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WORLD

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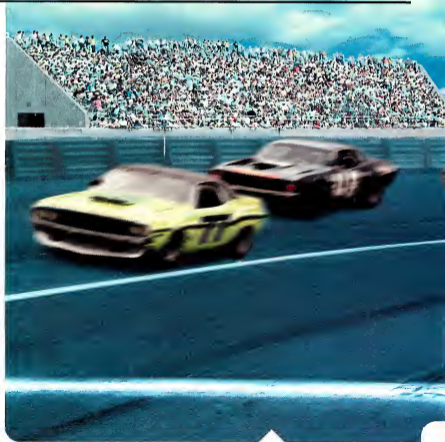
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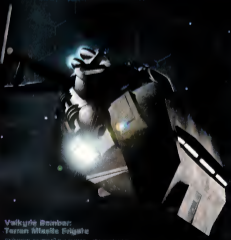


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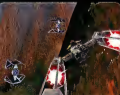
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Saitek R4 FFB Wheel



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JOHNNY WILSON

Back to the Future

Ye Olde Copy Protection Will Return

At the risk of turning myself into a pariah, let me suggest that the dark ages of copy protection will soon be with us once more. Those of you who are new to the hobby may be horrified to discover that, in the bad old days, gamers often couldn't start a game until they had answered one to three questions—by looking up answers in the manual and typing in the correct answers. Some may not remember the glorious days when you could start a game without assistance from a code-wheel, but might have to look up vital information and type it in while in the midst of your game. For example, to get *Rocket Ranger* from Egypt to the United States, you had to use the code-wheel to get the mixture just right and type it in or you would run out of fuel and fall to your demise in the mid-Atlantic. With *WORLD TOUR GOLF*, you could play a few holes on each course but needed to type in code-wheel data to open up the full courses.

Other forms of copy protection were more egregious to legitimate owners. Look-up tables were printed on nonreproducible paper (so dark that the print would recede into pure gray if you tried to photocopy them) and in light blue ink that required a red cellophane filter (to remove the red that covered over the blue) to be legible. Key disks had random bad sectors so that you couldn't copy them. Even authentic copies of the games couldn't be used without a key disk.

Legitimate gamers who had purchased the games with their hard-earned money were restricted by the ball and chain of copy protection because they had to keep track of manuals, code-wheels, look-up charts, and original disks to play the games they had purchased. Worse, their gaming experiences were often interrupted by password

checks and nagging messages about piracy.

Copy protection was a hassle for everyone, and it didn't solve the problem. Hackers could still break the protection schemes. Systems like the Atari ST and the Amiga eventually succumbed to the onslaught of piracy as worldwide unit sales dropped into the low thousands—and sometimes,



favorite games to give to their friends and work associates.

For a while, it looked like the DVD would come along in time to save the industry from having to use traditional forms of copy protection. Yet, the DVD hasn't penetrated as fast as needed. Some of us warned the industry that, while DVDs wouldn't take quite as long to penetrate the market as CD-ROM drives took, it would still take a year or so longer than most projections. We were wrong. It's taking at least a year longer than our conservative projections. This means that the DVD won't solve the problem.

But the problem is worsening. Recently in Europe a wargame from a small company outsold a major release from one of Europe's biggest publishers by more than a

3-to-1 ratio. Both games were released in the same time period and both dealt with subjects that would appeal to the wargamer. Indeed, the major release was about WWII, meaning that the "Nazis, NATO, and Nukes" credo (i.e., that only WWII, modern warfare, and nuclear war scenarios self) should have given it an advantage over the medieval era wargame. The wargame merely sold numbers worthy of a successful game in the small wargaming niche. The wargame-related title from the large publisher sold a mere fraction of the wargame's numbers after all of the returns were factored in. The wargame was copy protected. The major release was not.

European retailers believe that they were victimized by the lack of

The dark ages of copy protection will soon be with us, once more.

hundreds. Retailers were forced to limit or outlaw returns, and gamers were the eventual losers.

Then something happened to change all of this: the long-awaited advent of the CD-ROM. CD-ROM burners were expensive and game designers/software publishers were finding enough ways to fill the CDs (including the use of digitized video and sound files) that it wasn't worthwhile for the average person to copy games. Today, this is no longer true. CD-ROM burners are inexpensive and games are easy to copy. Most U.S. retailers no longer accept returns (although some Electronics Boutique stores are reputed to be selling used copies of games—a trend that can only hurt the overall gaming industry even more than the existing low margins and high shelf-stocking/MDP fees), but sales are still going to decline if gamers pirate copies of their



copy protection. They are telling European publishers that they will not accept nonprotected games in the future. They are also hinting that they will not handle European SKUs (Shell Keeping Units) of U.S. titles if the U.S. SKUs aren't protected—even if the European SKUs are protected. Why? Because they will lose sales to the gray market and direct sales if the European units are protected and the U.S. units are not. This means that European piracy is going to affect all of us. At least until the DVD becomes the new storage standard, we're going to be faced with the bad old days of copy protection once again. Odehette, the wise man of the Song of Songs, declared that "There is nothing new under the sun." Get ready for that code-wheel revival. Major publishers are already beginning to sing, "Gimme that Old-time Protection!" **CGW**

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DENNY ATKIN

Campaign Promises

Mission Design Can Make or Break a Sim

Many gamers consider the dynamic campaign—where missions are algorithmically generated depending on the results of previous combat results—as the Holy Grail of flight simulation. After all, dynamic campaigns ensure that you'll never fly the same mission twice. The problem here is that previous dynamic campaign generators have created missions which, although unique, so closely resemble previous missions that they quickly grew repetitive. So much so that these sims didn't offer much more long-term gameplay than sims with scripted missions.

A notable exception is *LONGBOW 2*. If certain conditions occurred, the sim would trigger a prescribed mission that featured details and plot twists unavailable in dynamic missions. This is perhaps the current best compromise since we're a long way from the dynamic campaign system that will be able to generate atypical missions, such as shooting down Admiral Yamamoto or taking out a terrorist enclave.

Dynamic or Scripted?

What's the most important element of mission creation? Andy Hollis, *LONGBOW 2*'s producer, says "You have to make a compelling mission environment in which to play the game; enemies that work together to defeat you, unexpected subtleties, and plausible reactions to anything the player does."

Add replayability to that formula, and you have a setup that should make most sim pilots happy. The entire war doesn't have to be generated dynamically. After all, how often do the actions of a single pilot—even over the course of a year—truly affect the outcome of a war? There's no denying that

dynamic campaigns are the ultimate in "living" battle environments. But a scripted mission structure can work as well, offering a human design touch that can flesh out a mission and make it even more believable and unique than an algorithmically generated battle.

The biggest complaint about scripted missions is that they're predictable and, upon replay, feel



Like sausages, the worst case is when a mission reveals obvious hints about its origin.

like puzzles. Playing the same mission a second time, with enemy aircraft appearing at the same time, in the same place, ruins your suspension of disbelief. The space sim *X-WING* is a perfect example of this—not only are the missions identical each time you play, but there's generally only one method for successfully accomplishing mission goals.

Dynamic campaigns are a solution, but they take massive amounts of development resources. Companies can't realistically incorporate a dynamic campaign in every sim they create.

Do It Right

If designers take a scripted setup and add certain levels of randomness, scripted missions can maintain much of the "reality" of a dynamic campaign. If designers can't put a dynamic campaign in a

game, they should keep the following points in mind when designing their scripted mission system:

- 1) **Randomize, randomize, randomize.** Replaying a mission isn't that bad if you don't know when the enemy is going to appear or what its location and altitude will be.
- 2) **When a target is destroyed, it should remain dead—at least until enough time has passed that it might be rebuilt.** There's great satisfaction in flying over the ruins of an enemy base bearing plant you wiped out a few missions ago on your way to the next target.
- 3) **When a target isn't successfully destroyed, send the player**

4) **Make a living battle environment.** Your mission and your targets shouldn't be the only units in the skies or on the ground. Along with targets of opportunity, you should occasionally encounter enemy strike groups heading toward your territory, crippled bombers needing escort home, or lone allied fighters caught in a dogfight and in desperate need of a hand. Little touches like this, on occasion, can do wonders for making you feel like you're flying over a real battlefield.

5) **Mission goals should be realistic.** When there are 15 enemy planes in the air, specifying four specific target aircraft as the "goal" aircraft for winning the mission is absurd. Set a

percentage, such as "wipe out 75 percent of enemy air assets," or base success on the enemy not achieving its own goals.

It's not about whether a campaign is dynamic or scripted, it's about whether the campaign is believable. Avid sim pilot Robin Lee perhaps puts it best: "I view mission generation and campaign dynamics in the same light as I view sausage production; I don't really want to inquire too closely into the details of either. The illusion that I want to maintain is that missions are generated by a real operations staff reacting to unpredictable events, not by a software campaign engine or by selection from a fixed database of mission scripts. And like sausages, the worst imaginable case is when a mission reveals obvious hints about its origin." **CGW**

4) **Similarly, failing a mission shouldn't mean you'll have to replay it over and over again until you get it right.** There should certainly be consequences—put the player on a mission track where the enemy is advancing or force him to fly future missions with fewer wingmen because of loss of pilots or aircraft. Give the option to retry a mission, but allow those players who are more interested in role-playing as a pilot the chance to suffer the loss and move on—as would happen in real life.

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There Are Still Small, Maverick Companies Worthy of Your Support

Back in 1994, tucked away in a small corner well off the main show floor at the Consumer Electronics Show (CES) was a small offshoot of edutainment maven Davidson called Blizzard, showing off its single, modest game title. When former strategy wargame editor Alan Emrich and I got our first demo of *WARCRAFT* in that tiny little room—from Alan Adham, the president of the company, no less—we were hooked. And I knew, deep down, that this charming little upstart of a company would be a big player in the industry. Though, never in my wildest dreams could I have surmised that it would produce three million-unit sellers in a row.

But even while the quality of Blizzard's games is still quite high, you simply can't count them as an independent any more: Like it or not, our friends in Irvine are part of the CUC behemoth. The strain of that relationship, despite Blizzard's success, is starting to tell. If you want evidence, look at the talent that has left Blizzard, as well as the cancellation of *WARCRAFT ADVENTURES*, and feel free to advance your own conspiracy theories.

Where are all of today's independents? There are fewer of them, and while they're more niche-oriented than in years past, they're still relevant. If for one minute you doubt this, ask yourself where the current 3D-shooter craze would be if another small maverick, id Software, hadn't reinvented the genre with *WOLFENSTEIN 3D* and *DOOM*.

The following, then, is a list of the last of the true independents—those companies that sometimes exasperate us but almost always challenge and entertain us. May

they continue to be passionate about their craft and to carve out market niches well into the next millennium.



TalonSoft

Notable Titles:

BATTLEGROUND SERIES
OPERATIONAL ART OF WAR
WEST FRONT

www.talonsoft.com



TalonSoft has yet to release a truly bad game.

Monolith Productions



Notable Titles:

SHOGO
BLOOD 2
www.mh.com

Of all the independents, Monolith has the best chance of rising above the crowd with its wonderful 3D engine, LithTech. Everyone in the company, from the PR folks to the CEO, seems to be a gamer—what an unusual concept in this industry! But before Monolith can lay claim to being the next Blizzard, the company will have to avoid boneheaded decisions, such as shipping *SHOGO*, knowing full well even before the game hit the shelves that a major patch would be required for multi-

platforms with incredible Simulations, those paragons of very playable "last-stand" games, might seem strange at first glance. But both companies focus on subjects ignored by mainstream publishers, such as Custer's last campaign and obscure armor-fests in the Ukraine during WWII. If you get tired of refighting Gettysburg or the Battle of the Bulge, these companies' games offer a great alternative.

Big Time Software



Notable Titles:

FLIGHT COMMANDER 2
ACHTUNG! SPIFFIRE

www.bigtimesoftware.com

Charlie Moylan is another of those one-man wonder gaming shops who has actually enjoyed some retail success. Now that

Where would the 3D shooter craze be without another maverick, id Software?

When Jim Rose felt stifled running the computer division at Avalon Hill, he left to form his own wargame company. While it has at times used outside distributors, TalonSoft has recently managed to go completely independent, and the company stays successful by giving its fans what they want: the best combination of realism, graphics, and playability in the business. Not only did every game in the *BATTLEGROUND* series, for example, improve on the last, but TalonSoft went to the trouble of retrofitting those enhancements on the entire line of games. While TalonSoft may have a reputation as a group of insane workaholics, the formula seems to work. The bloom's still on the rose since

play and AI. So far, these folks have learned from their mistakes, keep your fingers crossed.

HPS Simulations Incredible Simulations



Notable Titles:

TIGERS ON THE PROWL 2
REMEMBER THE ALAMO!
ZULU WAR!

www.hpsim.com, www.idgames.com

HPS' wargames are so realistic that they sometimes make TalonSoft's games seem like casual historical fare. HPS' games lack slick graphics or simple interfaces, but they reward the serious student of modern military history like no other: That HPS has formed an

Moylan is no longer developing games for Avalon Hill, it will be interesting to see how well Big Time does in the big leagues. Moylan plans to release *COMBAT MISSION*—the game formerly known as *ADVANCED SQUAD LEADER*, now possessing no trademarked information from that title—and market it himself. Since realistic and playable turn-based WWII squad-level 3D games are not something you boot up every day, I think he's got a shot. (See our preview of *COMBAT MISSION* in last month's strategy/war roundup.) **CGI**

Terry Coleman is currently playing *NFA '99* and wondering how the United States ever qualified for the World Cup.

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1280x1024 (respectively).”

—Computer Gaming World, September 1998

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—Barron's Review, October 1998

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—RivaZone, www.rivazone.com



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Canadian Joke Butt

Hugh Jass? What is he, an idiot? (Letters, December '98.) I am a Canadian—half-Swede, half-Danish—and a blonde. When I saw the first ad for *GLOOM DOMINATION* ("Bad day? Take it out on Canada"), I thought it was funny. Then I saw the ad, "Stood up by a blonde? Carpet bomb Sweden." I was rolling: The game was calling to me!!! Some people may have been insulted by the ad, but people are more likely to write to complain than praise, so I think there are a lot more people who liked it. And since I don't think you guys get enough praise, I'd like to say good job guys! Keep it up.

*Katherine Larsen
Native of Toronto
Via the Internet*

Half-Swedish, half-Danish gamer babe? Whoa. Need any editing done around the house?

I'd just like to say, man, that guy that called himself Hugh Jass is a total knob. That whole letter complaining about the *GLOOM DOMINATION* ad was such a wussy thing to do. I'm a proud Canadian and I don't find it offensive. Sure, I read it and said, "Hey, what's the big idea?" but, obviously it's a joke. We Canucks sock it to the yanks just the same and there's no need to cry about it. Now I've met some not-so-intelligent Americans in my day and could think up plenty of ads to joke about them, but I'm sure everyone's met a canuck, knot enough to mock, and decided to do so. A perfect example? The *GLOOM DOMINATION* ad. I apologize on behalf of all Canadians for such a weak, girlish shadow of a man they call Hugh Jass. The only way I can explain it is that he's a CanEden, not Canadian.

Silly Frenches, will they ever learn?

*Tomhini Jones
Via the Internet*

Johnny's Evil Twin Discovered

I knew there was something strange about the New Jersey Devils sports writer in *The Record*, a large New Jersey newspaper. Well, besides naturally despising this guy for being a New Jersey Devil fan (I'm a New York Ranger fan), I knew there was something else about the way he looked. Then, I realized it—the guy looks like Johnny Wilson! Could it be his evil twin (any Devil fan must be evil) or could it be that:

1. Both use the same barber?
2. Both don't believe in shaving?
3. Both use the same optometrist?

*Marc H. Strother
Via the Internet*

Separated at Birth?



The New Jersey Devils sports writer Mark Czerwinski and the devil's advocate Johnny Wilson.



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I take it you're not gonna wait for the patch!

Corrections Fan

First, let me congratulate CGW for being the best gaming magazine throughout 1998. Every part of the mag is getting bigger and better, except the part I like most, the Dep't. Of Corrections. The first thing I check out is the Dep't. Of Corrections to have a good laugh before I start reading the mag from the beginning. So could you please make more silly mistakes so that I can have a good laugh?

I hate to say it, but I love my room more than CGW (don't sigh). So when I buy CGW every month I am left with little money to decorate my room. The only effective way to decorate my room is via the poster included in CGW. So could you please urge and encourage the developers to include posters of their most recent games in CGW? I know it will be hard but I really want to see giant poster of Lurker from Blood War lurking in CGW in the near future.

P.S. I don't want to be in distress for no able to decorate my beloved room. :(

Damael
Via the Internet

Funny you should say that. It might not be Blood War lurking in your future, but have you seen Simon Bisley's stuff for Heavy Metal F.A.K.K. 2? Get ready to be happy.

Mike Kellegan
Via the Internet

PC Game Hucksters

Good points in Johnny Wilson's editorial "Bad Moon Rising" (CGW #174). However, I disagree with the basic comparison of the PC industry to the console. Having been on the front lines of PC games for many years now, it's clear to me that you're comparing apples

to oranges. The ultimate objectives of the two camps is fundamentally different. The console game developers intend to build companies that will last for decades, even generations, as a result of which they will enjoy great profits. The PC game developers intend to enjoy great profits, and don't care much what they need to do to get them.

There is no doubt as to the abysmal quality of most PC games, but railing about it will not change the PC developers attitude. It is the intentional use of high-pressure schedules and minimal investments that result in low overhead and high profit margins.

We need to be honest with ourselves. The PC games industry is nothing short of a get-rich-quick scam. To expect the hucksters, card sharps and other crooks to suddenly change their methods in the midst of so much income is not realistic. Instead, we should be educating the public on how to get their money back on a bad game, or even how not to buy one in the first place. Attacking the developers as the source of all this PC-game drivel is futile. Stem the demand for drivel, and then we will see true improvement.

New USB Modem

Is a 56K external USB modem on the horizon?

Zack
Via the Internet

Your wish is our command. Check out page 158 where we review MultiTech's new MultiModem USB V.90 modem.

A movie poster for Star Wars: Return of the Jedi. The background is a deep blue space with a bright light source on the right. At the top, a large, detailed Falcon is shown from a low angle, flying towards the viewer. A massive, bright yellow and orange energy beam or laser trail extends from the Falcon across the upper half of the poster. In the bottom right corner, the nose and cockpit area of another Falcon are visible. The bottom left corner is filled with a large, dense formation of Y-wing starfighters, all flying in the same direction. The text is centered in a bold, blue, blocky font.

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ALIEN VS. PREDATOR: PREDATOR DEMO First-person shooter	avp_predator/setup.exe	Play as a Predator against the Aliens and the Colonial Marines.
CHRON X ONLINE Card game	chron_x/install.exe	Front end for this cyberpunk version of Magic.
CYDONIA Mini-style adventure	cydonia/cydonia.exe	Solve two puzzles in this sci-fi Myst-style game.
HERETIC II Third-person shooter	heretic2/setup.exe	Play through two single player and two multiplayer levels in Heretic's new addition to the Heretic series.
LORDS OF MAGIC: SPECIAL EDITION Turn-based strategy	lom_sel/Lom_SEDemo.exe	Play a scenario in this patched update of the original Lords of Magic.
MORPHEUS Mini-style adventure	morph/setup.exe	Solve a few puzzles in this recently reviewed adventure.
POPULOUS: THE BEGINNING Real-time "god" game	populous/populousdemo.exe	Provide divine inspiration for your tribe in three scenarios.
RECOIL Third-person tank action game	recoil/recoil.exe	Play one large, four-part mission in your spiffy tank.
RESIDENT EVIL Third-person action/adventure	resident_evil/resident.exe	Sample the first 10 minutes of this part of the successful PlayStation horror game.
SHOGO First-person shooter	shogo/shogofix.exe	Play one mission in a media and one mission on-foot in this anime-style shooter.
SNOW WAVE Snowboarding game	snow_wave/setup.exe	Ride down a couple of slopes in this snowboarding game.
TEN Online multiplayer gaming service	TEN/setup.exe	Front-end for TEN, where you can play a variety of multiplayer games.
TONIC TROUBLE 3D platform game	tonictrouble/setup.exe	Run and jump through a few levels from Ubi Soft's Mega-64-style game.
TOP GUN HORNET'S NEST Entry-level flight sim	topgun_hornets/ghsdemo.exe	Fly your F/A-18 Hornet in two missions from the campaign.
WARZONE 2100 3D real-time strategy game	warzone2100/setup.exe	Play one scenario in Eidos' new RTS that lets you design your own units.
YOOT'S TOWER Mini-style building sim	yoots_tower/tower.wd	AW trailer of Sega's new high-rise builder.

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Over \$100,000 in Cash & Prizes were awarded in Season 3!

The Diamond Multimedia Championships of the AMD Professional Gamers' League — the live finals event for the PGL's third season, were a huge success, with several thousand fans attending the three-day event at Club-i in San Francisco. And thousands more followed the action via The All Games Network's live Webcast!

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Winner Dennis "Thresh" Fong gets a congratulatory hug from runner-up Kurt "Immortal" Shimada following the Quake II championship round.



Jay "Godanton" Sevastov can't wipe that grin off his face after defeating Robert "Kla_Dain" Chan in the Starcraft 1-on-1 final. PGL Commissioner Nolan Bushnell joins in the celebration.



Two of gaming's greatest minds, John Carmack of id Software and 3M! Roper of Blizzard Entertainment, held court at the event. Carmack fielded questions on the upcoming Quake III Arena, while Roper dished and discussed the new Starcraft expansion set, Brood Wars.



The members of DeathRow Clan, "Unholy", "Raspiter", "Thresh", "Bo" and "frick" hold their first-place trophy and a check for \$14,000! The spoils of their victory over second-place finisher Clan Gilb.



Dennis "Thresh" Fong is all smiles upon receiving his second winner's check and trophy of the day. Including his PGL Season 3 MVP Award and prize, Thresh won nearly \$48,000 of the Diamond Championships of the AMD PGL — not bad for a weekend's work!



Crowds stared in wide wonder at the spectacle of pro computer gaming in The City By the Bay. Standing-room only was putting it mild!



James "Bilvox" Page, the Quake II champ from England, faced Thomas "Might" Janovsky the #1 Swedish Quake II player, in an international exhibition match.

Registration for the Spring '99 Season is Still Open! Go to the PGL web site to join the ranks of the world's elite gamers! WWW.PGL.COM



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Reviews

This month, we're bringing you tons of reviews of some of the hottest holiday releases, including: **Heretic II**, **Populous: The Beginning**, **King's Quest: The Mask of Eternity**, **NBA Live 99**, and others. Because so many games come out during the months of December and January, our team is working overtime to bring you the most comprehensive collection of reviews you can find anywhere.

Features

In our features department, we've got our annual **Holiday Buyer's Guide**, which should complement **Computer Gaming World's** guide nicely. For our top five picks in each genre, as well as the best hardware, children's titles, and stocking stuffers, check out the **GameSpot Holiday Buyer's Guide**.

Another great feature is our inside look at LucasArts and their three top designers: Larry Holland, Tim Schafer, and Hal Barwood.

We've also got interviews with the **Duablo II** design team and Brian Reynolds, the designer of Sid Meier's **Alpha Centauri**.

Previews

Upcoming previews on GameSpot include **Relic's Homeworld**, a 3D space strategy game that promises a revolutionary engine and some innovative gameplay. We interview **Homeworld** creator, Alex Garden, and preview the game he once dubbed, "Spaghetti Ball" for his vision of wild, 360-degree combat with tendrils of missiles, laser fire, and churning debris.

Videogames.com

Although you are reading a computer game magazine, a big group of you actually play console games. For the latest news on PlayStation, Nintendo 64, and Sega's Dreamcast, visit videogames.com. You'll find the hottest reviews, previews, and video game features.

11/20/98 See What's New

QUALITY OF FEATURES

The Final Hours of Half-Life

Geoffrey Keighly goes behind closed doors at Valve Software and brings to light the frantic final hours of Half-Life.

FILE STORY

QUALITY OF NEWS

ION Storm: In Our Face

Todd Porter, ION Storm co-founder, responds to rumor, legends, and speculation about ION Storm in this exclusive GameSpot News interview.

COLLECTOR

Asker Half-Life pricing updates, Dear Average game laughs, and Playback looks at the week's top stories in sports news.

See Also: videogames.com, gameguides.com

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GAMESPOT Instant Poll
What did you just enjoy doing as Thanksgiving?

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Sin
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Holiday Buyer's Guide • Inside look at LucasArts • Relic's Homeworld Creator, Alex Garden**

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TREMBLING. BLACK WITH
BLOOD. HEAVY FOOTSTEPS
DISSOLVE INTO A STEADY
RHYTHM OF THUNDEROUS
BLASTS. MINDS AND LEGS
NUMB. GET TO THE HILL.
FIERY ARROWS RAINING FROM

ABOVE, BLACK WAKES WEAVING A SUFFOCATING
BLANKET OF FEAR. MY MEN CHOKING THEIR
FINAL BREATHS. JUST MAKE IT TO THE HILL.
SCREAMS FROM BEHIND? ARE WE FLANKED?
SHADOWS ADVANCING LIKE A DEATH SHROUD.
THE HILL. GET TO THE HILL.





6

December

The Beachhead at Tyr

You're losing men. Can you keep your composure? In Myth II: Soulblighter, panic is your greatest enemy. It's up to you to remain calm and focused during the frenzy of battle. You devise the strategies. You make the crucial decisions. Move forward with the mission and risk massive casualties, or retreat and live to fight another day? Time is running out.

The wrong decision may cost you half your men. No decision will cost you your entire army. What's it going to be?

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I On the Storm

Latest Departures At Ion Storm Raise More Questions

The river of former Ion Storm employees continues to rise. Another dozen development people resigned in November, raising the total number of Ion deserters to about 60. The departures renewed speculation of deep divisions within the 5th floor penthouse offices of Ion's Dallas headquarters. Ion Ion John Romero sought to quell rumors by posting a plan file saying that the former employees had completed their role, and he thanked them for their contributions. Ion CEO Todd Porter responded to numerous questions and allegations in an internal memo and in an online interview on GameSpot.

As expected, the Ion founders and former employees offer different reasons behind all the departures. The most recent departures—eight members of the DAKATAMA and ANACHRONOX teams—resigned to form their own development start-up (see related story on this page). Cammie Yu, previously director of advanced technology at Ion Storm, resigned to join 3D Realms as the developer's lead technology programmer.

Most of the other former Ion members refused to comment on the record, but some spoke on the condition of anonymity. They maintain that the two biggest reasons so many have left are the delays in shipping DAKATAMA and a rather strong dislike of CEO Todd Porter.

Romero, Ion's chairman, brushes off the criticism as par for the course in such a high-profile development startup. He says, "When you start up with a large number of employees at the formation of a company, those employees feel as though they have some kind of ownership stake in the company and should have the power to make company decisions. That is not the case and over time, when the company changed, they didn't change and that in turn embittered them."

"Any employees that we hired a year or so after the formation of the company," Romero continues, "are very much like normal employees who don't feel that they own the company."

Given that Ion is so closely tied with Eidos Interactive, and that Eidos has invested tens of millions of dollars into the company, both gamers and industry types are watching these developments closely. CGW feels that there is much more to this story and we are working on bringing you a closer look into the company, its people, and the reasons behind the turmoil in upcoming issues. Stay tuned! —Ken Brown



"Any employees that we hired a year or so after the formation of the company are ... like normal employees."

—John Romero

KISS Off

It didn't take long for the latest group of Ion refugees to make their intentions known. They've signed a deal with the Gathering of Developers (G.O.D.) to create a game based on Todd McFarlane's *KISS: Psycho Circus* comics and action figures series. The new group, Elder Entertainment, comprised of designers, artists, and programmers formerly of Ion Storm, will develop the 3D action game blending McFarlane's *KISS* universe with the likeness of the legendary *KISS* members and their music.

The group had evidently been working on the project, because they even had a nifty Gene Simmons quote ready to go: "Our shows are a sensory ambush—filled with hard-core rock and roll, cutting-edge technology, awesome effects, and in-your-face action," said the leather-clad *KISS* vocalist and bassist. "We are working with Elder to convey that same raw electric excitement in this game."

G.O.D. high priest Mike Wilson, speaking for less tongue-in-cheek, said, "I have wanted to do a *KISS* game for years. The opportunity to be working with great creative talent and *KISS* was just too good to be true. Gene and the rest of the band are truly psyched about the possibilities for this game." —Ken Brown

Latest Ion Emigrants Develop New *KISS* Game for G.O.D.



Hammer and Tongs

Digital Anvil Finally Reveals The Fruits of Its Labor

To call Digital Anvil secretive is like describing Jim Carrey as "slightly animated." Formed in April 1996, by WING COMMANDER impresario Chris Roberts, Digital Anvil has been toiling away for close to two years without leaking so much as a syllable describing its projects. After lining up a prestigious lineup including Roberts' brother Ern (PRIVATEER, PRIVATEER II: THE DARKENING) and Tony Zurovec (the CRUSADER series), Digital Anvil has been content to work quietly and bide its time. Until now. After finally deciding to lift the Cone of Silence, Digital Anvil revealed its 1999 lineup to game journalists, and we've got to say we like what we see.

The first title to hit shelves will probably be CONQUEST: FRONTIER WARS. A spacefaring real-time strategy game, CONQUEST will likely draw comparisons to HOMEWORLD. While both games may share some surface similarities, CONQUEST is closer to STARCRAFT than HOMEWORLD. Detailing an intergalactic struggle between four distinct races, CONQUEST will feature a veritable armada of ship types, all modeled in 3D and sporting all the nifty eye-candy gamers have come to expect from hardware-accelerated games. Digital Anvil is promising that each race will have unique unit sets, thus

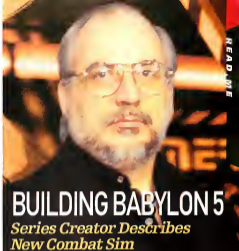


GETTING BLOGGY WITH IT Swarms of Mantis fighters take down a massive Terran dreadnought in CONQUEST: FRONTIER WARS.

creating an enticing mix of strategic options. Additionally, every unit will sport an individual special attack, adding even more depth.

CONQUEST promises to be an epic game, with gamers slugging it across up to 16 separate star systems at a time, moving their fleets through a network of jump gates. In order to allow players to battle in separate sectors simultaneously, Digital Anvil is working on AI

Continued on Page 44



BUILDING BABYLON 5

Series Creator Describes New Combat Sim

Michael Stracywski, the creator of Babylon 5 (BS) and the follow-on series Crusade, has been closely involved with the design of Sierra FX's BABYLON 5 SPACE COMBAT SIMULATOR. Stracywski took a few minutes to answer some questions about the game.

CGW What specific aspects of the BABYLON 5 SPACE COMBAT SIMULATOR have you been actively involved with? Was it mostly storyline suggestions, or did you actually write sections of the game's script as well?

JMS I came up with the basic storyline, which goes back and forth in time, when I hit the point where I thought the original storyline presented by Sierra got bogged down and overwrought and ended up having nothing to do with the BS storyline. They were quick to accept the new storyline and were very excited about it, as it allowed them to do both a strategic and a storyline-based game, which is an unusual combination and hard to accomplish. After I gave them the basic premise, Christy Marx and the others began the process of expanding this into a full scenario, sending me updates every couple of days as they added new segments.

CGW I understand that the game will take place between BS and Crusade. Will the story actually be part of the series "canon?"

JMS It's not so much canon as extrapolations on what could happen if certain key events in the BS universe had not happened, or had happened differently. It puts the player in canonical elements of the BS storyline—the Minbari War, the Earth civil war, others—and sees what impact one person's actions can have on a much larger scenario. **CGW** You've had unprecedented involvement with the BS fan base using PCs. What have been the best—and worst—aspects of that online communication channel?

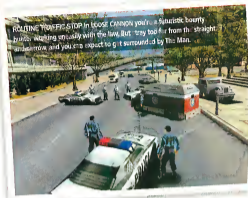
JMS The best has been the sense of real community that has arisen around the show; the worst has been the Net stalkers who come around from time to time. The psychotic minority tends to screw things up for the majority online.

CGW Do you ever find time in your schedule to play computer games, and if so, what have some of your favorites been?

JMS It's hard to find the time, but I try to play when I can. MYST (old and new), the MONTY PYTHON game/CD, WING COMMANDER (all of them), DOOM, others.

For more on the BABYLON 5 SPACE COMBAT SIMULATOR, see page 68.

Continued from Page 43



operated fleet commanders that will competently direct your forces when you're busy elsewhere. Like most of Digital Anvil's titles, CONQUEST should be done by Q3 '99.

Next up is LOOSE CANNON, an action/adventure game focused on vehicular combat. In yet another near-future world gone terribly wrong, gamers will play a bounty hunter fighting for that most American of goals—cold, hard cash. While a storyline will unfold through a set series of missions, gamers will have the opportunity to raise money to upgrade and repair their cars by apprehending bank robbers and the like in between the primary missions. Large, outdoor fortresses teeming with bad guys will force players to

abandon their wheels and go in on foot, the better to stealthily eliminate the opposition. With a number of auto combat titles on the not-too-distant horizon, LOOSE CANNON is looking to distinguish itself with its more realistic game world and a variety of mission goals including hostage rescues, escort duty, and kill 'em all rampages.

STARLANCER marks Digital Anvil's return to its space combat roots. As part of a civilian-comprised military unit 100 years in the future, gamers will pilot space fighters as part of a NATO-type force struggling



SPACEBRAWLS STARLANCER'S muscular game engine should deliver space combat checkfull of action.

to recover after a crippling, Pearl Harbor-like incident. Graphically, STARLANCER should push the envelope with brilliant explosions, capital ships with distinct moving parts, and a super-fast game engine. Gone are the slumming Hollywood actors of WING COMMANDER games; instead, the story will unfold through animated characters who will respond to the player's success or failure. STARLANCER is planning on supporting up to eight players in multiplayer games and should be ready by late 1999.

Digital Anvil is keeping a tight lid on its fourth title, FREELANCER, which is Chris Roberts' personal project. While all Digital Anvil was willing to show were some early (but cool) concept sketches, the ambition behind the game is remarkable. Designed to be massively multiplayer, FREELANCER is shooting to support 100 players at a time in a graphically rich game world where some ships will sport up to 10,000 polygons. Start saving now for the hardware you'll need.

With its shroud of secrecy finally lifted, Digital Anvil seems poised to make quite an impact in the coming year. Look for more on these titles in upcoming issues. —Robert Coffey

PLAYER STATS

How much did you spend on your system?



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Whatta ya got under the hood?



	Core Gamers	Casual Players
Freebie	33%	31%
Peripherals with IBM	25%	20%
4GB or less	15%	18%
Peripherals II	12%	3%
MacPower PC	7%	4%
Other	3%	9%
Don't know	5%	12%

Source: Computer Gaming World survey, 1998. 100+ users did not use any of the 20 games systems listed about 4 games per year.

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Gulp!

Cendant Software Sold to French Media Giant for \$800-985 Million

Cendant Corporation has agreed to sell Cendant Software and its subsidiaries to French publishing conglomerate Havas for as much as \$985 million. Havas is the world's fifth-largest media company with more than 22,000 employees. Havas owns Europe's top advertising agency, the world's largest

drastically after the announcement, and Cendant has been selling assets ever since to help reduce its debt.

Under the deal, Vivendi will pay an initial \$800 million in cash, with a subsequent \$185 million in contingent payments to be made over the next year, depending on the

performance of Cendant Software.

Since Havas has no presence in the United States, Sierra's Grenewatzki said that he did not expect layoffs or any changes in its management, operations, and products. Havas won't change Sierra and Blizzard's brand names. —*Kan Brown*



pay-TV operator (Canal+), as well as Europe's largest commercial TV and radio venture. Havas is, in turn, a division of Vivendi SA, France's largest water utility. Vivendi has over 200,000 employees and is involved in telecommunications, transport, and the media. The company also owns 50 percent of AOL France.

Cendant Software is also a hydra-headed entity. One of the largest publishers of entertainment software, the group's holdings include Sierra Online, Blizzard, Davidson & Associates, and Knowledge Adventure. Sierra is a large and well-respected computer game company, with numerous game titles and properties across practically every genre. Sierra president David Grenewatzki expressed relief about the announcement, saying, "This clears the cloud from over our heads. We're really happy because we have an incredible partner in our new parent. The Havas folks played our games and knew our stuff. So it's really neat when the 'suits' are as into games as you are."

The cloud Grenewatzki referred to is the controversy that has surrounded Cendant since the parent corporation revealed massive accounting fraud in 1998. Cendant had posted \$500 million in phony revenue from 1995-97, in addition to at least \$200 million in accounting errors over a three-year period. The companies value fell

Playing Lately

CGW Survey Here's what you're blowing the most time on.

	Last Month	Months on Chart
1. StarCraft (Blizzard/Cendant Software)	1	6
2. Might and Magic VI (3DO)	2	6
3. Age of Empires (Ensemble/Microsoft)	7	9
4. Quake II (Id Software/Activision)	3	9
5. Diablo II (Blizzard/Activision)	6	21
6. Command & Conquer	-	1
7. Fallout (Interplay)	-	1
8. Final Fantasy VII (Squaresoft/Eidos)	5	3
9. Unreal (GT Interactive)	4	5
10. Tom Clancy's Rainbow Six	4	-

Based on a monthly survey mailed to CGW subscribers.

This differs from the readers' annual "quality ranking" in the Top 100.

PC Data Best-sellers

	Last Month	Average Price
1. Barbie Riding Club (Mattel)	-	\$32
2. Barbie Nail Designer (Mattel)	-	\$17
3. Railroad Tycoon II (G.O.B.)	-	\$37
4. Microsoft Combat Flight Simulator (Microsoft)	-	\$45
5. Cabala's Big Game Hunter 2 (Activision)	-	\$18
6. Hot Wheels Stunt Truck Driver (Mattel)	-	\$28
7. Tonka Workshop Playset (Tonka)	-	\$39
8. Age of Empires (Microsoft)	-	\$39
9. Tom Clancy's Rainbow Six (Red Storm)	6	\$39
10. Age of Empires: Rise of Rome (Microsoft)	-	\$30

The top-selling PC games as of November, calculated by PC Data (Reston, VA).

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The **DAIKATANA DEATHMATCH TOURNAMENT** will run exclusively on mplayer.com from **February 12th** to **March 12th** with each week producing **ONE** finalist. Those four finalists will be flown to the Dallas offices of ION Storm for the **Daikatana launch event**. There, the chosen four will see if they have what it takes to go head to head and beat **JOHN ROMERO** at his own game.

In addition, these four finalists will not go home empty handed. The **Daikatana Deathmatch sponsors** have put some **serious hardware, software and just plain old fun stuff** on the table for the chosen few...And one lucky participant will walk away with a real-life size replica of the **Daikatana sword**.

For more detailed information regarding all the rules, regulations, prizes and how to play, go visit the official Daikatana Deathmatch Tournament site at

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– Computer Gaming World

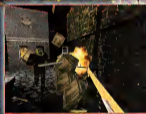


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Heart-stomping, hair-



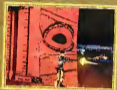
CORE



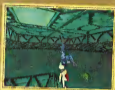
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Ultima Online Lawsuit Update

Court Refuses to Certify Plaintiffs as "Class"



In the November issue of *CGW*, we reported that a lawsuit has been filed by several disgruntled gamers against Electronic Arts and Origin Systems over *ULTIMA ONLINE*. At issue is whether EA and Origin should pay damages to the gamers for releasing a game plagued by alleged technical problems, such as lag and server crashes, and deceptive packaging, such as a failure to mention monthly fees and adequate system requirements. One goal of the gamers (the plaintiffs) has been to have the court certify them as a "class." Such a ruling would mean

Old Origin discount UD. THE SECOND AGE to purchasers of the original game because of the suit?

that just about everyone who has ever played *ULTIMA ONLINE* could join the lawsuit as an "aggrieved plaintiff" and seek damages from EA and Origin without having to personally appear in court and give testimony.

After weighing the merits of the case, the Superior Court of California for San Diego County ruled in favor of EA and Origin and against class certification. Judge Judith

McConnel held that the plaintiffs failed to show "common questions of law and fact predominate in this action." Specifically, the court believed that all of the named plaintiffs were affected differently, if at all, by the alleged technical problems and misrepresentations on the box. Since each plaintiff's experience with the game was unique, all of the plaintiffs could not be viewed as a single "class" with common theories of liability and damages. Therefore, according to the court, the individual testimony of each plaintiff, including the unnamed thousands of *ULTIMA ONLINE* players should they wish to join the suit, is going to be necessary to establish (1) if EA and Origin are liable to each plaintiff and (2) what the damages to each plaintiff should be, if any.

Does this mean the suit is over? Not at all. The plaintiffs can appeal Judge McConnel's ruling to a higher court. If the appellate court reverses the lower court's decision on class certification, EA and Origin could still face a class action lawsuit from the more than 200,000 gamers. Moreover, the judge's ruling has absolutely no effect on the plaintiff's individual claims against EA and Origin. Such claims are set to go to trial on February 11, 1999.

The *ULTIMA ONLINE* add-on *THE SECOND AGE* is now out at a discount price of \$6.99 to purchasers of the original, which prompts the question: If the *ULTIMA ONLINE* lawsuit had not been filed, would EA and Origin still be giving UD. *THE SECOND AGE* away for next to nothing? Probably not. —Michael Hanash

Plastic Fantastic

Army Men II Gets Re-Equipped

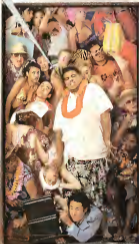
A *ARMY MEN* was a great game concept. It tapped into gamers' nostalgia for blowing up the green plastic men of our youths. But it suffered from an awkward interface and complicated, "realistic" environments far too grandiose for simple plastic figures. *ARMY MEN II*, soon to be released by 3DO, fixes both problems and plunks our fearless friends where they oughta be: in and around the house.

The interface is entirely new, and you can control Sarge or the other troopers by clicking on them or dragging a square around them as in *COMMAND & CONQUER*. Also as in *C&C*, each has their own health bar. In single player you'll fight 28 missions across 12 maps including kitchen counters—being careful to avoid stove burners—bedrooms, hobby tables, yards, and other settings. Watch out for moches and a rogue commander who's strapping firecrackers to other army men and sending them on kamikaze missions. Look for *ARMY MEN II* to invade stores in March.





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YOOT Tower [YOU BUILD IT. YOU DEAL WITH IT.]

SNEAK PREVIEWS

YOUR BEST SOURCE FOR THE HOTTEST GAMES IN DEVELOPMENT

by Denny Atkin

Forget slingshots. This David is packing a bazooka. When the Goliath you're taking on is Microsoft's FLIGHT SIMULATOR, one of the longest- and best-selling computer games of all time, you need all the weaponry you can pack. And with FLY!, developer Terminal Reality, Inc. (TRI) looks to be armed to the teeth.

FLIGHT SIMULATOR in one version or another has consistently been near the top of the sales charts for well over 15 years. Other upstarts have tried to knock it off its throne, but have failed for one reason or another. Looking Glass' FLIGHT UNLIMITED II is a great program in many respects, but its small flying area meant only San Francisco-area residents could use it to fly from their home airports. Sierra's PRO PILOT '98 was a

Fly!

Terminal Reality Challenges Microsoft (and Sierra, and Looking Glass) to a Dogfight



BAY BOMBER A Cessna 172R lines up to buzz CGW's downtown San Francisco offices.

buggy mess with retro graphics that did sell a number of copies, but only after it was reduced to a bargain-bin price. PRO PILOT '98 is dramatically better, but still has limited 3D support and gaping holes in its flight modeling.

The biggest problem with the current crop of civilian sims—FLIGHT SIMULATOR '98 included—is that each one only excels in a limited area of simulating the flight experience. FLY! is aiming to make its mark on sim pilots by not skimping in any area. It's not going to attempt to do everything in version 1.0, of course. Passenger jets, for instance, will remain the exclusive realm of FLIGHT SIM '98's rather lightly modeled 737—at least for now. But what it's going to do, FLY! is aiming to do very well.

Preflight

Hopping into the cockpit of the alpha version's Cessna 172R, I was pleased to find that the instrument panel looked just like the real thing. Where other sims often rearrange or compress instruments for playability reasons—so that you can view the entire panel at one

Fly!

GENRE: Simulation

RELEASE DATE: Q2 '99

DEVELOPER: Terminal Reality, Inc.

PUBLISHER: Gathering of Developers



HEADS-UP DISPLAY Overhead and floor panels are fully modded. You need to reach up and activate the surface display, as atmospheric icing is modded here.



WEATHER: OR NOT You can manually set up weather conditions, or fly in "real weather" by importing real-time NOAA atmospheric data.



DUSK BUSTER A Cessna 172R makes a landing at SFO just before nightfall. All 5000+ runways will have the appropriate styles of lighting and runway markings.



MOUNTAIN SUNRISE Even in regions with "generic" scenery, accurate digital elevation maps and scenery textures give the experience an authentic feel.

time—FLY! attempts to create an exact replica of the real plane's cockpit. This necessitates scrolling around the screen to see the entire instrument panel, but it's worth the tradeoff. If you're a real pilot—or you hope to be someday—there's no looking around to see if a particular switch is modeled on the panel, and where the designers put it. And the instrument detail is unprecedented. In the alpha version I've been flying, for instance, the NAV/COM instruments aren't yet fully documented, but the developers suggest checking out the actual Bendix/King radio documentation for the real plane if you want to use some of the instruments' more esoteric functions.

The cockpit simulation doesn't stop with the main panel. Floor and—where appropriate—overhead panels are modeled as well. Virtually every switch, dial, and control in the real plane is accessible by clicking on it. So instead of rooting around your desk for the keyboard when you can't remember the key to adjust trim, you simply toggle the view to the floor panel and click on the actual trim wheel to adjust it. Doing it this way is also better for learning how the procedures are handled in the real plane.

While most of the switches in the cockpit are functional, FLY! will also accommodate the beginning pilot or casual sightseer: For instance, while you can start up the engine by going through the

(clearance delivery, ground, tower, departure, approach, or center), find the appropriate frequency, auto-tune the radio, and then present the menu of message choices. A wide variety of realism settings

let you tailor the complexity of the sim for beginners or licensed pilots alike.

First Solo

The early version of FLY! that I tested had fairly complete flight models for the Cessna 172R and the twin-engined Piper Navajo Chieftain. There



NICE STACK The Cessna's panel sports a full suite of instruments, including a Global Positioning System receiver.

proper checklist procedure, you can also bypass the details and just hit "E" to perform all the necessary steps.

This type of optional assistance should come into play throughout the sim. For instance, FLY! has fully interactive air traffic control. If you activate the radio, a menu will pop up with up to 10 appropriate messages for your current situation. But if you don't have your radio properly tuned, a requester will appear asking which service you want to communicate with

was also an early version of the turbocharged single-engined Piper Maibu Mirage. The final game will also feature the Raytheon/Beechcraft King Air B200, a twin turboprop, and the Cessna Citation X business jet. The planes look very good, with real-time light-source shading and moving control surfaces.

