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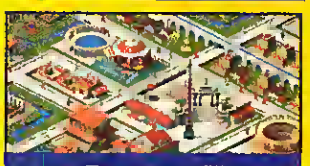

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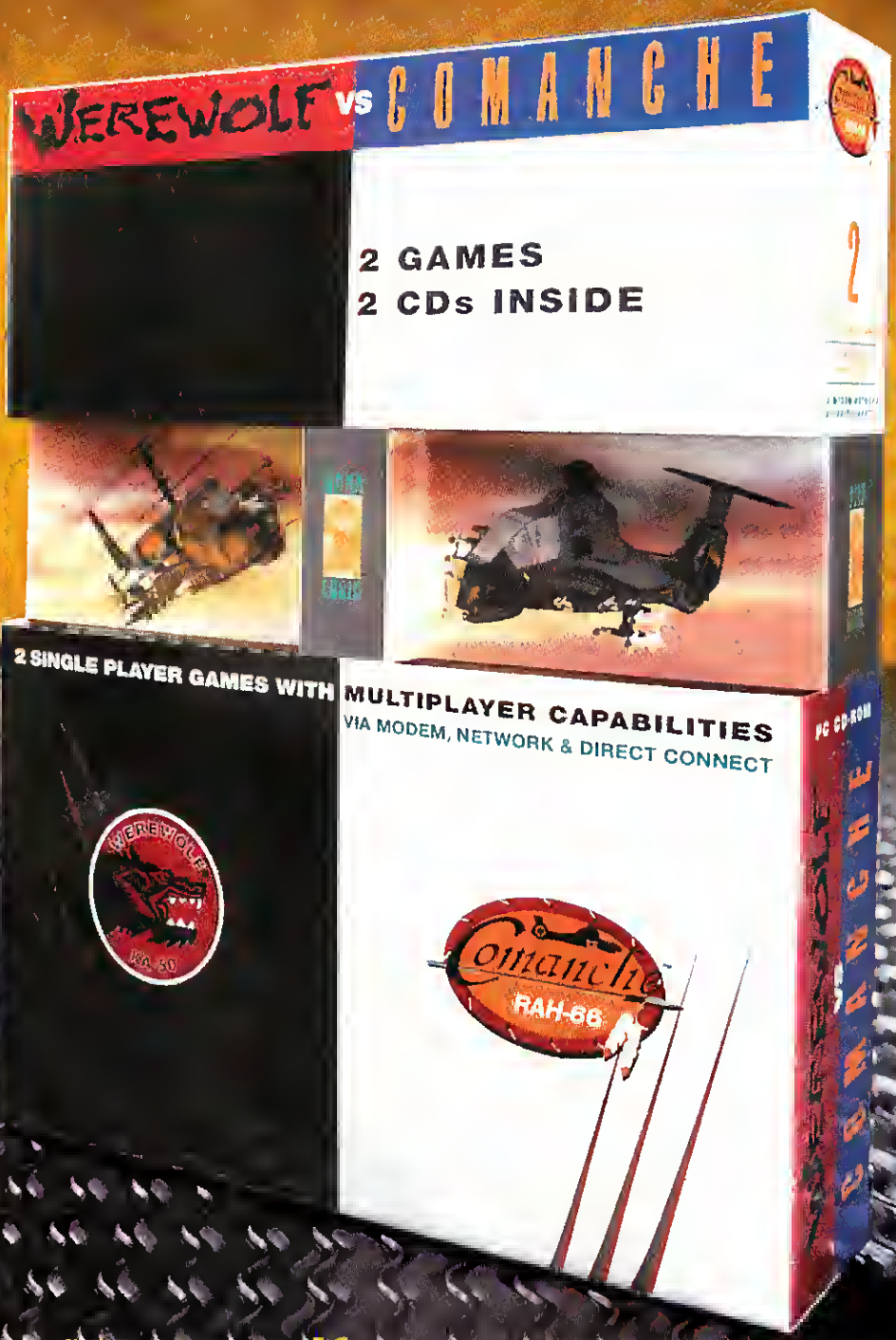

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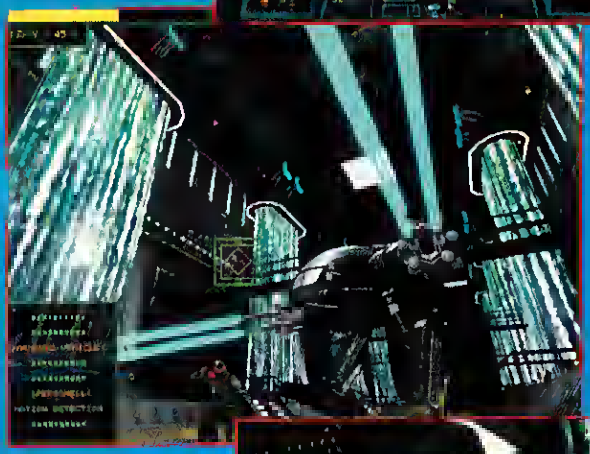

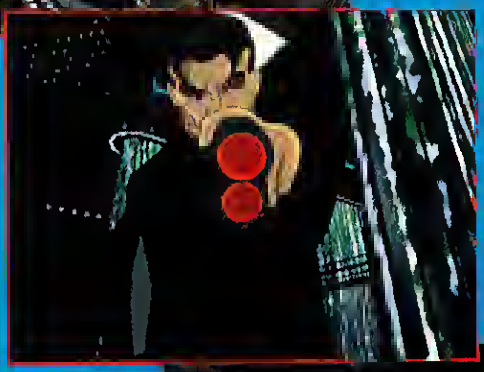

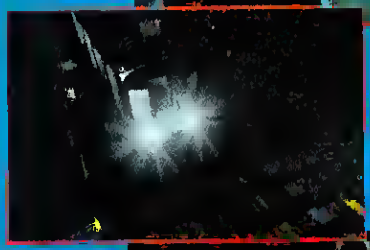

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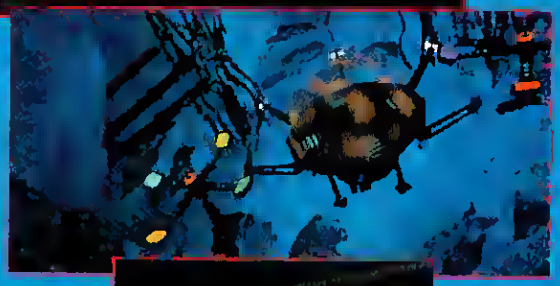

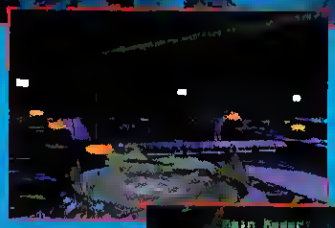

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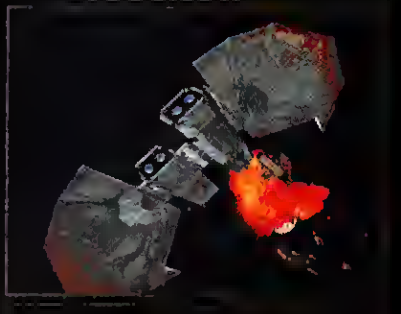

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OCTOBER 1995

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38 ANATOMY OF GAME DESIGN Ever wonder how those ideas get from the mind of a designer to your desktop? Modern computer game development requires a finely orchestrated studio production. Join Paul Schuytema backstage as *CGW* follows the muse of the game designers, programmers, artists, and producers from conception through intended perfection.

