or whatever) adventure game. I try to get out of these meetings by hiding under my desk or by taking some kind of horrifically spastic, tongue-wagging seizure, but, invariably, because it's my job, I find myself stuck in the conference room, a polite smile painfully affixed to my face, while some earnest designer walks me through the latest uninspired MYST rip-off.

"It's just like MYST," they'll begin, while I daytime of running naked through a field with Ashley Judd, "only it's set in the Egyptian times and there are more water pumps, pull any more levers, or search any more alien artifacts to fix any more stupid broken pulleys. And I really, really, really don't want to do any more jigsaw puzzles...ever.

I'm not kidding. Don't mess with me. I've got a box full of TEMUJINS here, and I'm not afraid to use them. Start designing some decent adventure games now—or everybody gets one. CGW

What Jeff doesn't realize is that hidden inside every box of TEMUJIN is a pirated, playable copy of WARCRAFT III. That's a joke. And you can complain all you want about it to Jeff at jhgreen@zd.com.
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Name: Russell Hancock
A.K.A.: Inferno
Nationality: British
Primary Skill: Explosives/munitions
Background: Very quiet demeanor. Keeps to himself. Explosive temper can result in unpredictable behavior.

Name: Sir Francis Woolridge
A.K.A.: Duke
Nationality: British
Primary Skill: Marksman
Background: Cold and calculating character. His commitment to the team intensified after his sister was killed in a German bombing raid.

Name: Jerry McHale
A.K.A.: Tiny
Nationality: American
Primary Skill: Use of blades/close combat
Background: Extremely violent temper when provoked. Loves to read poetry to relax. Afraid of dogs.

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24 missions throughout Europe and Africa

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<table>
<thead>
<tr>
<th>Name</th>
<th>A.K.A</th>
<th>Nationality</th>
<th>Special Skill</th>
<th>Background</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sid Perkins</td>
<td>Tred</td>
<td>American</td>
<td>Vehicle mechanic/driver</td>
<td>Mistrustful character. Has poor relationships with teammates. Loves a fine Cuban between raids.</td>
</tr>
<tr>
<td>James Blackwood</td>
<td>Fins</td>
<td>Australian</td>
<td>Champion swimmer/sailer</td>
<td>Dissolute character. Vows to have alcohol problem under control. Could figure out a way to make an anvil float.</td>
</tr>
</tbody>
</table>

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