Even at this early stage, the flight modeling is very impressive. Flying the Cessna as I would in real life, its responses and performance seemed on the

Air Power

I recently talked to Richard Harvey, Senior Software Engineer on FLY!, about some of the underpinnings of the project. The sim is being designed with a strong foundation for future expansion. For instance, Harvey talks about how, instead of hard-coding all the characteristics of a particular plane in the sim, TRI actually built a simulation of the guts of an airplane.

"We don't have to 'fudge' the sim to fit an aircraft," Harvey says. "The sim is unaware that a Cessna 172R is being flown; the aircraft was assembled from components, with its unique performance attributes specified from disk. Tuning involves validating performance values in the aircraft files. If we put in original manufacturer numbers and don't get the expected results, we look into our sim for a potential problem, because the mesh should be totally unaware of the simulated object involved."

This detail goes far deeper than pure performance numbers, Harvey says. "Honestly, with FLY!, we spend as much time on electrical systems and components as we have to tuning numbers," he explains. "One of the neat things is how our electrical bus and systems are defined. A neat example is a power switch for a radio. We don't actually code something like: 'If user turns power switch, radio is on.' Instead, we define the entire electrical bus and fuse layout. So, if you turn on the power switch on a radio, the radio may or may not turn on. The switch detects the state change, and queries its local bus for power. The local bus may query a fuse. A fuse may query a master bus. The master bus may query a battery. When all is said and done, the power source for the radio will 'turn on.' It allows our systems to just work—I don't have to hard-code some huge dependency of 'if this switch, then knob, this key, allow this.'"

As complicated as this sounds, in the long run it should make expanding the sim easier. Harvey explains, "Our wiring system tracks its own dependencies, so we can wire very complex systems in a very short amount of time, with no code necessary. It follows our entire design philosophy—if you design the systems right, and do the mesh and sim right, it just works."

No fudging necessary.



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CLOSE COMBAT THE RUSSIAN FRONT

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SPORTY SINGLE The Piper Malibu Mirage passes over Golden Gate Park.

mark. Pushing into more suicidal regimes, I was able to loop, spin, and even snap-roll the plane. Control response felt natural, neither overly sensitive nor overly stable.

Landing gear strut movement is modeled as well. This not only provides nice, subtle movements as you brake on the ground, but also adds to the realism of landing, where bouncing off the runway can be a real problem for beginning pilots.

Fly will sport over 5,500 airports worldwide at which you can test those landing skills. There will be five scenery areas modeled in great detail, using satellite imagery, including San Francisco, Chicago, Dallas/Ft. Worth, Los Angeles, and one other. Around airports and downtown areas, the scenery looks great—of similar quality to that of FLIGHT UNLIMITED II. Other regions of the world will have accurate terrain elevation and texturing, but the scenery will be generic. So while your hometown may not be modeled, its airport will be. And you won't be able to sightsee around Bern, Switzerland, but the Alps will be right where you expect them.

TRI is making the scenery (as well as aircraft and instrument panel) formats available to third-party developers, however, so expect more cities soon after the sim is released. A third-party European scenery CD is already in the works.



SMOOG CENTRAL A Piper Navajo Chieftan buzzes the mountains outside of LA.

Cross-Country

Of course, there will be a full set of navids for instrument navigation. One innovative feature will help when flying visual. Pressing the forward slash key (/) will change the cursor to an aiming sight. Point at the ground and you'll get a pop-up with the distance to that site in nautical miles. Point at a landmark or airport and you'll also get the object's name; and, in the case of airports, ATIS or runway localizer frequencies.

IFR (Instrument Flight Rules) pilots will love FLY's online maps. Press a key and a sectional chart for the current flight region, showing your current position and heading relative to the chart, will pop up. Sectional maps will be included for the entire U.S.—no more digging through your desk looking for a paper map.



GET LOADED You'll be able to specify your plane's cargo loadout and fuel levels before taking off. Visual indicators show you how your load affects your plane's center of gravity.

When flying IFR, the sim can poll an Internet database and import real-time weather from the National Oceanic and Atmospheric

Administration. Everything from scattered clouds to thunderstorms will be modeled. The clouds were still a work in progress in the version I tested, but already had volume and translucency.

A sophisticated flight planner will let you plot out cross-country flights, and it can automatically generate the route for you. There will also be a variety of preset situations, such as landing at Catalina Island.

You won't be alone in the skies, either. Both general aviation and airliner traffic will be modeled, giving you a chance to practice entering a crowded pattern. The sim will generate real flight plans for each plane. You'll hear AI planes calling for clearance, and you can even follow them from takeoff to their final destination. (And yes, Kamikaze Boy, collisions will be implemented.) In addition, the Flight Party multiplayer mode will let you fly with up to seven others over the Internet. The sim's "Live Mike" technology will let



RIGHT SEATER Scrolling across the Navajo's panel takes you to the copilot's instruments.

you communicate with other players via voice.

Take Off, Eh?

TRI knows that it's going to have to make a good impression with the first release of FLY if it's going to be a worthy competitor for the FLIGHT SIM series. To that effect, when it became apparent that the company couldn't get all the features it wanted into the sim by Christmas, 1998, the developers decided to hold the product until the second quarter of '99 and do it right.

From what we've seen so far, Microsoft's upcoming FLIGHT SIMULATOR 2000 is in for some stiff competition. **CGW**

A renegade uncensored pilot who plans to finally start working on his certificate this year, Devry Adkin nevertheless has stuck time in a Mooney 231, Cessna 172 and 201, Beechcraft Bonanza and T-34A Mentor, and a F-15D Eagle.

"HEY BIG BOY, IS THAT AN AK-47 IN YOUR POCKET...?"

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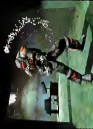
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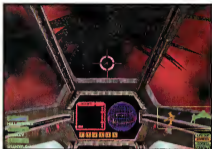
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PRIDE OF THE ALLIANCE On most missions, you'll pilot the nimble Starfury fighter.



THE SHADOWS KNOW Straying off course in hyperspace, this Starfury encounters a deadly Shadow vessel.

by Denny Atkin

Babylon 5 ushered in a new age of television science fiction, with state-of-the-art computer-generated special effects, plots based more on intrigue than on technobabble, unprecedented attention to detail and continuity, and storylines that often aren't what they seem on the surface. Those same characteristics make Sierra FX's **BABYLON 5 SPACE COMBAT SIMULATOR (B5 SCS)** one of the most promising license-based computer games we've seen.

Babylon 5 Space Combat Simulator

The Last, Best Hope for a Great Licensed Computer Game

Canon Fire

With the exception of a couple of *Star Wars*-based titles, it's been rare to find a top-quality title based on a television or movie title. Fans concerned that *B5 SCS* will be a less than stellar title can take solace in knowing that *The Great Makez*, *B5* producer J. Michael Straczynski, is guiding the game design. In fact, the game will fill in the gap between *Babylon 5*, which aired its final episode last November, and the sequel series *Crusade*, which begins airing on TNT this spring.

B5 SCS is being codesigned by Christy Marx, who wrote a first-season episode of *Babylon 5* and

designed *CONQUEST OF CAMELOT* and *CONQUEST OF THE LONGBOW* for Sierra; and Randy Littlejohn, who directed the photography for *GABRIEL KNIGHT II*. Straczynski had approval on concepts, scripts, and any elements added to the *B5* universe by the game. While the story is primarily the creation of Marx and Littlejohn, Straczynski added a number of specific narratives to the storyline. *B5* fans who know that seemingly insignificant comments in Season 2 can have major implications in Season 5 will likely go over this game's storyline with a fine-tooth comb.

Alas, because the final episode of *B5* hadn't aired when we visited developer Yosemite Entertainment in November, most of the details on the storyline were still under wraps. We

do know that it will focus on a war with the Dilgar, and apparently, time travel will play a part in the story as well. While there will be video sequences filmed on the show's sets, the real action will take place in a Starfury fighter.

Starfury Unleashed

As you can guess, this first *Babylon 5* game focuses on space combat. (The follow-up title will be an adventure, based on the *UNREAL* engine.) Most of the game will be seen from the cockpit of a Starfury fighter.



STATION IDENTIFICATION
The five-mile-long *Babylon 5* station from a distance, with a jump-point flaring behind.

Babylon 5 Space Combat Simulator

GENRE: Space sim
RELEASE DATE: Q2 '99
DEVELOPER: Yosemite Entertainment
PUBLISHER: Sierra FX



HIDING IN HYPERSPACE

The mists of hyperspace make for a murky environment in which enemy craft can sneak up on you undetected.

B5 is notable as one of the first 3D-fli shows in which the space-ships don't fly like fighter jets. Fans knew they were in for a different kind of show when a Starfury being pursued by an alien ship simply stopped thrusting, rotated on its axis, and fired head-on at the enemy—all without changing its flight path.

The same physics come into play here. I took B5 SCS's Starfury for a spin and found a flight model that will please INDEPENDENCE WAR and WING COMMANDER fans alike: In normal mode, your flight path is coupled to your control input, so giving the stick a hard left or right push will initiate a fighterlike turn. But a simple press of a joystick button uncouples the thrusters and allows you to use the ship's maneuvering thrusters to spin your ship without altering its direction



INTO THE FIRE A Brakiri Cruiser heads into hyperspace. The jump-gate network is integral to successful navigation of the Babylon 5 universe.



FISH OUT OF WATER The Minbari Sharrin-class cruiser model contains nearly 3,000 polygons.

of flight. This is handy not only when a bad guy is on your tail, but also when attacking capital ships. Aim your Starfury so that it flies down the side of the enemy ship, then turn your ship's nose toward the enemy and unload a barrage of fire all the way down the length of the hull.

Thanks to the polygon-accurate collision modeling, you can make these inertial strafing runs, get right up against the surface of the ships, or even pass through gaps and openings. You'll have to be careful not to be distracted by the majesty of some of the craft you're attacking, however. The crew at Yosemite Entertainment is employing the actual Lightwave 3D models used by Neter Digital to create special effects

sequences for the series, and the results are spectacular. Even though the number of polygons must be reduced for real-time rendering—the original Minbari Cruiser has 45,000 polygons, while in the game it has closer to 1,500—the ships still look great. High-quality texture maps make up for much of the loss of detail.

If you've seen a ship in the series, chances are it will appear here. B5 SCS will even include some ships designed for the show but never shown, such as a Nam ship built for the "In the Beginning" TV movie. Models being created specifically for the game by Yosemite are being crafted with TV-quality detail and sent to Neter Digital, making it possible that they could make an appearance in *Crossade*.

Universe Today

Space isn't likely to feel empty here.

Instead, you can expect some battles of an unprecedented epic scale. So far, the team has tested the engine with up to 350 ships fighting it out. Scalable detail will allow gamers who own a Pentium 200 with an original Voodoo card to see such battles while maintaining a decent frame-rate. Of course, if you have a P2/450 with a RIVA TNT card, battles at 1600x1200 resolution may look better than on the TV show.

While details of the game's plot are still being guarded, we do know that the B5 universe is being modeled in full 3D, complete with a network of jump-gates to use to pass between systems. And, of course, the mysterious red, murky reaches of hyperspace will be modeled. You won't want to stray too far from jump-gate beacons when traveling through hyperspace or you could get lost—or even worse, found.

The universe here is free-form. If you're given a mission to escort an Earth Force Omega-class destroyer, you're free to go off and attack the Drazi homeworld instead. But you will have to suffer the consequences. The

nonlinear, nonbranching storyline promises replayability not usually seen in this genre.

Yosemite has licensed the entire Babylon 5 music library from composer Christopher Franke for the sound for the game. Using a technology called Sculptured Music, the game will draw music clips from a library of excerpts from the show's soundtrack and move seamlessly from one to another to fit the pace of the action. The demo I heard was very impressive, with the pace quickening as the battle reached its peak and lessening as the last enemy ships were mopped up.

There's plenty more in the works, including a pair of multi-player modes. The first will allow you to deathmatch using ships from a variety of alien races, duking it out, say, Nam versus Centauri versus Vorlon. The second, a more sophisticated mode, may bring tactical elements and capital ships into play. Look also for a detailed B5 encyclopedia, which will contain even more info than the reference disc.

Most intriguing, though, is the development team's promise that the game's universe will feature as



RED ALERT The Earth Force Hyperion displayed at 1600x1200 resolution. BABYLON 5 SPACE COMMAND SIMULATOR will push high-end systems to the limit, but should be quite playable on a 3D-equipped P200.

many twists and turns as the series. The "good guys" and "bad guys" rosters will fluctuate, and things will not necessarily be as they seem. In a genre plagued by little, movie-like campaigns with little replayability that's a breath of fresh air. **CGW**

Denny Atkin has seen every episode of Babylon 5 and has a taste for Cheesy Spoo.

The image is a dark, atmospheric cover for the video game Resident Evil 2. It features a close-up of a character's face, partially obscured by shadows and a jagged, torn-paper-like edge. The character's eyes are a striking yellowish-orange, with a single vertical slit pupil. The character's hand is visible, holding a handgun. The background is dark and textured, with some faint, glowing elements. The title 'RESIDENT EVIL' is written in a bold, metallic, sans-serif font with a red outline, positioned across the middle of the character's face. Below it, the number '2' is rendered in a large, stylized, metallic font with a red outline, also appearing to be held or integrated into the character's hand.

RESIDENT EVIL

2

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UNDER COVER: A great look at the panoramic view you get in *PANZER ELITE*.

Panzer Elite

Romancing the Panther With Psychosis

by Jim Cobb

Reviewing a game from early code is always dangerous. The designer notes promising, seductive features not yet fleshed out—or even created. The code itself suffers from inevitable hardware conflicts, crashes, and commands that have outdistanced scant early documentation. The author must discern what is possible in the designers' proposal from the reality seen in the code. He must extrapolate the game's concepts from the gameplay seen, and he constantly walks a tightrope—trying to be neither too favorable to the final product nor unfairly critical to a work in progress. Fortunately, *Psychosis' PANZER ELITE (PE)* has a rare mix of excitement and substance. Even though it's barely alpha, it's easy to tell that this game should be something special.

My Aim Is True

Though PE will join in the recent seemingly endless spate of WWII tank simulators, *Psychosis* is

Panzer Elite

GENRE: Simulations
RELEASE DATE: Q2 '98
DEVELOPER: Wings Simulations
PUBLISHER: Psychosis

apparently turning its tardiness into an asset. Earlier games in this genre, such as Interactive Magic's *IPANZER '44* andSSI's *PANZER COMMANDER*, can be criticized in terms of scope, graphics, realism, and vehicle detail and capabilities. PE attacks these areas with the fervor of a Panzer ace.

PE covers German-American battles from 1942 to 1945 on a platoon level. Theaters of operations include Tunisia, Sicily, Italy, and France. Play varies from quick engagements, single actions, and

gamers will lament the absence of those vicious Russian tanks and the quaint early Western Allied vehicles. However, these deficits in breadth are compensated by depth while leaving room for sequel. This concentration of scope also may afford more historical detail in engagements.

The graphics are head and shoulders above other simulations. Forests in PE are made of individual trees and bushes, which can be blown away or rolled over if your vehicle's treads and drive train are up to it. Similarly, buildings are distinctive to regions and are individually modeled. Like wells, buildings can be crashed into for cover and quick getaways at the risk of vehicle damage. Terrain actually rolls with tank commands bouncing in the turret. The difference in terrain colors and textures makes finding a hull-down position much easier.

Vehicle and combat graphics are also standouts since vehicle exteriors are modeled intricately, with differences in models readily

percent of the total screen. Other vehicles can be seen using the multiaxial camera function. Enemy vehicles are not only modeled well but use effective camouflage colors. Finally, the infantry is visible and looks human. They dash or low-crawl to effective



COTTAGE FOR SCALE Approaching a Sicilian village through a wheat field, you can see the shadow of your 88mm barrel.

antitank positions. Given the importance of the graphics, *Psychosis' efforts* to make the program compatible with many video configurations is welcome.

Realism and Flash

Realism is the key feature of PE and is manifested in attention to detail. Each crewmember is represented and has varying qualities that affect the performance of your tank. In the campaign game, you fuel vehicles from available reserves, pick a multitude of shells from your stockpile, and upgrade units with a myriad of options such as skirts, antiaircraft machine guns, and advanced armor-piercing shells. If you have a good enough record, you can exchange older vehicles for better ones. Finally, if your platoon is not performing well, you can even sack a tank's commander. All of these modifications are recorded by your helpful aide, who also gives a detailed mission briefing using a well-illustrated, animated situation map.

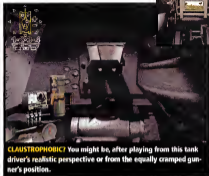
All these elements would be useless if gameplay didn't take advantage of them, but don't worry—PE does a very good job in this area. All input devices are



CAMPFIRE SONG Even choosing ammo seems sexy in this American camp in Italy.

long or short campaigns within these theaters—around 50 missions/campaigns in all. The designers have rectified the absence of an American campaign in *PANZER COMMANDER* while keeping the simplicity of command control absent from *IPANZER '44*. Some

apparent. Tank interiors are individual to the principle models and represent a 360-degree view of each compartment. This authenticity becomes even more dramatic in the commander's buttoned-up cupola. The view is very restricted, with slots giving no more than 30



CLAUSTROPHOBIC? You might be, after playing from this tank driver's realistic perspective or from the equally cramped gunner's position.

scheduled to be available in the final version, but mouse and keyboard controls work well already. Platoon members can be ordered about with one hot-key, while the commander can control movement through a superimposed mouse tank. Of course, hot-keys will handle tank functions at the crew positions. Targets are selected with a click to be fired on by either the tank's gunner, another tank, or the entire platoon. The player can also serve the main gun using a simple boresight level of realism, a level where gravity and muzzle velocity is modeled, or an ultra-realistic mode with wind also modeled. Both bow and coaxial machine guns can be used to dispatch soft targets.

Driving your vehicle seems simple, but it requires thought. Tanks flip over when going up steep slopes at a bad angle, and engines overheat when pushed too hard. Treads can be thrown rolling over obstacles or mines. Compasses are useless surrounded by so many tons of metal, so commanders navigate by maps and landmarks. Platoons can be ordered to a point by a click and a hot-key and get there in the usual column, line, echelon, and "vee" formations. The physics of maneuverability over the battlefield is just fascinating. The Tiger is often thought to be clumsy, yet its wider tracks made it more maneuverable than a Sherman on soft terrain. PE

models such details for all vehicles (see sidebar).

Combat requires a keen eye more than good reflexes. Crewmembers may spot the enemy, but the player still must make observations without benefit of visual cues to ensure the best results. As you'd expect in a physics-based tank sim, success generally requires that you maneuver for side and rear shots at the enemy and fire from stationary positions. In a Tiger it's tempting to simply sit there and bang away. But sooner or later, an enemy will get in a good shot at a vulnerable spot, so hull-down positions are important. When things get too hot, smoke shells and dischargers can provide cover. PE models many different kinds of mechanical and battle damage, some of which can be repaired by the crew.

The missions are varied and include recon, assault, static defense, and "fire brigade" responses. Campaigns can be short, medium, or long in duration, and they sport the usual crew ability improvements, supply increases, and decorations for good performance. While you can call in off-board artillery your main support comes from independent units, who seem to fight quite well. I watched a squad of my own infantry take out an enemy which speaks well for the AI. The computer opponent, even at this early stage of the code, is

no fool. But the ultimate opponent to play is another human, and PE plans to support

LAN, IPX, Internet, and null-modem play.

No Bailout Required

In the end, even if everything the designers plan to do is truly implemented, questions about PE arise. Why, for example, is there no provision for air attacks—the bane of German crews in Normandy? Why is there no bailout command, leaving doomed crews to await

their fate in a badly disabled tank? Oddly enough, Psychosis' laudable attempts to handle all input devices and graphic levels may cause more technical problems than they fix.

Regardless of these doubts, both PE and the inevitable East Front sequel hold every promise of thrilling gamers—even some of those not normally attracted to WWII tank battles. **CGW**

Jim Cobb is still trying to master THE OPERATIONAL ART OF WAR. He's not there yet, but his panzer paintbrush now sports a finer tip.

Hardware Heaven

PANZER ELITE models an exhaustive array of vehicles—84 in all—of which you can directly control 23. While other games have more vehicles, PE's depth of detail is breathtaking and adds new dimensions to the armor gaming experience.

The 12 German tanks included are Pzkw III H, J, N; Pzkw IV E, F2, H, J; Panther D, A, G; and Tiger I and I E. American tanks modeled are M5A1; M10GMC; M4 (Sherman) A1, A1(76)W, A2 (late), A2(76)W; A3 Mid, A3(75)W, A3(76)W, and Jumbo. These variants model not only different engines, armor, and guns, but also such minutiae as different compartment variations and wet boxes for ammunition storage.

The detail doesn't stop there. Along with high explosive (HE) and smoke rounds, the Germans can choose from nine different armor-piercing (AP) rounds, depending on the tank and variant. Americans may choose from five different AP rounds and two kinds of HE shells. Each shell type has its unique muzzle velocity and penetration characteristics.

Lost you worry that infantry is forgotten, squads may carry bazookas, Panzerfausts, Panzerschrecks, AT grenades, and rifle grenades (limited by nationality and time of the war). To wake the sleepy, Teller mines are sown here and there as wake-up calls.

Basically, PE gives enough detail to send even veteran players scrambling for reference books and calculators to choose the best ordinance mix. Or, you can simply have a great time blowing up the countryside (and hopefully, a few enemy tanks) with a wide variety of WWI weaponry.





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Warthog Attack

The Team That Brought You the Award-Winning LONGBOW Series Is Back With the Meanest, Deadliest, and Ugliest Attack Jet Ever Built

by Denny Atkin



It has the kind of face only a mother could love. In the days when the sleek, supersonic F-15 Eagle and F-16 Falcon were coming into service, Fairchild-Republic introduced the A-10 Thunderbolt II. This hulking, subsonic jet looked more like a single-seat, jet-powered version of World War II's B-24 Liberator than an answer to the problems of the modern battlefield. With the ugliest visage this side of the A-6 Intruder and a seemingly endless string of pylons jutting from under its wings, the plane was quickly rechristened the "Warthog" by the pilots who flew her. But while it may not have been attractive, any plane that can carry twice the bomb load of a WWII B-17 Flying Fortress and fire 65 depleted-uranium shells per second merits a certain level of respect.

And what better way to pay homage to the air force's ground-pounding wonder than to set loose the Austin, Texas-based branch of Origin Skunkworks

to create a simulation of the plane.

After all, the Skunkworks crew

headed by Andy Hollis and Will

McBurnett had brought us

Simulation of the Year

award-winners

LONGBOW and

LONGBOW 2. Due for

release in the second

quarter of this

year, JANE'S A-10

WARTHOG main-

tains the elements

that made the

LONGBOW series so

good and promises

even wider appeal.

While the sim exhibits

the exacting detail that

made the LONGBOW

games favorites of hard-

core flight simmers, the A-10

jet is easier to fly than the

Longbow helicopters, and its

weapons systems are

easier to master

First Flights

In fact, much of the game's design concentrates on making A-10 WARTHOG more accessible to new sim pilots and players still working their way up to hard-core status. Expert pilots need not be

concerned, however. Despite this push toward accessibility, the sim still promises unrivaled cockpit, flight, and weapons modeling.

Experienced pilots and newbies alike

will appreciate the way the sim brings

you along to A-10 flight. The sim

will offer a series of LONGBOW

2-style training missions, in

which an instructor pilot

will guide you through

the basics of A-10 flight

and weapons handling.

Further, the first

campaign is being

designed as a ramp-

up campaign to better

familiarize you with

the plane. But the

campaign will involve

real combat missions,

not training. The mission

objectives and the threats

present will let you build

your skills gradually, however,

rather than force you to use every

available weapons system to take out

your first targets.

This first campaign, Operation Restless

Tiger, starts out during a Team Spirit training exercise

in South Korea. Events quickly turn the exercise into the real

thing. You'll fly some 30 missions over the course of the cam-

paign, and by time you finish the campaign you should have the

aircraft and its systems mastered.

Experienced sim fans will be relieved to learn that the second

campaign does not take place during Operation Desert Storm,

despite the A-10's successes in that conflict. The Skunkworks

team must have realized that many sim fans have spent more



LIZARD GREEN These A-10s pull away from a target; most of the time, you'll want to remain low to make yourself more difficult to target.



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FiveTime World Champ



Tina Basich
X Games Gold Medalist



Jamie Lynn
Big Air Champion



Shannon Dunn
X Games Gold Medalist



Daniel Franck
Olympic Silver Medalist



Morgan LaFonta
Big Air Champion



Peter Lina
X Games Gold Medalist



Todd Richards
X Games Gold Medalist

Todd Richards, Frontside Indy Alley-Oop in the Vail Pipe.



Photo: Bill Thomas



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HOME BASE The sim will feature an interface similar to that of LONGBOW 2, but this time all the objects around the base are oriented.

time flying over Iraq and Kuwait during the past seven years than most active-duty Air Force pilots have. So instead of re-visiting that combat theater, A-10 WARTHOG instead puts you on the front lines of the battle: the aircraft was designed to fight: a communist push into West Germany.

Dubbed Operation Volant Hunter, this campaign takes place in the Fulda Gap region of Germany during the mid-1980s. Look for a bit of a Reagan-era look and feel to Paul Stankiewicz's cut-scene videos and interface.

At first glance, some similarities to the LONGBOW 2 campaign will be evident in the Volant Hunter section. For instance, when presented with a mission, you'll be able to choose between four flights, giving you some choice of what kind of target you want to attack. Along with pure tank-busting, other mission types will include search and rescue, close air-support, suppression of enemy air defenses, and joint attacks with helicopters.

One big difference between A-10 WARTHOG and LONGBOW 2 is that the campaign in A-10 won't be dynamic. Instead, it will feature a scripted, branching-mission structure. Replayability shouldn't be a problem, however, due to the nature of the campaign. While victory—or defeat—will usually come after 20–30 missions, these will be drawn from a total pool of about 200. Random elements will keep missions from being predictable even on replay. Surface-to-air missile sites, for instance,

may change location and vary in number between missions, which should keep your adrenaline level up even when you're attacking a known target. While the campaign is scripted, the world won't be static. When you pass over a building or bridge you destroyed in a previous mission, you'll see its wreckage.

In addition to the campaigns, you'll also find about 15 single missions in each combat theater. There's no mission editor included, but the team hopes to work with a third party—just as it did with LONGBOW 2—to make one available after the product ships.

Just the FAC, Ma'am.

One particular role of the A-10 deserves special attention: that of Forward Air Controller (FAC). The modern FAC role originated in Vietnam, where brave pilots in tiny Cessna O-1 Bird Dogs and O-2 Skymasters would search for enemy targets and then direct fast-moving aircraft in for the strike.

Over the years, FAC pilots have been equipped with better planes, such as the OV-10 Bronco. But none so deadly as the A-10 (or OA-10A, as it's called in the FAC role). The A-10's slow speed and long loiter time make it an effective platform for searching for enemy targets. With its heavy armor and

Continued on pg. 88

The Real A-10

The first production A-10 was delivered to Davis-Monthan Air Force Base in Arizona in October 1975. Designed by Fairchild-Republic (descendant of the company that built the WWII P-47 Thunderbolt and the Vietnam-era F-105 Thunderchief), the A-10 was officially christened "Thunderbolt II," but is known by pilots as the Warthog.

The U.S. Air Force marked the A-10 for replacement by the F-16 in the early 1990s, but the plane's superb performance in the Gulf War, in which it flew 8,100 sorties, caused the Air Force to reevaluate that decision. The plane is now expected to remain in service as late as 2030.

The A-10 is perhaps most famous for its GAU-8/A Gatling cannon. This seven-barrel weapon weighs 1,963 pounds empty; 3,620 pounds when loaded with 30mm depleted uranium shells. The cannon, which can fire 3,900 rounds a minute with a muzzle velocity of 3,200 feet per second, is extremely accurate, with more than 80 percent of its shells hitting inside a 30-foot-radius circle at a mile range.

Interestingly, the A-10 scored the only two gun kills of Operation Desert Storm, destroying two helicopters with its 30mm cannon.

Official name:	A-10 Thunderbolt II
Engine:	Two GE TF34-GE-100 turbofans with 9,065 pounds of thrust each
Max takeoff weight:	51,000 pounds
Top speed:	420 mph (Mach 0.56)
Ceiling:	45,000 feet
Range:	600 miles
Dimensions:	Length, 53 feet 4 inches; height, 14 feet 8 inches; wingspan, 37 feet 8 inches
Weapons load:	Up to 16,000 pounds of ordnance on eight under-wing and three fuselage pylons; GAU-8/A 30mm cannon with 1,174 rounds



The A-10 Thunderbolt II

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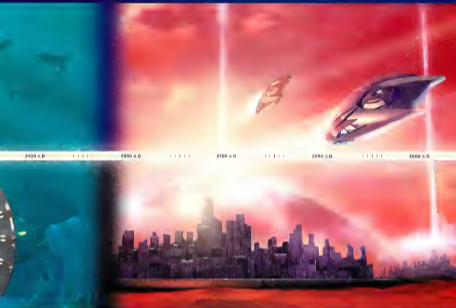
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redundant systems, it's certainly a safer platform for orbiting a battlefield. And if it's cornered, there's always that 30mm cannon for self-defense.

A-10 WARTHOG provides a tactical map that gives you an overview of the battlefield, displaying friendly assets and the last known location of enemy units that have been spotted by friendlies. You can access this map for reference in any mission, but it really comes into play during the FAC missions, when it's your interface for sending orders to your air assets. In real A-10s, FACs actually mark target information on their canopies using grease pencils before radioing it to other units. The developers experimented with this technique, but found it unwieldy in the sim environment—thus the use of the map interface.

When you detect an enemy target, you'll be able to send in aircraft or helicopters to attack, but not ground units. For best results, you'll want to mark your target with smoke rockets. If you don't, the air units you call in are more likely to miss. Franchise Hunter, who is developing the FAC portions of the sim, says the AI will be fairly intelligent in how it attacks: If you warn the pilots that there are friendly units around, it will choose appropriate weaponry, avoiding the use of area munitions such as cluster bombs.

A-10 will also give you quite a

bit of control over your wingmen's actions. You'll be able to command them to attack your target, targets of any type, mission-specific targets, ground threats, air threats, and targets of opportunity. You'll also be able to specify which tactics they should use: Shooter, in which they go in to attack the target directly; Cover, in which they watch your back; Decoy, in which they try to draw fire so you can attack; or Suppression, in which they will attempt to take out enemy air defenses.

In multiplayer mode, you'll be able to fly with human wingmen. Of course there's the requisite death-match mode, but you can also fly single and campaign missions with human wingmen.

Terrain Ride

The A-10 isn't exactly renowned for its speed, but it's fast compared to the AH-64D Longbow simulated in Skunkworks' previous sims. Because the A-10 can cover so much more ground in the same time, the area you'll be able to fly over in A-10 WARTHOG will dwarf that of LONGBOW 2. Here the battlefields are 200 kilometers square, as opposed to the



VIRTUAL VIEW The 3D virtual cockpit features a full set of working, mouse-clickable instruments.



MARKED FOR DEATH While highlighting a new target in FAC mode, you can still keep a cockpit view of your own plane open in a window.

50x50 kilometer maps in the earlier title.

Vincent Lin and the other A-10 artists start with digital elevation map data for the regions being modeled and then feed that data into a program called World Construction Set. Here they can properly overlay appropriate details for a region—whether it's rocky, forested, flat, urban, or other. The team is even overlaying road maps for the regions onto the game map, so you'll be able to accurately navigate using major highways. A variety of high-res texture objects, including farm fields, roads, and airstrips, will enhance the look of the world below you.

One of the more impressive aspects of the terrain engine is its use of detail textures to give you a better sense of speed at low altitudes. When you descend far enough, a "noise"

texture adds pixel details to the terrain. Because your aircraft is now visibly passing over thousands of pixels instead of large patches of a single color, the sensation of speed is dramatically enhanced. In the early build of the program I flew, the detail popped in rather suddenly; it's hoped the A-10 WARTHOG team can eventually make the transition gradual.

Although the graphics engine in this sim is new, you'll notice the effects that made LONGBOW 2 so impressive: dynamic lighting, polygons that don't "pop up," and so on. (And fear not, JANE'S F-15 veterans—no melting mountain effects here.) But overall, the environment in A-10 should feel very real. In the second campaign, you'll fly not over a desert or sparsely



GRADED BY The developers have modeled even the landing gear with exacting detail; the plane noses down when you hit the brakes, and tires make scrubbing sounds when excessive skidding occurs.



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Warthogs on the Web

The Web boasts a variety of A-10 resources. Here are some of the more interesting pages we found.

A-10 Fact Sheet

The USAF's official A-10 information page
www.af.mil/news/factsheets/A_10_OA_10_1Thunderbolt_II.html

The A-10 Warthog Homepage

Detailed information on the plane, maintained by a Warthog pilot
www.shreve.net/~blade

Warthog Territory

A Hog fan's paradise, with files, book lists, video clips, and more
www.eds.com/~7eweasel/a10/

A-10 Hog Lover's Homepage

Maintained by a group of A-10 aficionados
www.hoglovers.mcmall.com/

Lockheed Martin Federal Systems

An A-10 screensaver from the company that supports the plane for the USAF
www.omg.com/a10prime/

Pat's World

A photo gallery of A-10 Desert Storm battle damage
www.shinburo.com/~mcgeep/index.htm



WING AND A PRAYER: Although this A-10 is pristine, the sim's damage model will let you limp home, with huge portions of your wing missing.

populated areas of Korea, but over the heart of Germany. So look for plenty of objects—not only military structures, but also farmhouses, city blocks, and the like—to flesh things out. You'll also find that ground units feel alive here. They should be constantly on the move or engaging the enemy, rather than just sitting around as static targets.

The graphics engine will support both 3Dfx Glide and Direct3D APIs. Resolutions of at least 800x600 will be available, higher resolution support will depend on what kind of performance the team sees in the upcoming generation of 3D cards.

In the Titanium Bath tub

Of course, the place where the lane's sims created under Andy Hollis have been unparalleled is in the simulation of the cockpit experience, and that holds true here. Virtually every system found in the titanium-armored cockpit of a real A-10 is modeled here in exacting detail.

As I sat with Mark Drajeske, who is developing the flight models for A-10, I felt like I was being briefed for a flight in the real

plane. A former engineer with McDonnell-Douglas, Drajeske helped develop an AC-130 training simulation for the Air Force Special Ops forces and the flight modeling for the BACK TO BAGHDAD F-16 sim.

A-10 WARTHOG will feature a 3D virtual cockpit with a full set of mouse-clickable controls. The differences between the real cockpit and the one in the game are negligible. To make room for the autopilot panel, the developers have removed three instruments not necessary to gameplay—the UHF frequency indicator, the standby attitude indicator, and the clock—but otherwise the panel is virtually identical to that of the actual jet.

The real A-10 doesn't have radar, so most of the learning curve new players will climb involves the heads-up display (HUD), the Maverick missile targeting system, and the various weapons release modes. Because you have no high-tech targeting systems, combat in the A-10 feels similar to combat in the plane's WWII namesake, the P-47 Thunderbolt: it basically boils down to "point the plane at the enemy and shoot until the enemy isn't there anymore."

That's not to say there aren't loads of details here for the hard-core pilot who wants to delve into the plane's systems. Virtually every weapon the real A-10 can carry has been meticulously modeled: Mk-82, -83, and -84 general purpose bombs (both low-drag and air-retarded variants); Mk-77 Napalm bombs; Rockeye and CBU-52, -87, and -97 cluster bombs; GBU-10 and -12 laser-guided bombs; TV- and infrared-guided AGM-65 Mavericks; explosive and smoke variants of the LAU-3 rocket; SUU-25 illumination flares; AIM-9 Sidewinder air-to-air missiles; and the stalwart GAU-8/A 30mm cannon.

The HUD system, called LASTE (Low-Altitude Safety and Targeting Equipment), gives you a wealth of targeting options. You can drop weapons individually or in pairs,



FIGHTING WITH FLARE: This is a rendered image from a cut-scene, but the actual sim engine will let you drop flares to illuminate targets at night.

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 CHRON X



TANKS FOR NOTHING A Fire illuminates this tank just before it falls victim to an A-10's gun during a cut-scene.

and in single-drop or ripple mode. Parameters such as drop quantity and delay for ripple mode can be adjusted for each weapon type. And you can also designate high- or low-drag for specific weapons, depending on how quickly you need them to reach the target.

The HUD features navigation and air-to-air modes (the A-10 uses the same gun "funnel" display software as an F-16), as well as air-to-ground options including TV and imaging infrared Maverick targeting, a CCIP line to compute bomb impact points on a designated target, and manual targeting.

Damn! Damage!

In real life, Fairchild-Republic designed the A-10 to survive amazing punishment: The pilot is one of the only systems in the plane without a backup. A-10 WARMHOG's flight and damage modeling will take this into account, and much of the excitement will come from trying to nurse a wounded bird home. Each major system and surface in the aircraft has the potential to be damaged, and the sim will feature a



INSTRUMENTS OF DESTRUCTION Even in this early take on the virtual cockpit, instruments are clear and readable.



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WORLD WAR II FIGHTERS-level of detail in its graphical depiction of damage.

The sim's flight model was mostly complete when I visited the Skunkworks office, and the handling was very good. The full six-degrees-of-freedom force-and-moment flight model replicates not only the plane's normal flying characteristics but also the quirks and variations you get at different loads and altitudes. Adverse yaw during rolling maneuvers, for instance, can cause your plane's nose to move in the opposite direction of the roll. In high-G/high angle-of-attack conditions, the yaw can cause a wing to stall, or disrupt airflow to one of the engines, causing it to shut down.

The aerodynamic model actually uses control surface deflections to maneuver the plane, and when a surface gets blown off or stuck in one position due to damage, maneuvering will be appropriately hampered. Flying the A-10 will be an interesting experience for players weaned on F-16 and F-22 sims. Unlike in those planes, the A-10's thrust doesn't exceed its weight (depending on load, the thrust-to-weight ratio ranges from 0.4:1 to 0.6:1), and pilots will find that while the A-10 excels at instantaneous turns, it quickly bleeds speed during sustained turns. And forget going vertical, at least for more than a few seconds. Also, the A-10's turbofan engines take about five seconds to spool up, so you'll have to think ahead when flying this plane.

The A-10 features Stability Augmentation Systems for both pitch and yaw, which temper some of the plane's handling characteristics. If you shut these down, or if they're damaged, the plane won't be nearly as tame. If your plane's dual hydraulics systems are damaged, the sim models the Manual



GET LOADED Obviously some of the box has his yet to be fully researched, but this gives you a good idea of how the drag-and-drop loadout screen will work.



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featuring

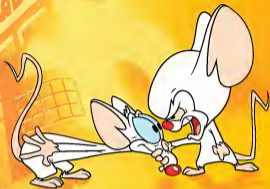
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information infrastructure that humans use to "chat" with each other. Anyways, once we control the Internet, every human being will bow down before me, their rightful master. And by the turn of the new millennium,

the world will be ours!

World Conquest

multi-player maze game



Reversion Mode (MRM), which literally uses cables to fly the plane. In this mode the A-10 is very difficult to handle, and pilots forced to use it are advised to fly in MRM until they reach a friendly base, then eject. At least one A-10 damaged in Desert Storm managed a wheels-up MRM landing—considered a major accomplishment.

Drageske left me with five-and-a-half full, single-spaced pages describing the flight modeling and system-damage modes, far more than I can detail here. Other impressive details include the ability to windmill-restart a damaged engine in case of an APU failure, modeling of compressor stalls and engine overheating, and full trim control.

Hog Tied

A-10 WARTHOG has the potential to be the most popular sim to come out by an Origin Skunkworks team. The aircraft is easier to master than a Longbow or an F-15 Eagle,



LOW AND SLOW Even when you're not flying a FAC mission, you can pull up the map to get your bearings. The image on the top is Korea; on the bottom, the Fulda region of Germany.



yet the detail looks to be there to please the hardest of the hard-core. The Fulda Gap scenario should appeal to military buffs, who will be pleased both by the what-if nature of the battle and by the fact that it's not yet another retelling of Desert Storm. And unlike JANE'S F-15, which basically offered only arcade or hard-core modes, A-10 WARTHOG should be able to gradually bring casual players into the serious fold through its training and ramp-up campaign. Toss in the requisite flashy graphics and it seems Jane's has perfected the recipe for success. **CGW**

When Denny Aikin is not flying the latest WWI sim, he's living out his delusions of demigodhood in POPULOUS: THE BEGINNING.



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Gentlemen, we have the technology... This is about me, dammit. It's not about how to build some set of abstract computers from a list of components. It's not about Microsoft Office, Photoshop, WinBench, or AutoCAD. It's about EUROPEAN AIR

WAR, HALF-LIFE, RAILROAD TYCOON II, and BALDUR'S GATE.

It's also not about CPUs, bilinear filtering, overclocking, or transfer rates. Sure, I'll touch on some of those topics, but these systems are built by me as killer gaming systems. Are some of the choices subjective? You bet. But I've based all of the choices on our fundamental desire to build as fast and as beefed-up a set of systems as possible for several different budgets.

One thing I want to stress is that these systems are real. I keep the high-end rig and the \$2,000 system alive and running all the time. Those systems are constantly evolving. I put together the \$1,200 rig as an exercise, and it actually ran games pretty well.

Keeping them alive helps shape some of my choices. Certain components sound good in theory, but I have no

by Low Case

interest in being a systems manager—I want to get down and dirty in the cockpit of a Spitfire Mk1, or dodge marines in HALF-LIFE. Speed is important, certainly, but so is stability. These boxes get hammered with a variety of games nearly every day.

As you read through the details of our three systems, keep in mind your own needs and wants. You might not be interested in building a system from the ground up, but you may well want to upgrade your existing system in the future. Consider this a guide to upgrading, too. Most of this gear would make prime candidates for anyone's system, and we'll give you the lowdown on why they are our components of choice. So, without further ado, let's get busy.

THE POWER RIG

Power is the system that most of us can only dream of owning. Still, it's practical at a fundamental level. There are no RAID arrays to maintain, no motherboards that need PCI bridge chips, and no \$5,500 monitors. But it features a fast CPU, the fastest hard drive you can get—one of the largest, too—and graphics that chug off high polygon counts and huge textures while it keeps chomping out frames.

I'll cover components in detail below, but let's touch on a few things. The core of the system is the 450MHz Pentium II. The Pentium II lives on an ASUS P2B-LS motherboard with 256MB of PC100 SDRAM. While money is no object with the Power Rig, other practicalities do weigh in, like free PCI slots. The P2B-LS has onboard

Ultra2 low-voltage differential SCSI in the form of the Adaptec 7B90 SCSI controller chip. The hard drive is Seagate's Cheetah 18, supplying a massive 18GB of storage. And since the Cheetah spins at 10,000RPM, it delivers that data fast. Iomega's competent Jaz2 cartridge drive provides our backup, while Pioneer's DVD-302 SCSI DVD drive for CD-ROM and DVD disks rounds out the mass storage.

No gaming system would be complete without fast graphics. The primary card for our Power Rig is the Creative Spectra 2500, which is coupled to a Quantum Obsidian X-24 Voodoo2 SLI graphics card. The Spectra 2500 uses the nVidia RIVA TNT chip, while the Obsidian X-24 is a Voodoo2 SLI setup on a single PCI card.

Several other items contribute to making this a higher end rig,



too. Instead of using the power supply that came with the case, we substituted the PC Power and Cooling TurboCool 300. The InWin tower case is an updated version of the case we chose last year, with an extra cooling fan added to its now-perforated front bezel. On the subject of cooling, the Cheetah 18 runs pretty warm,

so I added a hard-drive cooler, which is essentially a hard-drive mounting brackets with a couple of fans attached. For users who value low-noise, peace of their home office, this rig cannot be called quiet. The hard drive alone has a slight but noticeable whine when it's running, and the extra fans add to the ambience.

THE LEAN MACHINE

If last year's budget rig would have set you back \$2,500, and it performed substantially slower than our high-end system, this year's rig closes the gap a bit—and the price now drops under \$2,000. The CPU and primary graphics are now close to the Power Rig's. There's a substantial price difference (as of this writing) between the 400MHz CPU and the 400MHz CPU, so I was able to squeeze in a 400MHz Pentium II into the Lean Machine. For the primary graphics cards, I chose the Creative Labs Graphics Blaster TNT, one of the lower cost high-end boards out there. The Guillemot Mixtrem 3D II handles Voodoo graphics chores; at \$99 after rebate, it's a helluva bargain.

Of course, you've gotta make trade-offs in any \$2,000 system, and ours is no exception. For game audio we used the Diamond Sonic Storm 595, which uses the Aureal Vortex chip. It's less than \$50, sounds pretty decent, but can hit the CPU pretty hard when there's a lot of high-quality DirectSound 3D playback.

Other compromises include having "only" 64MB of PC100 SDRAM. Not long ago, a 64MB system was extravagant, unheard of; but in the age of AGP, high-resolution games and MIDI samples stored in main memory, 64MB is becoming the minimum. The CD-ROM drive is also something of a compromise, though we like the slot-loading feature. The biggest compromise, though, was the hard-



drive: it's "only" 6.5GB. To its credit, it spins at 7,200 RPM and has a pretty quick access time.

We didn't compromise on the case, however. While difficult to find and often back-ordered, the Ean Vital T10-AB (also sold under the ASUS name) is one of the best cases around if you upgrade fre-

quently. If you're the kind of person who gets a system and opens it up maybe once in three years, you don't need this case. But if you spend a lot of time tinkering, this is a beauty. The 235W power supply that ships with the case seems to handle all the hardware we've added with ease.



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BRAINS AND BRAIN



Both our Power Rig and our Lean Machine have motherboards that use Intel's 440BX chipset.

The main reason you need the 440BX is to support the 400MHz and 450MHz Pentium II processors, which use the 100MHz front side bus (that is, the memory is clocked at 100MHz instead of 66MHz, as in past systems). But there's another important consideration for a motherboard: Can you upgrade it? Most 440BX motherboards will support Intel's next generation Katmai CPU when it ships in 1999. (Bear in mind you'll probably want Katmai, even if you don't pick it up at first release. The new CPU instructions that are part of Katmai promise to improve 3D geometry calculations by as much as 70 percent with games that support it.)

Even if your budget such that you can afford, say, only a 300MHz CPU, you should still get a 440BX motherboard and PC100 SDRAM. That will give you lots of room for growth without having



LOCK AND LOSE Pentium II makes the CPU of choice for gamers. Upgrade your system by locking in Intel's Katmai processor. (We're shipping a clip into a .45.)

to swap out your motherboard and RAM.