60 HARDWARE: SOUND CARD REVOLUTION You don't have to be an audiophile to know that your sound card can make or break a game. But wandering through the maze of MIDI, wavetable, 8 & 16-bit, digitized and even FM-capable cards can make anyone dizzy. For a sweet sound of calm, check out our survey of the latest and greatest sound hardware.

68 HARDWARE: VIDEO CARDS True 3-D applications may be on the horizon, but that's no reason to delay. The new generation of video cards can often enhance the performance of your existing DOS games. Join us as CGW rates the current crop of graphic boosters.

78 SNEAK PREVIEW! ADVANCED TACTICAL FIGHTERS Upgrade your intelligence of **EA**'s new generation of aerial hardware. Denny Atkin finds out about **Electronic Arts**' and **Origin**'s new relationship with **Jane's Information Service**.

THE NEW ART OF WAR

88 SNEAK PREVIEW! CAESAR II **Impressions** has created a new Rome with streets hewn from fine SVGA marble. Arinn Dembo offers a tour of the famed city.

92 SNEAK PREVIEW! WOODEN SHIPS & IRON MEN There are shimmering seas and tall-masted ships aplenty in Terry Coleman's shakedown cruise of the new naval game from **Stanley Associates** and **Avalon Hill**.

96 SNEAK PREVIEW! CONQUEST OF THE NEW WORLD According to Johnny Wilson, **Interplay**'s new game of exploration, expansion, exploitation and extermination may be everything we wanted SID MEIER'S COLONIZATION to be.

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115 SNEAK PREVIEW! ALLIED GENERAL Tired of overrunning Poland? SSI's ALLIED GENERAL might be even more addicting than its storied predecessor. And this time, you get to play the good guys.

122 TEN TOP DOS GAMES RUNNING UNDER WIN '95 For gamers who are worried about whether their old favorites will function in the new operating system, *CGW* puts 10 hot DOS titles through their paces.

130 SNEAK PREVIEW! REBEL ASSAULT II Ken Brown poses as an intergalactic bounty hunter to see if REBEL ASSAULT II can surpass the hypersales records set by its predecessor.

138 **SNEAK PREVIEW! INDYCAR RACING 2.0** After NASCAR RACING, what's left? **Papyrus** has no plans to sit in the Winners Circle until its game chassis rusts out. So, Gordon Goble takes a few laps in their new race car.

148 **AL UNSER ARCADE RACING** There's nothing like truth in advertising, but even from a coin-op perspective, George Jones is still skeptical of this title's horsepower.

156 **MORDOR: DEPTHS OF DEJENDL** Petra Schlunk has been patiently wandering old dungeons while waiting for an enticing new world in which to adventure. After hacking through 999 levels of this repetitive world, she's still waiting.

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161 **SCORPIA'S STING** Nostalgia is nice, but *CGW*'s resident sorceress is unenchanted with **Interplay**'s DUNGEON MASTER II, finding nothing legendary in THE LEGEND OF SKULLKEEP.

168 **SCORPIA'S MAIL** Tired of staring into a STONE PROPHET obelisk? Can't find Eddie at Club BUREAU 13? Been spun around 'til you're dizzy on the DISCWORLD? Our trusty astrologer will guide you through the most puzzling adventure game labyrinths.

170 **SPACE QUEST VI** **Sierra** gets gastroenterological in SPACE QUEST VI: THE SPINAL FRONTIER. Charles Ardai likes the scatological frontier.

176 **NEW HORIZONS** Arinn Dembo suggests that NEW HORIZONS could have claimed new ground, but settled for well-worn soil.

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182 **MECHWARRIOR II** After two and one-half years of development, Martin Cirulis keeps an eye on his heat signature and argues that **Activision**'s new 'mech game just might be the mightiest of all.

186 **TERMINAL VELOCITY** **FormGen**'s Terminal Velocity seems to have everything: action, 3-D sculpted worlds and lots of acceleration. Mark Clarkson considers what to do after the initial adrenalin rush.

190 **SNEAK PREVIEW! CRUSADER** The latest action game from Origin may well feature the most graphic violence ever in a computer game. Yet, Martin Cirulis experiences NO REMORSE in this upcoming **Origin** game.

196 **SAVAGE WARRIORS** It seems to be The Year Of PC Fighting Games...or is it? Master Jason Kapalka finds that **Mindscape**'s Bio-Motion is unique, but its ration of three special moves is SAVAGE indeed.

200 **CHAOS ENGINE** **I-Motion** has come as close to Plug & Play as any game Jason Kapalka has seen. Only trouble is, this "REBEL ASSAULT with training wheels" forgot the Play part of the equation.

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214 BOGEY'S BAR & GRILL Denny Atkin finds Apache heaven as he plays new chopper games and re-discovers old flying and fighting skills far beyond those of fixed-wing aircraft.

218 APACHE Digital Integration mixes in a little of that old **Interactive Magic** and launches the first volley of heat-seeking missiles in the 'chopper wars.

224 US MARINE FIGHTERS Harried because you can't fly a Harrier in EA's US NAVY FIGHTERS? Denny Atkin suggests that you climb into this add-on for some tense mission-oriented fun.

STRATEGY/ WARGAMES

230 BROADSIDES & GRIPESHOT Do you ever sit around the old command post and wonder why "Grand Tactical" sounds great, but none of your generals really know what it means? Alan Emrich serves up his wargame glossary so that you can tell a strategic overview from a tactical finesse.

236 POWERHOUSE Impressions has some of the best ideas for games in the industry, including this energy-czar game. Martin Cirulis just wishes they'd put some of their creative energy into testing play balance.

242 CUSTER'S LAST COMMAND The Brothers Lapkoff, who brought us REMEMBER THE ALAMO, are back with their latest "last stand" game. Alan Emrich saddles up the Palominos and sings the "Garry Owen" to find out if the Apaches and 7th Cavalry are as **Incredible** as they are cracked up to be.

246 HARPOON II DELUXE MULTIMEDIA Capstone's new version of the classic **Three-Sixty Pacific** game still offers plenty of naval micro-management, a new scenario editor, and lots of new video, but HARPOON buff Tim Carter wonders why the AI is still living in the past.

252 STRATEGY! JAGGED ALLIANCE Fallow tree sap is hard to find unless you have the right group of gatherers. To get the most out of your Mercs, join soldier-of-fortune Jeff James, as he unravels the secrets to Santino's Metavirian isle.

262 STRATEGY! WORLD AT WAR: STALINGRAD Meeting stiff German resistance after an initial *Blitzkrieg* past the Don River? Field Marshal Robert Mayer shows you how to purge the German 6th Army in ways that would make Stalin himself proud.

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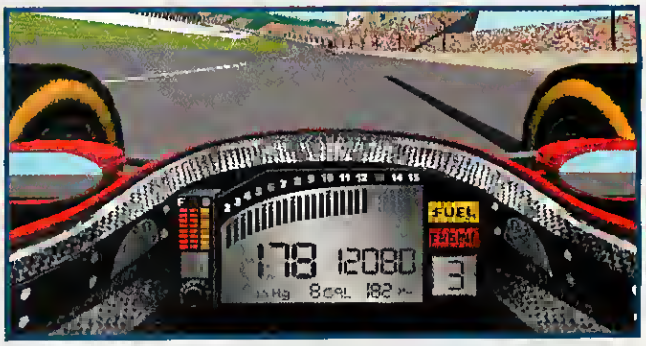

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Circle Reader Service #203

Cutting Through Game Thickeners

Why Mazes And Other Game Design Shortcuts Don't Add Anything To A Game

by Johnny L. Wilson

"The present contains nothing more than the past, and what is found in the effect was already in the cause."
—Henri Bergson, Creative Evolution

I AM A FIRM BELIEVER THAT WE NEGLECT THE PAST, EVEN IN AN INDUSTRY WHICH IS LESS THAN TWO DECADES old, to the peril of the future. So I'd like to offer an observation from the early days of this hobby with the hope that it will discourage game designers from repeating the mistakes of the past.

In 1987 *CGW* founder Russell Sipe and I were talking with the co-designers of Wizardry IV, Roe Adams and Robert Woodhead, outside The Magic Castle in Los Angeles. Adams was reflecting upon the early history of the adventure/role-playing genre. "You can always tell when designers are simply trying to lengthen the game without adding any value," he observed, "because they either stick in gambling, mazes, or arcade sequences."

He went on to suggest that all three features are merely frustrating to the gamer because they eat up time without adding anything to advance the story or enrich the ambiance of the universe. He rightly observed that the adventure/role-playing gamer wanted to advance through a story line where he/she would encounter interesting characters, obstacles and situations.

I didn't dispute his observation then and I certainly can't dispute it now after covering computer games for more than a decade. One merely has to look at the maze in JOHNNY MNEMONIC to see this year's descendent of the kind of irritating maze that can be traced all the way back to Crowther and Woods' pioneering ADVENTURE and, later, **Infocom**'s ZORK. One merely has to listen to gamers complain about how short the otherwise wonderful FULL THROTTLE is in order to notice that it is in the tradition of SPACE QUEST III (possibly the shortest graphic adventure up until its time and a game which would have been significantly shorter without the goofy arcade sequences which have become a trademark of those products). Of course, FULL THROTTLE had gambling sequences, too.

Designers should listen to their audience and not forget what kinds of games they're designing and why people want to play them.

Ironically, even though the graphics of FULL THROTTLE and the streaming video of JOHNNY MNEMONIC are enough to grab the attention of new gamers and non-gamers alike, I've met a lot of folks who simply threw up their hands in frustration. With the former, they ended up performing an arcade sequence over and over again. It made the game longer, but I heard more than one person say that they just wanted to get on with the story. With the latter, the designers were so successful in designing an invisible interface that, at a Sony party during a major trade show, I witnessed people walking up to the computer and, even though they were intrigued by the video, leaving with a stated observation, "I can't figure out what's happening."

Designers have to decide what they are trying to do and quit relying on shortcuts to fill out a game. One of my great frustrations with what I call multi-mediocre software (multimedia) is that the designers don't seem to consider the power of interactivity. They provide a so-called interactive coffee table book on art, music, sports, wine or whatever and never consider what people can *do* with the information at their fingertips. They don't let you take the art apart and find out what's good about it; change the musical compositions or even print out custom scores; create printouts for your sports fantasy team or update stats for your favorite sports game; customize your wine tasting notes or update their catalog with notes on the next year's vintages; or anything that might be considered useful. They

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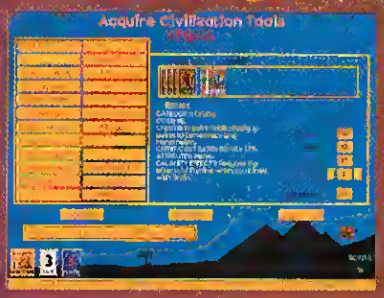

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simply throw on video, animation, sound and a few hot spots for us to browse. Browsing, though, is the low end of interactivity. These designs seem merely to be created from the perspective of filling a CD rather than allowing the user/gamer to *play*. And let's face it, the power of computing is the power of play.

Why are spreadsheets important? They give you a template to play with figures, data and "What if?"s. Why were word processors revolutionary? They let you move your words around and play with new structures and phrasing while keeping the old structure in memory—sort of verbal risk management. Why are databases powerful? They let you play around with the data, sorting and printing to fit your need or whim of the moment. The most powerful designs in any type of computing let you *do* something with the assembled data. (With apologies to Chris Crawford for paraphrasing his classic argument.)

As both a gamer and someone who has watched computer game design for a long time, I'm not against using new technologies. I'm not against streaming video and I'm not against either 3-D graphics or 3-D sound design. I think they can all eventually enhance our gaming experiences. But right now I'm hearing a lot of frustration from gamers in the feedback to this magazine and online comments from people playing new games. And I hope that designers will listen to their audience and not forget what kinds of games they're designing and why people want to play them. People still want to go to new places, meet interesting characters and do things they couldn't necessarily do in "real" life. Why add unnecessary obstacles which may keep them from getting the full benefit for which they purchased the game? Using filler doesn't necessarily make the experience fuller.

HOW DO WE RATE?

The Guide To CGW's Review Rating System

★★★★★ Outstanding: That rare game that gets it all right. The graphics, sound, interface, and, of course, the game play come together to form a Transcendent Gaming Experience.

★★★★½ Very Good: A quality game that succeeds in many areas. May have minor problems, but is still worth your time and money, especially if you're interested in the subject matter/genre.