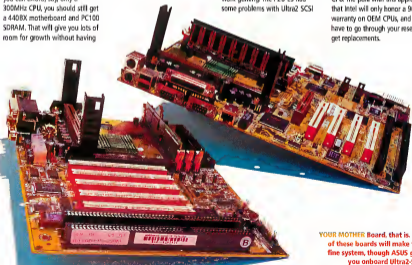
The Power Rig's ASUS P2B-LS has four PCI slots, three ISA slots (one PCI slot shares a space with one ISA slot), and, of course, the AGP slot. The cool thing about this

board is the built-in Adaptec Ultra2 SCSI, which has the same performance as Adaptec's 2940U2W card—and since the SCSI card costs around \$300, onboard SCSI is a good deal. The onboard Intel 10/100 Ethernet chip is handy for local area network gaming. The P2B-LS had some problems with Ultra2 SCSI

devices when it first shipped, but the current BIOS release has stabilized the board, and everything has run rock solid for several months now. ASUS also makes versions of the P2B with onboard LAN or onboard SCSI alone.

The Abit BH6 used in the Lean Machine has five PCI slots, two ISA slots (a PCI slot shares a position with an ISA slot), and only three DIMM sockets. But with the BH6 you can set (and tweak) clock speeds in the system BIOS. The BH6 seems much more stable than its older sibling, the BX6, and has an extra PCI slot.

Other than the obvious clock rate, there is one key difference between the Pentium II CPUs. The 450MHz CPU is the boxed version, complete with fan. However, for budget reasons I couldn't squeeze in a 400MHz boxed CPU, so I went with an OEM CPU. That forced me to buy a separate fan, but the total cost was still less than the boxed CPU. The perk with this approach is that Intel will only honor a 90-day warranty on OEM CPUs, and you have to go through your reseller to get replacements.



YOUR MOTHER Board, that is. Both of these boards will make for a fine system, though ASUS gives you onboard Ultra2-SCSI.

MOVING PICTURES

BOTH BARRELS This year, both systems feature Nvidia's Riva TNT for 2D/3D, and 3Dfx's Voodoo² for 3D and GLIDE compatibility.

really noticed. The Spectra is unique in this business in that it runs game tests, like 3D GameGauge, better than it runs synthetic benchmarks. After all, it's game performance that's important.

I have this obsession about systems: I want to conserve all the resources I can. Since the Obsidian X24 is Voodoo² SLI in a single PCI slot, it's very appealing to me; even though there are cheaper SLI solutions, they don't give me back a PCI slot. While the TNT is about as fast a single-chip 2D/3D solution as you can get, there's nothing that matches the raw horsepower of Voodoo² SLI.

The Power Rig's monitor is the Sony 500PS, a Trinitron monitor with a .25 stripe pitch and a relatively high bandwidth. It actually looks good at 1280x1024, and you can run it at 1600x1200 if you want.

On the Lean Machine, we manage to squeeze in a TNT board by using the no-fills Creative Labs Graphics Blaster TNT. This is a fairly sweet board, though Creative has

been somewhat tardy with its driver updates. The card ships with Colorific's color matching tools and 3Deep gamma correction package. It may be my imagination, but after I ran the Colorific calibration, the overall image seemed crisper and brighter.

...It wasn't possible to get SLI into a sub-\$2,000 box, but thanks to Guillemot's aggressive pricing, I did get a capable, 128MB Voodoo² reference board into the system for \$99, after rebate.

For the Lean Machine monitor we chose the Optique V75. This is a relatively high bandwidth, 17-inch monitor and will actually run at 1600x1200, though Windows text is far too small for good legibility through my eyes. You can find it for less than \$380 with a little searching.

There's another piece of graphics hardware that found its way into the Power Rig: a hardware DVD decoder. I went with a Quadrant International Cinemaster decoder: it ships inside a DVD kit, or you can find white box versions from resellers. Its claim to fame is that it does not require any passthrough cables for video. All video data transfers over the PCI bus. The primary graphics card has to support linear frame buffer, but almost all do these days. Video image quality with the Cinemaster looks pretty good to my eye—I had to squint to see artifacts in scenes with a lot of motion.

For gaming, the graphics subsystem ranks second only to the CPU. Even if you don't play 3D titles much, the graphics card is still important. Even playing a real-time strategy game, such as STARCRAFT, can demand a lot of a graphics card.

Canopus has thoughtfully added a fan to its Spectra 2500, which we used in the Power Rig.

Since the environment inside the big rig gets pretty warm, that's a nice touch. More interesting is the reverse passthrough. Unlike most setups with a Voodoo² card, the monitor plugs into the Canopus card. A special cable connects the monitor output from the X24 to the Spectra. This theoretically improves 2D image quality, though I haven't

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BIG BIT

Time installs aren't getting any smaller, so with any system you're going to need ample room and a fast CD-ROM to keep installations and gameplay moving along.

The Power Rig has Seagate's massive Cheetah 18 hard drive in the big tower chassis. As for speed, the Cheetah 18 spins at 10,000RPM and has an access time under 6 milliseconds, with transfer rates that approach 20MB/sec over the Ultra2 SCSI bus.

The CD-ROM chores are handled by a Pioneer DVD-302 SCSI DVD drive, which should perform as a 20x CD-ROM drive and a 2.6x DVD drive. The DVD-302 mates well with the Cinemaster DVD decoder. Maybe I can finally boot up the DVD version of RIVEN that's been sitting on my shelf. (Then again, maybe not.) Still, it is nice to have DVD without a huge sacrifice in CD-ROM performance.

Since the Power Rig is no-holds-barred, I added backup in the form of an Iomega Jaz2. It can use 2GB removable cartridges to back up important data, and it's faster than something like CD-R—but the cartridges are more fragile.

On the Lean Machine, the hard drive is the trusty Seagate Medalist Pro 6530. The

BULKETS



DIVE DIVE DIVE! The dual fans on the Seagate Cheetah 18 make it look like a mini-sub. Both disc readers are slot-loaders, eliminating caddies and cup-holders.

lone holdover from last year's budget rig, the 6530 makes it back due to its good performance and low price of \$199. Plus, it spins at 7,200RPM and holds up to 6.5GB of data. Pioneer's new DR-704S gets the nod as our CD-ROM drive here. It's probably no better or worse than the majority of ATAPI CD-ROM drives, but I'm hooked on the slot-loading concept. Certainly a 36x drive for \$69 is nothing to be sneezed at.

GETTING OUT THERE

High-speed connectivity to the outside world, you've got a complex variety of choices within the Power Rig's budget.

depending on what's available in your geographic region. XDSL or cable modems are beginning to proliferate, and one or both may be available to you as options. Either is much faster than a garden-variety modem and should get you great ping times as well. Between the two, cable modem services seem to be the cheaper (and one often the

faster) alternative, although your local phone company may have an interesting XDSL offer. Because these technologies haven't quite percolated to where I live, I've opted for an ISDN terminal adapter, a technology that's pretty widely available.

The ISDN modem is 3Com's ImpactIQ, which will set you back about \$200. The real cost of ISDN is in the daily per-minute charges (though the first 200 hours of off-peak use is free), so you do have to be careful. The ImpactIQ can autoconfigure all the complex ISDN data, which makes it much easier to set up than

many terminal adapters. I use the external ImpactIQ, which lets me keep a fax machine at the ready even when the PC is powered down. I can get download speeds in excess of 120Kbits/sec—quite a bit faster than a good 56K modem. The built-in Intel 10/100 Ethernet chip plugs me into my home LAN for multiplayer action.

The Lean Machine uses a Diamond Supra 56e external V90 modem. Most Internet service providers

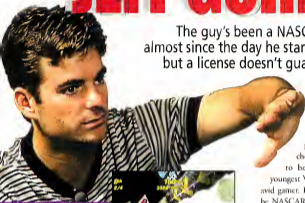
are finally moving to the V90 standard for 56K. Note that the best connection you can get is 53Kbps due to voltage restrictions on phone lines in the United States. The Diamond modem is definitely low budget, and you'll need a 9-pin to 25-pin adapter to connect it. 56K modems may be the last stop on the line for analog-modem technology.



Why (everyone is asking us)

JEFF GORDON

The guy's been a NASCAR money maker almost since the day he started on the circuit, but a license doesn't guarantee anything.



When the team at ASC Games met with Jeff Gordon to go over some preliminary designs it quickly became obvious he was exactly the right choice. Jeff wasn't just going to sign his name to the title, collect his check, and forget about it. He actively wanted to be involved, because, as it turns out, the youngest Winston Cup series winner ever is himself an avid gamer. His first passion may be NASCAR, but it's equaled by his love of videogames—he even lists it under his hobbies in NASCAR program booklets.

We found this out in the first five minutes as he eagerly compared our designs—with-a-dozen other racing titles, all of which he was intimately familiar with. "So the handling is a little like Porsche Challenge?" Gordon would say. "That's good—the handling was the best part about that game."

His enthusiasm was both obvious and infectious. From the beginning he understood game mechanics, and not just from racing games, even cracking jokes about an extended game of Asteroids he played once.

At one point in our meeting while taking a lap on the first playable PC version of the game, the car kept slipping out from under him at the same point on



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"What I'd like to see is that no matter how good or how bad you are at this game, there's a lot of competition, a lot of side by side racing, so that even when you pass, they're still on your tail... I hate it when you get out in front and never see them again - in a game anyway!"



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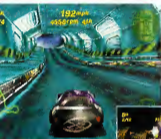
each lap. With one hand on the wheel and one pointing at the monitor he said "something is wrong right here. Sure enough when we opened up the code to take a look missing from the exact spot that Jeff pointed to was a missing polygon that made up the track surface."

He pushed past our initial, simple explanations and dug deeper, with a surprisingly well-informed opinion on everything from track design to the opening animation. "This looks like *Concave Speedway*," he grins looking over a concept sketch, "but it looks cool! Two and a half miles, 35 degree banking - now we're talking! We could reach 300 miles an hour on that track!"

The simple fact is, he was as interested in meeting us as we were in meeting him. He only wanted to be associated with a game he himself wanted to play.

/// We could reach 300 miles an hour on that track! ///

So, why Jeff Gordon? Because he isn't just an expert on racing, he's also an enthusiastic racing gamer. The story goes that a few years ago, Gordon went to one of his first sponsorship meetings wearing a suit and carrying a briefcase. Inside the case, however, there were only two items: A cell phone, and a Game Boy. Does this story sound too strange to be true? Well, meet with Gordon for ten minutes and talk about games, any games. He takes gaming as serious as racing - and that's the kind of game we wanted to create.



JEFF GORDON

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BRING THE NOISE

Audio is hot once again. We've emerged from the doldrums induced by the aged Sound Blaster standard. Even Creative Labs has jumped on the PCI wagon in a big way with its Sound Blaster Live card.

The sound card for the Power Rig was probably one of the toughest choices. Do you go with the Sound Blaster Live or Diamond's

Monster Sound MX300? The Creative card has just about the lowest CPU utilization of any DirectSound 3D accelerator, and EAX actually works well. After much anguish, I went with the MX300, which uses Aureal's new Vortex2 chip. The MX300 will run all the A3D titles out there and will even support EAX rides, even though its CPU utilization comes in higher than the Sound Blaster Live. But the clincher? The MX300 features a daughtercard connector, letting me pop on my revered Roland Sound Canvas SCD-15 MIDI workable daughtercard.

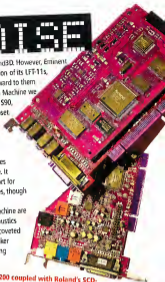
Speakers for the Power Rig are still the Eminent Technologies LFT-11s, a holdover from last year's system. These continue to be the best PC speakers we've heard, on a par with many high-fidelity audio speakers. A pair of Altec Lansing ACS-43s currently handle the rear-speaker

chores for four-speaker DirectSound3D. However, Eminent is working on a four-speaker version of its LFT-11s, and we're very much looking forward to them.

As the sound card for the Lean Machine we chose the Diamond Sonic Impact S90, which uses Aureal's Vortex 1 chipset. The S90 can eat up CPU cycles when "accelerating" DirectSound3D, but it supports A3D and costs less than \$50. Until something better comes along at that price, it will be fine. It sounds good, with decent support for game controllers and DOS games, though MIDI music is a bit weak.

The speakers for the Lean Machine are none other than the Boston Acoustics BA-635s, which earned CGW's coveted five-star award in a recent speaker roundup. They pump out amazing sound from a tiny package.

TURN IT UP Diamond's MX-200 coupled with Roland's SCD-15 MIDI daughtercard covers all the bases, although the Sonic Impact will get the job done adequately.



NOSEBLEED SECTION

This year we decided to build a third system, one in which price was the supreme consideration. Everywhere we could, we drove this rig's price down. Some of the components, in fact, are the same as those in the Lean Machine, including the case, the CD-ROM, the audio card, and the motherboard. Instead of a Pentium III, we opted for Intel's 300MHz Celeron-A, which has 128KB of level 2 cache running at full processor speed.

The combination of the Altec B16 motherboard and the Celeron-A 300 is a good solution for users who want to experiment with overclocking (but you didn't hear that from us). There's only 32MB of PC100 SDRAM.

Diamond's Monster Fusion AGP card handles the graphics chores. This card will support OpenGL, Direct3D, and Glide (3Dfx) games. The monitor is Optique's V55, a 15-inch monitor I found for \$158.

The Sonic Impact S90 board still handles audio, but the BA-635s have been replaced by the Cambridge SoundWorks' PC Works, which can be had for \$60. When looking for a good, cheap hard drive, we found the Maxtor 5.7GB model 2880 for \$129. The whole system comes in at \$1,088, including monitor—not bad at all.

We thought long and hard about K6-2 systems, but the floating-point performance isn't quite up to snuff yet, even with the 366MHz chip. On the other hand, we could have built this Bargain Box for less. The real consideration, it turns out, is motherboard stability, particularly with AGP 2x graphics cards.



DEMONSTRATION #2:

- 1 Tear out your old sound card.
- 2 Smash into pieces.
- 3 Toss over your shoulder.

▶ The sound those pieces make when they hit the ground all *around* you is the power of A3D from Aureal, the only audio that works the way your ears do.

That's why leading sound card vendors, such as Diamond, TerraTec, Turtle Beach, and Xitel, are using Vortex audio technology from Aureal, the only 3D audio accelerator that supports industry leading A3D positional audio technology.

You can also find A3D positional audio on computer models from the industry's leading PC manufacturers.

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TAKE CONTROL

Now we get really personal—let's look at game controllers.

We opted for ThrustMaster's F22 Pro joystick, mated to its TQS throttle and Elite rudder pedals for the right gear. These are just the ticket when flying detail-laden sims, such as LONGROW 2. Programming the F22/TQS combo is a chore, but it's made a little easier with Fox Two Pro, a tool specifically for programming the F22/TQS.

As a gamepad choice, Microsoft's Freestyle Pro is interesting, but you can run only two of them via USB and one via the joystick port. We opted for ThrustMaster's Rage 3D: It's a comfortable, programmable gamepad for large-handed gamers, and you can daisy-chain up to four of them.

Finally, there's the Extreme Competition CDS4000 racing wheel and pedals, the unit



that made me a fan of racing games. Before using the CDS4000, I was very casual about racing sims. I have a lot more fun these days—that's what winning will do

at have to figure out how to afford one of my own. My tips the scales at more than 50 pounds and hits wallet for \$1,129.

The Lean Machine controller choices are more basic. We did a lot of searching for a good universal game controller. It had to work in both DOS and Windows, be as flexible as possible, and be inexpensive. The folks at CH Products puts out the best compromise we've seen in the CH Gamestick 3D. It's not stellar in any single use, but it works well in most games, supports a fourth axis through the twist handle, and costs only around \$55. If you want to throw in a gamepad or two, you can find Microsoft's ocean SideWinder for around \$20, and you can daisy-chain up to four of them.

CHOOSE YOUR WEAPON
 CH's Gamestick 3D isn't the best controller in any one genre, but it does cover the different genres pretty well. Extreme Competition's CDS4000 (left) will stand up to the worst beating you can give it.



TESTING... TESTING... TESTING...

We subjected both the Power Rig and the Lean Machine to an extensive round of tests. This year we've graduated to DFF-Davis' WinBench 99 suite of benchmarks. The CD-ROM WinBench is much more thorough and is a separate test from the standard WinBench suite.

3D WinBench has undergone a massive overhaul. There are now 15 scenes with Direct3D multitenure scenes, and many of the scenes have been reworked to behave more like today's crop of games. For example, instead of the geometric lights used in 3D WinBench 98, 3D WinBench 99

	Business Graphics WinMark (1024x768x32)	Business Disk WinMark	CPUS2	DirectSound 22kHz 16-bit Streaming/16 Voices	DirectSound 3D 22kHz 8-bit Streaming/16 Voices
Power Rig	161	3770	1170	1.53	10.2
Falcon Northwest Mach V	150	4040	1180	N/A*	N/A*
Lean Machine	153	2520	1030	4.95	25.9
Dell Dimension R400	152	3490	984	N/A*	N/A*

	FFWMark	CD-ROM	3D WinBench 99 Primary	3D WinBench 99 Secondary
Power Rig	2380	1231	907	533
Falcon Northwest Mach V	2380	1440	505	554
Lean Machine	2110	1520	470	461 (1)
Dell Dimension R400	2040	1650	499	N/A

* Agido WinBench 99 wasn't quite ready during testing for Parts 1 & 2

** Cannot run 1024x768x16 triple-buffered with Z-buffer.

Higher scores are better.

† Lower scores are better.



Then there are the more mundane input devices: the keyboard and mouse. We really liked the original Microsoft Natural Keyboard, but it is, alas, no longer available. The Logitech Newtouch has a great layout and crisp feel. Its only downer is the touchpad, but you don't have to use it. Instead, we brought Logitech's wireless wheel mouse into the mix. This slick little device uses radio frequencies rather than infrared to handle cordless communication, so you don't need line-of-sight between mouse and receiver. Plus, it works well with 3D shooters because you're no longer "on the leash." While we put the same keyboard in all the systems, the Lean Machine uses the Logitech Wheel Mouse (the one with the cord), which can be found for less than 20 bucks.



WHAT'S YOUR TYPE?

TESTING... TESTING... TESTING... TESTS

uses texture blending to achieve lighting effects in most of the scenes.

This year, Audio WinFench 99 makes its debut. Audio WinFench 99 plays back a set of sounds, some positional, through DirectSound 3D. It's divided into two parts. One part checks CPU utilization of various samples played

at varying resolutions; the other, a subjective test, shows how well the positional audio works with a particular sound card and speaker setup.

To round out the mix, we use our own 3D GameGauge, a collection of six games—four Direct3D, two OpenGL—to test game performance.

3D GameGauge—Primary (Frames Per Second)

Power Rig	49.6	139.9	80.4	98.8	62.7	76.4	489.5
Falcon Northwest Mach V	44.9	126	70	71.4	59	73.2	446.4
Lean Machine	45.6	117.2	62.3	71.9	56.1	68.8	432.9
Dell Dimension B400	42.5	135.5	60.4	76.2	64.5	75.5	446.6

3D GameGauge—Secondary (Frames Per Second)

Power Rig	49.5	176.5	77.4	126.7	98.1	69.2	637.4
Falcon Northwest Mach V	49.3	200.3	87.6	105.5	103.1	90	675.8
Lean Machine	64.8	92.4	60.7	92.8	56.4	52.3	379.4
Dell Dimension B400	N/A						N/A

Higher scores are better.

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GEN X



Just In Case...

You need something to put all this cool hardware into and something to feed it power. The big rig uses the updated version of InWin's Q500 full tower case. The guts are basically the same, including the pop-out 3.5-inch drive bay and the removable motherboard tray, but the exterior has been updated. I ripped out the default power supply and added a PC Power and Cooling TurboCool 300 PC Power and Cooling makes power supplies that feed rock-solid current to the motherboard, and the TurboCool series pulls more air through the system than do most power supplies.

The case for the Lean Machine is the Elan Vital T10-AB. You can also find this case under the ASUS label—when you can find it. It's a difficult case to locate and is often back-ordered. But it's well worth the hunt. You can open the T10-AB without any tools. The 3.5-inch hard-drive bay snaps out with the twist of a lever. Pop off the front bezel and you can slide out the 5.25-inch drive bay, too, making CD-ROM drive mounting a snap. It doesn't have a slide-out tray, but since it's so easy to yank out all the bays, that's not a big problem.

Some Assembly Required

A few months back I received an email from a reader. He had purchased all the parts for his own Lean Machine, and they were sitting on his kitchen table. He wanted to know what to do next.

Building your own system isn't a trivial task, but if you've done regular upgrades—adding a graphics card, preparing a new hard drive, or installing Win 98 from scratch—you're ready to build a PC.

There are some basics you need to know. First, have a good set of tools. I use a cordless electric screwdriver; a long, very thin screwdriver; a set of forceps (to handle jumpers); a pair of needle-nose pliers; and an antistatic mat. That's about it. The cordless screwdriver is a godsend and speeds the process dramatically. Second, watch electrostatic discharge, particularly in very dry climates. In humid areas, it's probably sufficient to touch the case to discharge any static electricity, but in very dry weather you'll want to use an antistatic strap at the very least. You can pick one up at Radio Shack or similar hobby shops. Regarding actual assembly, each of the systems has its own quirks, and there are some common to all systems

The PCI slots are an important factor, and it's related to IRQs. Windows 98 can now do a better job of sharing those scarce IRQ resources with multiple devices, but some hardware still won't share IRQs. The PCI standard defines a maximum of six PCI slots without additional hardware to connect the PCI buses. With all the onboard I/O and the AGP slot, the PCI limitation is actually exceeded in both motherboards. This means that you may run into problems with an IRQ hogging device in the last PCI slot (the one next to the ISA slots). In fact, that last slot may not get an IRQ if all the IRQs have been grabbed by other devices. The solution: Put your Voodoo² card in that last slot, since it doesn't need an IRQ.

You may find that a veritable rat's nest of cables and wires develops inside the case. I never dress the cables, but you may want to pick up some cable ties and organize things a bit.

Inserting the CPU will prove to be your biggest hassle. The Pentium II and the Celeron use a retention bracket. Currently, the brackets are different. In fact, there are two types of Pentium II brackets. One fastens to the motherboard with screws that feed in from underneath the motherboard. A newer type simply snaps into the motherboard. I much prefer the second type, since I frequently forget to screw the old type in and must unbolt the whole mess just to attach the retention bracket.

Snapping in the Celeron is a dicey affair: You have to use a lot more force than you do with the Pentium II. Grip the CPU/heat sink combo firmly before popping it in.

Since Windows 98 comes on a bootable CD-ROM, installing from scratch is vastly easier than it used to be. Boot off the CD, get the drives partitioned and formatted, and install Windows. Make sure you have all your drivers handy.

Let's Get It On

All of this effort pays off when you have that first successful boot. Now get those hot titles installed and frag some bad guys. You've got the best possible system available: the one you built. **CGW**

Thirty years ago, Loyd Case would have been up to his armpits in grease trying to graft fuel injection onto a '56 Ford. Lately, he's been hooked on EUROPEAN AIR WAR, to the consternation of his editors, who actually expect him to meet deadlines.



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FEATURES COMPARISON

POWER RIG

Component	Manufacturer	Price	The Skinny	Web URL
Motherboard	ASUS P2B-ES	\$295	It's cheaper than a standalone Ultra2 SCSI card	www.asus.com
CPU	Pentium III/500	\$450	It's the top of the heap for now	www.intel.com
Memory	256MB of Corsair-PC100 SDRAM	\$330	Just think, a quarter-gigabyte	N/A
Disk Controller	Built-in Ultra2 SCSI	\$0	10 megabytes per second	N/A
Primary Graphics	Cinemaspectra 2500	\$175	The remote pass-through works, just to mention great 3D and 2D	www.cinemaspectra.com
Secondary Graphics	Quantum3D Obsidian X24	\$499	The ultimate, single-slot Voodoo2 card	www.quantum3d.com
DVD Decoder	QuadraNet CinemaStar	\$129	For the DVD movie buff	N/A
3.5-inch Floppy Drive	Teac	\$20	You still have to have one	www.teac.com
Hard Drive	Seagate Cheetah 18	\$1,200	It's big, it's fast, it's loud...two out of three ain't bad	www.seagate.com
Backup	Imagem Jaz 2	\$350	2 gigs of backup	www.imagem.com
CD-ROM/DVD	Pioneer SCSI DVD	\$179	Take the DVD plunge	www.pioneerusa.com
Monitor	Sony SDP5	\$1,100	Sharp, crisp, bright and flat	www.sony.com
Primary Audio	Diamond Monster Sound MC300	\$99	For four-speaker DecentSound, A1Q, and IAX	www.diamondmm.com
Speakers	LF1-11	\$500	Beautiful imaging, clean sound	www.ernstentech.com
Rear-Channel Speakers	Alicia Lansing ACS-43	\$40	Just for the rear channels	www.alicilansing.com
Mixers	3Com ImpactIQ	\$100	Faster than 56k. Now if I could only get DSL	www.3com.com
Networking	Built-in Intel 10/100 ethernet chip	\$0	For frugging my buddies	N/A
Case	In Win 5000 full tower ATX	\$85	New improved model	www.in-win.com
Power Supply	TurboCool 300	\$109	More power, Scry!l!	www.pcpowercooling.com
Keyboard	Logitech Newtouch	\$45	In with the Newtouch, out with the Natural	www.logitech.com
Mouse/Pointing Device	Logitech Cordless Wheel Mouse	\$50	No tether!	www.logitech.com
Action Game Controller	Microsoft Sidewinder Inestyle	\$55	FIN	www.microsoft.com/hardware
Flight Joystick	ThrustMaster F22 Pro	\$129	It just feels right	www.thrustmaster.com
Throttle	ThrustMaster R25	\$115	More control than anyone needs	www.thrustmaster.com
Pedals	ThrustMaster Elite RCS	\$79	Nearly perfect foot placement	www.thrustmaster.com
Driving Controls	ECO CD5 4000	\$1,129	For the serious sim driver	ourworld.compuserve.com/homepages/extreme/

Total \$6,287

LEARN MACHINE

Component	Manufacturer	Price	The Skinny	Web URL
Motherboard	Abit BH6	\$95	5 PCI slots, SoftPower, 440X6—ready for Kernal	www.abit-usa.com.tw
CPU	Pentium III/400 + fan	\$325	Not far from the 450MHz	www.intel.com
Memory	64MB PC100 SDRAM	\$85	The only thing better would be 128MB	N/A
Disk Controller	Built-in UDMA33	\$0		N/A
Primary Graphics	Graphics Blaster TNT	\$130	It's fast...it's tweakable, and it's under \$150	www.creativeblasts.com
Secondary Graphics	Galileo2 Management2	\$29	Voodoo4 for those G4e gamers	www.galileo.com
Floppy Drive	Teac	\$20	Still gotta have it	www.teac.com
Hard Drive	Seagate Medalist Pro 6530	\$199	Fast and now more affordable	www.seagate.com
CD-ROM/DVD	Pioneer DRU-704	\$69	26x and cheap to boot	www.pioneerusa.com
Monitor	Optique V75	\$350	Amazingly sharp for under \$400	www.optique.com
Primary Audio	Diamond Sonic Impact S90	\$30	A3D and clean audio for under a C-note	www.voyetra.com
Secondary Audio	N/A	\$0		N/A
Speakers	Boston Acoustics B4635	\$99	The best speakers for under \$200. Period	www.bostonacoustics.com
Mixers	Diamond Supra3Dpress external	\$29	Solid performance, good price	www.diamondmm.com
Networking	N/A	\$0		N/A
Case	Elan Vital T10-AB	\$90	The only case for upgrades	www.elanvital.com.tw
Power Supply	Built-in 235W	\$0		N/A
Keyboard	Logitech Newtouch	\$45	In with the new, out with the Natural	www.logitech.com
Mouse/Pointing Device	Logitech PS2 Wheel Mouse	\$18	More frames per second!	www.logitech.com
Joystick	OH Gamestick 3D	\$55	Still the best balanced joystick around	www.chproffacts.com

Total \$1,815

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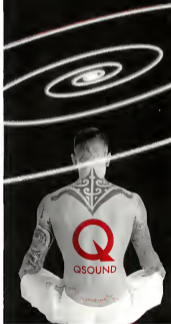
Component	Manufacturer	Price	The Skinny	Web URL
Motherboard	Abit BH6	\$95	Ultimate clock rate flexibility	www.abit-usa.com
CPU	Celebris A-300	\$100	Cheap and reliable	www.intel.com
Memory	32MB SDRAM (generic PC100)	\$45	64MB would be better	www.czo.com
Disk Controller	Built-in UDMA33	\$0		N/A
Primary Graphics	Diamond Monster Fusion	\$125	D3D, OpenGL, and Glide, bestest 3D/texture board	www.diamondmm.com
Secondary Graphics	N/A	\$0		N/A
Hard Drive	Maxtor 2880 5.7GB	\$129	Good performance, too	www.maxtor.com
CD-ROM/DVD	Pioneer DRU-704	\$69	36x at this price...	www.pioneerusa.com
Monitor	Optique V55 15-inch	\$150	A 17-inch is better, though	www.optique.com
Primary Audio	Diamond Sonic Impact S90	\$30	A3D and a low price	www.diamondmm.com
Secondary Audio	N/A	\$0		N/A
Speakers	Cambridge SoundWorks PC Works	\$50	Unbeatable bargain	www.csw.com
Mixers	Diamond Supra3D internal	\$29	Not a "soft" mixer"	www.diamondmm.com
Networking	N/A	\$0		N/A
Case	Elan Vital T10-AB	\$90	Best upgrade's case	www.elanvital.com.tw
Power Supply	Built-in 235W	\$0		N/A
Keyboard	Logitech Newtouch	\$45	Ergonomic and low cost	www.logitech.com
Mouse/Pointing Device	Logitech FirstMouse Plus	\$18	Great mouse and cheap	www.logitech.com
Game Controller	OH Gamestick 3D	\$55	Good all-around controller	www.chproffacts.com

Total \$1,088



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3Dfx Unveils New Chipset

At the most recent Comdex, the computer industry's mother lode North American trade show, 3Dfx made a big splash: 3Dfx released initial details about its next-generation chipset, dubbed Voodoo³. Judging from the moniker, Voodoo³ definitely marks a departure for 3Dfx from doing 3D-only parts since Voodoo² will be an integrated 2D/3D part. Voodoo³ will debut as two new products: the Voodoo³ 2000 and the Voodoo³ 3000. The 2000 will be aimed at the mainstream PC-DEM motherboard and add-in-board markets, while the 3000 will be targeted at the "enthusiast" market (read us).

Somewhat similar to other high-performance 2D/3D parts, Voodoo³ will have dual, 32-bit rendering pipelines. 3Dfx stated that the chipset will be able to generate more than seven million triangles per second, which is twice the triangle performance of two Voodoo² boards. As for fill-rate, 3Dfx is quoting figures of 366 megatexels/sec for the 3000 version and 250 megatexels/sec for the 2000. Voodoo³ will sport a whopping 8.2 million transistors—about the size of the RIVA TNT—and will be manufactured using a .25 micron process, which should allow for the higher clock rates that Voodoo³ will need to hit its

projected numbers. Voodoo³ will be 3Dfx's first AGP 2X part. In the first half of 1999 an AGP 4X version will be available.

On the 2D side, Voodoo³ will integrate the 2D core from Voodoo Banshee, which includes a dedicated high-speed 128-bit interface and an internal 256-bit data path—so 2D performance should be more than adequate. Other goodies include DVD playback acceleration, the ability to talk to LCD displays, and even multiple simultaneous displays.

3Dfx has also stated that Voodoo³ will support Glide and Direct3D. OpenGL support will arrive by about the middle of next year. We hope Voodoo³'s Glide compatibility will allow the new part to play older Glide titles smoothly—something that has been a problem in past parts. In Voodoo³, 3Dfx has once again aimed high and is seeking to define the high end of the PC 2D/3D accelerator market; on paper the company has the right stuff to do this (but with worthy competition from the likes of nVidia, ATI, and Rendition, the 3Dfx crew has their work cut out for them. Stay tuned to 3D IronWorks. As soon as we can lay our hands on Voodoo³, we'll give you the straight dope. —Dave Salvatore



3D Audio Arena Crowded

There's a good bit of confusion surrounding 3D audio standards. There's DirectSound3D, Creative Lab's extensions to DS3D, called EAX (environmental audio extensions), and Aureal's A3D. Entering the fray is CRL, with its Sensaura package. CRL was formerly a division of EMI records but has since struck out on its own.

Like Aureal's A3D, Sensaura is based on HRTF (head-related transfer functions). This mouthful is simply the math that describes how your ears hear and localize positional cues. Much of what goes on involves sophisticated cross-talk cancellation, which involves making sure that what comes out of the left speaker is only heard in the left ear (and the same for the right). Unlike A3D, which uses public domain work done at NASA on HRTF, CRL has done its own research. The company has gone so far as to construct a number of artificial heads, with carefully modeled ears, to tweak its HRTFs to seem more realistic. CRL claims that its rear cues are better than A3D's, and that the vertical positional cues are

better, too, if you have headphones. There are already a couple of sound chip companies that have signed up. OEM specialist ESS will be adding Sensaura support, initially through software with its Maestro line of audio chips and later by incorporating it in hardware. With ESS's huge presence in the OEM market, it's likely that Sensaura will be on a lot of desktops in the next year. Yamaha will be shipping driver support for Sensaura in its WaveForce 192 Digital product, which should be in stores now.

Another interesting twist is that CRL is working on virtualizing EAX, which currently requires four speakers to produce 3D audio effects. Engineers at CRL believe they can leverage their HRTF research to get decent EAX performance out of two speakers, which would minimize the need for four speakers—something that at least this user considers an annoyance. —Lloyd Case



TechWatch

Realtime Rendering

MultiTexture Accelerator
This part was originally slated for arrival sometime in Q1 '99, however, Rendition has scrapped it, and has instead opted to go back to the drawing board and architect an entirely new part, whose name will most likely be V4000. Not much is known about the V4000 as of yet, but it appears that it will have embedded video memory, which may provide a performance advantage. ETA: Unknown.

AMD K6-3 AMD's next CPU, the K6-3, will retain AMD's 3DNow! for accelerating transforms and lighting for 3D rendering. K6-3's biggest improvement will be its onboard 256KB Level 2 (L2) cache, which will run at the CPU's core clock speed. Initial clock speed will most likely be 400MHz, and with its onboard L2, K6-3 will be even more competitive than a Pentium II. ETA: Q1 '99

AMD K7

AMD's rumored high-performance CPU K7 will feature a 128KB Level 1 (L1) cache, and a 512K-4MB buswide Level 2 (L2) cache, and also will support main memory speeds up to 200MHz. K7 has a revamped floating point unit that features three superscalar execution units, and is fully pipelined. 3DNow! support is still present, and will help move Direct3D games along if they use 3D3's transform and lighting engine. Initial speed grades are slated to be 500MHz. E9A Q2 '99

Intel Kextrel Intel's next round of CPUs, with anticipated clock speeds of 450-500MHz. They will feature new instruction-set extensions dubbed "Kextrel New Instructions." Read: MMX2, EAX: Q1 '99

Intel M-44 Intel's next, next generation of processors, which will be a substantial departure from its traditional x86 CISC-based architecture. This new 64-bit CPU will use a new set of VLIW (very long instruction word) instructions and a technology termed EPIC (explicitly parallel instruction computing) to execute instructions in parallel. E7A: 2000

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UNDER THE HOOD

Step on It

Tweaking Some Overlooked Performance Sappers

We spend a lot of time in *Computer Gaming World* talking about CPUs and graphics cards and their impact on game performance. Certainly the CPU and 3D accelerator (assuming you play 3D-accelerated games) are the major players in the performance equation. But there are components to consider, like sound cards, USB, and your hard disk. This month, let's take a look at how to get the most out of these components, too.

System Memory

The amount of memory needed to run games is going up. The games themselves are using more memory as they add more features, more sophisticated AI, and up the amount of game data that needs to be stored in memory. The rough rule of thumb for most systems these days is that 64MB is

adequate—but 128MB is better. In fact, some of the RIVA TNT cards will start paging out to hard disk like mad when a game is run if there's 64MB of RAM or less. In this case, inefficient drivers are generating big autoompmaps, which are written out to disk.

There are other factors that eat up memory at work here, too. The first is AGP. Since AGP textures are stored in main memory, there's



some memory in addition to normal game memory used for AGP data. Another factor are PCI sound cards (we'll touch more on PCI

sound cards in a bit). PCI sound cards have no onboard RAM as ISA cards did. And most don't store their MIDI wavetables in a ROM, either. Instead, they store them in system memory. It's partly because the profit on sound cards is so thin that shaving 50 cents off by leaving the ROM out makes a big deal. But it's also because of a currently little-used standard called DLS (downloadable samples). In theory, a game developer could develop a custom MIDI patch that would then replace an existing one in the sound card's sample set. This would actually make for more efficient storage. However, no games I can think of actually use DLS yet. Luckily, most PCI sound cards allow you to specify how large the sample set stored in main memory should be. If you really want to be efficient, though, get one of the PCI cards that can still accept a MIDI daughtercard, like the Yamaha SWS0XG, which can be had very cheaply these days.

Disk Performance

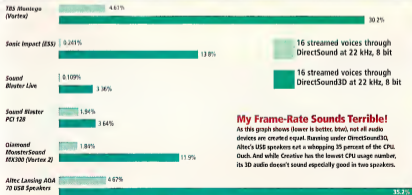
It begins mysteriously. Games that have run without any problems begin to run as slow as molasses on a December day in Manitoba. Sometimes they even crash. You groan and think, geez, time to reinstall Windows again?

Maybe not. When's the last time you defragged your hard drive? Or removed extraneous files?

Defragmenting your hard drives when they go over about four or five percent fragmentation can speed up disk performance by a surprising amount. What's more startling is that sometimes a game will begin running in a more stable manner when the disk has been defragged. Some games create temporary files on the hard drive then use them during the course of gameplay. Having a huge, uninterupted expanse of disk space is much more efficient than having to use little nooks and crannies.

Continued on page 145

PERFORMANCE BENCHMARKS



My Frame-Rate Sounds Terrible!

As this graph shows (lower is better, btw), not all audio devices are created equal. Running under DirectSound3D, Altec's USB speakers eat a whopping 35 percent of the CPU. Gosh. And while Creative has the lowest CPU usage number, its 3D audio doesn't sound especially good in two speakers.

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I've been spoiled on the performance side of things ... but recently, I booted up TRESPASSER and was shocked to see how sluggish it was.

Continued from page 136

Windows 98 comes with a nifty tool called Disk Cleanup. It will automatically remove temporary files. It also pops up a small, Explorer-like utility to help you wade through files that may be extraneous but requires a human to make the decision to keep or delete.

USB (Unusually Slow Bugger)

I received email from a reader extolling the efficiency of USB mice. Apparently Windows 98 will sample a USB mouse at a faster rate. This reader suggested that he got a faster frame-rate and smoother performance in QUAKE II using a USB mouse.

As it turns out, QUAKE II actually runs slightly slower with a USB mouse—at least, on CGW's reference rig. The difference is only about 1–2fps, but is consistently measurable. However, the things can appear smoother with the USB mouse as you play—particularly in areas crowded with artificial or human opponents. The higher sampling rate results in smoother panning and mouse look, so sacrificing a couple of fps is beneficial if you're not performance-impaired.

CH Products sent me the USB version of the F16 Combat Stick. I discovered there was no difference in QUAKE II frame-rate with the analog stick versus the USB version. However, the analog stick was plugged into a PCI audio card—the game ports on these cards are often more efficient than those on older ISA sound cards. The cool thing, though, was how the stick self-configured when plugged into the USB port.

PCI Sound Cards

It's been something of a truism that PCI audio cards are more efficient than ISA sound cards.

"Efficient" is something of a relative term. Most PCI audio cards attempt to do more than ISA sound cards—3D positional audio, as an example. But it's a myth that all PCI sound cards are CPU efficient.

We now have a tool that helps us measure 3D audio card performance. The folks at the Ziff-Davis Benchmark Operation have recently released Audio WinBench 99 (www.zdbop.com). Audio WinBench plays back a sound file, using multiple simultaneous channels (up to 32). It does this for both DirectSound and DirectSound 3D. I took a look at 22KHz, 8-bit audio, which is pretty characteristic of the sound used in many games (see chart 1). The results were pretty startling. In the 16 channel test, the Turtle Beach Montego ate up 30 percent of the CPU in the DirectSound 3D test! So when you're playing a game with 3D positional audio, as much as one-third of your CPU horsepower is used by audio.

Diamond's Sonic Impact S70, which uses the ESS Maestro 2 chip, sucks up nearly 14 percent of the CPU. The Sound Blaster Live looks to be the most efficient, at under 3

1/2 percent. The Monster Sound MX300 (Vortex2) results are to be taken with a grain of salt since we were running beta drivers, but the CPU utilization in excess of 10 percent is a lot better than the original Vortex. However, the nearly 12 percent number is a bit worrisome.

Of course, by far the worst is the Altec Lansing ADA 70 USB speakers used without a sound card. None of the DirectSound streams are hardware accelerated. The result is a 35-plus percent CPU utilization in DirectSound3D. So while USB speakers work fine, you might still want a sound card.

How this all translates into frame-rate is an open question. What often happens in a game—particularly if you scale up the resolution—is that the sound begins to stutter and fail, rather than the frame-rate tanking. Still, when running FORSAKEN and INCOMING, which use positional audio, some frame-rate degradation is shown when running on a high CPU utilization card.

Never-ending Story

I've been spoiled on the performance side of things. My pro-

duction PC is a 350MHz Pentium II, and my game rig is a 450MHz system. But recently, I booted up TRESPASSER and was shocked to see how sluggish it was.

Remember what I said a couple of months ago about CPUs and 3D cards not being good enough? Whatever you may think of TRESPASSER as a game, it's something of a harbinger of the future. Every little performance-enhancing trick will become important once again.

One last point: The dynamic range in performance between the low end and the high end will only get wider. Low-end systems in the future will likely ship with "soft" audio and moderately powered 3D accelerators, while high-performance (and high-priced) gaming rigs will come tricked out with the latest 3D hardware and PCI audio gear. If you are budget constrained (as most of us are), it behooves you to be careful about your hardware choices. Just a few dollars more may make the difference between playable frame-rates and UNREAL-as-MYST. **CGW**

TECH TIPS: LET'S OPEN UP THE MAIL BAG

Help! My 32x CD-ROM drive spins down after two minutes. When the game hits it, there's a long pause when it spins up again, and I often get fraggled. What can I do?

There's a nifty firmware utility at: www.ncf.carleton.ca/~aa571/Software.htm#spindown

It isn't particularly easy to use—you have to add the command to your AUTOEXEC.BAT file. You may want to experiment a bit, too—don't just set it for the maximum time to spin

down since it may adversely affect the life of your CD-ROM drive.

Where does the MSINFO32 utility you talked about in a previous column actually live? I looked in the Windows folder and it wasn't there.

You can just use the Run command, but MSINFO32 actually resides in \program files\common files\microsoft shared\info. Also, if you just want to run the System Configuration Utility, it's actually called MSCONFIG and lives in the \windows\system folder.

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CPR for Your CPU

PowerLeap Serves Up a Variety of Upgrade Options

by Dave Salvator

Deckions, decisions. These days, there are a boatload of upgrade paths and options to boost your machine from slowpoke to speedster. If you've got a Socket 5 (non-MMX Pentium) or Socket 7 (non-MMX and MMX Pentiums) rig, you'd probably like to breathe new life into it in order to play the latest games at something better than five seconds per frame. Well, the news is actually good, since CPU prices—the memory—are probably at an all-time low. Couple that with 16MB 3Dfx Banshee-based boards for under \$100, and things get interesting. But every upgrade path has its pluses and minuses, and given that the Holy Grail of the best possible gaming performance is a moving target, you'd be wise to look before you leap. And speaking of leaps, PowerLeap makes a plenitude of processor upgrades to help Socket 5 and Socket 7 machine owners resuscitate their ailing systems.

Our installation experience was relatively painless, though

depending on your motherboard that may not always be the case. Our test system, a Socket 5 Micron Millennia with a Pentium 133MHz CPU, has a Micronics M54H motherboard. After updating its Phoenix BIOS with Micron's own newer BIOS version from its Web site, the 366MHz AMD K6-2 (its latest speed grade) came up fine, although it still POSTed as a Pentium 133MHz.

Complexity Made Simple

What's really cool here is that PowerLeap takes care of two of the most onerous problems in swapping in a new CPU: voltage and memory clock multipliers. PowerLeap puts its upgrade CPU into an intermediary socket with an onboard voltage regulator that autodetects the motherboard's voltage level and steps it down to 2.2 volts for the AMD chip. In addition, PowerLeap takes care of setting the 5.5 multiplier (for 66MHz system buses) to achieve the new higher speed grade. But there's a dark side. Older Intel motherboards (found in Gateways and Dells) have a hook in their BIOS that pins the CPU on power-up, and if the chip isn't genuine Intel, the system won't boot. Thanks, Intel...

You can get around this by installing a third-party BIOS, and PowerLeap can point you to a number of vendors that may be able to provide a compatible BIOS. Of course, the other option is to

upgrade to an Intel Pentium 233MHz MMX, although the AMD K6-2 at 366MHz will outgun it. Check with your system maker to find out which motherboard you have, and decide if the PowerLeap is worth the hassle of a third-party BIOS upgrade.

Punch It

Now we get to the good part. The AMD K6-2 delivers an excellent performance boost over the P-133, with a better than double score in the all-important area of floating-point performance. We tested the system with a 16MB 3Dfx Banshee-based Diamond Monsterfusion board, an able and inexpensive performer. Turning to the 3D GameGauge results, the news is still very good, with the new CPU netting a 63 percent improvement in performance.

Remember, though, there are downsides to consider. In making the move to a new CPU rather than a new CPU/motherboard combination, you stay on a PCI-only motherboard (no AGP), and your system still has a 430-class chipset, rather than the improved 440 chipset used in Pentium II-class systems. What this means is that transfers over the PCI bus of things like textures in 3D games will likely be a good deal slower, not just because of PC's



slower top end data rate, but also because the 430 chipsets aren't as efficient as the newer 440s with traffic-cop chores. This performance deficit prevents PowerLeap from stacking up especially well against a 333MHz Celeron-A system with a new 440BX-based motherboard.

There's also a price difference: The PowerLeap CPU comes in around \$229; a Celeron-A with a 440BX motherboard and 64MB of SDRAM will be just over \$300. You'll save \$70 with the PowerLeap, but you'll still be somewhat performance-limited by your motherboard's older chipset. Another point to consider: If you go the Celeron route now, you'll be able to drop in a new Kalmi chip when they ship later this year.

PowerLeap does an excellent job of simplifying PC brain surgery. Still, you should check whether other upgrade alternatives may be a better fit for you and your budget. **CGW**

Dave Salvator has installed about eight gazillion CPUs in his day. His judgement can be trusted in these matters.