★★★½ Average: A mixed bag. Can often be a game that reaches for the stars, but falls short in significant areas. Can also just be a game that does what it does well, but lacks flair or originality.

★★½ Weak: A game with serious problems. May be buggy, may not have much play value, may be ill-conceived—and you may want to think twice about buying it.

★½ Abysmal: That rare game that gets it all wrong. Usually a buggy, incomplete, and/or valueless product.

COMPUTER GAMING WORLD

The #1 Computer Game Magazine

OCTOBER 1995, NUMBER 135

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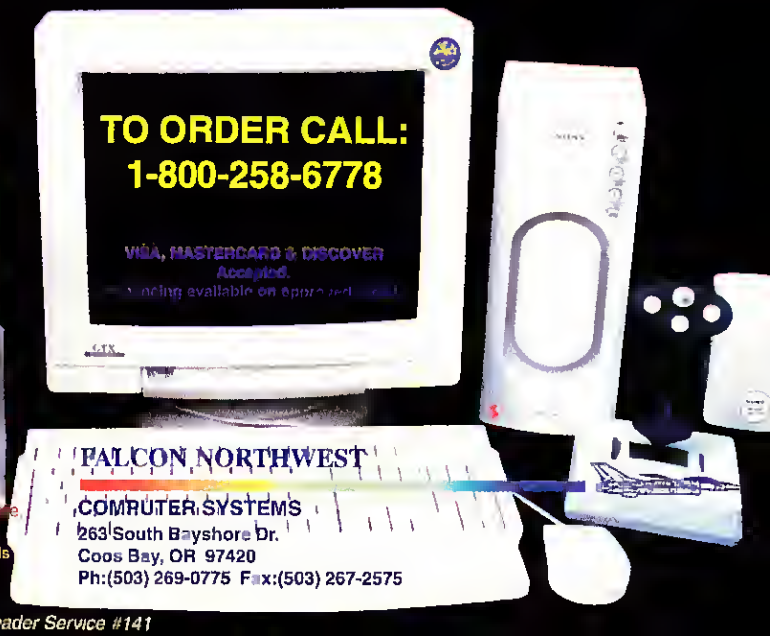

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Circle Reader Service #141

Interface

LETTERS FROM CGW READERS

RADIO FLYER

After reading your excellent magazine for so long, it's about time I have my name in your pages. I want to talk about music. You know, that thing we used to only hear on the radio, and now

get with our games? Don't you think it's about time to publish a new hit list—something like the best 10 songs performed in computer games. I think that music sells games. I know this from FULL THROTTLE. The music written by The Gone Jackals got my fox—not the graphics or gameplay, the music. Their song, "Born Bad" (played at the end of the game), is good in any dimension. For now, it's my number one.

Tzvi Katzburg
Petah-Tikva, ISRAEL

We definitely agree that music adds to the gaming experience. We also agree that the music in FULL THROTTLE is particularly good. A lot of movie soundtrack compilers could eat their hearts out over how good FT's soundtrack is. We even agree that a Top 10 list would be nice. The only trouble is that most top ten lists for music are based on sales figures, and there are no sales figures for computer game music separate from the games. We could ask readers to rate their favorites and compile a "Playing Lately?" style Top 10, but we hesitate to ask our readers any more questions than the number in the sizable survey we already send. If enough other readers want it, though, we'll gladly provide it. Readers?

CD PROTECTION

If a game (e.g. PERFECT GENERAL II) requires you to insert the CD each time you play, you should list the protection as Key Disk. If manufacturers re-introduce key disk copy protection via CD—fine. Let's just be up front about it.

Jim Eckert
Rochester, NY

Key Disk copy protection was a technique used in the floppy disk era in an attempt to keep gamers from merely copying the production disks and playing off the hard drive. During that era, everything on the floppies except for the key disk protection scheme was copied to the hard drive. The entire purpose of the procedure was to protect against piracy. We haven't studied today's CDs for the bytes:disk ratio of data stored to the hard drive compared to that which remains on the CD, but our suspicion is that there is plenty of video data being kept on the CD rather than being transferred to your drive. Since this is to your advantage (not having your hard drive filled full of video clips, audio clips, etc. which you might only hear/see once or twice) as opposed to functioning merely as a protection scheme (of course, it can serve that function as well), we never really thought of CDs as being protected.

HEAR, HERE!

Please convey my sincere appreciation to Allen Greenberg for his review on KINGDOM: THE FAR REACHES in the August issue of CGW. In particular, Mr. Greenberg's note that the game does not support text display, making the game unplayable for hearing-impaired people, saved me some trouble, as I was on the verge of purchasing this game. As it was, this would have been the third game this year that I would have had to return because of the lack of a text-display option. I sure wish other reviewers would take the time to consider the needs of hearing-impaired/deaf gamers.

Jeff Thomas
via the Internet

It is extremely easy for game designers and publishers to get tunnel vision whenever new technologies become both practical and affordable. Prior to CD-ROM storage, game designers longed for the days when most of us could hear characters speak their lines rather than reading them on-screen. Many designers felt this was a move analogous to the shift from silent film to the talkies. Of course, this doesn't take into consideration people who live in a silent world all the time or even those of us who prefer to turn off bad voice acting. We encourage game companies to utilize a closed-caption option within their games. It shouldn't be that difficult, since many companies used text-based placeholders until the soundtrack is in place anyway.

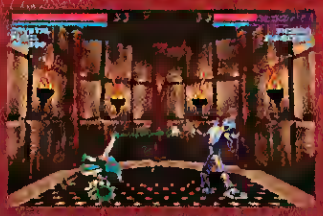
TWO'S COMPANY

First, I'd like to compliment you on the excellent quality and quantity of information in CGW. Your magazine is so entertaining to read that I actually subscribed to it for about a year *before* I purchased an IBM-compatible PC for gaming. For the past ten years, I had enjoyed my venerable Commodore 64 and Amiga 500. However, now that I have decided to explore the vast selection of PC software, I have experienced a major problem. I can't find any software, with the exception of sports games and war games, that can be played by two players at the same computer.

Before you explain the addictive fun of modem and net-

"One Must Fall 2097 is the best fighting game available for the PC, bar none"

COMPUTER GAME REVIEW



Supports dual joystick head-to-head combat in 5 unique arenas

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Are you tired of PC beat-em-up games that don't live up to their hype? PC Gamer says "this is a truly excellent game" and "you won't be disappointed" with One Must Fall 2097. PC Answers calls it "outstanding", PC Home calls it "a must" and PC Gamer says it "plays brilliantly". Computer Game Review says One Must Fall 2097 is "fast, furious and fun above and beyond the call of duty". PC Gamer also calls it "the definitive" and "most awesome beat-'em-up on the PC". Even people who tend to not like fighting games seem to enjoy the sheer playability and fun of One Must Fall.