COMPUTER GAMING WORLD



APPEAL: Socket 5 and Socket 7-based games looking to juice up their systems.

PROS: Delivers a significant performance boost; fairly straightforward installation.

CONS: Slower than Celeron; no AGP, you're still running on a 430 class system chipset; possible compatibility headaches.

REQUIREMENTS: Socket 5 or Socket 7 motherboard, compatible BIOS.

Price: \$229
Manufacturer: PowerLeap
Bellevue, WA
(877) CPLEAP

www.powerleap.com

PERFORMANCE BENCHMARKS

WinBench 99

	CPUS	PL-PRO
Amdon 133MHz Baseline	273	519
PowerLeap	528	1140

3D WinBench/ 3D WinMark

Amdon 133MHz Baseline	171
PowerLeap	307

3D GameGauge

	CPUS	PL-PRO
Amdon 133MHz Baseline	48.2	16.1
PowerLeap	60.3	32.9

133.5 26.5 17.3 11.3 20.2 73.8 225.8

CPUS PL-PRO

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Altec Lansing's Bus Rider

by Loyd Case

What's amazing about the ADA70s is how easily they install and how well they work. Connect a wire from the left speaker to the right one, connect a single cable from the right satellite to the sub,

and plug it in (no power brick). Connect the speakers to the system with the supplied USB cable and turn on the computer. Windows 98 detects the USB device, installs a set of drivers from the Windows 98 CD, and you are set—no reboot required.

These speakers sound good. They have very little ambient noise at high volume levels and the tonal balance is smooth. They also have bass and treble controls that allow you to adjust the tone

somewhat and a software interface that lets you create presets. MIDI audio is supplied by the Win 98 software synth, which is based on the Roland Sound Canvas sample set. But when we played MIDI, it consumed about 10–15 percent of the CPU on our PIII400 test box.

Therein lies the rub. Audio Win-Bench 99 reported CPU usage numbers of over 60 percent for DirectSound3D at 44.1kHz/16-bit audio with 32 streams.



The ADA70s connect to a standard sound card as well as the USB. Since the overall sound quality of the ADA70s is pretty good on both musical and game material, you can still enjoy the great sound of these speakers, and the performance improvement of a good PCI audio card. **CGW**

COMPUTER GAMING WORLD

★★★★☆

APPEAL: Good sound quality in a compact package.

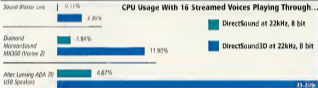
PROS: Clean sound, easy setup

CONS: USB-only setup is a CPU hog.

SYSTEM REQUIREMENTS: USB port, Win 95 USB supplement or Win 98.

Price: \$149
Altec Lansing
Milford, PA, USA
©1999 ALTEC, Inc.
www.alteclansing.com

PERFORMANCE BENCHMARKS (Lower is better)



REVIEW • GRAPHICS BLASTER RIVA TNT

TNT for Tightwads

by Loyd Case

Up to now, you could have your graphics out of two ways: fast or cheap. Creative Labs aims to alter that equation. The RIVA TNT chip

has unparalleled 3D acceleration in a single-chip solution. With twin texturing units and AGP 2X capability, the TNT is the current hot chip on the market.

The board installs easily and the control panel is fairly slick, offering nearly as much customization as the tweak control that ships with STB's TNT board. If you install the Colorific software, you need to go through some subjective calibration, but the result seems to be a crisper image overall.

Performance is a bit slower than with some of the other TNT boards we've seen, perhaps because Creative seems to be behind a driver generation. For example, there's some image corruption in the 2D menu screens of F22 ADf, something typical of first-generation TNT drivers. Comparing Creative's TNT board to STB's similar offering, the Velocity, Creative winds up on the short end in both 2D and 3D performance. In 3D GameGauge, Creative is on average 9fps



slower than STB in each game, although Creative's performance may improve as it reves its drivers. Because Creative was going for a price advantage over other TNT boards, there's no TV out and the only bundled software is FORSAKEN and Colorific's color matching software (including its 3D Deep 3D gamma-correction package). Still, we've seen this board for as little as \$139—not bad for a 16MB graphics accelerator that can outpace a Voodoo2 board in most Direct3D and OpenGL games.

The bottom line is that Creative is shipping a fairly solid TNT board at a reasonable price. Here's hoping a driver update brings the speed up to par, too. **CGW**

COMPUTER GAMING WORLD

★★★★☆

APPEAL: TNT performance on a budget

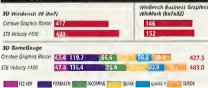
PROS: Priced aggressively, good performance, easy installation.

CONS: Not the fastest TNT board, some average quality problems, no TV out, limited bundle.

SYSTEM REQUIREMENTS: AGP 2X slot.

Price: \$169
Creative Labs
Milpitas, CA, USA
©1999, 128-6802
www.creative.com

PERFORMANCE BENCHMARKS



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Saitek's Microsoft Gambit

by Loyd Case

Adding like something out of the hovercar from *Blade Runner*, the R4 wheel contains a dark secret. Inside that futuristic housing lies the

guts of the Microsoft Force Feedback wheel. Microsoft shipped the internal organs of its wheel to Saitek, and Saitek dropped them into its housing.

So why do the forces in the Saitek wheel feel weaker than those of the SideWinder wheel? At first, I thought it was my imagination, but when I compared the two wheels side-by-side, the Saitek definitely felt weaker in NEED FOR SPEED III. Go figure.

The problem is that the Saitek wheel is built like the dummy, gangly little brother to the Microsoft's sturdier offspring. There are some nice touches, such as the shifter lever and the way that the pedals seem to be angled so that they're easier to press.

However, the paddle shifters are made out of a flimsy plastic



that feel like they'll break off when shifting in the heat of a tight race. And then there's the "hidden" door. You see, the R4 comes with a hex wrench so that the wheel can be easily removed or attached to the main body. The hex wrench lives in a compartment built on the back side of the body. If you so much as jostle the R4, the door hiding the

wrench falls off.

In actual driving, the R4 works fairly well. The forces are a bit on the light side, and the flexible plastic used for the paddle shifters held up better than I'd feared. But the whole affair still seems flimsy. For \$199, one would expect a little more. **CGW**

COMPUTER GAMING WORLD



APPEAL: Fans of science fiction racing games who want to look the part.

PROS: Looks pretty cool; good pedals.

CONS: Very plasticky; small parts fall off.

SYSTEM REQUIREMENTS: Pentium 90 running Windows 95 or better.

Price: \$199
Saitek
San Jose, CA, USA
(415) 212-5412
www.saitek.com

REVIEW • CREATIVE LABS 3D BLASTER BANSHEE

Basic Banshee

by Loyd Case

admit it: I'm spoiled. Had I gotten this board even four months ago, I would have been in 3D graphics ecstasy. Now, I find myself yawning. Don't get me wrong, 3Dfx's Banshee chip is no Voodoo Rush. In

fact, it does a very credible job of running most current Direct3D and Glide (3Dfx-specific) games. However, QUAKE and QUAKE II, both OpenGL titles, seem to run slower here than on TNT or even Voodoo?. Slower QUAKE II performance is understandable since that title uses multitexturing, and the single-texture unit on the Banshee chip has to use two rendering passes instead. But given Banshee's slightly higher dock rate, you would certainly expect GL QUAKE to be faster on the Banshee than on a Voodoo?. And you'd be wrong. The Direct3D games in 3D

GameGauge trailed the TNT scores by only a bit, but the Banshee's mediocre GL performance pulled down its overall 3D GameGauge score.

Banshee does turn out to be a very credible 2D performer, trailing TNT performance only slightly at 1024x768x32 bit color. Like the Graphics Blaster TNT, this iteration of the 3D Blaster ships with Colorific's colormanagement and gamma-correction software. Creative's control panel is nicely thought out and even has a clock-



rate tweak. Beware the memory refresh control, though. I changed it to one clock cycle and had instant Windows lock. Oddly, cranking up the clock rate had zero effect on 3D GameGauge.

At a little over \$100 (the average street price seems to be around \$115), the 16MB 3D Blaster Banshee is a decent budget board. But with Diamond's Banshee board holding the high ground in terms of performance and the Guillemot Phoenix being the price champ, Creative's board may find itself in no-man's land at a reasonable price. Here's hoping a driver update brings the speed up to par, too. **CGW**

COMPUTER GAMING WORLD



APPEAL: Budget-minded users looking to run Direct3D, OpenGL, and 3Dfx-specific games.

PROS: Fast single-texturing performance, solid 2D

CONS: Not the fastest, nor the cheapest; no software bundle; slow multitexture performance; OpenGL is mediocre.

REQUIREMENTS: Pentium 90 or better.

Price: \$115
Manufacturer: Creative Labs
Folsom, CA
(916) 426-5800
www.creative.com

PERFORMANCE BENCHMARKS

	3D WinBench 99 (1024x768x32)		WinBench Business Graphics W/Color (1024x768x32)		
Creative Banshee	3.29	1.34	1.34	1.34	
Diamond Momentum	4.73	1.61	1.61	1.61	
3D GameGauge					
Creative Banshee	67.2	110.0	54.5	37.6	369.0
Diamond Momentum	45.3	120.4	71.6	36.6	388.1

■ 112AD ■ NVIDIA ■ 3Dfx ■ 3Dfx ■ QUAKE ■ QUAKE II ■ TURK

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Clumsy Chameleon

by Dave Salvatore

There's a maxim that human interface designers of all stripes will tell you, "It's easy to make it hard, and hard to make it easy." That would seem to be the

challenge Saitek took on in creating its new Cyborg 3D gamepad controller. This odd-looking fellow tries to be a flight, driving, and arcade controller all wrapped up in one. Oh yeah, it also tries to be your next 3D shooter controller as well. The problem in trying to cover so many bases is the number of trade-offs you wind up making to accommodate these different genres. Though 3D is a pretty good job with driving and sports titles, but don't take this thing into a QUAKE II DeathMatch unless you want to come out with a toe-tag.

To test this guy out, I took it for a spin through QUAKE II, NEED FOR SPEED II, NBA LIVE 99, and WARRIORS 2.0. To switch between these different genres, Cyborg has three modes: Flying, Driving, and Arcade, which enable/disable different parts of the controller. Programming this controller is

fairly straightforward, thanks to Saitek's Command Centre (when will those British learn to spell?) programming front-end.

In QUAKE II, the news is not good. Yes you can program Cyborg 3D to free-lock, but if you're someone used to dealing death with the classic keyboard/mouse combo you'd be looking at some serious learning curve before you'd ever be anything but cannon fodder in NPS II, the news gets better. The controller has a "steering wheel" controller that's more like a phone dial that snaps back to center. But using that along with Cyborg's "joystick" for acceleration/braking, I was able to be fairly competitive, though I was missing the more familiar wheel-with-pedals config. In NBA LIVE '99, Cyborg was passable, but because the game needs so many buttons for its varied



functions, I found myself running out of buttons for my right hand (the left hand was handling D-pad chores). But because Cyborg uses so many axes, you can only have one attached to your system. So much for hot-seating.

If you're a road-dog type who spends a lot of time traveling and your laptop has a joystick port (or USB), Cyborg might be a handy all-in-control, though it might be a bit bulky to schlep in your laptop bag. Unless you're hell-bent to have only one controller, Cyborg 3D's trade-offs for the sake of versatility make it a so-so controller across the board. **CGW**

photo: Michael Moore

COMPUTER GAMING WORLD



APPEAL: Games looking for that mythical all-in-one game controller

PROS: Versatile, solid programming front-end, good for large-handed, endurance to be all things to all gamers

CONS: Winds up being so-so on all fronts, too many design trade-offs to list

REQUIREMENTS: Sound card with a 15-pin joystick port or free USB port

Price: \$49.95

Manufacturer: Saitek

Towson, CA

(314) 212-5412

www.saitek.com

REVIEW • MULTITECH MULTIMODEM USB

Eat It, Wall-Wart

by Dave Salvatore

Between I/O resource conflicts and cantankerous BIOS issues found with some internal modems, external modems have always seemed much more

straightforward to install and use. But one downside to externals has always been the dreaded wall-wart power supply. Enter Multitech's MultiModem USB, an external V.90 (the new 56K standard) modem that connects via USB, where the modem sends its data, and get this, where it draws its power, eliminating the wall-wart completely.

Installation couldn't be easier. Plug the modem into an open USB port, feed your computer one driver floppy disk, and you're done, sans reboot. The MultiModem USB uses the V.90 standard, and should be able to connect to any ISP supporting that standard. Because V.90 is the new single 56K standard, most ISPs are migrating to it.

For testing purposes, I connected to Mindspring, a nationwide ISP that supports both X2 and V.90. This seemed like it would be a good test since the



MultiModem uses a Lucent chipset, which formerly supported the K56flex standard. Since Mindspring was an X2 ISP before adding V.90 support, I thought this combination might yield some compatibility glitch. It didn't. In fact, I consistently got connect speeds of 45.3kbts/sec, which is pretty good. A USR Sportster external X2 modem making the same connection typically connected at 50kbts/sec. I was hoping that MultiModem's USB connection might yield lower ping times than serial port-connected external modems. It didn't. In ping tests to Mindspring's terminal server, the first hop you go through in connecting to the Internet, MultiModem's ping times were in



the 90-100ms range, typical of 56K modems of all stripes.

Multitech's USB modem offers comparable performance to other 56K modems on the market, with the added benefit of its having no wall-wart, not to mention USB's dynamic disconnect/reconnect feature. It's priced well versus other external 56K offerings, so if you're current modem is running out of gas and you're looking to move up to a 56K modem, take a look at the MultiModem USB. **CGW**

photo: Michael Moore

COMPUTER GAMING WORLD



APPEAL: Games looking for an external 56K V.90 modem.

PROS: Prices in installation, no wall-wart, competitively priced, solid performance

CONS: Only 56K, no ping-time advantage over conventional modems

REQUIREMENTS: One free USB port

Price: \$44.95

Manufacturer: MultiTech

Mountain View, NY

(800) 328-9777

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NBA Live 99



EA gets it right in this slam dunk.

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This Month CGW Editors' Choice Games Are Indicated in Yellow

Game	Rating	Page
101 Airborne	☆☆☆☆	226
Blackstone Chronicles	☆☆☆☆	210
Burnout	☆☆☆☆	224
Casual's Palace Slots	☆☆☆☆	243
Over Murder at Boddy Mansion	☆☆☆☆	242
Delta Force	☆☆☆☆	176
Enemy Infestation	☆☆☆☆	236
European Air War	☆☆☆☆	196
Fallout II	☆☆☆☆	214
Fighter Pilot	☆☆☆☆	192
Fly Hyster	☆☆☆☆	192
Freespace: Sins of the Ancestors	☆☆☆☆	201
The Game of Life	☆☆☆☆	206
Grim Fandango	☆☆☆☆	206
Half-Life	☆☆☆☆	168
Hardwar	☆☆☆☆	201
Haylo Board Games	☆☆☆☆	264
Jeopardy	☆☆☆☆	243
KXND 2	☆☆☆☆	235
Lode Runner 2	☆☆☆☆	244
Lords of Magic Special Edition	☆☆☆☆	240
NBA Live 99	☆☆☆☆	218
NHL 99	☆☆☆☆	220
Outburst	☆☆☆☆	242
Plane Crazy	☆☆☆☆	192
Prophecy Gold	☆☆☆☆	201
Red Baron 3D	☆☆☆☆	200
Sentinel Returns	☆☆☆☆	244
Sin	☆☆☆☆	172
Space Bunnies Must Die	☆☆☆☆	180
Star Wars Droidworks	☆☆☆☆	243
Vigilance	☆☆☆☆	185
VR Baseball 2000	☆☆☆☆	222

The Game Genres

Action Games that emphasize fast gameplay over story or strategy.

Adventure Games that require you to solve puzzles to move through a storyline.

Classical Puzzle Classics are old standards such as Chess and Minesweeper.

Strategy Puzzle games emphasize problem solving without requiring games to follow a story.

Role-Playing A subset of adventure games, these stress character development through attributes. The genre will tend to be long, the plot less linear.

Simulation Highly realistic games from a first-person perspective, including flight sims and space simulators.

Sports/Racing A broad game encompassing action sports games such as NBA LIVE, strategic sports games, such as PFS FOOTBALL, and diving games,

such as CASP PREDATOR RACING.

Strategy Problem-solving and planning are the keys here. These games emphasize resource and risk management. Includes conflict-based so-far fantasy games as well as construction programs like SIMCITY.

Wargames A subset of strategy games, these re-create 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.

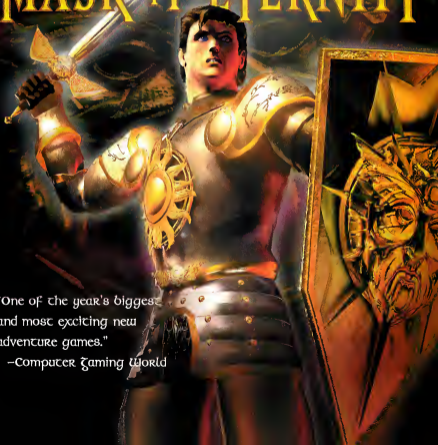
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Other heroes have swords, chainsaws, and vaporizers to deal with their monstrous enemies. In Oddworld, all you've got is gas. Abe now has the ability to possess his own farts and blow his enemies away! It's a power he's going to need if he's going to stop the Glukkon Meat Barons from making Soulstorm Brew - the only beverage made from real Mudokan tears and bones. Fart possession. No other game has it and frankly, we're not sure any other game would want it!



odd to the last drop

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Go to #183 @ www.computergaming.com/InfoLine



New Killer in Town

HALF-LIFE Is the Best, Scariest First-Person Shooter Since DOOM



DIE FOKKER This helicopter will annoy you for quite awhile in the game. Blowing it up later will make you very happy.

COMPUTER GAMING WORLD



APPEAL: First-person shooter fans, any gamer who thought they'd seen it all.

PROS: Awesome storyline; intense, nonstop action; scary monsters; super drops; atmospheric music and sound effects; inventive level design and weaponry.

CONS: Some multiplayer lag and slowdown; screen is awfully dark at times; tons of platform-style puzzles may frustrate some gamers.

DIFFICULTY: Intermediate.

REQUIREMENTS: Windows 95/98/NT 4.0, Pentium 133, 24MB RAM, 2x CD-ROM, 640x480 SVGA high-color (16-bit) display, Windows-compatible sound card.

3D SUPPORT: OpenGL or Direct3D.

MULTIPLAYER SUPPORT: LAN (2-8 players), Internet.

Price: \$49.99
 Publisher: Sierra On-Line
 Bellevue, WA
 (425) 440-9800

www.sierra.com



by Jeff Green

If you were expecting the reasoned voices of CGW to douse the flames of the HALF-LIFE hype, forget about it. We're about to make it worse. So let's get this over with up front, and then we'll calm down and get to the details.

Everything you've heard, everything you've hoped for—it's all true. HALF-LIFE, Valve Software's highly anticipated first-person

shooter, is not just one of the best games of the year. It's one of the best games of any year, an instant classic that is miles better than any of its immediate competition, and—in its single player form—is the best shooter since the original DOOM. Plus, despite the fact that it's "just" a shooter, HALF-LIFE provides one of the best examples ever of how to present an interactive movie—and a great, scary movie at that.

Here Comes Your Man

HALF-LIFE makes its brilliance apparent from the moment you boot the game. Instead of the usual lame cut-scene that looks nothing like the game you're about to play (remember QUAKE II?), you are thrust immediately into the gameworld. It's an illusion that's never shattered. No cut-scenes, no level "briefing" screens, no frag-count screens, no map. As in a real movie, the intention is to immerse you in the story. Other shooters have done this, too, of course—JEDI KNIGHT and Bungie's MARATHON series stand out as great examples—but no one before has carried it to this extreme, or pulled it off so well.

As the opening credits roll, you find yourself on a transit cat, descending deeper and deeper into the cavernous Black Mesa Federal

Research Facility and learning details of the game's storyline: You are Gordon Freeman, a 27-year-old Ph.D. in theoretical physics, now employed as a research associate at Black Mesa's "Anomalous Materials Laboratory." After you exit the tram, the many scientists roaming the halls urge you to make your way toward the lab to assist in some kind of classified experiment.

Once the experiment begins, however, catastrophe strikes, as a series of massive explosions signals the opening of a portal to an alien world. With the Research Facility now half destroyed and in utter chaos, you must make your way to the surface, avoiding the aliens who have transported in—as well as the government troops assigned to "contain" the problem.

Gouge Away

Levels—at least as we've come to know them—don't really exist in HALF-LIFE. Instead the game comprises a series of titled chapters, each of which groups a number of minilevels into one cohesive unit. As a result, rather than forcing you to wait minutes for a huge level to load, like some games we could mention (SIN) but won't (FALLOUT 2), HALF-LIFE loads just a portion of the chapter at a time, as you play it.

Aesthetically, it breaks the game into a number of settings, each one different from the next, each one offering a changing set of challenges and obstacles. In "On a Rail" you'll need to dodge a series of threats while riding a tram, in "Apprehension" you'll need to swim frantically through sunken rooms without drowning or getting eaten by giant alien fish; in Surface Tension, perhaps the game's best chapter, you'll have to fight an army of outrageously intelligent bad guys through a series of outdoor settings.



TRAIN I RIDE HALF-LIFE's levels constitute an endless display of inventive design. One of the game's levels takes place almost entirely on a tram in Black Mesa's rail system.

CGW Reviews Index *These Are the Games We Have Reviewed in the Last Three Months*

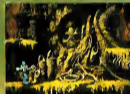
	Game	Publisher	Month	Page	CGW Rating
ACTION	Deathtrap Dungeon	Eidos Interactive	December	351	★★★★★
	Get Mad Evil	Harclith	November	282	★★★★★
	Gen: Enter the Gecko	Midway Home Entertainment	December	356	★★★★★
	Heart of Darkness	Interplay	November	269	★★★★★
	Incoming	Xicat	November	264	★★★★★
	K'Ronin Honor Guard	MicroProse	January	316	★★★★★
	Martial Kombat 4	Midway	November	277	★★★★★
	MAM	GT Interactive	November	280	★★★★★
	Quake II: Ground Zero	Activision	January	306	★★★★★
	Rainbow Six	Red Storm Entertainment	December	342	★★★★★
	Return Fire 2	Ripcord Games	January	322	★★★★★
	Revenge of Arcade: Golden Edition	Microsoft	December	356	★★★★★
	Shogo	Monolith Productions	January	312	★★★★★
	StarSpheres	Ripcord Games	December	352	★★★★★
Terraspace: Jurassic Park	Electronic Arts	January	318	★★★★★	
Urban Assault	Microsoft	December	346	★★★★★	
AR	Final Fantasy VII	Eidos	November	286	★★★★★
	Hesphero	Infogrames Entertainment	January	336	★★★★★
	Morpheus	Piranha Interactive	January	334	★★★★★
	Rage of Mages	Monolith Productions	January	338	★★★★★
CLASSIC	Captures 2	Mindscape	January	364	★★★★★
	Jewels II: The Ultimate Challenge	Hoffmann and Associates	November	328	★★★★★
	Looney Tunes Animated Gagsaws	SouthPeak Interactive	December	425	★★★★★
	Norjet	MVP Software	December	425	★★★★★
Play This Play That	Patch Products	December	425	★★★★★	
SIMS	Ares Rising	Imagine Studios	December	376	★★★★★
	Combat Flight Simulator	Microsoft	January	330	★★★★★
	F-16 Multirole Fighter	Novologic	January	326	★★★★★
	Fighter Ace 1.5	Microsoft	December	373	★★★★★
	IAF	Jerie's Combat Sims	December	370	★★★★★
	IFA-18E Carrier Strike Fighter	Interactive Magic	December	364	★★★★★
	Independence War	Infogrames	December	358	★★★★★
	Jetfighter: Full Burn	Maxon Studios/Interplay	November	305	★★★★★
	NG-28 Fulcrum	Novologic	January	326	★★★★★
	Pro Pilot	Dynemic	January	332	★★★★★
	Spezhead	Interactive Magic	December	378	★★★★★
	Total Air War	DID/Infogrames	December	361	★★★★★
	Warbirds 2.01	Interactive Magic	December	382	★★★★★
SPORTS	3D Hurling: Sophy Whitehall	MacMillan Computer Publishing	November	299	★★★★★
	Fox Sports Golf	Fox Sports Interactive	November	290	★★★★★
	Frem Office Football	Saledisnic Software	January	348	★★★★★
	Golden Tee Golf	Incredible Technologies	December	404	★★★★★
	Grand Prix Legends	Sierra Sports	January	340	★★★★★
	Madden '99	EA Sports	January	346	★★★★★
	Motocross Madness	Microsoft	December	388	★★★★★
	NCAA Football 99	EA Sports	January	350	★★★★★
	Need for Speed III	EA Sports	January	342	★★★★★
	NFL Gameday 99	SES Studios/Sony	December	386	★★★★★
Redline Racer	Ubi Soft	December	384	★★★★★	
Tiger Woods 99	EA Sports	December	398	★★★★★	
STRATEGY/WARGAMES	Age of Empires: Rise of Rome	Microsoft	January	354	★★★★★
	Axis & Allies	Warbro Interactive	January	358	★★★★★
	Caesar III	Sierra	January	352	★★★★★
	Commanda: Behind Enemy Lines	Eidos Interactive	December	406	★★★★★
	Cyberstorm 2	Sierra	November	270	★★★★★
	Dune 2000	Westwood Studios	December	408	★★★★★
	Emergency: Fighters for Life	WizardWorks	December	420	★★★★★
	Entrepreneur: Corporate Expansion	Stardock Systems	January	360	★★★★★
	Knights & Merchants	Interactive Magic	January	356	★★★★★
	People's General	SSI	December	418	★★★★★
	Police Quest: SWAT 2	Sierra	November	314	★★★★★
	Total Annihilation: Battle Tactics	Cavedog	December	420	★★★★★
	War Among the Mahawk	Empire Interactive	January	362	★★★★★
	Wargames	MGM Interactive	November	324	★★★★★
	Warlords II: Darklords Rising	SSI/Wed Orb	December	417	★★★★★



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ITSA ME, MARIO! You'll spend a lot of time in HALF-LIFE 2 jumping—and plummeting to your death.

Thanks to creative level design, you almost never feel that you're doing the same thing twice.

Wave of Mutilation

Adding hugely to HALF-LIFE 2's sense of terror are the aliens: a horrifying collection of gurgling grotesqueries. Particular favorites include the Houndeye, whimpering, headless beasts that emit a destructive shock wave, the Barnacles, which hang from ceilings like rope and suck you up with ferocious speed if you get too close, and the Bullsquids, which



FILL 'EM UP WITH LIFE, PLEASE First-aid stations are planted within the game world for replenishing your health.

spit caustic acid from long range.

But it's a testament to the game's creative genius that the creepiest, scariest monsters are also the tiniest and least fearsome in appearance: those infernal Headcrabs. Although they cause only minimal damage and are easily killed, they prove a constant menace, and every time one lunges at you unexpectedly from

some hidden corner it is guaranteed to scare the crap out of you.

The aliens are scary, but the human enemies are your toughest opponents. The commandos and ninjalike assassins behave with such intelligence that at times you'll almost feel as if you're deathmarching with friends.

HALF-LIFE provides a satisfying arsenal for your killing pleasure. Standard shoot-'em-up weapons, like the powerful .357 Magnum and the double-barreled shotgun, mix it up with cooler items like satchel charges and the crossbow, which offers a vitally important sniper scope and delivers a righteous, satisfying thunk as it hits its target. The most original weaponry are the two alien creations—the Hiveland, which fires a spray of bugs that track targets around corners; and the Snark, small living creatures that will attack anything they get near (including you, if you don't throw them far enough).



BADDER THAN THE REST Disgusting aliens abound in HALF-LIFE—but the toughest opponents of them all might be the other humans hunting you down.

I'm Amazed

Although HALF-LIFE uses the QUAKE engine as its base, Valve reportedly rewrote about 70 percent of the code, and it shows. It might not be as "beautiful" as UNREAL, but it is an awesome-looking game nevertheless, especially with 3D acceleration. The environment feels alive, thanks to a number of great scripted events that trigger as you approach them. The atmospheric sound effects and voice work are equally great and add to the feeling of being knee-deep in a living nightmare.

Overall, it's not one thing that makes HALF-LIFE great, it's the sum of all the parts—the extraordinary attention to detail. There are sequences in the game, like those of a great horror movie, that you'll be dying to talk about with your friends, scenes that you'll remember years from now: watching the scientists plunging down the broken elevator, getting attacked by a Headcrab for the first time, avoiding the ferocious swipes of the three-tentacled monster, listening to the

hushed footsteps of assassins as they ruthlessly hunt you down. We could go on and on.

You can find things to quibble about if you really want to—the screen is often kind of dark at times, there's an awful lot of platform-style jumping, the multiplayer experience can be erratic—but who cares with a game this great? Simply put, this is the gaming event of the season, and if you care at all about games you don't want to miss it. HALF-LIFE 2 positively radiates with cool. **CGW**

Jeff Green, when not having nightmares about Headcrabs, is losing at NBA LIVE 99 and still trying to make his way out of the Petrified Forest in GRW FANDANGO.

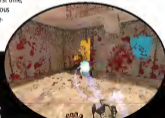
I Bleed For any shooter fan, the biggest question about HALF-LIFE is Does it rock in multiplayer mode? The short answer is, maybe. It's not as transcendent as the single-player game, but it's still quite good. Among the CGW games, it's the first game to stand a real chance of replacing QUAKE II as the deathmatch game of choice.

The levels are large and well-balanced with weaponry. Wide-open rooms intermingle with plenty of lurking places. Sniping is particularly satisfying thanks to the crossbow, probably the game's best weapon.

A few new touches nicely enhance the standard deathmatch experience. First, the frag-count screen now shows a ratio of kills to deaths, which puts player performance in

better perspective. Second, you can create legos (or use the default) and spray-paint them next to your buddies' rotting corpses on the game's floors and walls. Finally, all of the blood remains on the floors and walls throughout a deathmatch, so after a few minutes the level is awash with gore. It's gruesome, but for better or worse it accurately reflects the game's carnage.

On the downside, lag seems to be a bit of a problem on some machines, and we explained inexplicable crashes a number of times on different machines. The inability to reconfigure your setup without quitting a deathmatch first is also a curious design decision—we like being able to remap keys



on the fly.

Finally, the HALF-LIFE CD generously includes WorldCraft 2, which enables you to create your own levels—a great touch in a game filled with great touches.

We'll have more on HALF-LIFE 2's multiplayer action in next month's CGW along with some original tags on the CD-ROM.

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The Argus Overlord

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Sinful Displeasure

Interminable Load Times and Bugs Are SIN's Greatest Transgression



SHOOT ME AGAIN Most weapons, like this chain gun, are unoriginal, but others are inspired. However, even the later weapons seem to share the common lack of consistent firepower.

SIN's story is pretty elementary (hero John R. Blade must stop evil Elvis Sinclair from destroying Freeport City and turning humans into mutants). But Ritual pulls it off fairly well with voice-overs and interstitial cut-scenes using the in-game engine. At times, the voice acting is juvenile and the dialogue and story somewhat amateurish, but the whole ensemble works to propel the story forward.

Devilish Design

SIN's first few levels take place in mundane environments: a bank, an abandoned housing project, a construction yard, and a subway station.

However, the levels progressively become more interesting—both in looks and mission goals. The bank gives way to a high-security underground lab, leading, in turn, to a massive and elaborate sewer system. Later on, you'll journey to a dam, an oil rig, an undersea base, and then venture onto the ocean floor itself. The later levels really

are gorgeous, especially the beautiful and realistic ocean levels.

The level design is smart and challenging with good enemy placement and some clever puzzles. The levels are also highly interactive—nearly all game objects are destructible or interactive in some way. You can blow up desks, chairs, windows, potted plants, bookshelves, and many other items, including your run-of-the-mill crates, barrels, and boxes. You can also turn on faucets, flush toilets, and even fiddle with an ATM machine. Active computer terminals also dot all the levels, and many of the game's puzzles revolve around finding the appropriate terminal and accomplishing a task, such as disarming alarms or guns, opening locked doors, transmitting a computer virus, or scanning weird biological materials.

Whether the mission calls for stealth or surgical action, most missions have clear objectives and don't necessarily boil down to key hunting. In a few levels you have to avoid detection and recover secret chemicals. Proceed with stealth and you'll encounter little resistance. If you're not cautious, you'll face more and deadlier

COMPUTER GAMING WORLD



APPEAL:

Forging ahead first looking for evolutionary, if not revolutionary gameplay.



PROS: Some good level design, high level of interactivity, story and levels complement each other nicely, multiplayer maps.

CONS: Long load times, bugs, cost even in patchwork, missing some levels, the confusing, only a few impressive weapons.

DIFFICULTY: Intermediate.

REQUIREMENTS: Pentium 166, Windows 95/98 or NT 4.0, 32MB RAM, 50MB hard-drive space, 4x CD-ROM, PG or MP video card with 2MB RAM, 160 percent Sound Blaster-compatible sound card.

3D SUPPORT: OpenGL.

MULTIPLAYER SUPPORT: LAN, Internet (2-32 players).

Price: \$49.95

Activision

Santa Monica, CA

(310) 255-2600

www.activision.com

by Elliott Chin

F or all the industry's talk of a glut of QUAKE clones, the dreaded deluge of mediocrity hasn't happened. There have been a few dogs, but for the most part, the first-person genre is really starting to

come alive. SHOGG, BLOOD 2, HALF-LIFE—these are all good or excellent games with their own compelling style and a welcome blend of story and action. To that group you could almost add SIN... if it weren't for the bugs. It's sad that Ritual, the company behind QUAKE MISSION PACK 1: SCOURGE OF ARMAGOR, spent two years crafting SIN only to see it crippled by bugs that should have been caught in testing.



GET ONLINE Many of SIN's puzzles involve computer terminals where you might have to unlock doors or disarm security cameras such as this.

enemies. In other levels you'll have to blast through a well-guarded area to shut off a pumping system or destroy a shipment of dangerous chemicals.

The only problem with the game's levels occurs later in the game. Whereas the earlier levels are laid out with more direct routes to your objectives or exits, later levels are harder to navigate. The ocean floor level, despite its beauty, was especially vexing because I had no idea where to go. The textures all blended together to create an unfamiliar surrounding, and I found myself going around in circles.

Pea Shooters and Bigger Pea Shooters

The weapons include the traditional shotgun and rocket launcher as well as the more exotic sniper rifle and quantum destabilizer. The magnum is your default weapon, and the shotgun is powerful, albeit unoriginal. The machine gun, chain gun, grenade launcher, and rocket launcher are all similar to their QUAKE II cousins, except that they look nicer and have better animation. The later weapons, though, such as the spear gun, sniper rifle, and quantum destabilizer, are very cool. Interestingly since the manual doesn't tell you about all the weapons in the game, I never really figured out what each weapon was called.



UNDER THE SEA The ocean floor level is one of the most beautiful levels I've ever seen, but it tends to get confusing.

I found nearly all the weapons to be too weak. It sometimes took me two hits with the sniper rifle to kill a grenade-tobbing soldier, and three hits to kill a cyborg. And these were all headshots. The chain gun, likewise, took a while to gun down a low-level grunt. I can understand why early weapons would be weak, but even the later weapons lacked punch.

The body-specific damage system works well, making you think more during combat, and looks cool. You can shoot an enemy in the head and watch his skull explode as blood sprays onto the wall behind him. Shooting an enemy in the knee will buckle his legs. Of course, different body parts also suffer more damage. One or two head shots kill a soldier, but

that same soldier will take half a dozen shots to the gut before going down.

The enemies in *Sin* aren't too exciting, although they are pretty challenging to fight. Most are humans, though there are more mutants and cyborgs deeper into the game. It would have been more exciting if more mutants appeared earlier to break up the monotony of your human opponents.

In multiplayer, *Sin* is pretty fun, with well-done death-match levels that are perfect for anything from one-on-one matches to large, multiple player bloodbaths. The weapons don't seem too weak in multiplayer, and the body-specific damage system doesn't imbalance deathmatch.

The Ultimate Sin

So far, *Sin* sounds like a pretty good game with a few stumbles in weapons and monsters. However, what really cripple the game are the bugs: The first episode's boss doesn't move in the final fight, there are some sound problems, and level load times are horrendous. Some levels even load twice. I tried playing the game without

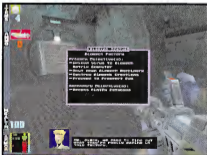
the patch, but couldn't get through it—the load times were just too long. Activision did produce a patch that fixes these and other bugs, but the load times still felt long even when reloading the same level.

Even after the patch, I noticed some serious bugs. In one subway level, the mutant boss failed to break a hole through a wall, leaving me trapped in the level with no way to progress to the next stage. In the Water Works Part 2 level, the boss monsters, Eon and Peon, never showed up. Again, I couldn't advance any further through the game. I reloaded a previous saved game and cheated my way around this bug, but if I hadn't, the game would have been over.

Sin isn't a revolutionary jump in 3D shooters, but it does add



DESTRUCTION BY THE TRUCKLOAD *Sin*'s environments are highly interactive. There is plenty to manipulate and destroy, including large trucks.



THAT'S WHAT FRIENDS ARE FOR Throughout *Sin*, your hacker buddy, JC, will give you hints and update your mission objectives.

increased interactivity, more thoughtful mission and level design, and a storyline that integrates nicely with the missions. *Sin* really is two games: Without the patch, long load times and other bugs make it only worth your time if you're a hard-core shooter fan; with the patch, it's a lot more fun—if not perfect—but some problems persisting despite the patch. If you can download the 18MB patch and aren't expecting a giant leap in storytelling or gameplay, give *Sin* a try. **CGW**

Elliott Chin is the Previews Editor at GameSpot and likes shooting things—a lot.

HAIL CAESAR, YOUR

ACTOR

Can't Dub my lines again, or the director said he had me over to the hair salons. Okay. "Et tu Brute?" No, that's not right. "Et tu Brannikla." Arggh!

VINTNOR

Look at this! I've got grapes rotting on the vine. With the shipbuilders on strike, I can't ship my wine to the rest of the Empire. My warehouse is full, and boy do I have a hangover.

GLADIATOR

I've got to get to the Temple of Mars to make a sacrifice before tonight's contest in the Coliseum. I think I'm losing my touch. Last night the lions nearly took my head off! If only I hadn't missed that last lesson at the Gladiator School...



PEOPLE HAVE SPOKEN!

CENTURION

March, march, march... Got to keep on-the lookout for the Barbarians. Oh yeah, and sumot has it the Carthaginians may be on the move again. Wait! Is that a samet over there?

PRIEST

I don't know what this world's counting to these days. Young people just wild in the streets, forgetting all about the gods. I don't know where I'm going to find enough Vestal Virgins this year.

CAESAR III

BUILD A BETTER ROME

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"I find myself continually drawn back to the game to try just one more tactic... To paraphrase Shakespeare's Antony, 'I come to praise Caesar III.'"

— JOHNNY WILSON

EDITOR-IN-CHIEF, COMPUTER GAMING WORLD

"A must buy for any hard core strategy fan ..."

—IGN PC

9 OUT OF 10!

"You will find Caesar III a refreshing change from the usual shoot-em-up fare of this season. In short, 'Hail Caesar!'"

— ONLINE GAMING REVIEW

"... the Caesar series is a classic that's only getting better with age."

— GAMECENTER



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SIERRA
Impressions



Sim Meets Shooter

Despite Taking Hits, DELTA FORCE Secures Its Primary Objective

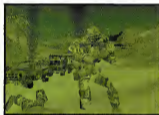
by Raphael Liberatore

From the get-go DELTA FORCE scores a direct hit. With 40 gut-wrenching, real-world missions, DELTA FORCE is a realistic shooter modeled after the command ops of the highly secretive U.S. Army Special Forces Operational Detachment, aka Delta Force. While this game has much to offer Novologic, dodged 3Dfx-accelerated technology, opting for voxel Space 3 graphics—resulting in a less than crisp gameworld. But this game is still a blast.

The keyboard configurations are a snap (remember to use the template provided in the box). After picking an alter ego, select one of five Third World campaigns. You'll



STAYING SHARP DELTA FORCE's close combat techniques often come in handy. Silently ambushing a small patrol with a knife helps to avoid enemy detection.



CALL AAA FOR ROADSIDE SERVICE Taking out an enemy convoy requires precision and lots of heavy armaments. And, in this case, some night vision goggles.

conduct counterterrorism and hostage rescue, drug interdiction, special reconnaissance, and direct action operations. The missions are more dynamic than linear. You can choose special reconnaissance ops in the Middle East, direct action ops in Africa, or eliminate a drug cartel in South America. The level of difficulty with each campaign gets harder, and some missions are virtually impossible to finish.

DELTA FORCE scores with its realistic arsenal of weapons and equipment. You'll soon have a steady favorite (be it versatile M4, muscle-bound LAW, Ramboesque SAW 249, Barrett .50 caliber sniper rifle). The M4 and other sniper rifles are mounted with scopes for

better target interdiction at longer ranges, but watch out for lag when using the sniper mode in multiplayer. You'll also want the handy GPS tracking device for better land navigation and waypoint status.

combat techniques, ballistic trajectories, and AI reactions are all part of the realistic combat experience. However, most gamers will play DELTA FORCE as a straightforward shooter since it does nothing to teach you these tactics.

Multiplayer is a blast with Novologic's free NovaWorld servers. Play Capture the Flag, King of the Hill, or deathmatch with up to 32 blood-crazed players

QUAKE fiends will enjoy the mayhem of searching and destroying other operatives, while the more military minded will pair off into teams for co-op play.

Myopic Night-Vision Goggles

Unfortunately, the voxel graphic engine comes up wanting. Blurred troop pixels mar what could be a very enjoyable experience. In one mission I found myself accidentally shooting fellow operatives because their images were unrecognizable. Novologic is working on a 3Dfx patch, but it will only affect the polygonal buildings and objects. Until then, your computer will suffer with slower frame rates—even with the turbo mode turned on. On the plus side, the terrain and 3D ambient sounds are good.

DELTA FORCE has hefty CPU and RAM requirements, and the voxel graphics leave plenty to the imagination. If you have a fast machine, enjoy combat action, and don't mind the blurry images, DELTA FORCE is as close to the real thing as you can get. **CW**

Raphael Liberatore is a former U.S. Army Special Forces soldier who is currently enjoying an equally challenging stint as "Mr. Mom."

COMPUTER GAMING WORLD



APPEAL: Shooter fans craving some realism

PROS: Good realism; a variety of real-world missions; cool ambient 3D sounds; real AI actions; simple interface; great multiplayer fun on NovaWorld

CONS: High system requirements; no 3Dfx support; blurry voxel Space 3 graphics; lack of command and control

DIFFICULTY: Intermediate

REQUIREMENTS: Pentium 166 MMX; Windows 95/98/NT; 32MB RAM; 120MB hard-drive space; 4x CD-ROM; DirectX-compatible sound cards; 14.4 modem for remote play

3D SUPPORT: None

MULTIPLAYER SUPPORT: Serial connection, modem (2 players), Internet (2-32 players), LAN (2-16), 1 CD per game

Price: \$49.95
Publisher: Novologic
Columbus, GA
0310, 819-0325

www.novologic.com





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GAME OF 1997
- CGW

Troma Raider

This TOMB RAIDER Clone Sports a B-movie Sense of Humor and Style

by Mark Clarkson

They have it all: Young and beautiful, Allison Huator is a budding rodeo star; her sister Jocelyn seemingly destined to become the next Tammy Wynette. (The truck-stop waitress jobs are just temporary.)

One night they run over a giant mutant bunny and Jocelyn is abducted by aliens.

This leaves Allison no choice but to put her rodeoing, dancing, and waitress skills to the test in the subterranean chambers of Lotar, king of the evil Space Bunnies, who has imprisoned Jocelyn and is forcing her to provide the living soundtrack to his perverse biological experiments and his plans for world domination. As Allison, you must infiltrate the Space Bunny complex and save Jocelyn...and, you guessed it, the world!

While *SPACE BUNNIES MUST DIE!* doesn't quite live up to its gonzo plot, this third-person *TOMB RAIDER* clone is good fun to play. And, Allison can dance. But wait, there's more! You can dress her up in an assortment of outfits! (My fave: "Truck Stop Waitress.")

Bunny Burrow to Hell

Gameplay is mostly what you'd expect: running, jumping, climbing,

mutant monsters and provides clues to finishing the level. Of course, each level also contains an assortment of weapon power-ups; health in the form of "Zombie Juice"; keys to open doors and extend ladders; carrots for the giant juicer machines; tiny 'copters to ride; levers to throw; ledges to scale; and plenty of bad guys to blast, nuke, frag, debone, or otherwise kill.

bunny or runs over a power-up grow pretty stale well before the end of the game—as do the animations for saving your level, drinking zombie juice, and so forth.

Levels start out pretty easy, but the need for fast action and fine timing grows as the game progresses. There are often multiple ways to run a level or even to reach a given goal—either scale the cliff or ride the raft, for



DANCING POOL Even giant mutants such as this Bear/Rabbit will dance with Allison. Win him over...and you can ride that hideous freak out of the room and on to glory.



COMPUTER GAMING WORLD



APPEAL: Dances-in-music fans looking for a late CD to call their own.

PROS: Good sense of humor; some novel ideas; great soundtrack.

CONS: Occasional glitches; a bit shallow and repetitive; so-so level design.

DIFFICULTY: Intermediate

REQUIREMENTS: Pentium 166, Windows 95/98, 32MB RAM, 150MB hard-drive space, 4X CD-ROM, VESA local bus or PCI video card with 1MB RAM, sound card.

3D SUPPORT: Direct 3D, 3Dfx.

MULTIPLAYER SUPPORT: None.

Price: \$49.95
 Publisher: Wizard Games
 Seattle, WA, CA
 (800) 787-5637
www.rjpcandy.com



EVERYBODY RUN! THAT CUTE PINK BUNNY HAS GOT A GUN! So shoot him r-p-u-n-t-l-y.

crouching, collecting power-ups and opening doors. But there are unexpected goodies thrown in. After conquering one huge beast, you can ride him and use his superior strength to pry open heavy doors and bash lesser mutants on the head.

Each level holds a CD which, when inserted into a convenient jukebox, plays one of Jocelyn's desperate songs, which seduces

And you'll want to kill 'em once you've seen what they're up to. I mean, we all know that aliens mutilate cattle, but it obviously doesn't stop there: The bunny complex is crawling with zombified humans and horrible hybrids—half goat/half bunny, half bear/half bunny, half walrus/half bunny...ick!

Shake it, Sweetie

Luckily, Allison can distract the bad bunny mutants by dancing to a rockin' collection of tunes by Bo Diddley, Buddy Holly, Southern Culture on the Skids, and others. Embraced, most Space Bunnies will eventually start dancing too, making them easy targets. Although the music and Allison's dance steps vary from level to level, the cute things she says when she kills a

example—but there are actions that must be done in the right order or you'll be stuck and forced to backtrack. You can only save your progress at designated kiosks; thankfully, however, they're sprinkled liberally through the levels. While *SPACE BUNNIES* was stable in general, I occasionally found myself stuck halfway in a mountain-side.

Overall, *SPACE BUNNIES* is fun in a campy B-movie way, neither reinventing the genre nor pushing the technology envelope—just delivering solid fun. And, when there's no bunny around, Allison will dance just for you.

Shake it, Baby. **GGG**

Right this minute, Mark Clarkson has the lights down low and is watching Allison do "The Swim" on the Bo Diddley level.

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Easy to install with the CD Start screen.

with each other and duplicate functionality has been eliminated. Moving from one utility to another — say, from Norton AntiVirus to Norton Utilities — is as simple as clicking a button on your screen. What's more, Norton SystemWorks features like CD Start and Launch Pad make it exceptionally easy to use.

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Infernal Vigilance

SegaSoft's Buggy GOLDENEYE Killer Manages to Assassinate Itself

by Scott A. May

Hoping to catch a ride on the latest shoot-em-up bandwagon, SegaSoft presents VIGILANCE, an awkward blend of the NS4's GOLDENEYE and Sega's own VIRTUA SQUAD. Intrigued? Well, shoulder that rifle, soldier:

The paper-thin storyline casts you in the role of one of eight counterterrorist agents, part of the Special Intelligence Operations Network (SIDN). All of your agents have their own special talents, and the trick is to learn each character's profile and match their skills to the environment and objectives of a particular mission. The 25 single-player mission objectives are pretty standard stuff—kill the bad guys, infect an computer, blow up

some equipment—though multiplayer mode cuts to the chase for some stealthy assassin fun.

The major hook of VIGILANCE lies not in its 3D-rendered world, its cache of sexy weapons, or multiplayer mayhem. Instead, rather than storming rooms, guns blazing, players must employ stealth—creeping up on enemies and using available cover to their advantage.

From an action perspective, another high point is the ability to use more than 27 weapons, depending on the mission. At face value, the variety of your arsenal is menacing indeed, including assault rifles, shotguns, lasers, rocket launchers, spear guns, C4 explosives, and more.

Misfiring on All Cylinders

One of the game's principal features, thus inviting comparisons to GOLDENEYE, is your ability to move your weapon hand independently from your main line of sight. This allows you to pinpoint your fire within a wide area, without moving a step.

I pride myself on being dexterous—I can handle most flight sim controllers, operate a can opener, and sometimes remove the shrink-wrap from a CD jewel case without using my teeth. But the controls in VIGILANCE left me feeling like a total klutz. Here's the deal: Unlike QUAKE-type shooters,



VIGILANCE's version of mouse look requires that you hold the right mouse button to change your character's line of sight while using the keyboard to move. To aim your weapon, however, you must release the right mouse button then use the left mouse button to fire. In theory, it sounds simple and functional. In practice, however, I found myself constantly disoriented, wildly oversteering in the heat of action, often unable to coordinate mouse clicks to move and face enemy fire. After an hour with this game, I was ready to smash my mouse with a hammer.

I did enjoy the ability to change perspective on the fly—from third-person up-close, third-person removed, and first-person. Third-person is especially impressive when you target something standing directly in front of you: Your character image dissolves, giving you a clear view of your victim.

The game's graphics are a mixed bag. Object texturing is pretty unimaginative, with generic walls, floors, and ceilings—all rendered with the usual crates,

barrels, ducts, and so on. Although the game doesn't require 3D acceleration, the software-only rendering is pretty ugly with noticeable frame-rate choppiness.

The long list of technical difficulties begins with the inability to save your game if launched from the CD splash screen. Even if you remember to run the game from a shortcut icon, saving is still a chore. The game also requires a whopping 650MB of hard-disk space (500MB game data, 150MB swap file), yet still takes up to two minutes to load each mission, even on a P233 with 64MB RAM. There's no excuse for this.

In-game glitches abound, too, including the inability to crouch while in first-person perspective; blood splashes, meant to show your damage, that float in mid-air; characters missing parts of their texture skin, or the annoying propensity for three second screen freezes when more data is loaded.

With gameplay that hardly compensates for its shortcomings, VIGILANCE is an exasperating experience you won't likely want to endure. **C-+**

Scott A. May keeps himself up nights puzzling over PHAROS' ASCENT, LODGE RUNNER 2, and GURBLE 2.

COMPUTER GAMING WORLD



APPEAR: Stealth Mission for fans of NS4's GoldenEye.

PROS: Innovative point-and-shoot targeting system; cool line-of-sight effects; lots of weapons from which to choose.

CONS: Frustrating controls; long loading times; slow storage requirements; so-so 3D graphics; ugly; technically buggy.

DIFFICULTY: Intermediate.

REQUIREMENTS: Pentium 166, Windows 95/98, 32MB RAM, 650MB hard-disk space, 4x CD-ROM, 2MB DirectX compatible sound and video cards, 28.8 modem and Java-enabled Web browser required for IE4/NET.

3D SUPPORT: 3Dx.

MULTIPLAYER SUPPORT: LAN and Internet via HEATNET (2-16 players).

Price: \$49.95
Publisher: SegaSoft
Sears Corp., CA
(510) 524-5057

www.sega.com/vigilance



POPULOUS 11:24

Pity the mortal that trespasses against you
for he shall be set adrift on rivers of fire
and his dwellings laid waste.



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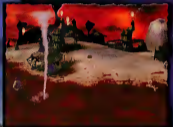
POPULOUS 12:26

You shall tear the faithless
from the earth and scatter them
with the vengeful judgement of the winds.



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POPULOUS 8:12

And the heathens shall fall
one before the other and be
devoured by a living plague.



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Fly-By Shooting

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Plane Crazy

★★★★★

Publisher: SegaSoft

Price: \$29.95

www.segasoft.com/plane-crazy

A 3D-enhanced fantasy flying game, *PLANE CRAZY* is a beautifully rendered speed



demon with few real-world trappings. Conceptually, it's nothing new, combining the graphic splendor of Rage's *INCOMING* with the full-throttle speed of Gemlun's 1995 fantasy racer, *SUPSTREAM 5000*, with a bit of *Pygnosis'* *WIPEOUT* added for good measure.

You choose one of three aircraft to compete on nine outdoor courses, each an insane ride through convoluted, elaborately detailed landscapes, including desert canyons, seaside refineries, volcanic rapids, and urban sprawl. Modes of play include Quick Race, Ghost Race—in which you compete against your own best score—and the multicourse Championship Race. This last mode plays reasonably well with both LAN and *HEATNET* multiplayer matchups.

Your biggest challenge is to find the shortest, fastest path through each obstacle-laden landscape. Touchy controls compound your need for a good eye and lightning reflexes. As you earn your wings, expect to bounce around the narrow lanes like an airborne pinball before exploding in a fireball. Those

with a low frustration threshold, beware.

Other features include both good and bad power-ups and eight tenacious, computer-controlled competitors. The game's coolest twist arms you with a sonic cannon, which can reveal hidden shortcuts through the courses. The 3D graphics are spectacular, with excellent use of color, fog and

haze effects, and fiery concussion rings.

Although gameplay eventually becomes repetitive, the quest for the best possible racing line through the multitude of courses helps extend gameplay.

If you're a die-hard arcade racing nut, *PLANE CRAZY* delivers the goods. If you're hoping for more real-world substance, keep biding your time. —Scott A. May

Fly Hunter

★★★★★

Publisher: Nanostainment

Price: \$29.95

www.nanostainment.com

If you hate bugs and love weird shooters, *FLY HUNTER* is for you.

Armed with a Nanochine—a specially outfitted flying craft the size of a fly—you'll serve in the Nanocops, a futuristic organization aiming to eradicate evil insects.

Aside from everyday pest control, *FLY HUNTER* also involves an evil scientist and his mutant bugs bent on destroying the world. In more than 30 linear missions, you'll shoot down flies, wasps, hornets, killer bees, and mutated bugs that shoot back. You get to clean out private homes, parks, orbiting space stations, and even the White House. Completing a mission earns



you higher rank, which gets you the tougher assignments, and cash, so you can visit the company store and upgrade your Nanochine.

FLY HUNTER requires skill and reflexes, especially considering the less than responsive controls. Unfortunately, the game compounds frustration by lacking a quick-save or restart feature, so if you're swarmed by killer bees, you're doomed to return to main screen and start again. And the AI bugs are tough to beat at even the easiest of settings.

FLY HUNTER will let you take on insects as well as fellow Nanocop pilots via LAN, IPX, modem, or serial connections. But given its touchy controls, unfriendly save feature, and lockstep graphics, you might be better off killing this bug dead. —Raphael Liberatoro

Fighter Pilot

★★★★★

Publisher: Electronic Arts

Price: \$19.99

www.ea.com

FIGHTER PILOT isn't a flight simulator; it's more a budget version of Origin's classic

"action sim," *STRIKE COMMANDER*. Controls and combat are simplified and straightforward, with aircraft that are veritable JP-5 juggernauts: They're armed with dozens of missiles, virtually

impervious to damage, and loaded with unlimited countermeasures and fuel. What's more, by locking the interludes that made *STRIKE COMMANDER* interesting, *FIGHTER PILOT* remains pedestrian in all respects.


The plot in *FIGHTER PILOT* is simple, even simplistic: The Iraqis have been acting up again and it's up to you to stop them. You get a linear set of missions: Fly here, kill this, repeat. Enemies are numerous and well armed, but thanks to a desultory AI and your nigh invulnerable aircraft, you'll make quick work of them.

The Jane's F-15 engine used here is out of place in an action game. Frame rates on high-end PCs are occasionally choppy. Attempts were made to mix out F-15's combat visuals, but the results aren't up to modern action game standards. The audio presentation is similarly tame. The final blow is the game's sedate pace, which leaves you yearning for some adrenaline-filled moments.

FIGHTER PILOT needed a clearer focus: EA wanted *AFTERBURNER*, but ended up with a watered-down *STRIKE COMMANDER*. The limited set of single-player missions provides little variety or challenge. Surprisingly, multiplayer doesn't support a convenient matchmaking service. Throw in graphics more suited for a hard-core simulation and you've got a game that's like a TV dinner: not bad, but very, very bland. —Chris Dahl



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TEAM UP &

"don't outrun
me Sulky we
got a date with
the endzone"

Thorn

commando Thorn sees
his chance to be a hero

"shake your
boots commando
I need cover
fire here"

Sulky

heading uptield half in hand
Sulky realizes she's target #1



Ferret killed by MadMac.
JimO killed by PsychoCat.
Sulky recovers the ball for YOUR team!

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Capture the Flag

the name says it: capture and hold as
many flags as you can for as long as you can



Base Tag

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base stations while defending your own



Team Deathmatch

hunt the other team to rack up kills,
then protect weakened teammates
or you'll be overrun

TALK IT UP



"I'll drop an auto-turret to cover our flank"

**Psycho
Cat**

her last kill forced a fumble
now PsychoCat's about to draw fire



"pound it up the right side you guys I'm just about wasted"

MadMac

tired from trying one Ferret
MadMac takes heat for the team

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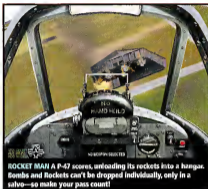
This Long-delayed WWII Sim Delivers an Immersive Campaign

by John Nolan

Sometimes, when everything comes together the whole is greater than the sum of its parts. EUROPEAN AIR WAR (EAW) is a perfect example. While not all the features of MicroProse's WWII flight sim are "bleeding edge," together they make one impressive package.

Uncle Sam Needs You!

After a long, dry spell, few WWII PC pilots will be able to resist MicroProse's invitation to a Quick Start. This option launches you into a crowded melee, automatically selecting armaments and enemies. After you gorge on gun fights, the Single Mission option beckons with Fighter Sweep, Bombing, Interdiction, Escort, and Intercept



sorties, a mission editor can modify 16 parameters. Here, you can hone the flying skills necessary to succeed in the coming campaign.

Create a pilot and start a Career. The choices will keep you busy for months. Select the Battle of Britain: 1940 (an early war scenario), the European Theater:



MESSERSCHMITTING AROUND The sheer numbers of planes that take part in missions help create an authentic feel.

1942 (the Americans arrive), or the European Theater: 1944 (the Luftwaffe's last stand).

You can fly for the United States, the Brits, or the Germans in 20 models of 11 different aircraft. Enlist in an air force, pick your squadron (which determines plane type), and report to the briefing room. These campaigns are EAW's hook. After seeing your mates bobbing gently in formation off your wing and a herd of Henkies on the horizon, the addiction begins.

Spots Before Your Eyes

The game's graphics are reasonably close to the state of the art, but other characteristics bespeak the sim's long development time. A Colson 300A/128MB RAM/RIVA TNT system handled max-detail D3D duties with ease, but a Pentium 166/64 MB RAM/Voodoo system required most settings to be at minimum for smooth play.

At max detail, the engine draws excellent cities and fields, although textures seem overmagnified and a bit blurry when you're down in the weeds. The sometimes cloudy skies add atmosphere and have tactical applications, but they'll mask the enemy as well as they hide you. Special effects, such as flak bursts

and sun-blindness, are good, and night operations are an unexpected extra. Aircraft exterior graphics look great up close, but are disappointing when range increases: They rapidly lose detail and transition to tiny crosses and then to dots (see "Size Matters," next page, for more on this).



SILVER LINING Clouds can be a pain on a ground attack mission since they obscure the target. On a fighter sweep, however, they can be used to mask your attack or help you escape pursuers.

Tracking the dots is easy; nearly every type of viewing option is supplied with a "zoom" for most choices. The function keys provide a full circle of overlapping fixed views, the virtual cockpit and pedlock options let you look around the cockpit in 3D, and external camera views enable sightseeing or spying on enemy formations. There's a simple, effective snap view system using the numerical keypad, although the aircraft structure is inexplicably missing in the up and rear views. Interior cockpit shots are also a bit disappointing.

COMPUTER GAMING WORLD



APPEAL: WWII flight sim fans far whom play is more important than you clearly.

PROS: Immersive atmosphere; deep, dynamic campaigns; easy to get up and flying.

CONS: It would have only taken a bit more work on flight model realism, using AI, and plane sizing to make this a five-star supergame.

DIFFICULTY: Intermediate.

REQUIREMENTS: Pentium 166, Windows 95/98, 32MB RAM, 55MB hard-disk space, SVGA graphics, mouse.

3D SUPPORT: Direct3D, 3Dfx Glide.

MULTIPLAYER SUPPORT: Modem, direct connect, LAN, Internet, MSN Gaming Zone (2-8 players).

Price: \$49.95
Publisher: MicroProse
Alameda, CA
(510) 884-4590

www.microprose.com





WHITES OF THEIR EYES Two views of a Hurricane at 300 feet from the cockpit of a Bf-109. With the ID tag on, you get plane type and range, but the neon lettering almost obscures the shape. With the ID tag off (inset), you can see to shoot, but detail is lacking for being so close.

While they feature working gauges, the blurry artwork makes the gauges hard to read.

Modeled Planes and Brains

The flight model and enemy AI are adequate but not noteworthy. The flight model in realistic mode is easy to fly. Stalls and spins are there, audio and visual cues give plenty of warning, and standard recovery techniques will get you back in level flight. Spins aren't modeled totally accurately, but they take you briefly "out of the fight," and that's what's needed.

Torque adds a gentle drift at full throttle, and it doesn't change in magnitude as the throttle moves. Dropping flaps generates minor changes in pitch and slowly affects airspeed. These and other characteristics indicate a preference for playability rather than realism.

The model works well in play, though, because other items add complexity. There are good black-out-of-sight effects, the engine overheat option keeps you from just leaving the throttle fire-walled, structural damage limits your dive capability, and midair collisions shrink an already crowded sky. So, while the flight model isn't "cutting-edge real," it does the job of modeling the characteristics necessary to immerse you in combat.

All pilots fall into three skill groups: Green, Seasoned, and Expert. You'll routinely encounter each type. Green pilots are cannon fodder. Seasoned pilots are more aggressive, but not much better. Experts try historically correct evasive moves, along with aggressive offensive attitudes in the opening phases. However, even they can be drawn into turning fights. This AI weakness is most noticeable in a one-on-one fight; less apparent during the massive melees of the campaign missions.

When you tire of battling Lt. Intel, multiplayer awaits. Engage humans via serial, modem, LAN, or Internet connection (eight players); there's also matchmaking and free play on the Internet Gaming Zone (www.zone.com). In addition to the requisite free-for-all, you can fly full missions such as bomber escort, interdiction, and so on with other human players. Kudos to MicroPose for not taking the lazy way out and including only a deathmatch mode.

Launch the Fighters!

With its dynamic campaigns and a multitude of mission options, EUROPEAN AIR WAR packs a ton of entertainment onto a CD. There's an epic quality to the depiction of

Size Matters

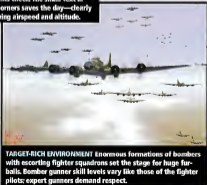
Planes in *European Air War* are modeled with a high degree of accuracy. The Bf-109 is 23 feet 10 inches in length, 28 feet 7 inches in wingspan, and 11 feet 11 inches in height. The Hurricane is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The Spitfire is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The Mustang is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-51 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-47 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-38 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-63 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-40 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-39 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-46 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-48 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-50 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-52 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-53 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-54 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-56 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-57 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-58 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-59 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-60 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-61 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-62 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-63 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-64 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-65 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-66 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-67 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-68 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-69 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-70 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-71 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-72 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-73 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-74 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-75 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-76 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-77 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-78 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-79 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-80 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-81 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-82 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-83 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-84 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-85 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-86 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-87 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-88 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-89 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-90 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-91 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-92 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-93 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-94 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-95 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-96 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-97 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-98 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-99 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height. The P-100 is 23 feet 10 inches in length, 32 feet 7 inches in wingspan, and 11 feet 11 inches in height.

of the air war here, and while some aspects could have been better, EAW has an unmatched immersiveness that truly makes you feel like you're defending the skies of Europe. If you're a WWII air combat junkie, you're in for some sleepless nights! **CGW**

When John Nolan is not flying 727s, he's wringing out JANE'S WWII FIGHTERS.



DOUBLE VISION The instrument panel needles are so faint and blurry that it's hard to do a quick systems check. The small text in the corners saves the day—clearly showing airspeed and altitude.



TARGET-RICH ENVIRONMENT Enormous formations of bombers with escorting fighter squadrons set the stage for huge fireballs. Bomber gunner skill levels vary like those of the fighter pilots; expert gamers demand respect.

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-GAMESLICE

"LOOKS TO BE A KILLER ADDITION TO THE GAME GENRE."

-NEXT GENERATION ONLINE

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Go to #295 @ www.computergaming.com/infoink

3D's the Charm



This Time, Sierra Recaptures the Magic of the Original

by Robin G. Kim

What does it take to earn the forgiveness of gamers burned by a buggy product? Usually, a timely bug fix patch or two is enough. But for RED BARON II, Sierra and Dynamic apparently felt they had to do more to rebuild customers' trust and repair the image of one of their more valuable franchises. The result is RED BARON 3D, a new substantially upgraded version of RED BARON II, available at no cost to owners of the previous game.

Opportunity Knocks Twice

RED BARON II had the potential to be a truly great sim—boasting a wealth of gameplay options,



WHISTLING AWAY Greatly reduced bullet lethality forces you to work hard for every kill.

Including a dynamic campaign covering WWI, 20 flyable aircraft from Eindekkers to Spad XIIIs, and a powerful mission builder. What shot RED BARON II down were its simplified flight model, dated graphics, and a long list of bugs.

RED BARON 3D addresses these shortcomings. All major bugs appear to have been squashed—though inappropriate disciplinary hearings still occur, and AI planes occasionally crash into extremely hilly terrain. Owners of 3Dfx cards are treated to much improved visuals and higher frame-rates. Direct3D isn't supported, but even those without 3D accelerators can take advantage of the new 800x600 and 1024x768 resolution options.

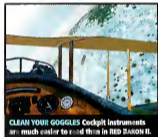
While easier flight-model settings are available, RED BARON 3D

introduces a drastically more realistic option that offers more accurate performance and fuel consumption, greater energy bleed in turns, torque, and gyroscopic precession effects, and fuel starvation under negative Gs. Landings are improved, with less bouncing and shorter rollouts. The sim's flight model may not be as sophisticated as FLYING CORPS', but it is impressive.

Now How Much Would You Pay?

It could be argued that we've merely ended up with the game RED BARON II should have been when first released. Fortunately, RED BARON 3D goes several steps further, adding a list of other welcome enhancements along with support for large multiplayer dogfights on Sierra's World Opponents Network (www.won.net/wowc). Included are a complete set of overlapping fixed cockpit

views (complementing its many padlock view options), more realistic bullet lethality and spread for machine guns, and better AI to cope with the more complex flight model. Included in the online gaming are deathmatches, team deathmatches, and a wacky "Get the Baron" mode where only the last pilots to score kills are allowed to garner points. Each arena has its own time period, which determines what plane types are available. Gameplay is generally smooth and relatively lag-free. Unfortunately, cooperative single missions and campaigns aren't supported, and the



CLEAN YOUR GOGGLES Cockpit instruments are much easier to read than in RED BARON II.

multiplayer modes suffer from sporadic game crashes.

Sierra has released a series of patches for RED BARON II to fix bugs and add features, culminating with a "super patch" that brings the game to full equivalence with RED BARON 3D. Owners of RED BARON II can choose to upgrade to the new version by installing the latest patch, or they may buy RED BARON 3D and send in for a full refund. In RED BARON 3D Sierra has produced a worthy successor to the original RED BARON.

Robin G. Kim has finally taken a breather from his game-lock on *RANDOMLY SKI* to take to the skies of *EUROPEAN AIR WAR*. **CGW**

COMPUTER GAMING WORLD

★★★★★

APPEAL: Red Baron II owners rejoice with an interest in WWI flight sims.

PROS: Grand scope; immersive atmosphere; good long-term play; fully large-scale multiplayer support; free to RED BARON II owners.

CONS: No Direct3D support; some issues may have problems in multiplayer mode; no cooperative multiplayer support.

DIFFICULTY: Moderate.

REQUIREMENTS: Pentium III, Windows 95/98, 32MB RAM, 200MB hard-disk space, 4x CD-ROM, SVGA graphics.

3D SUPPORT: 3Dfx.

MULTIPLAYER SUPPORT: Modem, direct cable, LAN, Internet (2-100 players).

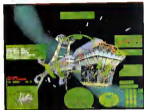
Price: \$29.95
 Publisher: Dynamic
 Bellevue, WA
 (820) 757-7737
www.dynamic.com



CLEAR VIEW The transparent cockpit option isn't realistic, but it makes it easier to track enemies.

Rewin' Spacey

Three Space Sims With Distinctly Different Acts



Descent: Freespace Silent Threat

★★★★★

Publisher: Interplay
Price: \$19.95
www.interplay.com

Interplay's DESCENT: FREESPACE didn't win any awards for originality, but based on its technical excellence it warranted a mission pack add-on. SILENT THREAT includes a new campaign, along with a host of stand-alone missions designed by the development team and other players.

You must choose new ships and weaponry as major elements manually because the default loadouts for most of the missions use the original set of ships and weapons. You're encouraged to choose your own mission loadout, but many games assume the mission is designed around the default setup and hesitate to alter it. I see the new ships—an improved Bomber; the Zeus; and the Loki, a faster, recon-style fighter—most often as enemies.

The campaign is short, with only about 12 missions. The plot has you joining the Intelligence Division of the GTA, through which you carry out "black ops" style missions. The missions soon become standard "escort/destroy" missions wrapped around a plot dealing with

conspiracies. The advertised capital ship makes only one appearance, and it's not very intimidating. The stand-alone missions were picked from online submissions, so at least they're not just randomly packed Net files.

This is an average mission pack. The missions are decent, and the multiplayer has been cleaned up a bit (it includes a patch up to 1.04). But this pack could have been a lot more, so it's best for the diehard FREESPACE fan.

—Thierry Nguyen

Hardwar

★★★★★

Publisher: Interplay
Price: \$19.95
www.interplay.com

LITE and PRIVATEER fans rejoice: Another game has joined the thin ranks of sci-fi trading games. HARDWAR narrows the focus. Instead of plying your trade in vast star systems, HARDWAR has you piloting souped-up hovercraft, known as MOTHs, through a single futuristic city.

HARDWAR brims with intriguing places in which to conduct trade or combat. The background is busy and believable—other MOTH pilots make regular trading runs, pirates lurk to strip the urinary of their cargo, and militia carefully patrol their sectors. They



also behave realistically in other respects: MOTHs low on energy head for the nearest charging station, while damaged craft head for repair facilities.

The city background is HARDWAR's strongest feature; little new ground is broken in gameplay. You start out with a poorly equipped MOTH and a small bankroll, with the goal of improving both. The action involves establishing lucrative trade routes, defending yourself against pranes, hunting down miscreants for cash, and fixing new components to your MOTH.

As the game progresses, you'll be allowed to begin the missions that make up the meat of HARDWAR's plot. You run around upsetting the powerful, out-of-control factions of the city.

Although you uncover interesting secrets, the plot-related missions are too few and unevenly spaced.

HARDWAR is fun for a while, but the possibilities are quickly exhausted. The limited trading, interaction, and combat become repetitive. Once you've completed the game's scripted missions, there's little reason to go back to the city. But at only \$19.95, you should find enough play to justify the entry fee. —Chase Dahl

Wing Commander: Prophecy Gold Edition

★★★★★

Publisher: Origin
Price: \$39.99
www.origin.com

For all of its visual grandeur, WING COMMANDER: PROPHECY FOLLOWED the same well-worn path as its ancestors: The enemies were different, but little else changed. Missions

remained simple affairs, the movie interludes provided most of the interest. WING COMMANDER PROPHECY GOLD EDITION (WC: P) is more of the same.

The package includes the original PROPHECY and an additional CD containing the SECRET OPS missions (available free on the Internet for a time in 1998). The documentation includes the background fiction that was on the SECRET OPS Web site.

WCP GOLD is still a solid blast-



fest with gorgeous graphics, especially on PCs equipped with 3D cards. The missions are the only downside. You fly to the assigned waypoints and kill all the bad guys at each, then rise and repeat. The Strike Ops missions take this to unimaginative extremes: They are stuffed to overflowing with multiple waves of enemies, turning an amusing game into a monotonous shooting gallery.

There is some added value in the SECRET OPS package. Instead of sandwiching in video, the package uses the game's graphic engine to provide new storyline vignettes. Your ships are fitted with new, rapid-firing weapons—you'll need them in the packed arenas in Strike Ops. Earlier WING COMMANDER spaceships make encores, but you can't pilot them.

Strike Ops adds little that PROPHECY didn't already beat into the ground. I'd recommend WCP GOLD if you missed the original release, but PROPHECY owners won't find much added value.

—Chase Dahl

Actual Game Screen



Game of the Show E3 1998 -CGU / Winner of USG's Best Real-Time Strategy Game of E3



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unlimited camera movement within a 3D universe. But, despite all the technology and innovation put in to Homeworld, our main goal was simply to make a game that

was really fun to play. As you know, it's not about the hype at all - it's all about the game.

—Ralph T. Hunsicker, Lead Designer

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One Small Step For Man, One Giant Leap For Gamers

I Can't Believe It's Not...

Your Computer Will Love You

```
if (range < gunstatic->bulletrange*bonus)
```

```
if (gunCanShoot(ship, gun))
```

```
switch (gunstatic->guntype)
```

```
case GUN_MissileLauncher:
```

```
if (gunHasMissiles(gun))
```

```
matGetVectFromMatrixCol3(shipheading, ship->rotinfo.coordsys);
```

```
vecDotProduct(*trajectory, shipheading);
```

```
shotguns = TRUE;
```

ALL GAME

```
if (dotprod >= triggerHappy)
```

```
missileShoot(ship, gun, target);
```

```
case GUN_MineLauncher:
```

```
if (gunHasMissiles(gun))
```

```
matGetVectFromMatrixCol3(shipheading, ship->rotinfo.coordsys);
```

```
vecDotProduct(*trajectory, shipheading);
```

```
if (dotprod >= triggerHappy)
```

```
missileShoot(ship, gun, target);
```



Grateful Dead

Technical Issues Are the Only Demerit in LucasArts' Awesome, Epic Adventure Game

by Thierry Nguyen

Epic isn't a word normally associated with LucasArts adventure games. That term conjures up images of *The Ten Commandments* or *Lawrence of Arabia*, but not of, say, *THE CURSE OF MONKEY ISLAND* or *FULL THROTTLER*. Yet, Tim Schafer's newest adventure game, *GRIM FANDANGO*, fits the criteria quite well. It forces totally new ground for LucasArts by presenting their most ambitious and complex plot yet—all within a package that offers stunning art direction, an original and intelligent script, traditional puzzle design, and great voice acting.



ALIVE AND KICKING The art for this scene in *Land of the Living* shows off *GRIM FANDANGO*'s bold and original art direction.

"A-B-C... Always, Be, Closing."

The game opens with a premise that's sure to catch anyone's attention: You're the Grim Reeper. Actually, as the opening cut-scene explains, you're Manuel Calavera, a skeletal travel agent in the Land of the Dead whose job is to arrange trips to the Land of Eternal Rest. The more virtuous your client's life was, the faster they get there—and the bigger your commission.

The game begins with Manny getting yet another in a string of dead-end clients. In homage to David Mamet's *Gleengary Glen Ross*, Manny finds himself in a desperate situation: He's an old-timer, and if he doesn't get a good lead, he'll be fired. Hence, Manny sets off to find a client that will preserve his job and, in doing so, starts his own four-year journey. The tone of the script is significantly darker than in most other

and more sarcastic in tone. *GRIM FANDANGO*'s equivalent of *MONKEY ISLAND*'s insult Duels scene is the Beat Poetry scene, where Manny (and the gamer) gets a chance to compose and read some beat poetry right on stage, using appropriately ridiculous verses like "Can you hear me saying nothing?"

"Of All the Gin Joints..."

What strikes you immediately upon loading *GRIM FANDANGO* is the beautiful and unique art direction. We finally have a game with pre-rendered art on the level of the *MYST* series and its clones, while also having traditional adventure gameplay behind it. A close examination of the background shows that the artists put a lot of care into each screen, putting in details such as rippling water or the tracking eyes of an octopus. Not only are the backgrounds detailed, but each of the game's sections (divided into four years) has a distinct look—whether it's a serene and spiritual Aztec temple or a town that suspiciously resembles Casablanca.

One example of the brilliant art occurs early in Year One when you visit the Land of the Living. Beyond mere description, that one screen is much more creative than most of the filler that serves as background art in other games.

The game's character art is equally compelling. Despite the fact that most of the characters are skeletons, each has a good measure of individuality—fleshed out (as it

COMPUTER GAMING WORLD



APPEAL: Any adventure gamer that is fascinated by a good plot and a strong sense of style and art direction.



PROS: A fast-moving plot, beautiful and original art direction; memorable characters; excellent script and music; puzzles are generally "just right."

CONS: Interface has some quirks; minor technical bugs; somewhat hefty system requirements.

DIFFICULTY: Intermediate.

REQUIREMENTS: Pentium 133, Windows 95, 32MB RAM, 30MB hard-disk space, 4x CD-ROM, supports Windows 95-compatible sound and video cards.

3D SUPPORT: Direct3D

MULTIPLAYER SUPPORT: None

Price: \$49.95
 Publisher: LucasArts
 Developer: LucasArts
 (800) 532-4263

www.lucasarts.com



EXPRESS TRAIN TO HELL The vehicle design is inspired by Ed "Big Daddy" Roth. Also, this great looking scene combines a lawyer joke and a serious message about attempting to avoid your destiny.

LucasArts games, with a plot that involves a large amount of death and corruption. This seriousness is offset by moments of comedy, though. The humor is not over the top, as in the *MONKEY ISLAND* series, but is drier

were) with outstanding dialog and voice acting. Some of the characters are movie allusions, such as Chowchilla, Charlie's resemblance to Peter Lorre's Ugarte in *Casablanca*, or Domino Hurley's resemblance to Al Pacino's Roma in *Glengarry Glen Ross*. Others are wholly original creations, such as Manny's car-crazy sidekick Glottis, or the one-armed revolutionary who, appropriately enough, is robbing slot machines. The characters are so unique that you end up remembering them much more vividly than the stock NPCs in other adventure games. A musical score that is a good mix of swing, bebop jazz, and spiritual South American folk music accompanies the art to complete the experience.

The puzzle design is usually fair and logical. Since you can only display one object at a time, don't expect to combine items within your inventory. The game is generally nonlinear—the years have goals, and you're essentially given free reign regarding in what order those goals are achieved. The puzzles are traditional LucasArts fare. In terms of difficulty, the puzzles are the kind in which you fiddle around for a few hours, only to have some divine inspiration later on and then hit yourself for not noticing the logic earlier. I was annoyed with a few puzzles (mostly the forklift), but overall I found them to be forgiving and not to require far-out logic. Playing a few hours per day, it took me about a week to finish. So 20 to 30 hours of play, based on skill, is a good estimate for how long this game takes.

"Those Are Harsh Words to Throw at a Man..."

Unfortunately, with such a great game the flaws stand out even more. In my opinion the biggest flaw is the interface. While it is better than most third-person-on-a-background interfaces, there are a few problems that detract from gameplay. For instance, the way Manny's head turns when he notices a hotspot is good, but this would be improved greatly if items were highlighted whenever he looked at them so that you knew exactly what you were looking at. At times, I had to cycle through all possible hotspots whenever Manny moved his head—just to figure out what I was looking at. Also, the separation between "use" and "pick up" isn't quite distinct enough because "use" also tends to pick up items. I went through a good portion of the game without using the pick up key and then got stuck because one item must be picked up rather than used.

Walking needs a bit of work since sometimes Manny would suddenly turn around for no real reason and walk down a path I didn't choose. Sometimes he finished a conversation and then was unable to move. Also, elevators sometimes had a hard time opening and closing.

A big problem for some gamers is that this game is a technical hog



WHEN A DOOR IS AJAR The puzzles tend to be pretty traditional, with occasional exceptions, such as this annoying timed puzzle involving an elevator and a forklift.

compared to most adventures. You'll need at least 48MB of RAM and a fast (16x or higher) CD-ROM drive, otherwise you'll be witnessing stuttering audio, choppy cut-scenes, and long load times in between screens. And don't count on that 3DFX card to bolster your system; the 3D acceleration only cleans up the character textures and smooths out their animation; the game still primarily relies on your CD-ROM and RAM.

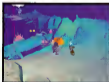
If the interface were more traditional and the technical requirements kinder, this would easily be a five-star game. Even with a somewhat aggravating interface and high system requirements, the

game still has good LucasArts-type puzzles and a great sense of style and presentation. Schaffer has done a great job of creating a moody, noir mystery with a fantastic script, and the artists at LucasArts deserve much praise for their brilliant art direction throughout the game. If you care at all about story and character, you need to get this game—even though it's a bear to control at times. **CW**

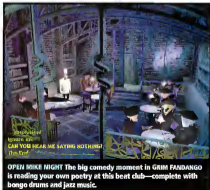
Though he's played his share of graphic adventures from LucasArts, Sierra, and others, Thierry "Scooter" Nguyen watches way too many movies, both noir and non-noir.



ONE-ARMED LAMBIT GUIM FANDANGO is filled with memorable characters such as this fractious, one-armed, unicycle-riding revolutionary.



MANNY LEAGUES UNDER THE SEA The attention to detail is obvious; The octopus' eyes track you wherever you go, giving you an eerie feeling as you move about.



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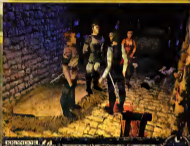


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Chronicle of Terror

Legend Entertainment's BLACKSTONE is a Brilliant Psychological Thriller

by Allen Greenberg

Computer games are insane. This is a fact that does not often arise during polite conversation; however it is, nonetheless, the truth. It is, perhaps, for this reason that author John Saul has brilliantly crafted an adventure chronicling the ultimate fate of those who are far more psychotic than gamers. This leads you to question whether those of us who spend our nights typing and mouse-clicking away will not, one day find ourselves as spirits haunting the rooms, chairs, and desks that we voraciously refused to vacate during our lifetimes.

I'm Feeling Better Now

JOHN SAUL'S *BLACKSTONE CHRONICLES* is appropriately subtitled *AN ADVENTURE IN TERROR*. It's the story of a former insane asylum

and its patients whose ghostly spirits are unable to vacate their lifetime residence. It's also the story of the family who ran the asylum, a member of which also haunts the place, and his living son who is attempting to break free from its influence. You are the son, Oliver Metcalf. Your father, Malcolm Metcalf, was the last director of the asylum before its closure. The state historical society now plans to turn the place into a museum and Malcolm, his death notwithstanding, is mad as hell.

Family influence is unusually strong in the Metcalf family, and five years ago Malcolm used that influence to get you to distribute various artifacts from the asylum to several figures who were responsible for dosing the place and who subsequently died in bizarre accidents. As the game opens Malcolm wants you to continue where you left off, only to discover that his control over you has worn thin and you are no longer willing to carry on in the foul family tradition. Thus, Malcolm has again used his influence, this time on your young son, Joshua, hiding him in some secret place in the asylum. To rescue Joshua and prevent your father from "training" him to carry on in your place, you must thoroughly explore the asylum and negotiate with its deceased patients to gain the information you need to find that secret room.

This thoroughly engaging and ultimately satisfying adventure may be too simple for some advanced gamers, but most players will find it impossible to resist. Refreshingly, its numerous puzzles



STEP INTO MY PARLOR In *BLACKSTONE CHRONICLES* the graphics really contribute to the feeling that you're in an asylum that has been converted to a museum.



TOUCH OF EVIL Your father's death hasn't kept his spirit from interfering in your family's affairs. Then again, you might just be going bonkers.

are all tied in well with the story, and none of them feel like exercises simply meant to block your progress. Some prime examples of this take place early in the game. First, some simple exploration will reveal a control handle whose purpose may or may not be obvious depending on how much of the rest of the asylum you have seen. Once you do come across its proper place, however, its correct function is practically written on

the wall. Second, some further, simple exploration will uncover a large and very full ring of keys. These keys, you are told, will open every locked door in the building. Yet, to sample each key at each door by trial and error would cost you more time than you have available. You need some help—the source of which is anything but obvious. That help will not all appear in one blazing discovery, but rather through gradual exploration and negotiation.

I'm Drooling and I Feel Fine

Generally, *BLACKSTONE'S* full-screen, highly detailed, smooth-scrolling renderings of the asylum interior are incredibly effective—though at times the 24-bit graphics can also appear somewhat gruesome; so if you have a weak stomach, beware. There are also movies and live-action photos mixed in with the other graphics to enhance the story. The vocal cast is nothing less than outstanding and stretches the drama of each moment to its



APPEAL: As pretty as *EVIL*, it's gripping as *SANTARUM*, a lesson to play.

PROS: Gorgeous 24-bit graphics; great storyline; engaging gameplay; outstanding voice characterizations.

CONS: Good as *BLACKSTONE* is, it's still a fairly standard adventure genre.

DIFFICULTY: Easy.

REQUIREMENTS: Pentium 166, Windows 95/98, 32MB RAM, 200MB hard disk space, 3x CD-ROM, 24-bit graphics, supports DirectX-compatible sound cards.

3D SUPPORT: None.

MULTIPLAYER SUPPORT: None.

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fullest. Malcolm, in particular, leaves you guessing about whether he is actually a mad scientist or the devil himself. Oddly enough, there is actually a soothing quality to the muted tones of the asylum interior and to the voiceovers, which makes the game that much more compelling. Finally, a great deal of care has gone into the background score which, far from becoming tedious, deftly elevates the quality and tension of each setting.

In addition to the spirits you will meet, you will find the asylum filled with display cases in preparation for the opening of the museum. For the most part the cases contain objects that you are free to take. There is a musical dime that signals when you have taken the proper item for your inventory, which is unlimited in size. The display cases also contain quite a bit of text concerning the history of the asylum as well as the

sequences in which this is not the case and you must perform the desired action within a limited interval—or die. The program is most forgiving at these points, however, and following your death will, if you wish, actually tell you the solution to saving your life and then place you back to one step before the deadly sequence begins. As in most adventure games, there is no score to be achieved and thus no penalty for taking advantage of this service.

BLACKSTONE CHRONICLES uses most of the traditional adventure game devices. It is controlled entirely with the mouse and features a first-person perspective of

Malcolm or from one of the other spirits. Alternatively, a text box may appear giving you two or more actions from which to choose. Conversation with the spirits is accomplished using the traditional multiple choice responses. For the most part, you are encouraged to try every one of the statements or questions that are available to you during a conversation. There is no danger in doing so—it's simply part of collecting information.

The program is provided on two CD-ROMs. However, once it's installed on your hard drive you need only use one of the disks to play the game. Which one you choose will depend on your hardware. One of the disks contains higher-resolution graphics and thus supports higher-end machines. Desk-switching, thus, is not a required activity.

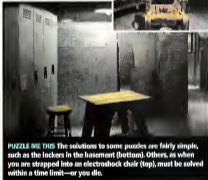
Computer gamers are not really insane (not most of them, anyway), and I apologize profusely to anyone who might have been offended by that statement. I was simply struck by the high moral caliber of the insane characters in this story. In any event, BLACKSTONE CHRONICLES is definitely a



Unlike say, in *MYST*, you do meet up with characters—in the form of lost souls inhabiting various areas of the Blackstone asylum. This young woman was institutionalized because she supposedly had a false pregnancy, yet she seems to recall vivid details about her child. You must help her resolve this situation and find some sort of peace—a nice departure from the typical “get the key and open the door” adventure puzzle.

unique piece of work with a gripping storyline, wonderful graphics, and a most talented cast. It should not be missed. **CGW**

Allen Greenberg has been reviewing adventure games in CGW since 1991, and he is hoping GABRIEL KNIGHT 3 ships before he really goes insane.



Puzzle me this The solutions to some puzzles are fairly simple, such as the lockers in the basement (bottom). Others, as when you are strapped into an electroshock chair (top), must be solved within a time limit—or you die.

history of “curing” the insane. There is, however, a fine line between “cure” and “torture,” and so much of this text is, like the graphics, not for the squeamish. Once you uncover it, Malcolm's diary is also quite disturbing.

Traditional, but Excellent

Most of the game's puzzles and challenges allow you to take all the time you wish since the story is generally not moving ahead in real-time. However, there are several

the asylum's interior, which scrolls forward and pans right or left. The various positions to which you can move are fixed, but the scrolling process is impressively smooth and allows you to view the scenery as you move. It is important to examine your surroundings from every angle at each position lest you miss some important detail. The arrow-shaped cursor lights up when it passes over some object or location that you may wish to question. The response to clicking on it may come in the form of a statement from



Who needs a halberd? This museum piece shows the late Malcolm's fondness for medieval weaponry. But nothing this knight carries can touch the torture devices you find later in the game—all used in the name of science.



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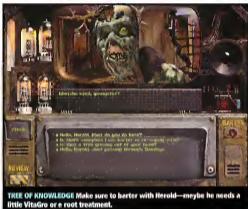
Help Me, I'm Falling

FALLOUT 2 Is Flawed, but Still Very Good

by Scorpio

The sequel to 1997's RPG of the year, *FALLOUT 2*, is a duplicate of its predecessor—only in a somewhat larger environment. Much will be familiar to players of the previous game; you could almost haul out your old Vault 13 handbook and go from there.

As in the original, you have some precreated characters at your disposal, but it's always best to make your own from scratch. You have the seven stats of strength, intelligence, luck, endurance, charisma, perception, and agility—all starting at five, with an additional five bonus points to spread across them as you wish. You choose your gender, age, name, and any optional traits you want, then you choose three tag skills from the usual list, including small



guns, first aid, barter, speech, and lockpicking, and you're done.

The tag skills are the three areas your character concentrates most on learning, and these improve more quickly than the others. Points received at level-gain time are used to increment skill scores, and tags go up on a one-for-two basis, whereas other skills increase only one for one. So it's important to choose the proper tag skills for your style of play.

The optional traits are good/bad abilities: They do something nice for your character, but they also have a drawback. For example, the Fast Shot trait allows you to use ranged weapons a little quicker

than most, but you give up the ability to do targeted shots (aiming at specific body parts).

In addition, you can usually pick a perk every three levels. These have no drawbacks, although which ones you're offered depends on your level, stats, and, sometimes, skill scores. All the perks from the original *FALLOUT* return, along with some new ones. These

more points when you read a book; Dodge, a one-time +5 bonus to armor class; and Here and Now, immediately which gives you another level of experience and, starting at Level 12, the ability to increase permanently any stat by one point.

No Surrender

Game mechanics, interface, and graphics haven't changed at all—you have 360-degree movement in third-person perspective. Typically, you can go in any direction, as long as the path isn't

blocked. Also, you can scroll the screen to a limited degree, allowing you to see more than just the immediate vicinity. This proves very handy for checking on hostile critters in dangerous areas.

Combat is again turn-based, with the number of actions you can perform (moving, fighting, reloading, accessing inventory, and so on) governed by action points (a

function of agility) and some perks. There is no surrender option: Fighting continues until all hostiles on one side or the other are dead or have run away. Your character, in desperate circumstances, can be withdrawn from the



include, among others, Comprehension, which gives you 50 percent

current map to another location, provided you can survive long enough to reach the exit. If your

COMPUTER GAMING WORLD

★★★★★

APPEAL: Those who loved the original, any RPG fan.

PROS: Still a great game system—especially character generation, which features some new skills.

CONS: Plot is a carbon copy of the original; outdoor travel is a real chore.

DIFFICULTY: Intermediate.

REQUIREMENTS: Pentium 90, Windows 3x/95/NT, 16MB RAM, 32MB hard-drive space, 4x CD-ROM, Directx-compatible sound, VGA graphics.

3D SUPPORT: None.

MULTIPLAYER SUPPORT: None.

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death is imminent, it's better to restore the game than try to escape.

Conversation is a major factor in the game, just as it was in the original *FALLOUT*. It's only by talking to people that you pick up most of the important information and quests, barter for goods (people other than merchants may have



DANSE MACABRE Even *Scorpias* tires of fighting the non-endless stream of wandering critters, such as these red Radscorpions.



PLAY IT AGAIN, SAM XVII Even in a post-apocalyptic future, it's somehow comforting that gangsters still thrive—and wear the same blue suits.

Protect Yourself...Save Often

The deeper you go into the game, the more places you visit and quests you accomplish, the longer it takes to do saves and restores. By the time you're near the end, you could almost walk your dog around the block while waiting for a save or load to finish. Interplay is working on a patch for this problem, which may be available at www.interplay.com by the time you read this.