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work play, I must explain that I cannot afford the hardware and other related costs for these options (although I did enjoy your recent article about these gaming venues). For years, my friends and I have thrived on competing with each other in arcade-type computer games. Does the PC have any good two-player games or will I lose all my friends?

John Coscia
Norristown, PA

Sounds like you enjoy action games, so you might want to check out ***Acclaim****'s* MORTAL KOMBAT *2 and GTE's* FX FIGHTER *(most side-scrolling fighting games allow for two-players to play at the same keybourd) or* ***New World****'s* ZEPHYR *and GT's* SUPERKARTS *(both are racing games). If you want to stretch your interest into strategy, you can also try* ***New World****'s* SPACEWARD, HO! *(a space conquest/economics game). If you're willing to dig through used game sales, catalogs and bargain bins, you could even fly* ***Three-Sixty****'s* BLUE MAX *(WWI air combat) against an opponent via a split-screen and the same keyboard.*

THIS MAGIC TORMENT

I have an outstanding strategy for Master of Magic which I would like to share with your readers. It leads to a quick victory at any level of difficulty.

Start by selecting a custom wizard with 1 spell book of Death magic. Be sure to select the spells Lycanthropy and Wraiths. Go to the magic summary screen and change the wands so that all of your mana points are being added to total mana. You should be gaining about 10 points per turn. Spend the next 30 turns building your total up to 300 mana points in order to cast Wraiths.

At first, attack neutral cities with the Wraiths. Normal armies are no match for them and you will be able to rapidly expand. Watch out for spell-using armies and enemy wizards with the Star Fires spell. To defeat these hazards, have several units of normal troops accompany your Wraiths. Units that hang back will tend to draw spells away from the advancing Wraiths. Avoid fighting the undead since Wraiths will be unable to drain life from them.

Wraiths enjoy the benefit of enlisting slain enemies to their cause. Normal troops enlisted in this way will have no cost; however, they will not heal. Watch out for summoned creatures (such as Warbears) which rise from the dead to serve you because of their high upkeep cost in mana.

When you are generating adequate stores of mana, create units of werewolves with the Lycanthropy spell. As long as you win the battle with your advancing Wraiths, even units of werewolves which have been destroyed will be regenerated.

Nick Rice
Hamden, CT

RANTS AND HURRAHS

Your "Rants & Raves" article in issue #134 was right on target. I hate buying a game and then having to spend a few hours tweaking my AUTOEXEC.BAT and CONFIG.SYS files to get it to run on my system.

If one game from company ABC causes me trouble, you can bet than any future games by ABC will be skipped without a second thought. Yes, I know I might be missing out on many great games, but when I spend $50.00 on a game and then have to spend hours trying to get it to run, my enjoyment level of that game drops tremendously before I have even played it.

Game customers should take notice that their customers are becoming frustrated with all of the different configurations required for each game. They should remember the following three rules: 1) frustrated customers equal lower sales; 2) lower sales equal fewer profits; and 3) fewer profits equal going out of business.

Tim Bernaden
Chicago, IL

Right, Tim. Guess some publishers don't realize that two hours spent on your CONFIG.SYS isn't equivalent to adding two hours to gameplay.

CORRECTION

The phone number listed for ***The Imagination Network*** *in September's Telegaming Section was incorrect. The correct number for INN is 1-800-IMAGIN1, which translates to 1-800-462-4461. The one listed in the article takes callers right to a fax line which, in turn, might be confused with a modem line and might tend to frustrate interested gamers. We apologize for the error, especially to those of you who received an unwelcome whistling tone in your ear.*

The caption in September's Telegaming Section which referred erroneously to GEMSTONE III *as a* ***Kesmai*** *game was incorrect. GEMSTONE III, soon to appear on* ***America On-Line****, is a* ***Simutronics*** *product.* ***Kesmai****, of course, is the publisher of the upcoming* REALMS OF KESMAI *role-playing game and also distributes* THE DRAGON'S TALE *which was previewed in September's Telegaming Section.* ***Simutranics*** *is the publisher of* CYBERSTRIKE *and* MODUS OPERANDI.

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CH Throttle
programmable functions

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20 programmable functions

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Circle Reader Service #194

Origin Takes Ultima On-Line, Readies Cybermage, Crusader

Ultima On-Line Will Let Players Choose A Variety Of Lifestyles

In recent days, **Origin Systems (Electronic Arts'** wholly-owned subsidiary) has not only announced one of the first products in the new Jane's line of military simulations (see "Bogey's Bar & Grill" on page 213), but has gone on record as planning for all of their 1996 products to be Windows 95 products. In addition, Lord British (Origin's Richard Garriott) recently appeared in an on-line conference with *Computer Gaming World* on ZDNet Compuserve (the full transcript is available on-line) and announced some details about ULTIMA ON-LINE on the Internet and the upcoming ULTIMA IX.

Lord British said that the on-line graphic role-playing game (RPG) will not require all players to be avatars. Rather, "...it will be a full, real Britannia where players can choose to live many different lifestyles." ULTIMA ON-LINE will have the traditional ULTIMA perspective with its 3/4 overhead view and a graphic look somwhere between ULTIMA VI and ULTIMA VII. The company has completed two successful 50 person tests with Origin employees.

As for ULTIMA IX, Lord British observed that, as is traditional with their flagship series, the technology is being built from scratch. Yet, the feel of the game will be much more akin to ULTIMAS IV through VI. As the third installment of the third ULTIMA trilogy (I-III, IV-VI, VII-IX), ULTIMA IX is intended to be the epic of all epics—completing the Guardian trilogy of VII, VIII and IX once and for all. Explained Lord British, "We also reach back to ULTIMA IV and resolve the relationship between the Avatar and the Guardian. And as long as we were reaching back to ULTIMA IV, we decided to reach all the way back to ULTIMA I and to Mondain and his magic gem and tie up everything back to the beginnings of Britannia."

Unlike ULTIMA VIII, however, ULTIMA IX will allow

LORD BRITISH RULES Richard Garriott's long-living Ultima series continues with ULTIMA IX and ULTIMA ON-LINE.

FIST THINGS FIRST CYBERMAGE will let gamers fight them in the city and fight them in the trenches.

you to choose a male or female character. Indeed, according to Origin's Warren Spector, "You can select your sex, the sex of your love interest, and during game play, you can decide how serious your romance becomes."

Origin is also busily at work with two other titles: CRUSADER and CYBERMAGE.

CRUSADER is a strategic action game utilizing a refreshing 3/4 perspective, gorgeous Super VGA graphics and a underlying storyline in the WING COMMANDER III fashion (but, *sans* big name stars). For more information, check out our Sneak Preview on page 190.

CYBERMAGE is another action hybrid that has people drooling. At first glance a spiced-up version of SYSTEM SHOCK, this game is anything but that. Using a brand new engine, Origin is going one step further in creating a fully functioning world. Getting away from the level-oriented approach, CYBERMAGE allows you free reign of a city where you can: hop into a assault hovercraft and strafe the city; fight battles alongside lifelike allies; enter city shops and perform many more destructive actions. Super VGA graphics, of course, will also be part of the package.

CYBERMAGE and CRUSADER should both be available in time for the holiday season. And, on the subject of holidays, WING COMMANDER IV is rumored to be ahead of schedule (and over-budget).

PLAYING LATELY?

Here are the games that your fellow players are blowing the most time with. Let us know which game you've been playing the most by writing the name of your current addiction in the "Playing Lately?" blank of the *CGW* Top 100 ballot.

Readers' TOP 10

Results for *CGW* #133, AUGUST 1995

1. **Panzer General** (SSI)
2. **Star Trek: The Next Generation** (Spectrum HoloByte)
3. **X-COM: Terror From The Deep** (MicroProse)
4. **Jagged Alliance** (Sir-Tech)
5. **Master of Magic** (MicroProse)
6. **X-COM: UFO Defence** (MicroProse)
7. **Dark Forces** (Lucas Arts)
8. **Wing Commander 3** (Origin)
9. **NASCAR Racing** (Papyrus/Virgin)
10. **Descent** (Interplay)

Notable Quotes

Wit, wisdom and caustic quips from gaming's harshest critics

"As a new addict about to invade Washington, I can testify that PANZER GENERAL is a *great* game for a 48-year-old lawyer without rocket reflexes or a year to devote to MYST."

John Chesson, Falls Church, VA

"I've been underground (in DESCENT) so long, my skin's starting to turn white."

Dennis Rodrigues, Rockville, MD

"After playing DARK FORCES and THE FIGHTER you can only dream at what **LucasArts** will come up with next. Hands down, they're the best in the business."

Will Dinkel, Lawrence KS

"Counselor Troi is just as useless in A FINAL UNITY as she was in the series. Can't we just open a bulkhead and flush her out into space?!"

Mark Polk, Mitchellville, MD

"I've been hooked for 4 weeks on TERROR FROM THE DEEP and have only one question: How far *can* you throw a grenade underwater?"

Steve Shin, Jax FL

"I'm coming under heavy fire from family and friends because I can't stop with JAGGED ALLIANCE. Send in reinforcements!"

Jason Sabotin, Atlanta, GA

Sadly, I beat FULL THROTTLE way too quickly. Watching the ending sequence, however, made me wanna buy a Corley, head for the Southwestern desert, and join the Polecats...

Jon, Brooklyn Park, MN

Can Interplay Prove It's A Good Sport With VR Line?

Chess, Dungeons, Dragons, Frankenstein, And Stunts Are Also In The Queue

The biggest news at **Interplay** right now is a splashy entry into the computer sports game arena. Long dominated by **Electronic Arts** and **Sony**, computer sports gamers will see serious entries for every major sport in **Interplay**'s new *VR Sports Line*. Beginning next year in the second quarter, *VR Sports* will kick off with baseball, soccer, golf, and pool games, followed in the third quarter by football, basketball, and hockey games.

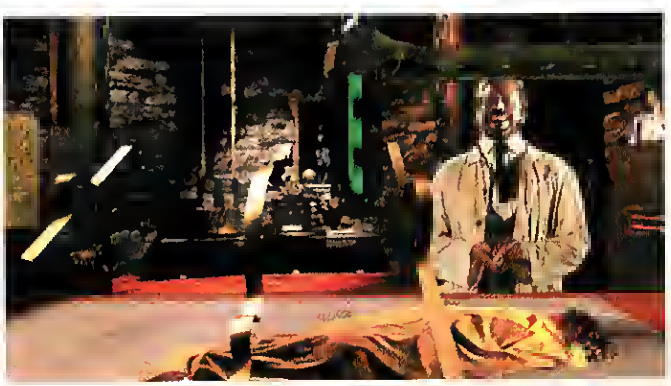
What sets this sports game line apart from the others? Well, the inclusion of "VR" (for virtual reality) in every product title is a clue, indicating a technological attack on the competition. **Interplay** has pulled out all the stops to create "Virtual FieldVision," a full 3-D world in every game so that every viewpoint (or camera angle, if you will) imaginable can be freely obtained. We especially liked the baseball's eye-view camera during the course of a home run. Gameplay will use garoud-shaded polygon technology, but every sports venue (stadium, golf course, etc.) will be authentically detailed (including Coors Field and the Ballpark at Arlington).

In *VR Soccer*, you'll find all 44 International Teams and the game can be played over a network by up to 20 players, each operating a single player and seeing the game from that player's on-the-field perspective. This *DOOM's*-eye-view of playing in a sporting event is an absolute wow.

ANNOTATION WALTZ Gamers who like to study fully annotated transcripts of their games or have the computer analyze potential moves will love Interplay's U.S. Chess Federation Chess.

Of course, **Interplay** isn't strictly working on sports games. With a strategic entertainment partner like MCA (parent company of Universal Pictures), you won't be surprised to see the Waterworld game coming out from **Interplay**. For a 10-level action game, the addition of full motion video and ray traced graphics give it a nice look, while the path splitting gives this title some extra replayability. For the reflex impaired, there are simple control commands and varying difficulty settings. More cerebral players will appreciate the strategy game, Waterworld: The Quest for Dryland, with its over 30 minutes of original film footage.

Interplay has also launched a **TSR Division**. In addition to their previously announced licensed worlds from the AD&D publisher, *Forgotten Realms* and *Planescape*, computer gamers will get to play the computerized version of TSR's Dragon Dice (which gives computer players all 123 of the initially released collectable dice, plus ten unique virtual dice). Dragon Dice can be played by up to four players (network and modem) and features plenty of multi-media razzle-dazzle and a real Dragon Lord die in every box.



FRANKENFURTER OR FRANKENSTEIN It's fairly easy to imagine Tim Currie as either. Here, he plays Dr. Frankenstein in Interplay's Frahkenstein: Through The Eyes of the Monster.

Also in the **TSR** sphere is Forgotten Realms: Descent to Undermountain, which the marketing types at **Interplay** have dubbed "Descent meets Ultima." It's clearly an action-oriented role-playing game with 360 degree movement for up to four players (via modem and network). Characters will advance in experience levels as they explore a fleshed out story through twenty dungeon levels.