Twice, the game blew out to the desktop on me, for unknown reasons. This happened at different points, and there were no problems when I replayed them. Several other times, again at different points, a graphical oddity appeared. Part of the screen was fine, while part of it was dead black. Ranning the cursor over the black parts "erased" them, and the proper visuals appeared. This didn't happen too often, but more than once deserves mention.

desirable items), and generally make your personality known. The choices you make will influence people's reactions to you; nasty remarks generally have negative consequences and can even lead to unwanted fights.

What your character can say is determined by intelligence and speech skill. A smart person with good speaking ability has better opportunities and more choices than a dumb one. Even though you, the gamer, may possess the intelligence to say the right thing, your in-game character may not. Yet another reason to design with care.

The Big Boom—Again

Moving to the actual story of *FALLOUT 2*, alas, we find only a dreary rebash of the original main plot. Consider: In *FALLOUT*, your vault is running out of water. You are sent into the wastes to find and bring back a water chip. Along the way you pick up hints, clues, and pointers about a Greater Menace (GM). No sooner are you back with the chip than you're sent out again to take care of the GM, leading to a "Big Boom" finale.

In *FALLOUT 2* your primitive tribe is suffering from a severe drought. You are sent into the wastes to find and bring back the GECK (Garden of Eden Creation Kit). Along the way you pick up hints, clues, and pointers about a GM. No sooner are you back with the GECK than off you go again to dispose of the GM, leading to a Big Boom finale.

Some similarity is okay. But a carbon copy is ridiculous, all the more so because many of the subplots—the quests you do in the various towns and villages—are far more interesting than the main storyline. One might almost think that the main plot exists for no other purpose than to provide a frail framework for the mid-portion of the game.

In addition, whatever tweaking was done to the engine wasn't for the gamer's benefit. It is much harder now to kill opponents (aside from the really weak ones) with many weapons. Most of the ranged guns deal damage toward the lower end of the range. Even burst mode isn't as effective as before, except in the case of heavy



TROUBLE ME Conversation options are limited by your character's intelligence rating—another reason to design a character carefully.

weapons. Setting combat mode to wirpy helps a bit, but don't expect to blow away the opposition with ease—however skillful you may be.

Traveling outdoors has become a burden of hellish proportions. We expect encounters now and then, but when they start coming two, three, sometimes four in a row, you have to wonder what the designers were thinking—especially since you won't be up to taking on the opposition during a good portion of the game. Of course, if you really enjoy fighting 10 Radscorpions or 6 Fire geckos, go right ahead. Just let me know where to send the flowers.

Worse yet, some of those outdoor encounters have only one exit grid, and the monsters are always between you and it. If you're lucky, you might get away with your skin intact, depending on what's there. Most of the time, though, you'll end up restoring to your last safe position (saving a lot in the wilderness is necessary). A high outdoors skill helps a little, but even so the encounters can still come back to back or close to it.

Scattered *FALLOUT*

Overall, *FALLOUT 2* leaves me with very mixed feelings. Most of the important elements of the first game are here. This one is bigger it's still real role-playing, and some of the sub-quests are fascinating little gems of design. But the lack of creativity and the unrealistic increase of random encounters take away from the enjoyment of the game. For all its flaws, however, *FALLOUT 2* is still one of the best RPGs on the market—and that says something about these lean times. **CGTV**

Scorpias is currently getting in touch with her darkly humorous side by playing GRIM FANDANGO.

Sequel to the 1998 Best Seller **ARMY MEN**



Dear Mrs. Johnson,

It is with my deepest sympathy that I write this letter to inform you that your son, Joe, was mostly melted yesterday in a skirmish with a unit of Tan soldiers. What is left of Joe I've enclosed in this little baggie. I thought you might like to keep it. If anything else turns up, we will forward it immediately.

You should be proud to know that Joe fought bravely till the very end. As a keepsake, I've attached a photo of Joe in action.

Most people think it's some kind of game out here. For us, every day is a battle for survival. Joe understands that now.

With you in your time of sorrow,

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COMPUTER GAMING WORLD



APPEAL: Battered basket ball fans in need of a hoops fix.

PROS: Beautiful graphics; improved AI; very smooth commentary engine.

CONS: AI still a bit dim at times; bug in new Ticker feature that tries to dial the Internet for the latest scores.

DIFFICULTY: Easy.

REQUIREMENTS: Pentium 96, 32MB RAM, 50MB hard-drive space, 2MB PC/MSP card, 4x CD-ROM, DirectX.

RECOMMENDED: Pentium II 266MHz, 32MB RAM, 165MB hard-drive space, 3D accelerator card, 4x CD-ROM, DirectX.

3D SUPPORT: G4X, DirectX

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by Dave Salvatore

Face it. Hoops deprivation sucks—no three ways about it. For the first time ever, as I write this, an NBA lockout has managed to wipe out regular season games through the end of 1998, and it's got me exhibiting withdrawal symptoms: sweaty palms, cold chills, and endless obsessive channel-surfing while shouting "Where is it?!" So when Sports Editor Jeff "Grand Master Brick" Green saw my sad state and hit me up to have a look at NBA LIVE '99, I jumped at the chance.

EA has enjoyed quite a ride with its NBA LIVE franchise, which has been the reigning king of basketball titles. The newest installment sees some important game improvements and some visual enhancements, all of which combine to make NBA LIVE '99 a very compelling title for first-time hoopers. Long-time NBA LIVE devotees



TO THE HOLE: Ron Harper gets an open fire and makes the Clips pay for it.

will want to dive in as well.

Get Real

In last year's NBA LIVE, the game moved to a polygonal 3D engine, which

looked awesome, although much of the gameplay code appeared to be untouched. Despite its great playability, the game had some gaping holes in its AI tactics, like boxing out when it either had a wide open lane or a player with a very good look at the bucket. With the 3D engine in place, EA was able to focus this year on gameplay issues, like smartening the sometimes-dim AI, as well as adding more realistic individual player behavior by position. In versions past, you could often school the AI with the relatively simple TurboSlam gambit, where you get a rebound, pass to a player at mid-court, run him at turbo speed to the hole, and have him slam it home. This year, this strategy still works at some of the lower skill settings, but dial up the difficulty and you'll find yourself facing a couple of defenders as you bring the player down the court. And sometimes, the AI even prevents a TurboSlam-fest by cheating. On a fast break, you'll be sprinting

down the floor on the way to an easy two—not uncommon in the NBA. But then, as if by magic, a defender will go bionic and sprint faster than a speeding bullet to catch you and break up the play. This one I've yet to see in the NBA. One could argue this is a form of "play-balancing," but it's a cheap way to do it. We've seen similar AI skulduggery from EA in FIFA '98 and other sports titles.

The AI also does some very smart, realistic moves, however, like setting picks and screens, and taking advantage of double-teams by passing to the player who's been given the open look by the double-team. At All-Star level, the highest difficulty, the AI proves to be a tough competitor, although it would still occasionally box out on what were pretty much "gimme" open lanes or looks.

Of course, if you're a hoops fan who doesn't want to bother with all this reality crap and just wants to slam, slam, SLAM!, NBA LIVE's Arcade mode greatly relaxes the rules. The game then begins to resemble Space Jam, with players able to jump three feet above the rim before making their deposit.

D Up

The AI's defense also looks to be something of a mixed bag. At times it shines; at others, it falls

down completely. When the AI got a fast break, the last computer-controlled man on my team was often close enough to either close the lane or at least step into it and take the charge to break up the play. But he did neither, and the breakout AI players could make easy buckets. Where the AI does a mixed job is toward the end of a tight game. If it's behind, it will only sometimes foul your team to stop the clock and force you to the foul line, although it does call full-court press for its defense in the closing minutes. If your team is down, you can foul the opposing team to stop the clock using the hand-check button, although none of your computer-controlled teammates will foul to stop the clock, which can cost you the game. Plus, it's often hard to line up the hand-checking so that you actually make contact with the opposing player, which costs you more of those last precious seconds.

There's one nice touch: If you're on a tear, the AI calls time-outs to stop the streak, and if you've got auto time-outs enabled, it will do the same for you if it's on a run.

Despite some lapses, the AI is very responsive to

some situations. For instance, if you manage to completely smother an AI player's shot, he'll pass off to another player who has a better look to set up another play. You can do the same on jump shots. You have to time the release of the ball, and rather than release the Shoot key, you press Pass to shove the ball to a teammate.

These added dimensions of gameplay take a while to master, but NBA LIVE 99 has a practice mode that puts you (as whichever player you want) on a street court in Venice Beach to get your moves together. And there are plenty of

new ones to use, including Spin, Crossover, Fake, and Pump-fake.

The Long Haul

If you want to play GM, you can begin a season with a draft of available players from the NBA pool, and periodically trade with the AI throughout the season. Trades can work for you if a normally strong performer goes into a long slump. Also new this year, you can play up to 10 seasons, and your players will develop over the years, with older players gradually losing their edge. If you don't want to play all 82 regular season games, you can simulate your way through them and go straight to the playoffs, assuming your team of choice makes it.

If coaching is your bag, you can actually call offensive and

time Ticker of NBA scores from EA's Web site. While it's a very cool feature for the game, since it adds an ESPN feel to the interface, it suffers from two problems. The first isn't EA's fault. Because of the player lockout, there are no scores to report. The second however is a problem EA needs to address. When booting up NBA LIVE on my home machine, which doesn't have a full-time Internet connection, the game kept trying to dial my ISP, and when I canceled out of the dial-up and tried to toggle back into the game, it would lock up my system, forcing a hard reboot. Connecting to my ISP before going into the game fixed the problem, but it's an annoyance. The ticker should just not display if the game doesn't detect an Internet connection.



FROM WAY OOWNTOWN John Stockton pulls up for three—and drains it.



B-R-I-C-K NBA LIVE 99 has the now-standard foul-shot convention of moving b-balls in a cross. Russell won't even come close to hitting this one.

defensive plays on the floor, including a variety of pick-and-rolls, motion, and full-court press just to name a few.

At the Final Horn

I haven't talked much about the game's very impressive graphics, mainly because the most noteworthy feature of NBA LIVE 99 is the improved, though not flawless, AI. This year, LIVE's 3D engine texture-maps the players' actual faces onto their heads, and the overall effect is pretty convincing. Other new features include a live real-

Time one glitch aside, NBA LIVE 99 maintains EA's lock on the PC basketball crown through a combination of beautiful graphics, improved gameplay, and frenzied multiplayer fun. If you've got the Jones, then NBA LIVE 99 will get you through. Now, if you'll excuse me, I've got some channel-surfing to do... **CGW**

When not spanking the CGW Sports Editor in NBA LIVE 99, Dave Salviator can be seen crash-landing assorted planes in JANE'S WWIII FIGHTERS.



GET STUFFED Paul Ostertag should have thought about boxing this one out.

Hockey Heaven

The Best Gets Better, as EA Sports Scores Big With NHL 99

by Gordon Goble

As the years pass, the dark overlord of virtual athletics known as EA Sports continues to flex its muscle, expanding its roster to include most every sport known to modern man: Baseball, basketball, professional and college football, soccer, rugby, golf, even Australian rules football—it's all been part of EA's quest for total domination. There's little doubt, however, that the uppermost jewel in the EA Sports crown is shaped like a little hockey stick.



APPEAL: Anyone who wants to see the new state-of-the-art PC sport games, especially hockey fans.

PROS: The best NHL yet. Noticeably improved AI, more realistic game flow, upgraded animations, expanded commentary for philosophy, and a new concept: show fans what to think.

CONS: Artificial intelligence is a few weeks short of perfection. Some perspective problems from tight cam angles, curbs player behavior between whistles.

DIFFICULTY: Intermediate

SYSTEM REQUIREMENTS: Windows 95/98, Pentium 166, 16MB RAM, 4x CD-ROM drive, high-color capable 1MB PCI video card with DirectDraw compatible driver, 33MB hard drive space.

3D SUPPORT: 3Dx, Direct 3D and most other 3D chipsets.

MULTIPLAYER SUPPORT: maximum 2 players, LAN (2-8 players), 1 CD per player

PRICE: \$44.99
Electronic Arts
Redwood City, CA
(800) 245-4515

www.easports.com

For the better part of a decade, EA's outrageously successful NHL hockey series has defined, redefined, and set the trends and style for computer sports, and sold a gazillion copies along the way. This despite the fact that knowledgeable hockey fans and some loud-mouthed critics—yours truly included—consistently pole holes in the NHL umbrella, knocking this otherwise brilliant game for its artificial intelligence quirk.

It was NHL 98, however, that the franchise began to show signs of awakening from its gameplay slumber, finally shedding itself of some of its more bizarre characteristics. And so it continues with the sixth in the series, NHL 99, quite possibly the first installment that'll please just about everyone. Yes, some oddities remain and we'll get into them later, but finally we have a game where substance actually manages to rival that incredible gloss.

Play by Play

EA's NHL franchise continues to be one of the best looking, best sounding PC sports game around. Check this out: It's late third period of a Flyers-Leafs game and the score is knotted at 3-3. Each player moves, turns, shoots, and falls based on motion-captured data. Every shot and hit is accompanied by an appropriate sound effect. Arms and legs move separately from torsos, so just because you dodge the body of a player doesn't mean you'll get by his outstretched stick.

The action queues for a moment. Color man Daryl Reaugh points out that Alexandre Dangle scored tonight's first goal then correctly adds, "His goal was the difference in the last game" before entering into a brief discussion with veteran Canadian commentator Jim Hughson on the career of Eric Lindros. A new unit jumps the

boards, each player topped with their helmeted real-life face, and the puck is dropped.

Immediately, a PIP camera zooms in on the Philly penalty box as John LeClair gets ready to return to the ice. Back at even strength with time running out, you direct a fine three-way passing play between Donius Zubrus, Lindros and LeClair, with Big John slamming home a 20-foot wrist shot top shelf over a besieged

Curis Joseph. Official scorers delay the game momentarily checking for a crease violation (NHL 99 reflects the latest scaled-down crease, by the way) but the purpose-built goal cam proves the play is clean. The goal stands, the rink announcer confirms the details and the crowd boos vociferously as flashbulbs pop.

Justifiably gloating, you switch to the replay. Here, you opt to move from the overhead camera



STICK IT Eric Lindros takes it all the way in NHL 99. Real-life player behavior is modeled better than ever this year.



DEFLECT THIS Scoring goals is now going to take more skill than before. You won't be able to rely on the same moves over and over—or on dumb goalies.



you'd chosen for gameplay, watching and editing your moment of glory from all eight available and often free-floating cameras. Now you've got the time to take in all the game's visual perks: up close and personal reflective ice surfaces with team-specific logos, graphic-stuffed boards, flying ice chips, real 2D fans, and an accurate real-time scoreboard suspended above the ice.

Sadly you'll also notice that the rather ugly 2D puck becomes absolutely monstrous up close (often larger than the goalie's trapper) and may sometimes appear to sit behind the net when it is actually inside it. Furthermore, stick and player perspectives can be decidedly wonky from certain angles.

Yet, what's important to remember is that NHL 99's graphics and audio are so good, so comprehensive, and so far ahead of the competition that they can only be compared to real life. And in that respect, perfection is very hard to attain. The fact is that the game is close enough to be compared, and that's certainly good enough for me.

The Play's the Thing

As for gameplay, well, let's just say it's getting awfully tough to call this the forgotten element in the NHL series. I'm especially impressed with the game's depiction of players as reactive humans with appendages and sticks as opposed to being mere biotular masses. Players can block passes or otherwise affect the puck's progress with individually mobile parts of their body or stick, not just their trunk. And they'll do the same to other players too, clutching and grabbing and reaching with a leg or arm—just as in real life.

And though EA has always said their players mimic their real-life namesakes, it's never been this dramatic. Now, Dominik Hasek really is the acrobatic marvel he is in the real world, frustrating



ICE CAPADES New player animations make NHL 99 the most eerily lifelike game in the franchise's history.

potential goal scorers time and time again. Peter Bondra is distinctly hot and cold and equipped with a rifle shot, while Wayne Gretzky is slower than ever but still a play-making whiz.

Furthermore, EA has slowed the overall pace of the game to enhance the impression of unique player attributes and create a more realistic flow. Sure you can still crush players with unrealistically cataclysmic bodychecks, but no longer does the game resemble a twelve-man Ping-Pong match, no longer do hard slappers travel at the speed of light, and no longer

do speed bursts send players streaking at three times their normal skating ability.

Veterans of the series, meanwhile, will soon find that goal scoring is now more a matter of sensible, opportunistic play rather than "trick" or never-fail moves. My favorite trick play from NHL 98—cutting in front of the net with stick raised in a fake shot position before releasing when the goalie inevitably goes down—simply doesn't spell o-o-a-l anymore. Nor is the old "one-firmer" a guarantee of success. Now it's usually only what the program judges to be a good chance that bulges the ol' twine. Point shots from face-offs, break-away dekes and blasts, rebounds, snazzy passing plays to an open man—they'll all work, but only if it's a quality opportunity and often only after sustained pressure.

Even goalies have become quite adept at scurrying from their net at just the right time to scoop up

loose pucks, without negating possible idings. That's a big step in the right direction, as is the change in the face-off routine, penalizing humans who rapidly kick the "draw" button instead of trying to time the thing.

We're Not Saying It Cheats, but...

Yet even with all the gameplay improvements, NHL continues to baffle in a few areas, most notably during power plays. For example, penalty-killing AI teams with a small box formation refuse to break from their pre-defined boundaries even if the puck sits alone and untouched right there in their own corner. And dang it if the game still doesn't magically improve the skill and ability of the penalty-killing team, cranking up the goal-scoring chances should a human-driven team get any sort of short-handed opportunity.

Of additional concern is the fact that after all these years the program, not the man at the helm, may decide certain results. To wit, human Washington blows out AI Philadelphia with an 83-39 SOG differential only to lose 6-2. Alternatively, AI puck-carriers have been known to become completely inactive when faced with a yawning empty net just five feet away. Why? Because the program didn't want them to score, that's why. Granted, that sort of thing is now exceedingly rare and can sometimes be chalked up to bad luck, but it does have its impact.

Gold Medal

Overall, though, it boils down to this: Is this the finest EA Sports NHL game to date? Yes. Does that mean it's the finest PC hockey to date? Yes again. You just know EA Sports will be at it once more this time next year, but NHL 99 is here now and its currently as good as it gets. **GGW**

Gordon Goble is a NASCAR-watcher, sports-lover, hard-core CentOS who's not afraid to kick Yankee ass in *NEED FOR SPEED III*.



IN THE CREASE Representative of the game's always up-to-date gameplay, NHL 99 reflects the NHL's latest scaled-down crease.

Platoon Player

VR BASEBALL 2000 Shows Promise but Lacks Tools of an All-Star

by Robert Coffey

Understand one thing—I really like this game. It looks beautiful, plays great, and keeps me coming back for more. But like Bill Buckner watching a routine grounder roll right between his legs, it fails to execute the fundamental things that would make it the undisputed MVP in PC baseball games.

Godlike Graphics

The first game to use Shiry's much vaunted Meshlab technology VR BASEBALL 2000 is the best-looking baseball title on the market. Nowhere is this more apparent than in the player uniforms—made



LET'S PLAY TWO With state-of-the-art graphics and realistic play, VR BASEBALL 2000 is seductive enough to turn a quick exhibition game into an impromptu doubleheader.

up of tens of thousands of polygons, the textures are extremely detailed and appear almost tangible. Player animations are smooth and lifelike; unfortunately initial shipments of the game were marred by visible gaps at player joints that left the sluggers with segmented legs and detached heads. A patch has since been released that fixed this and the weird, hideously angular camera movements that made tracking fly balls unnecessarily difficult. Sadly, the patch hasn't rectified sporadic game crashes.

VR BASEBALL 2000 serves up a fairly realistic simulation of play,

Pop-ups, foul balls, bloop singles, and routine grounders happens with a true-to-life frequency, enriching the strategic side of the game and creating a big league sense of tension and anticipation. You can even work a walk against a computer-controlled pitcher. Players pretty much perform as you'd expect with the exception of simulated games: expect a couple of .400 hitters over the course of a season and some ungainly home run numbers.

The designers passed on the frequently imitating play-by-play announcing of other games, opting for a simple PA announcement of

players as they bat. Crowd noise and music round out the ambient audio picture. VR BASEBALL 2000 also deserves praise for its use of player audio.

hugely glaring problems; instead, there are a host of little niggling things that add up and just kick this game repeatedly in the shins. While you can tweak difficulty levels in all areas of play you can't tweak actual play by repositioning hitters in the batter's box. You can move your outfielders all around the field, but you can't move your infielders at all. You can customize your gamepad controls, but only to a point. Don't get me started on the phenomenally unintuitive double switch interface. Lacking a draft, there's no way to customize a league with your friends unless you execute a series of trades and make the Marlins your dream team. Even then, you'll still be playing games against CPU-controlled misfit squads since there's no way to create a league with less than 28 teams. League play also suffers from a lack of realistic pitcher management—while hurlers fatigue (too quickly by the way) over the course of a game, they don't fatigue game to game. This means you can start Greg Maddux every single game of the season. This sounds appealing until you realize that your buddy is starting Pedro Martinez every day. If you start a league, be warned that VR BASEBALL 2000 supports hotspot play only.

COMPUTER GAMING WORLD



APPEAL:

Baseball fans longing for realistic action if not a lot of options.

PROS: Excellent, realistic baseball action; gorgeous graphics; lots of fun to play.

CONS:atches scads of critically unrealistic simulated stats; restrictive control setup; occasional crashes; unorthodox game flow; disorienting camera movement; no walk; rips in player polygons; no draft options; no remote play.

DIFFICULTY: Intermediate.

REQUIREMENTS: Pentium 200, Windows 95/98, 32MB RAM, 50MB hard drive space, CD-ROM, DirectX-certified sound and video cards, 3D accelerator required; supports joysticks and gamepads.

3D SUPPORT: DirectX; Open GL.

MULTIPLAYER SUPPORT: Hotseat only (2 players).

Price: \$39.95
 Publisher: Inseplay Productions
 Irvine, CA
 (714) 553-6855

www.vrports.com



I'VE GOT SOME SWAMPLAND FOR YOU, TOO Hmmm, Mark McGwire for David Ortiz. With no trade AI, you can rob computer-controlled teams blind at the bargaining table.

Hit the Showers

There are more problems—like year-old stats, poor CPU pitcher management, and no trade AI. Until VR BASEBALL 2000 develops a more complete game, it's destined to share the field with a slew of other pretenders. **CGW**

Easy Out

It's a shame that this game doesn't deliver a full package. There are no

Robert Coffey, a singles hitting infielder, will bore anyone who will feign the slightest interest with the story of how he managed his softball team, Los Chupacabras, to a division championship.



What's New With Links LS 1999 Edition:

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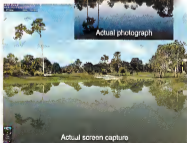


Links LS 1999

Where Technology Meets Tradition

Is It Real Or Is It Links LS '99?

Compare the difference
between the screen capture
and the actual photo of
Bay Hill Club and Lodge.



Other Features Of Links LS '99

- **New PowerStroke Mouse Swing** and 2 other swing options (Total of 3)
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Choice Drag

This High-speed Game Leaves No Part Unturned

by Gordon Goble

Of all the variants on the auto-racing theme, drag racing at first seems the most likely choice for a rootin'-tootin', fire-breathin', authenticity-be-damned arcade action-fest. But when you think about it, could a game based around 10 or so seconds of racing really be entertaining unless it was prepared to offer for more than just a flash down the pavement?

The obvious answer—as far as Bethesda Softworks was concerned anyway—was a resounding no, because last April's **BURNOUT: Championship DRAG RACING** was simulation from the starting line on



out. **BURNOUT** asked not that ye came out the fastest time, but that ye accurately predict how long it would take thine car to cover the course. The driver coming closest to that time without going under would win the race, regardless of who crossed the finish line first.

This formula, known as Bracket Racing, duplicates what goes on every week at local dragstrips across the country. And so it is with the latest in the **BURNOUT** series, **BURNOUT: PLAYER'S CHOICE**

EDITION, a response to consumer's requests with many new features, such as nitrous oxide injections, adjustable chassis weights, custom class restrictions, and a superb bi-map paint shop. Yet the basic idea, look, and behavior of the game has not been altered. Sadly, that includes its DOS-based heritage, so there will be no multitasking or saved setups of more than eight characters in length.

Keep on Tinkering

You begin with 1 of over 30 chassis types (from a 1969 Chevy pickup to a state-of-the-art rail car), add an engine, a transmission, tires, suspension, and more; modify everything to ultraexacting standards; and take her to the track. The results? You may end up with

car and suffer a separated part or two or perhaps flip right over. You can monitor the action from one of eight camera angles—including the new and much appreciated in-cockpit view—then watch it all again through the excellent replay utility.

And if you think drag racing means just waiting for a green light then planting it, you're sorely mistaken. Pre-race burnouts are incredibly important. Trans-brakes, line-locks, and now even two-step rev limiters all play an important role even before the car has jumped an inch from its starting position. And once it has, you'll do more than steer. Moving too slowly? Hit the nitrous button. Moving too quickly? Let off the throttle or hit the binders. And don't forget to shift gears along the way.



a car that blows up before it's cleared the waterbox or one that wheels off the mark and never settles down until the race has ended. Alternately, through extensive work and a careful attention to telemetry you may also develop that perfectly smooth, predictable machine that never wavers down the track.

On the track, **BURNOUT: PCE** gives a convincing performance. The shake, rattle, and roll of an over-powered beast as it struggles to remain pointed in the right direction is a treat, as are the customized engine sounds and the authentic depiction of tire smoke.

Over-rev on the starting line and you'll pop your hood (if you have one) and burst into flames. Connect hard with a wall or a competitor's

Not a Drag

Extreme car monkeys may find fault with various details of **BURNOUT: PLAYER'S CHOICE EDITION**. They may find certain details don't quite mesh or that a given readout is a bit off. For my part, I had hoped the game would incorporate the real-life hassles of a career and/or financing. I mean, constructing a ferocious funny car should be more difficult than slapping together a low-grade hot rod. Then a gain, since the game is otherwise complete, I barely missed it. **CGW**

Banned for life from competing in or attending sporting events of any kind, Gordon Goble justifies his existence by beating up on virtual competition in NHL 99 every chance he gets.

COMPUTER GAMING WORLD

★★★★☆

APPEAL: Fans of straight-line racing and lovers of a truly gritty racing experience.

PROS: Thrillous in-car experience and top-line visual effects; massive garage facilities and races that seem to reflect alterations numerous fun features including a cockpit camera.

CONS: Possible accidental game crashes; too "easy" to build a million-dollar car; DOS-based gaming in 1999 just isn't right.


DIFFICULTY: Intermediate.


REQUIREMENTS: Pentium 75, Windows 95/98, 16MB RAM, 70MB hard drive space, 3X CD-ROM, 256-color SVGA, VESA 2.0-compliant video card

3D SUPPORT: 3Dfx


MULTIPLAYER SUPPORT: direct connect or modem (2 players), LAN or Internet (up to 32 players), one CD per player

Price: \$39.99
 Publisher: Bethesda Softworks
 Rockville, MD
 (800) 417-5700
www.bethsoft.com


"So I throw this 2 o'clock hitter¹ a nudist²



 and he fists a
 
 cripple³ right over my

 leather man's pancake.⁴ Damn! I'd snapped



 that cousin's⁵ morning
 
 journal⁶ off at

 the handle with a Peggy Lee!⁷ Well Captain



 Hook⁸ decides he's going with the ugly

 head⁹ rook' with the
 
 deuce¹⁰ - even

 though I'd collared¹¹ the banjo¹² on deck! Of

 course,
 
 Mr. Guess¹³ don't give
 
 him

 any black,¹⁴ so the rook' issues the Annie

 Oakley¹⁵ and we lose
 
 the ballgame."

(Sure you can talk the talk, but can you walk the walk?)



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Jumping Into Disaster

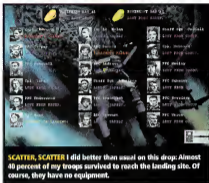
101 AIRBORNE Can't Get Its Parachute Open

by Tim Carter

Empire Software's 101: THE AIRBORNE INVASION OF NORMANDY (101) purports to take gamers into the world of the U.S. 101st Airborne division at, you guessed it, Normandy. Sadly, it had me wondering who thought this would be a good idea.

The premise of the game is good—if somewhat narrowly focused. 101 is a turn-based wargame that puts you in charge of a "stick" of individual paratroopers. Scattered, injured, and possibly without some of your equipment, you must overcome tough German defenses using 101's X-COMlike game system.

Unfortunately, 101 fails to deliver on virtually every level on which a computer game could be judged. In terms of concept,



SCATTER, SCATTER I did better than usual on this drop: Almost 40 percent of my troops survived to reach the landing site. Of course, they have no equipment.

technical execution, and gameplay, this idea would have been better left on the drawing board.

Error: Parachute Will Not Open

Beginning with its programming, 101 is a mess. The game crashed frequently, particularly while at my home base. I also suffered numerous graphical glitches, and it reset the graphics resolution in Windows 98 more than once.

When the game is working, it runs terribly slowly—so slowly, in fact, that any enjoyment one might derive from gameplay is pretty much lost. This problem is compounded by the fact that in most scenarios it takes a while to get your troops sorted out, armed, and organized. No doubt this is entirely realistic, and in another game it might actually be fun. In 101, however, the game design and the programming conspire to make the gamer's life miserable.

The game's documentation is so awful

that it deserves special mention. From the manual to the scenario briefings to the offhand comments from your men, almost everything I read or heard was unbelievably badly written.

Mapping Dysfunction

While many a great game has hit the shelves riddled with technical glitches, the flaws in 101 run deeper than programming.

The basic idea—a turn-based WWII infantry game—is a good one, and one that has not been done well recently. And truth be told, some aspects of 101 work reasonably well. For example, I

didn't have a problem with the interface—giving orders was easy, and the game comes with some useful command touches, such as waypoints.

I do have a problem, however, with the way mapping is handled. Simply put, your map is way too small. Even though your missions take place over relatively large areas you can operate only within a very constricted "tile" at any one time. Given the current massive memory capabilities of the typical PC, I cannot imagine why this is necessary for a state-of-the-art strategy game. To make matters worse, you cannot exit a map while there are any live Germans left on it. Bypass the enemy? Perish the thought.

101 simply doesn't operate well as a game. For me, there's nothing worse than having to constantly reload a saved game to overcome some random occurrence that makes victory impossible. Yet 101 is riddled with such situations. When you leave England (after spending a fair amount of time selecting and outfitting your men) you run the risk of having your transport shot down before you can drop. Game over. If you survive the flak, each soldier that jumps runs the risk of being shot on the way down, blown off course and lost, or injured upon landing. It's not unusual to lose up to half your men before the game even starts. I once started with a surviving 5 out of 18. Game over.

Again, this might be realistic, but it makes for a lousy game—especially with the incredible number of technical flaws that you are subjected to. Take a filter on this one. **CGW**

Tim Carter is now immersed in CHAOS GATE, though he hopes that a good turn-based, squad-level WWII game will ship in his lifetime.



SGT. ROGERS IN SHOCK One of my few armed men—he has an M2 carbine—unfortunately has dropped right next to a German tank. It's probably time to reboot.

COMPUTER GAMING WORLD

★★★★☆

APPEAL: Those who don't like fan or playability

PROS: X-COM-style turn-based WWII infantry combat.

CONS: Slow, buggy, boring turn-based WWII infantry combat.

DIFFICULTY: Intermediate.

REQUIREMENTS: Pentium 133, Windows 95/98, 16MB RAM, 250MB hard-drive space, 6x CD-ROM, supports Windows-compatible sound and SVGA graphics cards.

3D SUPPORT: None

MULTIPLAYER SUPPORT: TCP/IP network and Internet, 2 players.

Price \$49.95
 Publisher: Eidos Interactive
 San Francisco, CA
 (415) 547-1200

www.eidos.com

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THE NEXT DIMENSION IN STRATEGY



THIS MONTH WE PLAN TO GET THE LOW-DOWN ON A GAME THAT LOOKS TO REVOLUTIONIZE THE REAL-TIME STRATEGY GENRE. THE GAME IS **WARZONE 2100** AND WE ARE CHATTING WITH **JIM BAMBRA, DIRECTOR OF PROJECTS AT PUMPKIN STUDIOS.**



With all the strategy game clones and numerous sequels what makes *Warzone 2100* better than the rest? *Warzone 2100* is fully 3D with in-depth game play and blistering fast action. The graphical effects are stunning and make use of every aspect of the 3D technology. The arc over mountains and Strike VTOLs (Vertical Take-off and Landing Aircraft) soar overhead. Being able to track units using the camera further enhances this 3D experience. With this feature you can order a VTOL strike then follow them in as they fly down the valleys then fly over the top of the mountains to fire their rockets at their target. You can even

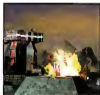
switch between groups and watch the camera pan to each group, creating a very dynamic gaming experience. Once you get used to rotating, zooming and tilting the map, and tracking your units with the camera, there's no going back

to static 2D displays. Full use is made of 3D accelerator cards to create vibrant fighting and explosion effects. Rockets fire with a smoke trail, artillery and cannon shells explode gratuitously, and flammers ignite enemy units and structures. When units take damage they emit smoke - the more damage, the more smoke. When they explode, shards of metal and concrete fly across the screen. You can always spot where the action is by the amount of smoke and explosions going off! *Warzone 2100* is set after the nuclear holocaust. The main drive

in the game is the recovery and research of artifacts from before the nuclear holocaust. As these are researched, new weapons, propulsion, structures, etc, become available to the player. As a result, players can decide what technologies they want to research as the game progresses. And as artifacts are researched, new vehicle types can be designed.

The design sequence is very easy to use. It uses three components: *flamer*, *Body* and *Propulsion*. As research progresses, new components become available, making for thousands of different vehicle designs. Each weapon has its own characteristics - flammers set enemies on fire, but are vulnerable to enemy attacks. Cannons are great for damaging other tanks and have great damage resistance. But for killing infantry and cyborgs you can't beat a machine-gun. Anti-tank rockets do lots of damage, but are slow to fire - you soon learn to use hit and run tactics with them. Mortars can fire shells over hills, and howitzers can fire over large distances.

3D is used to create a very vibrant game world where artillery shells



3D is used to create a very vibrant game world where artillery shells



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Jim Bambra, Director of Projects at Pumpkin Studios.

The propulsions add even more options. Wheels make for very fast vehicles, but with low damage capacity. Put tracks on your vehicle and your tank doesn't move as fast, but it can take a lot more damage. Howers give you increased speed and zoom across water, but are very vulnerable to enemy attacks - keep them moving and you'll survive; let the enemy guns lock on and you're dead.

Another key point is the fully expanding campaign where your base lasts throughout the first campaign. The first mission is to establish your base. In subsequent missions you upgrade the base and add more defences and fortifications to it. We achieved this by using large maps that expand as the game progresses. Once the first mission is completed, the map expands to the south. We then fly in a transporter that lets the player fly units to mission sites on different maps. While on an away mission you still have access to your factories, research facilities and units back at home base. You can produce more tanks and have them flown in to the away maps as reinforcements. So you get to select what reinforcements you need, deciding on the tactical situation and your own style of play.

After three away missions the action returns to an expanded campaign map. This time the enemy invade your base. As more missions unfold, new maps appear and the campaign map expands again. It all makes for a very exciting gaming experience with a definite sense of progression and plot revelation. The second and third campaigns follow a similar structure but with more twists and turns as the action really heats up! I've always wanted to do a more open-ended game where units

increased in experience and went from one mission to another. The open-ended campaign system makes this a reality. It's possible for the first few units you started the game with to achieve elite status and still be alive at the end of the game. Not that light scout vehicles would be much use to you once the more high tech weapons come into play. But by recycling your veteran units you can transfer their experience to bigger and better vehicles as the game progresses!

And finally, we have dedicated commanders who direct the fire of other units and who can order

them ready to fire their shells over the hill onto your base. All they need to do is get a sensor unit to see your unit and they can open fire, safe behind the hill from you.

As I mentioned earlier, the VIDL aircraft make great use of the 3D terrain as they fly through valleys and bomb the enemy. It looks very cinematic and gives you a great feeling as the tank hunter missiles take out the enemy armor. Meanwhile the enemy anti-aircraft batteries are firing the sky with flak and SAMs. It's real touch and go whether your VIDLs will make it out of the target zone or not. In old

we could have strike aircraft actually flying above the terrain as they let loose a load of rockets! Without 3D these units appear no different to any other. A 3D gaming world presented so many exciting opportunities to us, that there was simply no other way we would have developed Warzone 2100.

Why is the unit design so important to the game?

The research and design sequences in Warzone 2100 really open up your options as a game player. You're never restricted to the units we give you! The 3-part design system of turret, body and propulsion offers over 2,000 possible combinations. Using it you can create fast scout vehicles, lumbering main battle tanks, strike aircraft, and amphibious hovercraft. It gives you the opportunity to create lots of different vehicles to suit your style of play and current mission objectives. Even similar vehicles will perform very differently if you change the turret from a heavy cannon to an anti-aircraft battery. It no longer



reinforcements directly from factories.

Other than graphical eye candy, how do you utilize the 3D terrain?

The 3D terrain is vital to the game play. It gives Warzone 2100 true line-of-sight and fog-of-war effects. Until you drive around the hills and mountains you can't see what's hidden behind them. Enemy mortar batteries may be lurking



style 2D isometric games your aircraft are just a group of sprites moving over the landscape. In Warzone 2100, aircraft really do fly!

Why a full 3D game engine? What did you think it would bring to the game?

A 3D game engine gives you a much more dynamic and exciting environment to game in. Isometric and top-down gaming worlds are abstract representations of reality. A 3D engine gives you the feeling that you're really there. It's very exciting watching units manoeuvre over realistic looking terrain, particularly when you can rotate and tilt the landscape so that you set at what angle you view them.

Also only in 3D can you watch mortar shells fire over hills and arc down onto enemy units. With 3D



functions as a battle tank, but as a very effective aircraft killer. In many ways it's like the real world - in World War II the M4 Sherman chassis was used to turn out a wide variety of vehicles all suited to different combat roles. Warzone 2100 makes available so many more options.

Every RTS game claims to have the latest and greatest artificial intelligence. What really makes the AI in Warzone 2100 really stand out?

It's the way units react and fend for themselves. These guys don't stand around to be shot. If fired on they'll respond and open fire on the enemy. Route finding is also

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The Warzone 2100 Development Team

excellent - order a unit from one corner of a map to another and it will find its way. There are even icons that send units back to base, or order them to head for the nearest repair facility. We've also got plenty of player customizable settings that allow you to set when units retreat, the ranges they engage at, whether to hold fire or not. The enemy AI is also very sophisticated. Enemy scout groups actively search for your units, then report their findings to armored strike teams. Faced with a losing fight, the enemy retreat back under the cover of their permanent defenses. They also probe your defenses looking for weakspots before storming your base. These guys also never mindlessly attack - if their initial forces are wiped out, they'll send larger ones next time, and frequently from a different direction.

Storyline plays a big role in RTS games, what's the backstory in Warzone 2100?

Warzone 2100 starts with the nuclear holocaust that wipes out civilization. The player is part of a group of survivors who take shelter in an abandoned military base while they wait out the nuclear winter. Years later you emerge to begin the Project - a plan to rebuild a New World from the ashes of the

old. You lead Team Alpha, one of three expeditionary teams sent out by the Project to recover artifacts from before the Collapse. Your first missions take you to the Western Sector where your search for artifacts quickly turns into a battle for survival. A more technologically advanced force is also present in Western Sector and seeks your destruction. This force is being controlled by a self-aware computer parasite that seeks to enlist your help. When you initially defeat it, the parasite reappears in the Northern Sector, this time controlling an even more advanced enemy force.

As the game progresses, its hatred for you grows, as does its arsenal of weapons. It gains access to nukes and fires them against you - the world again erupts in nuclear firestorms and mass destruction. Still it plots and seeks revenge against you. Its true identity is slowly revealed, as are its motives, and its ultimate power to corrupt everything it comes into contact with.... And once it has you, it's hard to escape! Many will die before it is finally defeated and the world is made safe. It's a story of nuclear strikes, titanic battles, and a struggle for survival in a hostile world ruled by a mad computer virus.

From what I have seen of the game, there seems to be a strong emphasis on action/battle. Was this a conscious attempt to move away from games which have become bogged down in producing and researching hun-



dreds of units?

To a large extent, yes. With Warzone 2100 we wanted to capture the fun and excitement of real-time combat and exploration, while making it really easy to carry out research, design and manufacture. The aim was to encourage you to leave your base to explore the world out there. Only by doing so can you recover the artifacts needed to further your research, and find the resources required to expand your base. You need to scout out the maps, then attack and capture key locations. In Warzone 2100 you cannot simply sit back and amass hundreds of units - your technology will remain at a low level and your power supplies will not be up to it - get out there and fight!

How will multiplayer work?

Eight players are supported on local networks and you can play for free on EidosGames.com simply by running it from the Program Menu. Once on-line you can select to play deathmatch, campaign, team and skirmish games. Each one of those options is fully customizable letting you choose initial technologies, forces, power levels, and base sizes. A record is also kept of all the games you play and your ranking is displayed on-screen for you and other players to view. Full use is made of alliances so that players can trade technologies, power, units and provide each other with visibility reports.

We'll be regularly supporting the

multiplayer game with new maps and technologies, and various competitions are planned to take place on EidosGames.com.

Who is Pumpkin Studios?

Pumpkin Studios are a recent start-up company with a long track record. Nick Cook and I set up Pumpkin Studios in August 1996. We were previously at MicroProse where Nick was Head of Art and I was Head of Design. We recruited Alex McLean, our Head of Programming, in August. Other members of the team joined shortly afterwards in September - January. Other team members joined us the



following summer. To be honest most 14 out of our 18 staff at one time or other previously worked at MicroProse on many different projects, so some of us have been together longer than we care to remember.



**WARZONE
2100**

Published by **EIDOS INTERACTIVE**

BRAVEHEART™

Braveheart from Eidos Interactive and Red Lemon Studios finally marries two genres into one epic gaming masterpiece.

Braveheart features a real-time, strategic empire building, strategy game coupled with a majestic 3D world.

Braveheart will feature all the characters from the Academy Award winning film in their historic roles. The game will also feature movie clips, character models, and a voice over from one of the lead actors. (We'll keep you guessing for now).

Braveheart allows the user to choose any of the sixteen major clans vying for the crown of Scotland. Each Clan is historically reproduced in land, resources, and demeanor. In the 3D world, each Clan will have its own unique uniforms (kilts) and colors (Tartans).

The developer, Red Lemons Studios, is an all Scottish team. With the



There are over 65 leaders (including the movie cast), each with unique skills and motivations.

aid of Sir Angus Wallace of the Clan Wallace Trust (direct descendant of

William Wallace and actor in "Braveheart"), they have lovingly crafted an historic epic with an incredible level of detail to Scottish history.

In Braveheart, the user has two goals, unite the Clans of Scotland and become King. Once this is accomplished the user can then choose to invade England and attempt to conquer their oppressors.

In the Empire game, the user has access to an incredible amount of world control. From the economy to espionage, the user can do it all OR select his advisors to manage it and focus on the battles.



Massive clan battles mirror those in the movie with hundreds of controllable on-screen warriors.



Send your troops on a strategic raid - just like in the film.

At anytime in this real-time world, the user can enter the 3D world and view the progress of his town construction or view the aftermath of raids.

Four seasons, and twenty four hour days (day/night) are represented in the 3D world. If you choose to create a castle, it does not magically appear it will take several years. However, at anytime a rival Clan or the English may sack the town and destroy the construction.

Because of the game's freeform structure, every decision and mission the player undertakes will have a direct influence over the destiny of his clan. No decision is pre-determined for the player and the game is not level based. A defeat on the field does not necessitate a reload of the game. Indeed, the loss of that particular battle could be a sly tactic to lure the enemy into a false sense of security.

There are authentic battle formations that actually affect combat outcomes. There is an advanced combat A.I. that



With over 110 authentic structures (including 11 castles), the user can create and destroy key structures in real time.

incorporates a wide variety of strategies for field combat and castle sieges. Braveheart also features night raids, burning towns, caravan ambushes, and midnight assassinations, all depicted in real-time 3D.

A sophisticated camera system allows full control of the players view of the battlefield from any angle, be it 3rd, 2nd or 1st person. This allows huge flexibility in how the player manages his battles. Single man incursions and mass combats featuring dozens of independently intelligent troops are easily controlled using this system.



You can choose to control all aspects of your clan's economy or have the computer manage it.

and bored, added to the realism of combat and combat injuries!

For the final game, a comprehensive tutorial will be offered: 3D battle creator, access to all the famous battles (Falkirk,



Majestic views of up to 21 miles await the user in the first full landscape recreation of Scotland and England which is taken from satellite data.

Battles can feature over 700 polygonal units engaging in multiple clashes over a 10KM battlefield. Each unit is skinned

Stirling Bridge, etc) in which you can play either the Scottish or English, and a comprehensive multiplayer game.



The 3D combat engine allows for over 24 different combat units (including heavy Calvary!) each with true weapon physics.

Braveheart – The Movie vs The game.

With a game entitled "Braveheart", there is no need for a detailed background of the storyline for anyone who has seen the movie. In the movie, the most recognizable character is undoubtedly William Wallace. However, unlike the movie, in Braveheart, the game, players are not limited to Wallace and can choose from a number of character to lead their clans. Each leader has different strengths and weaknesses in leading their clans. Below are some of the in-game character sketches based on the historic characters that were portrayed in the movie.



— Famed leader of the Scots.

William Wallace



— Heir to the Scottish throne, master of diplomacy and leadership.

Robert the Bruce



— Poor at diplomacy, but excellent at combat and stealth.

Stephen Feherty



— Patriarch of the Clan Campbell, wise in combat tactics and extremely loyal.

Chief Campbell

You can find more information about Braveheart at www.eidosinteractive.com/braveheart/index.html



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A closer look at Revenant:

An interview with the US Producer, Matthew Miller of Eidos.

Revenant is a traditional RPG with some unique twists. Tell us what makes Revenant an appealing game.



Revenant offers over 30 Non-playable characters to interact with.

Revenant combines the traditional elements of a Computer role-playing game (multiple skills, a variety of weapons and combat styles, and an intriguing spell system) with those of a Console RPG (well crafted story-line, over-

the-top spell effects, and an arcade combat system). We think that we have combined the best elements of both types to bridge the gap that has existed between the Console and Computer RPG genres for far

too long. Final Fantasy VII went a long way in closing this gap, and we think Revenant can complete the job.

What does Revenant bring to the CRPG genre that is new and innovative?