Adventure gamers (and *Rocky Horror* fans) should love Tim Curry in Frankenstein: Through the Eyes of the Monster. While the game's perspective is clearly stated in the subtitle, it is interesting that Mary Shelley's story has been warped (yet again). This time, we find a Dr. Frankenstein who does not fear, but instead coaches his monster. Comparisons to Myst are natural as the player tries to unravel the Mysteries of his very existence.

Interplay is also making some interesting knight moves. Chess Mates is a children's chess program from the team that brought you Mario Teaches Typing (and look for Mario Teaches Typing 2, too), while US Chess Federation Chess boasts the only comput-

New Intel OverDrive Processor Will Turn Your 486 Into A Pentium

The latest flight sim looks like a slide show on your 33-MHz 486 system. You've had to turn the detail down so low on your favorite racing game that the cars don't even have wheels. You're ready to upgrade, but you don't want to sink $2,000 into a new system. Enter **Intel**'s new 83-MHz Pentium OverDrive processor upgrade. This chip features the same core technology as the Pentium processor, including superscalar architecture, branch prediction, and a faster math coprocessor. The OverDrive only has a 32-bit path to RAM (compared to a real Pentium's 64-bit memory access), but it sports a 32K on-chip cache to help take better advantage of its 83-MHz internal processing speed.

With a suggested list price of $299, the Pentium OverDrive becomes a viable upgrade alternative to the 100-MHz DX4 chip (which it outperforms by 15 to 40 percent, and even more when running Pentium-optimized code). It will bring your older 486 system into the same processor performance class as a 60-MHz Pentium. If you're still running an ISA video card and hard drive controller, you'll probably be better off going for a motherboard replacement, as those subsystems will still bog your computer down even *with* the faster processor.

HOT UPGRADE CHIP Intels' new Pentium OverDrive turbocharges older 33-MHz 486 systems with Pentium-like performance.

Your 486 system will need a 237- or 238-pin OverDrive socket (look for an extra set of holes surrounding your current processor chip) to use this chip; if it has an older 486-only socket you'll have to stick with the DX2 or DX4 OverDrives. To find out if your PC can use the Pentium OverDrive, point your Web browser at http://www.intel.com/procs/ovrdrive, or call Intel at (800) 548-4725.

er chess program that can actually award an official USCF national rating.

FATAL RACING is a 16-player stunt-driving action game with a look good enough to make one reach for the Dramamine. Both cooperative and competitive play are supported as players zoom over jumps, through monster loops, and around corkscrews. What action players might be more interested to hear, however, is that DESCENT will not only have a Christmas relaunch of the original game, but next year will see the DESCENT: LEVELS OF THE WORLD mission disk (complete with a mission building contest), and DESCENT II (monikered as "twice the insanity in 360 degree 3-D") with 30 new levels, 18 new robo-baddies, and 13 new weapons.

—Alan Emrich and Petra Schlunk

Diamond Ups The Ante With 8x CD-ROM Drive

If you always have to have the fastest hardware on the block, it's time to buy a new CD-ROM drive. **Diamond** just two-upped the 6x competition with the new Multimedia Ultra 8x Kit. The $549 package includes an 8x drive that transfers data at 1200K per second, finally rivaling hard drive loading speeds. Seek time is rated at a perky but more CD-like 230 ms. The kit is rounded out on the hardware side with a plug-and-play, 1MB wavetable sound card with 3-D audio, as well as a set of Yamaha speakers. Bundled software includes MYST, REBEL ASSAULT, SIM CITY 2000, MAGIC CARPET, and the 1996 COMPTON'S ENCYCLOPEDIA—Diamond has obviously taken notice of the fact that it's the the gamers who tend to stay on the leading, sometimes bleeding, edge of performance.

EIGHT CYLINDER CD Diamond's Multimedia Ultra 8x Kit packs one of the fastest CD-ROM drives on the planet with the usual sound card, speakers, and hot game assortment.

BETA bits

HEXEN

The center of hell is in Wisconsin. At least, that was our opinion after the guys from **Raven** left our offices, having just dropped off a little bundle of joy called HEXEN. Basically HERETIC 2 with some significant enhancements, this game, to quote Raven's Brian Raffel, "takes the DOOM engine about as far as it'll go." And that's pretty far. If you, like most of us, got hooked on HERETIC (and who couldn't—it had that visceral, gritty DOOM feel, but went beyond that with an inventory and flying), you'll definitely get high from HEXEN.

MANNA MIA New magic-powered weapons and non-linear gameplay help HEXEN push the DOOM engine to its limits.

The basic story is...oh, who cares? What you need to know is that the graphics have been improved to the point where you'll see flying leaves, ground-splitting earthquakes and swiveling secret bookcases. In addition to that, multiple levels are all connected together, eliminating the linear mode of gameplay that every first-person 3-D game has been locked into so far.

Another huge difference in HEXEN is that you'll be able to choose from three different characters to play the game. Mage, Cleric, Fighter—each of these three heroes has their own arsenal of weapons (including one super weapon which is broken into pieces you'll have to reassemble). These weapons are no longer fueled by ammo, but by manna.

Network play, of course, will be included; hopefully Raven will be able to work out the kinks in their eight-player scheme. Players will be able to be any of the three heroes in this mode.

And if all this isn't enough, not only can you turn your enemies (and yourself) into chickens, you can also turn them into pigs. Oink.

HEXEN will debut on October 30—Devil's Night—as the championship arena of a worldwide DOOM deathmatch.

STONEKEEP

In 1992, we saw STONEKEEP for the first time. Its working title back then was BRIAN'S DUNGEON, and it was incredibly impressive. The dungeon looked great, the step-by-step animation was fast and—by the standards of the then-current state of the art—the video antagonists were outstanding. At the Winter Consumer Electronics Show of 1993, we saw an even more impressive demo. The designer, one Peter Oliphant, stood in front of a large-screen monitor and used a **Logitech** flying mouse to completely suspend our disbelief as we watched him fence with skeletons. But it didn't ship.

By late 1994, the digitized video was complemented by 3-D rendered monsters, great special effects, an improved interface, and some solid role-playing design. We wrote a sneak preview based on one level of the dungeon, a tour of the pieces yet to be implemented into the game and careful reading of several book-sized design documents. We were sold. But it didn't ship.

It is now late 1995. We are playing through three levels. The action is smoother, especially using a combination of keyboard and mouse. The video is less chunky than in any recent game, and the interface is even slicker than we thought it would be. If **Interplay** ships it this year, STONEKEEP will *definitely* make waves. RPGers have waited a long time for a game of this magnitude. It has faster first-person, point-of-view action than THE ELDER SCROLLS: ARENA, but retains some of the feel of actually using a weapon. And the sound effects are exceptional.