Well, a couple of things. First off, we are utilizing a combination of 3D graphics and static pre-rendered backgrounds. The result is absolutely stunning. We enlisted the aid of fantasy artist Den Beauvais in doing some of the concept art and the result is amazing. You look like you are playing right in one of Den's paintings! Also, we have a more interactive combat system than most players are used to. It's all real-time, so you will have to think on your feet, and it's more detailed in its action than simply clicking the mouse to attack. We have different strikes and combination moves that your character learns as you advance in the Revenant world. The best part is that all the cool combos and moves are primarily based on your

character's skill, not the player's. It looks like you are doing all these cool fighting-game style moves, but actually the game takes your character's skill into account and extrapolates what you are trying to do.

Tell us about the magic system and how it is used in the game.

Ahh, the magic system. This is our piece-de-resistance. We have a detailed magic system that involves finding various Talismans that are hidden throughout the game. Most of these Talismans have no power on their own, but when put in the proper combinations, and with the appropriate skill level, you can create effects such as a meteor strike, fireball, chain-lightning, and the end-all-be-all of spells: the Apocalypse. All the spell effects are generated in 3D and take advantage of the great graphical effects that the major 3D cards give you, so they are top-notch! Even the simplest of spells is a visual feast!

How much gameplay is there in the game?

We are looking at a game that would take an expert Role Player around 30 to 40 hours to complete.



Revenant has a revolutionary real-time combat system featuring interactive attacks, combinations, and fatalities.



Original artwork was developed with the help of Den Beauvais, a premier fantasy illustrator.



With over 25 types of creatures to dispatch at, you have your work cut out for you!

The average player will get a lot more time out of it, as he/she attempts to find all the cool things there are to find!

Will there be day/night and weather cycles?

We have an amazing lighting system that allows us to change the lighting on the fly, so we have everything from golden sunsets to fiery sunsets. We even have moonlit nights! As for the weather effects we don't go overboard, but the player is capable of controlling the weather through spells, i.e. summoning hurricanes, tornadoes, and blizzards.

Multiploy could be one of the most important facets of this game. Tell us how you plan on setting it up.

Well, originally we were planning on having co-operative multiploy through the storyline, but upon closer examination, we determined that the story of Revenant didn't really lend itself to a party of characters. The story was conceived as a single player game from the start. What we are planning on including for the multiploy is the ability to play certain areas of the game (dungeons, caves, temples) as single levels for competitive play for up to eight players. We have four character classes to choose from, each with their own powers and abilities.

The art for Revenant is stunning. How important is this to the gameplay and the whole Revenant Experience?

I think it is very important. Most gamers out there have seen fantasy art before and the level of detail that those artists put into their work shows a devotion and love for the genre that a real gamer can empathize with. I think that Revenant's art is on the same level as those brilliant works of fantasy art. What we add is the fact that it is interactive. Instead of dreaming that you see that character in the painting, you control him, move him, fight with him, and cast spells with him.

Give us a quick synopsis of the story.

You are Locke D'Aweram. You have been dead for a millennium. You start the game resurrected and have no idea of your past. You are given a

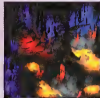


Armor system featuring over 20 armor sets with interchangeable pieces that appear on your character in real-time, allowing for hundreds of possible armor combinations.

quest to rid the island of Ahklulon of this evil cult, the Children of Chenge. The daughter of one of those who brought you back has been kidnapped by the cult. You aren't given much choice in the matter. You have to rescue her and stop the cult. As you play the game, you find out your past is far more involved in the cult than you can possibly imagine.

What are the system requirements for the game?

You are going to need 32 megs of RAM, a Pentium 200 or better, and if you want the really spectacular spell effects, a 3D accelerator card will be needed, but it's not required. If you have a gamepad, then you can



Thousands of realistic character animations bring all of the combat sequences to life!

When can we play Revenant?

You will be able to enter the world of Ur and visit the island of Ahklulon in March, 1999.



Revenant features a dynamic colored lighting system that brings the Revenant world alive.

control Locke with that and get an immense amount of control at your fingertips.



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Spells

Phase Spells:

The Phase Talisman manipulates the dimensional fabric of Ur itself. This can be a time-space issue, or an out-of-phase issue, such as invisibility. When combined with additive talismans like Chaos and Power, Phase spells can be very powerful.

An example of a Phase spell would be Invisibility, which uses a Phase Talisman in conjunction with the Chaos and Body Talismans.

Earth Spells:

The ground beneath one's feet is at your command with the Earth Talisman. This talisman allows the spellcaster to manipulate the rocks and dirt everywhere on Ur, and even beyond. Experienced spellcasters can add the Chaos Talisman or even the Power Talisman to the Earth Talisman with deadly results for the enemy.

Adding Chaos and Sky talismans to the Earth Talisman will give the spellcaster control of chunks of rocks in the heavens above which can then be rained upon the battlefield. This spell, which is called the Meteor Strike, is one of the most difficult to cast. Only the best spellcaster can pull it off without killing himself.

Lightning Spells:

The power and fury of the storm is contained in the Lightning Talisman. When first touched, the Lightning Talisman will give off a small static shock. Lightning is one of the most



This spell is a combination of a fire swarm and lightning cast simultaneously - an effective deterrent.

unpredictable forces which can be as much a boon as burden to the spellcaster. The spellcaster can combine the additive talismans of Sky and Chaos and add some extra effect to the standard Electrical Bolt spell.

One very potent combination is the Death Surge spell which combines the Sky Talisman and the Lightning Talisman. This allows the spellcaster a greater attack range.

Life Spells:

The Talisman of Life is one of the most powerful talismans out there. It was created to magically heal wounds and restore the life-energy of beings. The Talisman of Life can be combined with several additive talismans, such as motion and power to give an added effect, i.e. healing more severe wounds and in its strongest incarnation, bringing the dead back to life.

An example of a Life Spell is the Resting Spell. This spell is created by adding in the Motion and Body Talismans to the Life Talisman. This spell will take away some of the fatigue that the spellcaster feels.

Body Spells:

Body Talismans differ from the healing aspects of the Life Talisman when used as a Primary Talisman. Body is the power of the soul and is used to generate life manifestations aspects of sustenance. When used with additive talismans, the spellcaster creates effects such as the Paralyze spell where a foe can be stopped

dead in his tracks. This allows the spellcaster to dispose of a foe at his own convenience.

Frost Spells:

Two ends of Ur are covered in ice and snow. The native spellcasters of these areas tapped into the power of Frost and created special talismans. These talismans are extremely cold to the touch, and are constantly covered in a crust of ice.

This is one of the most flexible of the talismans and nearly every additive talisman can be combined to the Frost Talisman.

By adding the Sky and Power talismans to the Frost Talisman, a high-level spellcaster can summon an Ice Storm to pelt his enemies with. This spell is most effective outdoors as opponents have less access to shelter where they will surely want to seek cover!

Flame Spells:

The Fire Talisman is one of the strongest primordial forces. Flame Talismans enable the spellcaster to safely utilize the power of naked fire. An experienced spellcaster can combine Flame Talismans with the Motion and Chaos Talismans to produce the extremely powerful Fireswarm spell. Rumors abound about a Hellfire spell that uses a wide variety of additive talismans and is fabled to be the cause of the Great Crater of Navarro.

Wind Spells:

Everything from a gentle breeze to the power of a hurricane is contained in the Wind Talisman. This talisman is lighter than it appears to be, and one can hear the howling of wind when placed to his ears. When the Chaos and Sky additive talismans are combined with the Wind Talisman, the spellcaster can



Only the most skilled spellcaster can unleash the power of the Apocalypse Spell.

create a spell that would even intimidate Mother Nature!

The Maelstrom spell assaults a group of enemies from a variety of random directions: very disconcerting! This spell is constructed with the Wind, Chaos and Sky Talismans and takes a spellcaster of some renown and talent to create.

Talismans

	
SUN	LIFE
	
OCEAN	LAW
	
SOUL	STARS
	
DEATH	EARTH
	
CHAOS	WARD
	
SKY	MOON

For more information on the Revenant world, go to www.eidosinteractive.com

Go to #151 @ www.computergaming.com/inline

Not Too Special K

A Konsumate Klone, KKND2: CROSSFIRE Won't Klaim the Real Time Krown

by Tom Chick

I can only imagine the development meetings: "What about Fold, Spindle, 'n' Mullate? Come, See, 'n' Conquer? Wash, Rinse, 'n' Repeat?" When someone came up with Krush, Kil, 'n' Destroy, the name stuck.

Strangely, there's no mention of what the initials stand for in this sequel to KKND, an RTS that stood out from the legion of clones with its silly name. But even with KKND2, there's no reprieve, the subtitle CROSSFIRE evokes images of Pat Buchanan and Michael Kinsley locked in mortal combat on KNN (the Kable News Network).

Kollect, Klick, 'n' Kommand

CROSSFIRE preserves the expected RTS mechanics with only a few variations. In fact, it's almost a

return to the basics. With only a single resource and no units with spell-like abilities, this game hearkens back to COMMAND AND CONQUER with its clean emphasis on the messy art of combat. The balance is slightly skewed to favor the defensive, so there are no quick and easy tank rushes. But if that's your style, the game ships with a surprisingly comprehensive unit editor. In fact, with the exception of a unit graphics editor and a few of the map tilesets, CROSSFIRE has completely open architecture along the lines of DARK REIGN.

Using a shallow variation on STARCRAFT's three races, CROSSFIRE pits three postnuclear holocaust races against each other: human survivalists who hoked up in bunkers; organically based mutants who weathered the radioactive firestorms; and the Series 9 agricultural robots who found themselves out of work. These three races play by the same mechanics with only minor exceptions. But they're drawn with bright, bold cartoonish graphics and nicely fleshed out in amusing premission briefings. The game's intro—which looks like the sort of expensive cinematic only Activision or Origin can afford—is indicative of the entertaining multimedia flash you'll enjoy during the campaigns.

In fact, CROSSFIRE's humorous atmosphere is rivaled only by its solid gameplay. Instead of units with special abilities, CROSSFIRE lets you build customized units that you research one component at a time. This introduces some great variations in gameplay. Do you build mobile radar to scout your perimeters? Do you protect your infantry in a cloaked, armored personnel carrier? Or do you just slap the biggest gun on the biggest chassis and sit out the long build time?

Furthermore, units can become veterans with experience and there



LEARNING TO CRAWL The Evolved, as the mutants call themselves, crawl out of the muck to wreak some urban renovation.

are some impressive superunits hidden in locked bunkers. Understanding the distinctions among the units and taking advantage of your special units is the key to success. While this is indeed a form of micro-management, it's central to gameplay. CROSSFIRE is not about resource management, and it's not about clicking special icons in the heat of battle. It's about carefully managing your units in combat. Drag-selecting a horde of tanks and flinging them in harm's way will not get you very far.

Kunning and Kiever—Not

The AI is actually good at assembling efficient groups of varied units, but it falls prey to many of the standard RTS tricks: It will chase decoys repeatedly into killing zones; it doesn't vary its attack approach much; and it doesn't build good defenses around its bases. Much of this is avoided with some scripting in the single player campaigns, but this results in some annoying puzzle-oriented missions. A flexible skirmish/multiplayer mode, along with the game's wide-



DESERT STORM, 2179 Human fighters and bombers do the air war thing all over again.

open architecture, extends its hard drive life long beyond the three single-player campaigns. Oddly enough, skirmish games can't be saved; this is unfortunate since you can squeeze up to eight players into some epic wars of attrition.

The interface includes all the bells and whistles we demand in an RTS, but the minimap is a travesty—showing only a slightly wider area than the main screen. Would someone explain to Melbourne House that minimaps are supposed to show the entire map at once? And while you're at it, tell them to lay off the K's. **C-67**

Tom Chick has petitioned the courts to add a second K to the end of his name. He is still plinking away at STARCRAFT.



ACTUAL RTS fans recognize the deep budget research, management and units with spell abilities.

PROS: Balanced gameplay; good unit variety; open architecture for long hard drive life.

CONS: Almost no inventory; fails for "savage AI tricks"; awful minimap.

DIFFICULTY: Advanced.

REQUIREMENTS: Pentium 133, Windows 95/98, 16MB RAM, 100MB hard-disk space, 4x CD-ROM, 2MB graphics card, sound card.

3D SUPPORT: None.

MULTIPLAYER SUPPORT: LAN, internet (2-8 players), serial connection, modem (2 players), 1 CD per player.

Price: \$29.95
Publisher: GT Alliance
Plymouth, MN
800-328-3714

www.melbournehouse.com

Just Another Bug Hunt

This Real-time Strategy Game Rewards Patience, Not Reflexes

by Loyd Case

With Geiger-like alien monsters, a spooky musical score, and weapons crafted out of ordinary objects, **ENEMY INFESTATION** is obviously inspired by the Alien movies. Although it's a real-time strategy game, it's paced more like a turn-based game, rewarding patience over frantic mouse-clicking. However, be warned that this strategy game has a strong puzzle element. It's not quite as rigid as **COMMANDOS**, but you can't afford to lose certain key characters.

Riddle Me This

In the opening cut-scene, a meteorite crashes on a world recently colonized by humans. Out of the meteorite slithers a horde of

monsters that slowly take over the colony sites. As you unravel the mystery of the alien horde, you'll ask yourself some questions: Why do the advanced military weapons take so long to reload? Why do these fearsome aliens fall to the punching and kicking of a handful of marines? Why, when faced with three perfectly good elevators, do all the characters wait for the same one? Why are the onscreen characters so tiny that it's hard to click on them? Why can't the military leader unlock or lock doors?

When you spend more time thinking about the game design and its mechanics, you know something's not quite right.

Still, **ENEMY INFESTATION** has certain charms. I liked the fact that ordinary items, like fire extinguishers and hair spray cans, would occasionally serve as useful weapons. The individual characters seemed to have, well, character, though occasionally their repetitive speech became tiresome. Multiplayer is co-op, with the human gamers taking over one or more characters. You can even play through the campaign in mission order. It works great, and having a human ally makes the game much more fun.

The worst part of the game is the clunky user interface. The game runs at 800x600, but it almost seems like a last-minute decision. "Hey, 640x480 isn't good enough, let's go to 800." It looks like the resolution got scaled up without resizing the art, leaving onscreen characters quite tiny and frustratingly difficult to click on. You can click on the character's portrait, but sometimes when a group was selected, clicking on a portrait did not deselect the group. On more than one occasion I dropped everyone's weapon rather than just a single character's. Luckily, a real-time strat convention came to my

rescue: With relatively few units, I could simply assign key characters to a numbered hot-key.

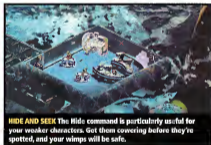
Murder by Numbers

Most missions follow a set pattern. First, gather everyone together. They are often in widely separated groups, so this can be quite a challenge. Second, find the med-bay, which allows you to heal your characters. Third, if there's a weapons research objective, figure out how to solve that puzzle. Fourth, go bug hunting. Fifth, wrap up any other objectives. The pacing and number of units are such that you can move units around carefully (and you should), so it doesn't feel as frantic as most real-time games—something I appreciated.

an orbital beam weapon struck. After a nail-biting rush through the facility, I missed the goal by 4 seconds, only to be told that they were kidding and I had another 15 minutes. Rather than feeling grateful, I felt cheated because I'd pushed so hard.



POWER SHORTAGE While you'll have access to some pretty powerful weapons, recharging your guns will keep you waiting. And waiting. And waiting....



HIDE AND SEEK The Hide command is particularly useful for your weaker characters. Got them covering before they're spotted, and your wimps will be safe.

A few of the missions break this pattern, and these missions were the most entertaining. In one, the mechanic found himself alone after a fight, with everyone else incapacitated. You had to figure out how to use this one, rather limited character to get the others up and healthy. In another mission, the bartender had to sneak past some and flood a mining tractor with LOX, killing a host of aliens. However, some of the unique missions proved annoying. One mission had a time limit—15 minutes to finish before

Bottom line? **ENEMY INFESTATION** aspires to the quality of X-COM, but falls short. Without a research tree or resource management to present challenges, it becomes more an exercise in puzzle solving than a strategy game. If you're seeking "real-time frenzy" as the box states, look elsewhere. **CGW**

Between hardware reviews and games, Loyd Case manages to find time for two daughters, a wife, a guinea pig. His yard is a desert, though. His latest gaming passion is **EUROPEAN AIR WAR**.



APPEAL: Fans of turn-based strategy games looking to dip their toes in real-time tactics.

PROS: Need to shift strategies over time; great ambient audio; logical puzzle solutions.

CONS: Clunky interface; characters are too small; goals handed to you rather than discovered.

DIFFICULTY: Intermediate.


REQUIREMENTS: Pentium 200, Windows 95, 32MB RAM, PCI video card with 2MB of RAM, 6x CD-ROM, sound card.

3D SUPPORT: None.

MULTI-LAYER SUPPORT: LAN or Internet (2-4 players, one CD per player).

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Abra-Ca-Blah-Blah

It's a Better LORDS OF MAGIC, but So What?

by Tim Carter

Perhaps the denizens of whatever alternate universe that contains the secrets of magic simply don't like computer games. Perhaps game designers haven't appeased the appropriate celestial powers. Whatever the reason, strategy games about magic seem, well, cursed. Even the CGW Hall of Fame title *MASTER OF MAGIC* hit the market riddled with bugs, unbalanced play, and a host of memory problems.

When I reviewed Sierra's *LORDS OF MAGIC* (LOM) some time ago, I came down harder on it than a fire demon squishing a



GATECRASHERS If you're not careful, you could end up spending most of the game on the defensive, defending your homeland as the forces of Order are doing here.

wood nymph between its toes. And with good reason: The original had numerous programming and gameplay problems. Now, Sierra has relaunched the game as *LORDS OF MAGIC: SPECIAL EDITION* (LOM SE), bundling it with a variety of editors and a few extra scenarios.

Magical Facelift

LOM is a turn-based strategy game set in a fantasy world. You are one of eight religions (each tied to a particular race) fighting for control of the world. Each religion has particular attributes and natural allies and enemies. You move your armies and heroes during your turn, but when combat is joined you zoom to a tactical map and fight in real time. Sound familiar? Still, there's nothing about a tried and true formula that makes for a bad game.

LOM SE is a much better product than the original. The bugs are gone and there's a smooth running and relatively fast game interface. Even the AI turns seem quicker—though, I've upgraded my system since the original, too,

Many annoying design quirks have been cleaned up. Enemy forces now refrain from hostile action until your diplomatic relationship with them deteriorates. Also, trading and diplomacy is much more functional. You can still sometimes convince your allies (or opponents) to make a bad deal, but ripping them off will hurt your diplomatic position.

Sorry Sorcery

Still the question remains—how good is a functioning version of LOM? While the game certainly isn't bad, it doesn't quite reach the lofty heights of addictive fun to which it clearly aspires.

To some extent, this is a matter of pacing rather than gameplay. For instance, the key to long-term success is developing experienced units capable of going toe to toe with the tougher monsters and bad guys. Keeping your units alive long enough for them to gain experience, however, requires that you rest them after each battle to heal. The problem is, due to the scant initial resources, you may find yourself fighting one battle

then sitting around waiting for your few men to heal for three or four turns before venturing out again. This quickly becomes dull. Later in the game there's always someone able to do something, but your empire is probably large enough by then that you must garrison much of it. Again, you may have only one or two attacking stacks, and even with magical assistance they'll have to rest between battles.

I'm a big fan of games that force you to make the best of scarce resources, but I sometimes found that assets in LOM SE were so

scarce your army can become paralyzed just defending the homeland. Wandering monsters abound in LOM SE—without a few defensive forces your entire territory can quickly crumble. Ultimately, *LORDS OF MAGIC: SPECIAL EDITION* ends up a bit too slow and with too few units, spells, and other goodies to make it compelling.

How Sierra has the nerve to charge the original purchasers of LOM extra (even with the \$20 rebate) to get what is essentially a massive patch is beyond me. If you managed to avoid paying for the dysfunctional version of LOM, the special edition may offer the magic fix strategy gamers have been desperately searching for—but it's unlikely to feed your addiction for long. For a truly great magic game, the rest of us will just have to wait. **CGW**

Tim Carter is a freelance writer and editor in Vancouver, B.C. His "Fix Bug" spoof has yet to work properly, but his research continues.

COMPUTER GAMING WORLD



APPEAL: Fans of the original *LORDS OF MAGIC* who want a working game; if story snobs giggle during their time off, heroes of MIGHT & MAGIC III.



PROS: Clean fantasy strategy game with much diversity, unlike original, it's an actual, working game.

CONS: Slow pace; too few units, too few options; owners of the original are basically paying for a patch.

DIFFICULTY: Intermediate.

REQUIREMENTS: Pentium 100, Windows 95, 16MB RAM, 100MB hard-drive space, 4x CD-ROM, SVGA video card, sound card, 29 or newer for remote play.

3D SUPPORT: None.

MULTIPLAYER SUPPORT: Internet via WDM/NET LAN (2-4 players), serial connection and modem (3 players).

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A Dash of Colonel Mustard

Hasbro Tries to Buy a CLUE (and a LIFE, and an OUTBURST)

Clue



Publisher: Hasbro Interactive
Price: \$39.99
www.hasbro.com

Unlike Hasbro's first attempt to bring the boardgame classic *Clue* to the PC, its second release, *CLUE: MURDER AT BODDY MANSION*, isn't a dismal failure. The game is visually stunning, complete with a stylishly rendered Boddy Mansion (done in a *DIABLO*-style isometric perspective) and atmospheric music so sexy and mysterious it ought to be a movie soundtrack. Each time a player proposes a combination of killer, weapon, and room, a brief animation plays you watch from the victim's point of view as Colonel Mustard swings the candlestick at your head or as Miss Scarlet sinks the knife into you with a grisly squoosh. Just watching the characters wander around the tastefully furnished rooms is a pleasure.

But what does all this have to do with the game? Not much! Nothing in the rooms is interactive, so all the wandering around has no point. The animations are short, and the excitement soon wears off. *CLUE*'s only gameplay twist offers a not-very-interesting alternative to rolling dice. An automatic notetaking feature saves you the hassle of tracking which cards the other players have revealed, but the value of this is more than outweighed by

the much greater hassle of having to ask your fellow players to look away from the screen while you look at your own cards and make notes on your "private" notepad.

The sights and sounds of this *CLUE* are irresistible, and that may be enough to make you want to see and hear it. But it's not enough to make you want to play it.—Charles Arndt

The Game of Life



Publisher: Hasbro
Price: \$29.95
www.hasbro.com

About all you need to really know about the new version of *THE GAME OF LIFE* for the PC is that it features a "first-person car-cam" view, so that you can look ahead while you drive down the pastel-paved road of life. All of this is lovingly rendered—including the famous plastic spinning wheel—in a sort of Tinkertoys-meets-Art Deco style that exhibits a certain charm.



Why, then, is each animation so slow when the hardware requirements are so relatively high? After watching *LIFE* crawl on my P200V MMX, I despaired of ever making it to *Millionaire Estates*, and remembered fondly a session of the boardgame that I

played with my niece and nephew which finished in less than half the time.

Aside from that, the "enhanced" setting has little to offer other than silly side games—match this, pick that—which mostly serve to slow the game down even more. If you're wanting to get something for that young gamer in your household, *LIFE* might suffice—but you have to wonder why a company capable of bringing *MONOPOLY* and *RISK!* to the PC feels it has to go skatting when doing games for kids and family.—Terry Coleman

Outburst



Publisher: Hasbro Interactive
Price: \$39.99
www.hasbro.com

In the real world, *Outburst* is the well-known party game in which one person calls out a category ("Dictators Whose Names Start With 'B'!") and the others shout out as many answers as they can think of ("Benito Mussolini!" "Baby Doc Duvalier!") before running out of time, breath, interest, or Glenlivet. On your PC, *OUTBURST* is an excuse for Hasbro to slice off a piece of the *YOU DON'T KNOW JACK* pie—complete with the game-show-style visuals and soundtrack, the jokey offscreen host, and even the tasteless parody commercials. Things start with the computer naming a category and giving you have 60 seconds to name 10 things that fit. This is deceptively hard, while the categories appear simple



("Harrison Ford Films," "Female Fairy Tale Characters"), you discover after quickly rattling off the first five or six answers just how hard it is to guess the last few.

In subsequent rounds, twists on the basic gameplay are thrown in. In "Reverse Burst" you get a list of answers and have to guess the category. ("Sylvia Plath," Poets? "Ernest Hemingway," Writers? "Adolf Hitler," Suicides!) In "Challenge Clock" and "Sloppy Seconds" you have to beat your opponent's time or come up with the answers your opponent missed. And each game ends with a "MondoBurst" round, which is just like the basic game, except that you score points for more than ten answers.

What makes the gameplay occasionally awkward is that you're not typing in entire answers, just the first three letters, at which point the computer either guesses the rest or rejects your answer. But the atmosphere is light and brisk enough that you forgive the game a lot. It's impossible to take even the most annoying blunder on the AI's part too seriously. What's harder to forgive is the lame comedy; half the time the host's "jokes" smell of desperate ad-libbing. *OUTBURST* may bear the same vaguely parasitic relationship to *YOU DON'T KNOW JACK* that all those spherical and conical "cookes" bore to Rubik's original in the eighties, but at least *OUTBURST* is good looking and diverting as parasites go.—Charles Arndt



From Bots to Slots

More Classics/Puzzle Reviews at a Glance

Star Wars Droidworks

★★★★★

Publisher: LucasArts
Price: \$39.95
www.lucaslearning.com

Welcome, young Jawa apprentice, to the Droidworks. Here you will learn to analyze a mission's requirements and design a droid to carry it out. Will your droid need wheels? Treads? Legs? Should it be magnetic, or not? Will it require special attachments, such as a welding hand, a data plug, a searchlight, or maybe a voder so it can talk?

STAR WARS DROIDWORKS is one of those programs that tries to combine teaching with fun, and it largely succeeds. Mostly, you learn about physics, though there's also plenty of problem solving. If this sounds too cerebral, don't worry: There are plenty of gears and levers and pulleys and counterweights to be exploited in hands-on fashion. And if you hit a snag, pertinent information is readily available from the encyclopedic INDEX (Information and Data Expert.)

Thankfully, droid design is easy and fun—choose a part, drag it into the construction window and snap the parts together. When your robot is assembled, you can paint it and then watch it walk and even dance! After you tire of such shenanigans, you can take your

droid for a test drive at the Sandcrawler Training Facility.

Eventually, it becomes time to use your droid to complete a mission. You start with simple learning missions, which you'll run several times with increasingly difficult objectives. Complete the training missions successfully, and you're rewarded with additional droid parts, which you'll need to complete the real missions later.

Missions play out in a 3D world (which, sadly, doesn't support 3D hardware.) Otherwise, a DROIDWORKS mission is, in many ways, like a level of JEDI KNIGHT; there's just a whole lot less killing. Overall, DROIDWORKS is a fun diversion for Star Wars fans of all ages.—Mark Clarkson

Caesar's Palace Slots

★★★★★

Publisher: Interplay
Price: \$29.95
www.interplay.com

I'm not sure whose brilliant idea this was, but it deserves a Vegas-style bat to the kneecaps. A casino game consisting entirely of simulated slot machines? Poker, okay, blackjack I can understand; even roulette has some pretense to being a game of skill; but to pack a CD-ROM with nothing but slots approaches clinical insanity. Of the "More than 100 slot

machines" promised, you really have about 20 machines, featuring multiple price points. All the features you expect on a real machine are present, but who really cares? There is nothing to this game but "deposit a coin" followed by "pull the handle." Sometimes you win. Sometimes you lose.



A couple of the machines are more interesting than average. "Lucky Losers" has a special payoff if you manage to win nothing seven pulls in a row. "Beach Party!" has body parts arranged on eight vertical reels, and instead of trying to get matching symbols to line up, your goal is to form a body whose parts go together. But even in these cases, the fun only lasts as long as it takes to blow a few virtual quarters. What's next on the simulated gambling horizon—Lotto of the 50 States?—Charles Arndt

Jeopardy!

★★★★★

Publisher: Interplay
Price: \$19.95
www.interplay.com

The original PC JEOPARDY! was almost indescribably irritating. The latest version is a slicker, more competent version that starts out like a bad ripoff of YOU DON'T KNOW JACK, but finds its own style in time to keep you from selecting the uninstall option. Real-life host Alex Trebek lends his dulcet tones, and an air of respectability to the otherwise dull surroundings. Everything's rendered so faithfully to the TV show's format that you could almost believe you're on a sound stage somewhere (I'll leave it to you to decide if that's a good thing.)

There are the well-known Daily Doubles—in full-motion video—the usual mix of mainstream categories, and even a challenging tournament option that fans of the show will find warm and appealing. The computer competition is better than on the average PC game show; but the real value of this game is the opportunity it offers to play a familiar family game with relatives and friends who can't quite handle JACK's sauciness. All in all, a nice, if safe, effort from Hasbro.—Tony Coleman



Again, for Emphasis

Some Classics/Puzzle Sequels Fare Better Than Others



Sentinel Returns

★★★★★

Publisher: Pygmalion
Price: \$39.99
www.pygmalion.com

In a welcome change from typical puzzle fare, **SENTINEL RETURNS** offers a first-person perspective like nothing else since the original. **SENTINEL RETURNS** levels are rugged 3D landscapes. Inside these levels hulk, appropriately enough, the Sentinel: sort of an evil, Art Deco lighthouse, slowly scanning the landscape, looking for you. To win, you must make your way to the Sentinel's level and take its place. The catch is, you can't move; you play as a consciousness trapped in an immobile, iron Maken-form robot. What you can do is create additional robot bodies, then teleport your consciousness into them. You can also create trees to hide yourself from the Sentinel's baleful stare and boulders for your new robots to stand on, raising them to higher levels.

Creation, however, takes energy, which you absorb from trees and your old, cast-off bodies and boulders. If the Sentinel spies you, he'll steal your energy. As the levels progress, he gets helpers—Sentries and Mearies—to drain your energy and

transport you to less advantageous positions.

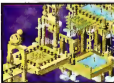
Despite 3D acceleration, the dark and eerie environs aren't terribly impressive. The boulders look like packing crates, and the trees favor the animated whiskeys in Gillette commercials. But no matter; this game is refreshingly different, eminently playable, and each level leaves you hungry for just one more. While early levels take only a few minutes each, there are 650 levels in all, so you'll be happily busy for quite a while. —Mark Clarkson

Lode Runner 2

★★★★★

Publisher: GT Interactive
Price: \$29.99
www.gtgames.com

Back in the days of the Atari 800 and the Commodore VIC-20, the idea of moving a little man around a screen, collecting buried gold pieces, and



avoiding bad guys felt both novel and satisfying. Today, when anything short of a real-time, photo-realistic, first-person bloodbath is greeted with a yawn, you have to wonder if a game like **LODE RUNNER 2** will find an audience.

In this sequel, you're climbing all over the place in pursuit of man-sized hunks of gold. Some of the hunks are out in the open, others can only be reached by blasting away the layers of stone that cover them or by climbing hand-over-hand along an overhead pipe. Still others are at ground level but are guarded by hooded monks who will gladly best you to death if they get their hands on you.

Unlike the original's 2D layouts, **LODE RUNNER 2** takes place in an isometric 3D perspective. Unfortunately, the angle makes the controls awkward: It's easy to forget which key moves you in which direction. Plan to spend plenty of time banging into walls and dying after accidentally stepping in the wrong direction.

Despite the painfully unintuitive controls, the cleverness of the level design makes this a blast to play. If you can't figure out how to solve a particularly tough level, you can always move on to the next—a generous and wise decision on the designers' part.

The fact that your character's movements are realistic, or that the levels take place in five graphically distinct worlds is nice. But it doesn't change the fact that the underlying game is basically just a series of super-tough sequencing, timing, and topology puzzles. For many modern gamers, that'll sound about as appealing as a plate of brussels sprouts, and I'm afraid that all the snazzy 3D protrusions won't get the taste out of their mouths. But those gamers who still value

cleverness and ingenuity over brute force will find **LODE RUNNER 2** to be a worthy successor to its ancestor of 15 years ago—and one tough mother of a game besides. —Charles Arzoi

Hoyle Board Games

★★★★★

Publisher: Sierra
Price: \$29.99
www.sierra.com

Every once in a while, some product comes along to change your idea of what a classic/puzzle game can be. This collection of worn-out parlor games for the PC is not that product. Even the somnambulist crowd that generally snaps these games up will find it hard to stifle a yawn after playing the very



accurate, painstakingly boring versions of *Chess*, *Dominoes*, or *Pachisi* included here. And I've had my fill of playing *Reversi* in bad adventure games, thank you.

Of the 14 games available, *Zen Bones* might appeal to someone who hasn't discovered *HONG KONG MAHJONG*, and *Placer Racer* does sport a little of that old *BREAKOUT* mojo. About the strongest recommendation is that everything here does work, unlike, say, Hasbro's PC *YAHITZEE*. That's to damn with faint praise, indeed—especially when the majority of these games have much better alternatives available as freeware or shareware. —Terry Coleman

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Caesar III

Building Rome in a Weekend

by Tim Carter

As with all good strategy games, CAESAR III most rewards the people who think about it in the right way. In your average game of military conquest, you might do quite well planning from objective to objective. In CIVILIZATION, to give a second example, you could easily plan your success from one technological plateau to the next. However, city-oriented strategy games in general, and CAESAR III in particular, tend to reward players who think in reverse—from the finished product backward.

In CAESAR III, it's much more useful to take a few minutes (just that Pause key) to think about how your ideal, finished city (with all victory conditions met) will look. Where will you place the high-income neighborhoods? Where will the high-density housing be most useful? How will these neighborhoods relate to their surroundings?

Think Before You Upgrade

Probably the worst thing you can do is just start building. For instance, it's quite possible that to meet your financial needs and/or victory conditions you'll need ultra-luxurious villas—at least in small numbers. Villas require more space than normal housing does, and they need extra food and luxury items. This, when you're planning a rich neighborhood you have to visualize, at the outset, how you're going to deliver said goodies to the lucky residents.

See the Review

JANUARY ISSUE • 4.5 STARS

Note also that villas aren't exactly efficient from a housing standpoint. In fact, moving up to a villa can create a housing shortage since less fortunate plebes have to move elsewhere. If the neighborhood you're trying to upgrade also serves as a major work-force supplier to industry, you run the risk of "upgrading" your economy

where you might build fortifications at the start of the game, as well as where your trading warehouses (yes, plural) and docks should be located once you get around to setting up trade routes.

Also, you'll want to make sure that your infrastructure (doctors, schools, granaries, markets, and such) can handle the demands of

Thus, if you redo your food supply system halfway through the game, your people may insist on following their old ways even if they starve as a result. Do it right the first time, even if this means a somewhat stretched-out city at the start. Keep in mind as well that, provided your city is attractive to immigrants, a new neighborhood can upgrade very quickly if all of the right pieces of the puzzle are in place. You may want to build middle-class neighborhoods at the start of the game, then create customized high-sent housing to drive up your prosperity level later on.



MR. CARTER'S NEIGHBORHOOD In this starting neighborhood, note how the granary (left) and dock (top, right of center) are already placed for future trade.

straight into the ground. Since your neighborhood won't likely reach the villa stage until well into the game, it's crucial that you plan ahead enough to both create the maximum value housing and accommodate it once it arrives.

Your city must also be balanced, with some lower-class neighborhoods to supply workers to your farms and industry. Note that lower class doesn't mean inefficient or bad, just lacking in some high-value commodities.

Along the same lines, you'll want to get a rough sense for

high-density housing from the outset. In some cases this isn't a problem; for instance, an engineer can just as easily maintain a big, expensive house as a small tent.

In other cases, however, it pays to plan ahead. For instance, if you know that you'll need to import additional food types to feed an upper-class area, you must leave room for a warehouse near your primary granary in the area. Moreover, it seems that buyers from markets don't adjust their shopping routes unless their original source of food is destroyed.

Building the 'Hood

One easy way to keep organized when building cities is to think in terms of neighborhoods. As most urban planners will tell you these days, the optimum organizational unit for a major metropolis is the neighborhood—a desirable zone that provides most or all of the residents' needs, thus minimizing travel. While traffic jams are not much of a problem in CAESAR III, your people won't wait far to get what they want, and you can't ever trust them to walk in the correct direction when they do set out. In fact, the somewhat random and limited nature of foot travel in CAESAR III influences many aspects of planning—but we'll touch more on that later.

Obviously, each major area of your city will need housing to have the necessary work force on hand. Housing, in turn, requires food, entertainment, religion, and a host of other services. Again, it's a good idea to decide in advance the kind of neighborhood you want to build. If you simply need a decent working population, you can construct a middle-class neighborhood



PORTO ITALICO Building on a peninsula makes this city easy and cheap to defend.

that will provide some tax income and enough people to be cost-effective without worrying about the complicated food and luxury-item requirements of the elite Roman citizens. Working-class neighborhoods require most or all of the service buildings, but few, if any commodities like pottery, furniture, wine, and oil. (Although a little pottery and furniture can easily boost the density of a middle-class neighborhood if need be.) If you are short on room or simply need a garrison for a far-flung defensive outpost, you may want to build a quick, cheap encampment with only a prefect and an engineer.

Fire and Roads

Because you cannot program where your people walk in *CAESAR III*, you must build your street system carefully. The key thing to keep in mind is that roaming representatives from each building provide services. These workers exit their buildings and walk along the street in a random direction. At each intersection they come to, the worker will again make a random choice before proceeding.

Thus, a city with many four-way intersections quickly becomes hideously inefficient, even dysfunctional, as too many service providers wander about aimlessly. To avoid this, you must construct your roads along minimalist lines. Your objective should be to connect all the necessary points with

the minimum number of intersections.

In some instances, particularly early in the game, dead-end streets can be highly useful. For example, if you're worried about fire (a major concern in the southern latitudes), put your prefectures at the end of dead-end roads, just past your residential or commercial neighborhoods. This will force your prefects to walk through key areas at least twice (on their way to and from their workplace), guaranteeing you coverage. The same principle applies to other coverage-type services for the city, such as engineers and tax collectors.

At other times you may want a single feeder road between a bustling residential neighborhood and, say, a farming area. Also keep in mind that city walls and towers must be connected by a roadway to your barracks for a garrison to be assigned. (Fort's do not require road connections.)

Otherwise, keep roads to a minimum. Under no circumstances should you connect your city to the wide-open Roman road (that which bisects the map) until you absolutely have to. Early in the game, even if you build near the

main road, it's usually a good idea to separate your city and build absolutely the shortest roads possible so that people will not wander across half the map before returning to your small start-up area.

Different people prefer different specific configurations for their residential neighborhoods. I prefer an I-formation, with housing forming the central column and services branched off in shorter roads at either end. Provided the shorter roads don't go anywhere, all of the service providers will be channeled into your housing neighborhoods. An I-formation also offers many spaces near homes in which

to locate buildings that improve desirability (like baths) but also some areas that are not adjacent to housing for less desirable buildings like schools and markets.

Finally, the I-formation gives abundant room in the middle of the neighborhood for residential growth. Remember that higher-value housing requires three, and eventually four squares per house, so you must leave room for your neighborhood to grow. If you have the cash, fill in your extra spaces with gardens—they improve the desirability of the surrounding

land, and houses will build over gardens with no action from you when they need more room. Houses will not supplant statues or roadways, however, so don't trap your homes in.

It goes without saying that markets must be located within

close and direct proximity to a granary. To make your food supply as efficient as possible, think through your transportation and storage system from the inside out. Before you build anything, ask yourself from where the multiple varieties of food (for an expensive neighborhood) or mere sustenance (for a working-class district) are going to



HUMBLE BEGINNINGS
The layout for this small city, just starting up, shows how to leave space inside the "T" for later service buildings.

come. If you will have to trade for some (or all) items, make sure your granaries can access trading warehouses, either by putting them nearby or by building a second warehouse to act as a feeder to your food storage areas.

Careful micromanagement of warehouses is sometimes key to keeping food supplies adequate. By refusing to accept some good and sending your cart out to look for others (along those carefully planned and restrictive roads), you can foster a functioning transportation network. It isn't easy, though, and you must keep in mind that your people will tend to wander. If your market buyers or warehouse cart men are not getting what you need (or are not doing so as efficiently as you'd like), you might consider removing intersections (if possible) to narrow their options.

Clash of Spears

While fighting is not central to *CAESAR III*, it sometimes cannot be avoided. Combat can even be fun when sought out through dangerous assignments.



SUPPORT THE MIDDLE CLASS This solid neighborhood can grow some more, but it shouldn't be allowed to advance to the point where it can't supply workers to the nearby industry.



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and other retailers.

Winning battles in CAESAR III generally requires a combination of fortifications and legions. Wide walls and towers will be garrisoned as long as you have a functioning barracks in your city and each tower is staffed and connected to the city by road. Walls afford you a number of important attributes. First, they ensure that your legions can respond to attacks before the enemy actually gets into your city (provided you've been wise enough to build within the walls). Second, javelin-armed guardsmen and basilica on the walls can wear away at the attackers while your troops get organized behind them, or, if you prefer, you can meet the enemy head-on at the outside foot of your walls and gain support from missile fire from behind.

Personally, I like to fight from behind the walls, especially against superior enemy forces. This ensures that your troops will be organized, ready, and in formation when they fight. Attackers will generally only breach a small portion of a thick defensive wall, which lets you trap them in the breach and attack them with superior forces as they emerge (the land version of "crossing the T"). Meanwhile, your basilica and javelin garrisons can continue to fire onto backed-up enemy soldiers, helping to even the odds.

In the open, you will still benefit from making the enemy come to you. If you engage before your troops have set themselves in formation, you will suffer excessive losses and may even lose—depending, of course, on whom you're fighting. The exception to this is cavalry, which should be sent against bowmen or enemy flanks once their front is engaged and should disengage the minute they start to take heavy losses.

If you're desperate—say, an enemy army shows up before you've finished constructing your defenses—quick emergency action can often save the day. While the invaders are fiddling about on your border, build a short wall with multiple towers near your most exposed residential neighborhood (to ensure workers), connect it using roads, and rally whatever troops you have in front of the wall. By the time your attackers get near your city, you should have at least a few basilica ready to provide covering fire. Provided your defensive stand is somewhere vaguely along their path of attack, invading units will always converge on defenders first before running

CONTAINING A CARTHAGINIAN ATTACK



These Roman fortifications have been designed so that Carthaginian attackers are caught in a crossfire (above) as they attempt to breach the walls. Survivors can be dispatched by legions waiting behind the walls (below).



amok in your city. This won't protect you from a horde of elephants, but it will turn the tide of a close-run battle.

Under no circumstances should you ever fight the natives in a province. Build missions and make sure they don't fall down or become nonfunctional. And as the native population grows and builds their own new houses, you must be quick to erect new missions if you want a permanent peace.

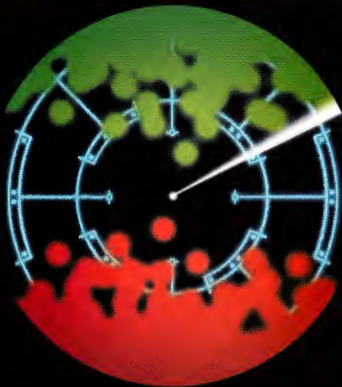
In closing, always remember that the people of your city, while not exactly stupid, will be completely random in their actions.

You, as their governor, must guide their actions through careful planning by giving them as few choices as possible. **CGW**

Tim Carter holds a master's degree in Strategic Studies. Check out his review of *101 AIRBORNE* elsewhere in this issue.



ALL RIVERS LEAD TO ROME Engaging in maritime commerce is critical to the growth of your city (above). But in your rush to construct docks (inset), make sure to keep them far enough away from residential areas.



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Total Air War

Exploiting the Enemy's Weak Spots Is the Key to Victory

by Tom "KC" Basham

nlgames/DIG's **TOTAL AIR WAR** offers new challenges to experienced sim pilots, as there are two ways to win the game. You can take on individual missions as a pilot flying an F-22 Raptor fighter, or you can orchestrate the entire air war as an AWACS controller coordinating the airborne battlefield. **TOTAL AIR WAR**'s dynamic campaign engine, coupled with a wide variety of campaign settings, ensures a diverse gaming experience.

Stay in the Game

The first piece of advice for **TOTAL AIR WAR** players is simple: Stay in the game. Although the campaign engine will continue to fight the war in your absence, it's unwise to leave the battle raging while you attend to other matters.

DIG's earlier attempts at a dynamic campaign didn't factor player performance into the equation, which drew criticism from gamers. In **TOTAL AIR WAR**, it often seems that the computer deploys friendly forces with less competence than it does with the enemy forces. Success in **TOTAL AIR WAR** relies on continual and sustained success by the player. The computer will not win the war for you. If you need to take a break, be sure to exit the campaign and halt the action.

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I found the computer's strategic choices also to be of questionable value. Often it sent strike forces through highly contested, defense-laden airspace. Consequently, I found it necessary to spend considerable time at the AWACS control console, redirecting strike forces to more plausible targets. While your winning the war depends on inflicting sufficient damage to enemy targets, the fight won't be won with the first attack. Sending the entire allocation of Joint Strike Fighters (or other high-value units) through a cloud of bandits and



FIRE IN A CROWDED THEATER Although TAW can run the entire combat theater, you'll have better results if you take control yourself.



DO IT YOURSELF DESTRUCTION

Sometimes you need to leave the AWACS mode, jump into an F-22, and complete the mission yourself.

SAMs (surface-to-air missiles) will almost guarantee that they will be shot down. One mission isn't enough—you'll need these assets again later. Rather than taking on the enemy head-on, use the AWACS mode to redirect

friendly units around enemy concentrations and hit them in their weak spots.

Finding the Holes

What are those weak spots and how do you find them? Begin by

moving your E-3 AWACS and E-8 JSTARS as far forward (as close to the enemy) as practical without leaving them exposed to enemy fighters. This will generate a clearer picture of where the enemy is deploying its air units. A concentration of enemy fighters is most decidedly *not* a weak spot.

Early in the war, look for Early Warning (EW) radars, especially those near the front lines that aren't heavily protected by enemy fighters. EW radars are the eyes and ears of the enemy; the ground-based equivalent to your E-3 AWACS. Taking them out degrades the enemy's ability to track your movements, opening the door for even deeper penetrations later. EW radars are usually pretty high on the computer-generated target list for the campaign; you may not be attacking them in the same order as the computer, but you'll generally be working on "high-priority" targets.

Although calling a SAM site a weak spot is inappropriate, it's always good to hammer away at

Target List (24)

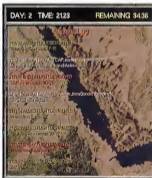
Target Name	Priority Value	Damage	Intended
1. EWAS-2 Base/ops EW	10	100	1
2. EWAS-2 Base/ops EW	10	100	1
3. EWAS-2 Base/ops EW	10	100	1
4. EWAS-2 Base/ops EW	10	100	1
5. EWAS-2 Base/ops EW	10	100	1
6. EWAS-2 Base/ops EW	10	100	1
7. EWAS-2 Base/ops EW	10	100	1
8. EWAS-2 Base/ops EW	10	100	1
9. EWAS-2 Base/ops EW	10	100	1
10. EWAS-2 Base/ops EW	10	100	1
11. EWAS-2 Base/ops EW	10	100	1
12. EWAS-2 Base/ops EW	10	100	1
13. EWAS-2 Base/ops EW	10	100	1
14. EWAS-2 Base/ops EW	10	100	1
15. EWAS-2 Base/ops EW	10	100	1
16. EWAS-2 Base/ops EW	10	100	1
17. EWAS-2 Base/ops EW	10	100	1
18. EWAS-2 Base/ops EW	10	100	1
19. EWAS-2 Base/ops EW	10	100	1
20. EWAS-2 Base/ops EW	10	100	1
21. EWAS-2 Base/ops EW	10	100	1
22. EWAS-2 Base/ops EW	10	100	1
23. EWAS-2 Base/ops EW	10	100	1
24. EWAS-2 Base/ops EW	10	100	1

CAN I TAKE YOUR ORDERS? When you redirect strikes, you should focus on the same high-value targets found on the computer's list—although not necessarily in the same order.

SAMs guarding the enemy's borders. Removing these units from play will open safe corridors into the enemy's interior. It's unwise to send your strike forces through SAM coverage. Instead, redeploy deep-strike flights to engage front-line SAMs, thereby opening a doorway for subsequent strikes behind the lines. Some long-ranged SAMs located along the border may have coverage pretty deep into your



COVER YOUR REAR Frequently zoom out the map to display the full theater and to check for any sneak attacks along your flanks.



DEATH BECOMES YOU Allied flights tend to have a higher-than-expected failure rate when you don't intervene in TOTAL AIR WAR's planning and combat.

territory. Try to neutralize these SAMs as quickly as possible; the last thing you need is enemy SAMs in your backyard.

Attacking SAMs is dangerous enough, and some of your attacking aircraft will likely be shot down. Enemy fighters will only complicate matters, often decimating your strike force. If you have to attack SAMs

under a heavy fighter CAP (Combat Air Patrol), redirect your fighters into the area first. If you can tie up the enemy patrols, your strike forces can slip in and out with minimal losses. Of course, concentrating your fighters in one area leaves you open to counterattack along your flanks. Possibly the greatest challenge to an AWACS controller in TOTAL AIR WAR is not to overpursue the enemy.

The Red Sea often makes a good "transit" corridor. The enemy often will skirt your flanks, send its planes out over the water, then slide around and engage your forces from behind. The lessons here are twofold. First and foremost, keep an eye on enemy fighters moving to the water. When you see fighters heading for the Red Sea, you can be pretty sure they're not leading Israelites out of Egypt—they're planning to attack you. Keep sufficient fighters along the coastline to intercept and harass them. Second, try this tactic yourself: Steer your forces out over the water, then look to reenter at a "thin spot": somewhere where enemy SAM coverage is light.

As an AWACS controller, you are responsible for the safety of every aircraft under your control, especially the "slow movers." Don't let the fighter aircraft draw all of your attention. Keep tabs on the cargo

SAM I Am

TOTAL AIR WAR features a variety of surface-to-air missile systems. Since almost every country takes a turn as the bad guy in at least one campaign, you've got to be prepared to face a variety of threats.

SA-17 Grizzly: The Grizzly is one of the newest SAM systems, having been accepted into the Russian Army in 1955. An army level SAM, the SA-17 is designed to engage strategic and tactical aircraft, tactical ballistic missiles, cruise missiles, tactical air-launched missiles, helicopters, and RPVs at altitudes ranging from 10m to 24,000m. Replacing the SA-11, the SA-17 command post can track up to 60 objects and control six launcher sections. Its response time can be as little as two seconds.

Under a heavy fighter CAP

(Combat Air Patrol), redirect your fighters into the area first. If you can tie up the enemy patrols, your strike forces can slip in and out with minimal losses. Of course, concentrating your fighters in one area leaves you open to counterattack along your flanks. Possibly the greatest challenge to an AWACS controller in TOTAL AIR WAR is not to overpursue the enemy.

Two if by Sea

The Red Sea often makes a good "transit" corridor. The enemy often will skirt your flanks, send its planes out over the water, then slide around and engage your

The command post vehicle monitors the overall tactical situation, designating targets to the individual launchers. The launch vehicles carry four ready-to-fire missiles plus an additional four reloads (it takes approximately 15 minutes required to reload). The missile uses semiautomatic radar guidance with engagement range from 2,500m to 50,000m. A typical SA-17 regiment consists of a command post vehicle, a target acquisition vehicle, two missile illumination/guidance radar vehicles, and four launcher vehicles. A regiment



EMI TOUGH The SA-17, one of Russia's newest surface-to-air missile systems.

can simultaneously attack 12 to 24 targets. The missile's maximum speed is 1200m per second and, it's effective against targets moving from 300m per second (receding) to 1,200m per second (approaching).

SA-11 Gaddy: Deployed in the 1980s to replace the Soviet SA-6 batteries, a typical SA-11 battery comprises a command post vehicle, a target acquisition radar vehicle, and six launcher vehicles. Missile engagement range varies from 3,000m to 32,000m at altitudes



SEA ME, KILL ME Keep a close eye out for attacking enemy planes moving over the Red Sea.



BORDER PATROL Removing threats along the border lets the Joint Strike Fighters venture deep into enemy territory.

planes, helicopters, tankers, E-3s, and E-8s. Frequently zoom out the map and double-check the entire theater. If any bad guys are sneaking into your territory make sure the slow movers are moved to safety.

Do It Yourself

As mentioned before, the computer won't win the war for you. Likewise, computer-controlled aircraft often won't

win individual battles either. Perhaps the best thing about the AWACS mode is that you have the ability to jump into the seat of any F-22 flight. Simply double-click on the F-22 flight, take control of a jet, win the battle, then bounce back to the AWACS and resume control of the whole theater.

Remember, you're trying to take the war to the enemy. Buckle down and fight a defensive battle only when absolutely necessary. At the same time, don't simply charge into harm's way. Use the AWACS system to make adjustments that best use your airborne assets. **CGW**

Tom Baskam is the publisher of Debrief magazine (www.bearene.com/debrief/), an excellent companion to CGW if you play sims and strategy games. Lately, he's been piloting EUROPEAN AIR WAR

OPEN DOOR

Redirecting strikes against EW radars and SAM sites along the border has opened a wide corridor into enemy territory.

of 10m–22,000m. The 70kg high-explosive warhead offers a 17m blast radius. The missile's maximum speed of 350m per second is substantially slower than the newer SA-17. The SA-11 is effective against targets moving at 300m per second (including) to 330m per second (approaching).

Crotale: The French-built Crotale system was developed in the 1960s, and it shows its age: When compared to more modern systems, the system cannot operate on the move, but it takes less than five minutes to become operational after stopping. Missiles can be fired 6.5 seconds after detecting a target. The system is designed to operate against targets moving at Mach 1.2 at altitudes from 50m to 3,600m. It can process 30 targets per antenna revolution and track up to 12 targets simultaneously. The missile can reach 750m per second for 2.6 seconds. At 3,000m flight range, the missile can generate up to 27g's, but performance drops to just 3g's at 13,000m.

Roland: The Roland system was developed by France and Germany in the 1960s. Missile speed varies from 500m per second to 570m per second, depending upon the variant. Engagement range varies from 500m to 8,000m at altitudes of 10m–6,000m. The small missile



TREAD LIGHTLY Small as a tank, the SA-6 still serves in many nations who haven't yet replaced it with the SA-17.

features a 6.5kg or 9.2kg high-explosive warhead, depending upon the variant. The Roland's response time for the first missile launch is 6 seconds; the second missile follows between 2 and 6 seconds later.

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Motocross Madness

The Mysteries of Torque, Traction, and Gyroscopic Action

by Greg Fortune

Like many of you, I had never ridden a motorcycle before—either on or off the road—before my first adventure on the muddy trails of Clearcreek. Yet there I was, straddling my father-in-law's YZ 465 and wondering if my limbs would arrive back in camp the same time I did. That fateful morning I was given a few sage pieces of advice, which I will now use to add some perspective on playing MOTOCROSS MADNESS.

When in Doubt, Punch It!

When you think you're sure to wipe out, grab a handful of the throttle, stand on the pegs, and hang on! Dirt bikes will ride on/over/through just about anything as long as the rider is still aboard, and your wheels function as big, knobby gyroscopes. As long as you're on the bike with some momentum, you have a chance—however slim.

When you're airborne, control pitch via your back wheel. If you open the throttle in midair, the gyro effect will cause your bike to tip backward. If you want to bring the front wheel down, give the brake a squeeze to slow down the back wheel—an easy way to control your landing approach. Similarly, when you're coming in too fast and have overshoot your landing zone, you typically land headed in the wrong direction, going too fast. It's possible to tilt your bike a bit and make the turn as you land in the middle of it. Be careful! Too much turn, and your bike will land sideways and toss you into the stands. Make sure to open the throttle just

See the Review

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before you land to take full advantage of your spinning back wheel's desire to stay upright.

Keep Your Helmet Over the Bars

In MOTOCROSS MADNESS, you have the ability to control how far forward or back your rider places his weight, which is critical to staying on the bike. The rough rule is to keep your helmet on a vertical line with your bars. If you are riding up a hill, put your weight forward to keep the bike balanced on its wheels and



CLOSE TO THE EDGE While this looks dangerous, note how the rider's helmet is still over the bars.

prevent it from landing on your chest as it flips over backward. If riding downhill, stand on the pegs and push yourself back on the bike to keep the bike from coming over your back and riding you down the hill.

You can also use your weight to load the suspension before a jump. As you approach the jump, lean forward to compress the front forks. A moment before take-off, lean back and let your front end literally leap into the air. It's the way to turn small jumps into trick opportunities. Finally, the quickest way to turn around is to



Check Your Bike Before You Ride

Warning! Trying to land in the direction of the bike gives you an edge, but be careful! When you tilt a spinning gyroscope—like your motorcycle—on its side, it turns...really.

Engine There are three different tunings for your 250cc two-stroke engine. A tight track means lots of braking and accelerating. So you'll want the A or B variant since they feature more low-end torque to get you going. A wide open course has lots of opportunity for wide open throttle, so pick the C variant for its superior top-end performance.

Suspension If you tend to land jumps awkwardly or are having trouble in the whoops (those nagging, closely spaced sections of ridges in the track), try softening up your suspension a bit. If, on the other hand, your landings are smooth as glass, a stiffer suspension will reduce any bouncing, which helps with control.

Traction If you like to slide around the track, drop the traction way down. If, like me, you enjoy new tires, crank up the traction. Adjust periodically as your style develops.

lean forward on the bike at low speed, tilt hard in the direction you want to turn, and roost that back the around behind you. You can burn doughnuts all day long using this method.

Well, I hope that helps. Take these tips, and a with lot of practice, soon the only thing your opponents will see is the mud you just roosted on their goggles. **GGW**

Greg Fortune loves to pop wheelies in the CGW offices, especially when reliving favorite big Mech fantasies.

Morpheus

Sorting Through the Dream Within the Dream

by Scorpia

In MORPHEUS the puzzles are sometimes trivial and sometimes really subtle. Clues can be anywhere, and sometimes you may not even realize you're looking at one or what it means. In the dream sequences, however, everything you need to solve the puzzles will be in the dream itself. Most solutions can be pieced together from visual clues, rather than by the use of objects, and in certain cases, a lot of deduction is necessary.

Always look at everything in your surroundings—be it on the ship or in a dream.

Getting into the ship is easy; there's not much to work with besides the cargo controls (the canister is optional and can be skipped if you prefer). Once inside, restore power via the AIV sequencer, downstairs from the theater level (speaking of stairs, examine the grand staircase carefully for a partly enlightening experience).

The front panel on the gondola shows your location. You have to reach all three of the center circles to enable power on the Herculania. Don't be fooled; the third machine looks like the first one, but it's a different device. Otherwise, a little experimenting with the controls is all you need to be up and running.

Afterward, take the grand tour, enjoy ghostly replays, and work on getting into the staterooms and entering people's dreams. That can be done in any order; the dreams don't need to be completed in a specific sequence.

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Swan

This lady is a dancer with a special tune. Cards on the lounge tables should help with the music and get you into her room, where we all know how to charm a cobra. For the tapestries, studying the background should give you the edge.

Amazing is the word for the hooks, starting in the right place will lead you to the answer in an orderly fashion.



Galte

The code for Galte's stateroom door is a weighty matter, and the scale shows the weights for each class of fighter. The dumbbells show that the 10-pound weights are missing. After you look at them for the first time, you see the ghost of Galte stepping on the scale. He's a welterweight, but when he picks up the two dumbbells, he moves up to heavyweight (175). Since together those make 20 pounds, his actual weight is 155, the code for his lock.



Malherbe

The kinoscope details some of Malherbe's work and mentions two flowers and a "mystery" ingredient (illustrated in the film) that comprise his special serum. The diagram shows the layout of the greenhouse, and the names on the chart correspond to flowers in the greenhouse, plus the little amphibian exhibit (the third ingredient). So, you find the two flowers on the greenhouse chart, and those names, plus the Earth (amphibian) exhibit tell you what to mix up in Malherbe's lab. You'll also find Claire's code in his room.



Mexler

You'll have to see some of that deja boo with Mexler and Thurmon in a couple of places before muddy events take place and you can get into his room. The calliope puzzle is easy; it operates the carousel, making the solution a real horse race. Equally simple is the fun house. After seeing the presentation, go around back (trash the rat), and use a little pull in the disk.

Thurmon

Her door code is another math job; these screens

show the two clues to the numbers you need to enter on the three bath doors (Frigidarium, Tepidarium, and Vaporarium) so they'll open. A steamy room will give you what you want. If you don't feel like you're going in circles here—you should be, very quickly. The graveyard's another weird one; when you have the toy monkey, give it to a shaft (no kidding!). As for the three stateroom, lighten up and reflect on where to go (be sure to look around when you're up by the levers). This may require some trial and error, but it shouldn't take you very long.



Jan's Room

The hint for this code comes from a couple of those replays, including the one in Claire's room. Just keep in mind that the actual key is not a duplicate but a reversal. In here you'll obtain the code for Phanis' room and reach the end of the game. **GGW**

Visit Scorpia

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Creatures 2

Power-ups and Help on How to Keep Your Norms Alive

by Mark Clarkson

CREATURES 2 is a lot more difficult than the original (and that's putting it mildly). If you're tired of watching as your Norms keel over one after the other, here's our handy guide to help you find those power-ups, along with some general tips:



- 1 SCIENCE KIT
- 2 ADVANCED SCIENCE KIT
- 3 NEUROSCIENCE KIT
- 4 GRENDEL/ETTIN SELECTION

5 INFINITE SCROLL

- 6 Spend some time teaching your Norm to come when called. Do this very early in the game. Your next quest is to retrieve the Science Kit (see #1). Get your Norm to follow the path shown to the Science Kit and tell it to "get implement." The Science Kit contains medicine to revive severely ill or injured Norms; without it, you will lose a lot of Norms.
- 7 You can't physically pick up a Norm unless it falls in the water. You can grab a Norm to keep it from drowning. If a Norm won't go where you want it to, consider pushing it into the water on purpose with the push hand, then picking it up and moving it where you want. Quickly, though! Imported Norms always appear in the Incubator Room. So, one way you can move a Norm to the Incubator Room is by exporting it, then reimporting it. If you have two Norms that you want to...ahem...get together, you can accomplish this feat by exporting and reimporting both of them in rapid succession.

If your Norm is in a coma (stars are circling its head), grab this to save it.

Even better than the basic kit because it lets you do genetic analysis.

The way to pick your Norms' brains.

This lets you select Grendels and Ettins as well as Norms.

Once you have this, you can scroll anywhere within the land of Albion.

Until you find the Infinite Scroll power-up (see #5), it's hard to view places where there are no Norms. You can use the Ecology Kit's location tab to jump directly to anywhere in Albion where a Norm has been.

See the Review

JANUARY ISSUE • 2.5 STARS

Mark Clarkson has been playing computer games since the most realistic life-forms were Winky, Blinky, Inky, and Sue. He is no doubt performing some demented genetic experimentation in his basement right now.



Tokyo



SCRAP

You built yourself one hell of a tower. Luxury condos, sushi restaurants and a subway station ten stories down. You thought of everything. Except the service elevator. Now the maids can't get to the hotel rooms and you're charging execs two grand a night to bunk with cockroaches. Probably not the best way to get a five star rating, huh? From Yoot Saito, the creator of Sim Tower.

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YOOT Tower YOU BUILD IT. YOU DEAL WITH IT.

TIPS

CHEAT CODES • HINTS • WALKTHROUGHS

Sports/Racing

Need for Speed III



• **Don't choose your Tournament or Knockout car solely on its results at Hometown.** True to the NEED FOR SPEED series, tracks in NFSIII generally get trickier and more technical the further you go. In Class A, for instance, the Lamborghini Diablo may shake the competition at the relatively sedate Hometown opener, but it sicks mightily when navigating the tight confines of Rocky Pass or Summit. My motto: If it rules at Rocky Pass, it rules everywhere.

• **Start without wheelspin.** Tire noise at the green flag means you're not coming out as fast as you can. Generally, I apply about one-quarter throttle before the timer hits zero, then instantly shift to first gear at the green flag. I keep the throttle there for a moment to ensure that the rubber grabs, then slowly move it forward, just quickly enough that I hear only the beginnings of the squeal. It's amazing what a smart start can do for someone who's been flooring it all along.

• **Keep off the scenery.** Momentum is a real key in the NFSIII world, and nothing kills your momentum like banking off a hunk of rock, a tree trunk, or a building (much less hitting it head-on). Instead, you should gear down or decelerate smoothly and early, miss the obstacles, and come out hot. A tempered, controlled drive with an oscillating throttle and tiny steering adjustments almost always beats a madhouse full-throttle approach.

dead in your tracks. Speed or direction signs, sagebrush and small bushes, tree branches, and traffic barriers that don't lead to other courses will not.

• **Be a redline racer.** For maximum NFS torque, it's best to keep your car at, or close to, redline. Of course, this doesn't mean staying stuck in second gear when you should be in fourth; You should instead shift appropriately as you move uphill or downhill and through turns to keep close to redline, rather than moving up to some cruising gear that provides no push. Remember that aside from the amazing bonus Mercedes CLK-GTR, top gears should be used only when streaking downhill; otherwise, you'll lose speed.

• **Become a master of the tight corner.** No matter what the skill level, AI opposition simply can't handle the really sharp doglegs or hairpins as well as a skilled human can. *Adaptica*

War Along the Mohawk



Every mission starts at a flag near a white rock—the teleportation gate from the fort map to the mission map. Better save first, because there's no returning if you can't complete the mission!

Make sure to choose a character with a musket or a bow and arrow, since these two weapons can be upgraded in four ways (damage, range, accuracy, and reload speed), while others have only a couple of possible improvements.

—Bob Proctor



and Country Woods are prime examples of tracks in which human drivers can gain a huge advantage by successfully navigating these tight corners. Enter from the outside, pull back momentarily on the stick as you crank hard to the inside, and come out wide and fast. —Gordon Goble



Strategy/Wargames

The Operational Art of War



Most operational-level wargames fail to satisfactorily portray the significance of reserves. Typically, players throw all of their units along the front in a desperate attempt to create a breach in the enemy line. In *ART OF WAR*, reserves play a valuable role, since they can replace battle-worn frontline units, giving them a chance to rest, refit, and reorganize. Reserves can also be used to plug gaping holes created by an enemy attack or to

act as a follow-on force to bolster a flagging offensive.

Here, elements of the British 11th Armored Division have become intermingled in the American sector, lying opposite the powerful German 17th SS Panzer Division. These units should be reassigned to the British sector, where, together with other British units, they can enjoy the benefits of formation support. While the British can attempt to disengage, it's likely that their engineering company will evaporate in the process.

More prudent would be to order the 101st Airborne out of reserve to occupy the British position. Compared to the enemy SS units, the 101st has much higher reconnaissance capability, which will serve to screen the British withdrawal. Other factors such as time of day, prevailing weather conditions, and terrain are also taken into account. Note how the British units pay a heavy movement penalty to disengage. —Mark Dubz

Simulation/Space Sim

Total Air War



Pilots in *TOTAL AIR WAR* (TAW) may be disturbed to find themselves flying alone in later campaigns, where missions start with airfields under attack. If you rush into the air, your wingmen will never follow. The solution lies in TAW's taxiing procedures, which seem to confuse some gamers. The following "regulation" taxi procedure comes from the developer (it's not documented in the game's manual). Adhere exactly to this point-by-point guide and all planes in your flight will take off with you every time.

1. As soon as you get into the mission, go to **Emcon manual 5**. If the tower asks you to go to Emcon 5, check to make sure you are in **E5** and **copy**.
2. Wait for clearance to taxi to runway. This may be beyond the tower's planned takeoff time, due to heavy air traffic—especially if the base is under attack—but you will eventually be given clearance. If you get tired of waiting, **Shift-T** will speed up game time.
3. The tower will tell you, "Cleared for taxi to runway hold." Press **Y** to copy the tower's message.
4. Using the wingmen commands menu, tell your wingmen to "**Push 1**."
5. Follow the HUD direction carats to the runway. If you don't follow the route marked by the carats, your wingmen will remain parked.
6. Come to a complete halt—apply the brake—on the taxiway just before the runway message "Lead, on the hold" appears. If you do not hold on the area of taxiway indicated by the carats, you will not get clearance to line up.
7. Wait to be told to "**Line up**" by the tower.
8. Taxi onto the runway (keep up a sensible speed and be aware that your wingman is behind you) and line up on the farthest right-hand marker (the single-line marker).
9. When both you and your wingmen are in place you will be given clearance to take off!

—Courtesy of DfD's Matthew Pearson

Adventure/RPG

Final Fantasy VII

Consult your map of the Great Glacier as you explore this item- and combat-rich area.



Dig roughly where Cloud is standing in order to find the Lunar Harp.



Explore the Ancient Forest (east of Cosmo Canyon) to find some useful items.



To collect the coupons on the 63rd floor of the Shinra Building, open two doors to get to the room on the left. Climb up the air duct to get to the next room and open one final door to get the last coupon.



Bring plenty of gil to the battle game in Fort Condor. Deploy long-range weapons near the front line and protect them with fighters.

—Petra Schlunk

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Clans

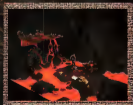
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WELCOME TO THE COOPERSTOWN OF COMPUTER GAMES. Games that broke the records, established the benchmarks, and held gamers in delighted trances for hours untold.

Alone in the Dark (I-Morse, 1992)
Lovercraftian horror goes 3D, with shifting camera angles adding to the creepy atmosphere.

The Bard's Tale (EA, 1985)
Pioneered three-point animation, 3D color maps, and auto-mapping.

Battle Chess (Interplay, 1988)
The Franklin Mint of computer chess games, with violent and funny animation disguising a solid chess engine.

Betrayal at Krondor (Dynamic, 1993)
As rich and imaginative as Raymond Feist's world itself.

Chessmaster (Software Toolworks, 1980)
The Cadillac of casting, it gets better with each version.

Command & Conquer (Virgin/Westwood Studios, 1995)
Moved beyond Dune II with innovative features and multiplayer play, ushering in the current real-time strategy game explosion.

Day of the Tentacle (LucasArts, 1993)
Offbeat sequel to Monkey Island, the interactive equivalent of a classic Chuck Jones cartoon.

DOOM (id Software, 1993)
Revolutionized PC action games and network gaming, now surpassed in technology, but not in gameplay.

Dungeon Master (TL Software, 1987)
Trend-setting graphics, digitized stereo, and great hack-and-slash from a decade ago.

Earl Weaver Baseball (EA, 1982)
Revolutionary physics-based baseball game pleased both action and statistics fans, still unsurpassed more than a decade later.

Empire (Interleaf, 1978)
World War II in space, this mainframe transplant brought elegant mechanics, depth, and unending replayability to the PC.

F-19 Stealth Fighter (MicroProse, 1988)
A "thinking man's" sim, with great missions, in which sneaking around is as fun as dogfighting.

Felcon 3.0 (Spectrum Holobyte, 1991)
Tough, detailed jet sim with ambitious AI, graphics, and connectivity to match its realism.

Front Page Sports Football Pro (Dynamic, 1993)
Physics-based system, good AI, and unmatched career play make this the ultimate in pigskin play.

Gettysburg: The Turning Point (SSI, 1986)
First variable order of battle changed the look of all American Civil War games on the PC.

Gunship (MicroProse, 1986)
Great character continuity, B&B for fatigued pilots, and even sick leave; best chopper fare until Jane's Lossow.

Harpoon (360 Pacific, 1985)
In-depth modern naval battles at sea, based on the US's Cold War fleet.

Kampfgruppe (SSI, 1985)
Its World War II East front armor battles were a success on multiple platforms.

King's Quest V (Sierra On-Line, 1990)
Redefined the graphic adventure with new parser and VGA graphics.

Lemmings (Pygostix, 1991)
The lovable cartoon Lilliputians were hits on every platform.

Links 386 Pro (Access Software, 1992)
Topped the leader board in graphics and realism for its era.

M-1 Tank Platoon (MicroProse, 1988)
Realistic sim that properly focused on armored formations rather than on single vehicles; good mission designs.

Master of Magic (MicroProse, 1994)
The atmosphere of Magic: The Gathering with the sophistication of Civ.

Master of Orion (MicroProse, 1993)
Remarkable diplomatic AI, deep and varied technology tree; aliens required radically different playing styles.

Mech Brigade (SSI, 1985)
Improved KAMIGURU's system for modern armored battles.

MechWarrior 2 (Acheivision, 1995)
A serious treatment of Mech design and resource management, combined with complex and addictive battles; legitimized "giant robot simulators."

Night & Magic (New World Computing, 1988)
First-person, maze-based RPG with huge environment and tough combat.

M.U.L.E. (EA, 1983)
A landmark multiplayer strategy game that had no weapons of destruction, just cutthroat competition that made economics fun.

Panzer General (SSI, 1994)
Entertaining wargame with an elegant interface, great campaign, strong AI, good graphics, and impressive sound.

Red Baron (Dynamic, 1990)
World War I air combat with great graphics, incredible realism, and a versatile replay feature.

The Secret of Monkey Island (LucasArts, 1990)
Comedy that set new standards in writing quality and social sensitivity.

Sid Meier's Civilization (MicroProse, 1991)
CGI's #1-rated game of all time, indiscibly addictive world-conquest/exploration game.

Sid Meier's Pirates (MicroProse, 1987)
Combines pirate adventure, action, RPG, and strategy to make the most successful hybrid of all time.

Sid Meier's Railroad Tycoon (MicroProse, 1990)
SimCiv meets 1830, with rubber barrels for emphasis.

SimCity (Moxa, 1987)
Urban planning with fascinating consequences and challenges; the first great software top.

Starflight (EA, 1986)
Orph, great characters, and a good so-fli storyline set early RPG standard.

Their Finest Hour (LucasArts, 1988)
World War II sim with great campaigns, realism, and many crew-member options.

TIE Fighter (LucasArts, 1994)
Most satisfying Star Wars space-combat game to date; lets you live on the dark side.

Ultima III (Origin Systems, 1983)
Coherency and saving subtlety emphasized role-playing and set the tone for later Ultimas.

Ultima IV (Origin Systems, 1985)
High concept RPG explored meaning of virtue and put the role in role-playing.

Ultima VI (Origin Systems, 1990)
RPG as morality play, replete with moral choices and realistic environs.

Ultima Underworld (Origin Systems, 1992)
The first truly 3D RPG, and still the most convincing; its dungeon walls are nicely "painted" with texture-mapped graphics.

War in Russia (SSI, 1984)
More realistic than Eastern Front, it captured the essence of the largest land campaign in history.

WarCraft II (Blizzard, 1994)
More cerebral than most real-time strategy games, it offered descriptive depth and personality to spare.

Wasteland (Interplay, 1988)
Derived from Mike Stackpole's Mercedesian, Spies, and Private Eyes, this is the definitive postapocalyptic RPG.

Wing Commander (Origin Systems, 1990)
A lost space-flight engine, unfolding story path, and great characters.

Wing Commander II (Origin Systems, 1991)
Darker story, gruffer feel, sound card advances, and tougher AI made this a sequel of sequels.

Wing Commander III (Origin Systems, 1994)
Surprisingly satisfying F/W space-opera didn't lose the essence of the space-combat game.

Wizardry (Sir-Tech Software, 1981)
Defined the computer RPG with maze-based viewpoint and atmospheric spell names.

Wolfenstein 3-D (id Software, 1992)
Smooth-scrolling action blastfest cleverly updated the original and put shreware back on the map.

X-COM (MicroProse, 1994)
Premier tactical squad-level engine combined with alien tech research and pop culture for a so-fli game nearly as addictive as Civilization.

You Don't Know Jack (Berkley Systems, 1996)
Fresh and irreverent, JJK turned trivia gaming on its collective ear to become the first mainstream CD-ROM with a gleeful gameplay bite.

Zork (Infocom, 1981)
The progenitor of adventure games on the PC; its humor and challenging puzzles seem timeless. The game has since spawned a number of sequels, none of which has equaled the original.

TOP 100

CGW'S MONTHLY READERS' POLL

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

RANK	RANK	GAME/COMPANY	SCORE	RATING
1	1	Quake II Activision	8.67	4.5
2	2	Jedi Knight: Dark Forces III LucasArts	8.46	4.5
3	2	Quake Pack 2: Dissolution of Software/Eidos	8.05	5
4	4	Quake Pack 1: Scourge of Hellwood/Pitbull	8.04	4.5
5	5	Unreal GI Interactive	8.08	4
6	5	Jedi Knight: Mysteries of the Sith LucasArts	8.03	4
7	—	Rainbow 6 Real Time Entertainment	8.16	3.5
8	7	Quake III MP: The Reckoning of Software/Pitbull	7.99	3.5
9	8	Terminator: Future Shock	7.82	4
10	9	Moto Racer EA	7.74	4

TOP ADVENTURE GAMES

RANK	RANK	GAME/COMPANY	SCORE	RATING
1	1	Curse of Monkey Island LucasArts	8.24	5
2	2	Serifinoz 2K Games	8.22	4.5
3	4	Twinsen's Odyssey Activision	7.69	5
4	3	Blade Runner: Menace/Vigen	7.64	4.5
5	5	Zark: Grand Inquisitor Activision	7.57	4.5
6	6	Scalies of the Hoarding Interplay	7.49	4.5
7	6	Last Express Red Orb	7.40	4.5
8	9	Circle of Blood Vigen	7.37	4
9	8	Rambo Vigen	7.30	4.5
10	10	Tex Murphy: Overcrack Access Software	7.27	4

TOP CLASSIC/PUZZLE GAMES

RANK	RANK	GAME/COMPANY	SCORE	RATING
1	1	You Don't Know Jack 2 Entelby Systems	8.29	4.5
2	2	You Don't Know Jack 3 Entelby Systems	7.94	4
3	4	You Don't Know Jack Movies Entelby Systems	7.68	4.5
4	3	Smart Games Challenge 2 Smart Games Inc.	7.85	5
5	5	Worms 2 MicroProse	7.78	4
6	6	You Don't Know Jack TV Entelby Systems	7.69	2.5
7	7	You Don't Know Jack Sports Entelby Systems	7.48	4.5
8	8	Power Chess Vigen	7.35	4.5
9	9	Shanghai Dynasty Activision	7.27	3
10	10	Lose Your Marbles Legend	6.62	4.5

TOP SIMULATION/SPACE COMBAT

RANK	RANK	GAME/COMPANY	SCORE	RATING
1	1	Longbow 2 EA	8.47	5
2	2	Wing Commander: Prophecy Origin	8.34	4.5
3	3	F-15 EA/Vigen	8.19	4.5
4	4	F22 ADF 2K	7.77	4.5
5	5	Fighters Anthology EA	7.67	3.5
6	7	Flight Unlimited 2 Looking Glass	7.60	4.5
7	6	MechWarrior 2: Mercenaries Activision	7.60	4.5
8	—	Descent: Freespace—The Great War Interplay	7.51	4
9	9	Flight Simulator 98 Microsoft	7.30	3.5
10	8	MI Tank Platoon II MicroProse	7.28	3.5

TOP SPORTS GAMES

RANK	RANK	GAME/COMPANY	SCORE	RATING
1	1	NHL 98 EA Sports	8.46	4
2	—	World Cup 98 EA Sports	8.45	4.5
3	3	NBA Live 98 EA Sports	8.32	4.5
4	2	FIFA Road to the World Cup 98 EA Sports	8.21	4.5
5	4	NASCAR Racing 2 Vigen	8.12	5
6	5	Jack Nicklaus 5 Acclaim	7.99	5
7	6	NBA Live 97 EA Sports	7.76	4.5
8	7	Diamond Mind Baseball 7.0 Diamond Mind	7.62	3.5
9	10	Tripleplay 99 EA Sports	7.57	2.5
10	9	Jack Nicklaus 4 Acclaim	7.46	5

TOP STRATEGY GAMES

RANK	RANK	GAME/COMPANY	SCORE	RATING
1	1	Heroes II: Price of Loyalty 3D0/New World Computing	8.50	5
2	3	StarCraft Blizzard	8.30	5
3	2	Total Annihilation: Core Contingency Caveside	8.26	4.5
4	4	Heroes II 3D0/New World Computing	8.26	5
5	5	Red Alert Vigen/Wisnood	8.04	4.5
6	6	Total Annihilation GI Interactive	8.04	4.5
7	7	Red Alert: Counterstrike Vigh/Wisnood	8.04	4.5
8	9	Age of Empires Microsoft	7.99	4.5
9	—	Civilization II: Scenarios MicroProse	7.88	4
10	10	Civilization II: Fantastic Worlds MicroProse	7.88	4

TOP ROLE-PLAYING GAMES

RANK	RANK	GAME/COMPANY	SCORE	RATING
1	1	Night and Magic VI 3D0/New World Computing	8.53	4.5
2	2	Diablo Blizzard	8.53	4.5
3	4	Halford Interplay	8.32	4.5
4	3	Final Fantasy VII Eidos	8.31	5
5	5	HalfLife Vigen	8.27	4
6	6	Shadowrun Over Blood Sir Tech	8.00	3
7	7	Lands of Lore II Wisnood	8.06	4.5
8	8	Meridian 59 3D0	8.01	3.5
9	9	Ultima Online Origin	8.02	3.5
10	10	BattleSpire Bethesda	4.53	2

TOP WARGAMES

RANK	RANK	GAME/COMPANY	SCORE	RATING
1	1	Steel Panthers II Campaign Disk 3D0	8.23	4.5
2	2	Operational Art of War TalonSoft	8.21	4.5
3	3	Paper General II 3D0	8.20	5
4	5	Sid Meier's Gettysburg Avalon	8.01	4.5
5	6	Steel Panthers II 3D0	7.98	4.5
6	7	BattleGround: Napoleon in Russia Vigen/3D0	7.87	4.5
7	8	BattleGround: Antietam Horvok	7.78	5
8	9	BattleGround: Bull Run TalonSoft	7.76	4
9	4	Great Battles of Julius Caesar I Magic	7.66	4
10	—	Steel Panthers III 3D0	7.28	3

Games on unnumbered lines are tied with game on line above. ★ = Top game of 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.

YR	MO	LAST MO	GAME TITLE	GENRE	CRIT. SCORE	CON. RATING
★	1	1	Heroes III: Price of Loyalty 300New World Computing	SI	8.86	5
★	2	2	Might and Magic V 300New World Computing	RP	8.83	4.5
★	3	4	StarCraft Blizzard	SI	8.80	5
★	4	3	Total Annihilation: Core Contingency Creative	SI	8.76	4.5
★	5	5	NHL 98 EA Sports	SP	8.66	4
★	6	6	Heroes II 300New World Computing	SI	8.56	5
★	7	7	Diablo II Blizzard	RP	8.53	4.5
★	8	8	Quake II Activision	AC	8.48	4.5
★	9	10	Longbow 2 EA	SI	8.47	5
★	10	10	Jedi Knight: Dark Forces III LucasArts	AC	8.46	4.5
★	9	9	Red Alert: VirginWestwood	SI	8.46	4.5
★	12	10	Quake Pack 2: Dissolution of SoftwareEidos	AC	8.45	5
★	—	—	World Cup 98 EA Sports	SP	8.45	4.5
★	14	13	Quake Pack 1: Scourge in SoftwareEidos	AC	8.44	4.5
★	15	17	Unreal GT Epic	AC	8.38	4
★	16	16	Wing Commander: Prophecy Origin	SI	8.34	4.5
★	17	17	Jedi Knight: Mysteries of the Sith LucasArts	AC	8.33	4
★	14	14	Steel Panthers II Campaign Disk SI	WG	8.33	4.5
★	18	21	Fallout Interspy	RP	8.32	4.5
★	17	17	NBA Live 98 EA Sports	SP	8.32	4.5
★	21	14	FIFA Road to the World Cup 98 EA Sports	SP	8.31	4.5
★	17	17	Final Fantasy VII Eidos	RP	8.31	4
★	21	21	Operational Art of War LucasArts	WG	8.31	4.5
★	24	23	Phazer General II ISI	WG	8.27	5
★	25	25	Total Annihilation: GT Interactive	SI	8.26	4.5
★	26	23	Curse of Monkey Island LucasArts	AD	8.24	5
★	26	26	You Don't Know Jack 2 Berkeley Systems	CP	8.19	4.5
★	28	29	F-15 Falcon SI	SI	8.18	4.5
★	29	27	Red Alert: Counterstrike VirginWestwood	SI	8.16	4
★	30	30	NASCAR Racing 2 Sierra	SP	8.12	5
★	31	—	Halfway 4 Red Storm Entertainment	AC	8.10	3.5
★	32	33	Sid Meier's Gettysburg Focus	WG	8.01	4.5
★	33	35	Age of Empires Microsoft	SI	7.99	4.5
★	38	38	Jack Nicklaus 5 Acclaim	SP	7.99	5
★	31	31	Quake II MP: The Reckoning in SoftwareActivision	AC	7.99	3.5
★	34	34	Steel Panthers III SI	WG	7.98	4.5
★	37	36	You Don't Know Jack 3 Berkeley Systems	CP	7.91	4
★	38	41	Civilization II: Screenshot MicroProse	SI	7.88	4
★	40	40	You Don't Know Jack Movies Berkeley Systems	CP	7.88	4.5
★	40	41	Hellfire Sierra	RP	7.87	4
★	41	41	Tomb Raider Eidos	AC	7.87	4
★	42	38	Civilization II: Fantastic Worlds MicroProse	SI	7.86	4
★	43	37	Smart Games Challenge 2 Smart Games Inc.	CP	7.85	5
★	32	32	StarCraft: Insurrection Blizzard	SI	7.85	3.5
★	45	44	Battleground: Napoleon in Russia TakeSoft	WG	7.82	4.5
★	44	44	Sentorian ASC Games	AD	7.81	4.5
★	51	51	Warcraft II MicroProse	CP	7.78	4
★	48	47	F22 ADF DID	SI	7.71	4.5
★	49	49	Battleground: Antietam TakeSoft	WG	7.76	5
★	50	50	Battleground: Bull Run TakeSoft	WG	7.76	4

YR	MO	LAST MO	GAME TITLE	GENRE	CRIT. SCORE	CON. RATING
★	46	46	NBA Live 97 EA Sports	SP	7.76	4.5
★	52	47	Moto Racer EA	AC	7.74	4
★	53	51	Tomb Raider II Eidos	AC	7.71	4
★	—	—	Commandos Eidos	AC	7.71	2.5
★	55	55	Twinsen's Odyssey Activision	AD	7.69	5
★	58	58	You Don't Know Jack TV Berkeley Systems	CP	7.69	2.5
★	57	53	Fighters Anthology EA	SI	7.67	3.5
★	58	54	Blade Runner WestwoodVirgin	AD	7.66	4.5
★	28	28	Great Battles of Julius Caesar I Megs	WG	7.66	4
★	60	63	Diamond Mind Baseball 7.0 Diamond Mind	SP	7.63	3.5
★	61	57	Backzone Activision	AC	7.61	5
★	62	64	Flight Unlimited 2 Looking Glass	SI	7.60	4.5
★	59	59	MechWarrior 2: Mercenaries Activision	SI	7.60	4.5
★	64	70	TriplePlay 99 EA Sports	SP	7.57	2.5
★	62	62	Zork: Grand Inquisitor Activision	AD	7.57	NR
★	66	66	Dungeon Keeper Expansion EA/Bulldog	SI	7.55	4.5
★	67	61	Descent: Freespace—The Great War Interspy	SI	7.51	4
★	59	59	MechCommander MicroProse	SI	7.51	4
★	69	64	Myth Bungie	SI	7.49	4.5
★	70	66	You Don't Know Jack Sports Berkeley Systems	CP	7.48	4.5
★	71	69	Jack Nicklaus 4 Acclaim	SP	7.46	5
★	72	67	Triple Play 98 EA Sports	SP	7.44	3
★	73	72	Remains of the Warning Interspy	AD	7.43	4.5
★	74	71	Interstate '76 Activision	AC	7.41	4.5
★	75	72	Last Express Red Orb	AD	7.40	4.5
★	76	76	Dungeon Keeper EA/Bulldog	SI	7.38	4.5
★	—	—	Worlds III: Darklands Red Orb	SI	7.38	4.5
★	78	78	Circle of Blood Virgin	AD	7.37	4
★	79	75	F1 Racing Simulation Iobit	SP	7.36	5
★	80	72	Power Chess Sierra	CP	7.35	NR
★	81	82	Virtual Pool 2 Interspy	SI	7.32	4.5
★	82	85	Flight Simulator 98 Microsoft	SI	7.30	3.5
★	76	76	Rama Sierra	AD	7.30	4.5
★	84	79	MI Tank Platoon II MicroProse	SI	7.28	3.5
★	85	80	Shanghai Dynasty Activision	CP	7.27	3
★	89	89	Tex Murphy: Divergence Access Software	AD	7.27	3
★	87	80	Steel Panthers III ISI	WG	7.26	3
★	88	82	Achtung! Spiffire Avision Hill	SI	7.25	5
★	89	82	Age of Rifles Campaign Disk ISI	WG	7.24	4
★	86	86	PGA Tour Pro EA Sports	SP	7.24	3.5
★	91	87	Baseball Magul Interspy Monkey	SP	7.22	4
★	92	90	X-COM: Apocalypse MicroProse	SI	7.19	4
★	93	88	Close Combat: A Bridge Too Far Microsoft	WG	7.18	4.5
★	94	90	Leisure Suit Larry 7 Sierra	AD	7.17	3.5
★	90	90	Lords of the Realm II Sierra	SI	7.17	4
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★	98	98	FIFA Road to the World Cup 97 EA Sports	SP	7.12	NR
★	99	94	Black Dahlia Interspy	AD	7.09	3
★	96	96	Spelling 300	AC	7.09	NR

GREENSPEAK

And Now a Word From Grandpa

Or, if I'm Not Old, Why Do I Want Those Dang Kids off My Lawn?

The signs are everywhere. There is no escaping it.

I am getting old.

One clue is that I just had another birthday—my 37th. I suppose this beats the alternative—being dead—but this one was clearly the birthday of a soon-to-be-middle-aged guy. For one thing, there were no cool toys whatsoever. No Hot Wheels, no Batman accessories, no rapid-fire water cannons. What I did get, in fact, was some new underwear. Even worse—way worse—was that I was happy about it. Next year, I suppose I'll be thanking people for my personalized drool bucket and inaugural box of Depends.

Turning 37, for whatever reason, has really made me think about stuff, more than the last few birthdays have. For example, 15 years after the fact, it has finally hit me that I am no longer just "postcollege" and should therefore stop daydreaming about living in a dorm again and throwing pennies at people from out the window.

I've also noticed that it's getting harder and harder to stay hip. I don't know what "gettin' jiggy with it" means, nor do I honestly care. Go get jiggy somewhere else—and keep it down while you're at it. I don't want any part of my body pierced, at all, unless it's somehow going to help my digestion. And Marilyn Manson? What's up with that guy? (It's a

guy, right?) I have no clue what his music sounds like, but whenever I see his picture I want to tell him to eat some meat, for Pete's sake, and to get some natural sunlight.

■ ■ ■

But the clearest, and most depressing, sign of my rapidly approaching slide into care-rattling, tapioca-pudding-eating



JEFF GREEN

than actually playing. My aim is so shaky, you could attach a fork to my mouse and scramble an egg while I played. When I'm not dead, you can usually find me standing still, in wide open spaces, panicked, weaponless, waiting to die.

The picture isn't much prettier in real-time strategy games. In the ongoing CGWAGE OF EMPIRES battles, while my opponents are frantically collecting resources, building armies, and preparing to destroy me, I am usually squinting at my screen, wandering around with one peasant, looking for my first berry bush. Often I have to be reminded what game we're playing, or be led back to my desk if I've wandered off, mumbling to myself about

Quicken, working on my stock portfolio? Instead of stressing out about how to stop those frickin' buildings from catching on fire all the time in CAESAR III, shouldn't I be attending weekend business seminars and reading books on cholesterol?

But, you know, I just can't get into it. I don't want to be like that. And why should I? Life's too short to act "old." And, anyway, if perennial youngster John Glenn can orbit the Earth at age 77, I can play a **QUAKE II DeathMatch** at age 37. I just hope I'll be playing **QUAKE X** (or maybe the then brand-new **DAIKATANA**) at age 77 myself.

So, go ahead and laugh at the old man. I may not be able to frag a moving target anymore, but I'm still having fun.

I just hope I'll be playing **QUAKE X (or maybe the then brand-new **DAIKATANA**) at age **77**.**

senility is my exponentially declining gaming skills. Especially when it comes to action games like **QUAKE II**.

Back in my day (before electricity, before the wheel, before your fancy modern conveniences like "housing"), I could hold my own in a first-person shooter. My reflexes were good and my mind was sharp, so I could routinely kick booty in games like **DOOM** and **MARATHON**. Gamers feared me.

These days, well, it's just kind of sad. I die constantly I spend more time respawning

the good old days of **PAC MAN** and **PONG**.

■ ■ ■

Okay, okay—it's not this bad yet. (*Managing Editor's note: Yes it is.*) But this is my big fear—that I will keep playing games well past the point where I have any business doing so.

I keep wondering, actually, when it's going to hit me that it's time for me to stop goofing off and buckle down and be an adult. Instead of killing giant ants in **FALLOUT 2**, for example, shouldn't I be huddled over

And the day I'm too old to have fun—well, that's the day you can stick me on the cart and haul me away.

Until then, grandpa's gettin' jiggy over here with **GIAM FANGDINGO**. Be a good boy and go get me my pills. My back is killing me! **CGW**

What Jeff doesn't realize is that, as part of CGW's new youth outreach movement, all the editors will get body piercings for next month's issue. Wish Jeff luck on his upcoming nipple ring at jfgreen@zed.com.

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