The game really makes an attempt to keep your head in the game with story elements that continually feed your motivation to do well. STONEKEEP isn't a "Monte Haul" dungeon nor an archaic "hack 'n slash"

STONEY END STONEKEEP's protagonist may not make it through this encounter naked of armor (see mirror in the upper right corner), but his compatriots may see him through.

romp. It is a well-conceived labyrinth designed to challenge all corners of your mind.

HEROES OF MIGHT & MAGIC

It is the best of times, it is, well, the best of times. That's our initial impression of **New World**'s upcoming title, HEROES OF MIGHT & MAGIC. Combining the best elements of KING'S BOUNTY (a simple, addictive strategy/RPG) with a more robust strategy model, some resource management, and splendid SVGA graphics, this game might just compete for time-muncher of the year.

There are two different modes of play—standard individual scenarios (a scenario editor would be a welcome addition) and a campaign game that progresses from one dire situation to the next. Hopefully this chapter-ish approach to gameplay will help circumvent the tedium that usually creeps into the middle of these builder/conquest games.

HEROES, which is incredibly easy to jump into, pits you against up to three opponents. You'll raise armies by building the homes for various creatures (a nest for Gryphons, a treehouse for Elves), and hire heroes to lead these troops across the countryside, where they'll wreak havoc on your enemies, gain treasure for your vault, and recover powerful artifacts for your battles. Different resources (trees, iron mines, and the like) all factor into the game; you need ore to build the Mage Guild, for example. Making matters more complicated is the presence of your opponents, who, in most cases have the exact same agenda as you do.

Run into a group of uglies and it's time for combat. The turn-based combat is straight from KING'S BOUNTY—you move your troops around a kind of 3-D side-perspective battlescape. And the opponents here seem talented.

The little things are all present as well, from location-specific sounds (you'll hear owls when your hero is in the woods and eerie sounds in the swamp) to highly detailed worlds. And in another blow to time management, multiplayer network play will be supported

HEROES' CONQUEST The battlescape may be familiar, but HEROES OF MIGHT AND MAGIC's new strategic elements should keep you glued to the screen.

CHRONOMASTER

Anyone who witnessed William Shatner plugging TEKWAR on *The Late Show* is well aware of **Intracorp**'s tendency to create games out of high-profile licenses. With CHRONOMASTER, however, things appear to be different. Nebula and Hugo award-winning science-fiction author Roger Zelazny was heavily involved in the writing of the background story. Zelazny chose to develop a new work rather than have a game adapted from his existing fiction (He no doubt recalled the tepid game based on his *Chronicles of Amber* novels).

Sadly, Roger Zelazny passed away in July, but CHRONOMASTER is still coming along nicely. **DreamForge** has created a marvelously detailed universe even better-looking than their work for SSI (RAVENLOFT, MENZOBERRANZEN). Jane Lindskold, Zelazny's co-author for the project, has a good feel for characters—since she is a gamer herself—which comes through in the NPCs we encountered in this early version. Some are sarcastic, others mysterious, but none are quite what they seem.

In time-honored science fiction fashion, you portray an

PIPELINE

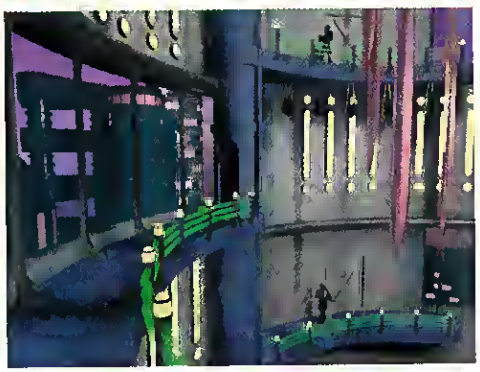
ESTIMATED RELEASE DATES BASED ON THE LATEST INFORMATION FROM GAME DEVELOPERS

NAME OF GAME, COMPANY	RELEASE DATE
Age of Rifles SSI	10/95
Aliens Mindscape	10/95
Awful Green Things QQP	10/95
Battles in Time QQP	10/95
Burn Cycle Philips	10/95
Chessmaster 5000 Mindscape	1[illegible]
ChronoMaster Capstone	1[illegible]
Conquest of the New World Interplay	10/95
Crusader: No Remorse Origin	10[illegible]
CyberMage Origin	10/[illegible]
Dungeon Keeper Bullfrog/EA	11/95
Frankenstein Interplay	10/95
Front Page Sports Football '96 Sierra	11/95
Gabriel Knight II	11/95
Guardians of Destiny Virgin	10/95
Kingdom of Magic SCI	11/95
Knight Moves Spectrum HoloByte	11/95
IndyCar Racing 2 Papyrus/Virgin	11/95
McKenzie & Co. American Laser	11/95
Millennia GameTek	10/9[illegible]
Mission Critical Legend	10/9[illegible]
Mortal Kombat III GT Interactive	10/9[illegible]
NCAA Football Mindscape	10/9[illegible]
Pax Imperia II Blizzard	11/95
Police Quest: SWAT Sierra	10/95
Slipper Take 2	11/95
Romance of the 3 Kingdoms IV Koei	10/95
Shannara Legend	11/95
Smilsle Maxis	10/95
Space Bucks Impressions	10/9[illegible]
Star Control III Accolade	11/95
Stonekeep Interplay	10/95
TekWar Capstone	11/95
Terra Nova Virgin	10/95
TFX 2000 Ocean	10/95
The Raven Project Mindscape	10/9[illegible]
This Means War! MicroProse	10/95
Top Gun Spectrum HoloByte	11/95
Unnecessary Roughness '96 Accolade	11/95
Warcraft II Blizzard	11/95
Warhammer Mindscape	11/95
Wing Commander IV Origin	11/9[illegible]
Wooden Ships & Iron Men AH	11/9[illegible]
You Don't Know Jack Berkeley	10/9[illegible]

adventurer who reluctantly comes out of retirement to help the interstellar bureaucrats save the galaxy (they can't overtly get involved, you see). It seems that pocket universes are winking out of existence, so you must find the key to enter these universes and save them from their untimely fate.

Because you are flitting about, not merely in space but in time as well, you must carry a supply of "bottled time" around lest *you* wink out of existence. This conceit gives you a sense of urgency because (you guessed it) there's only so much "Time in a Bottle" to be had.

As you move through the exquisitely pretty worlds you pick up a variety of anachronistic objects, everything from plasma markers to common screwdrivers, applying these to statues, other beings, etc., in typical adventure game fashion. What isn't so typical is that there really are multiple solutions to many of the puzzles. Also, the storyline is certainly different from other time-travel romps (TIMEQUEST, BURIED IN TIME). Eventually, you begin to uncover a sinister plot: is it a galactic conspiracy, an other-worldly invasion, a warping of the flow of time itself? Well, that would be telling...so we suggest that you wait for the final release. It might actually be a science fiction game which does the genre justice.

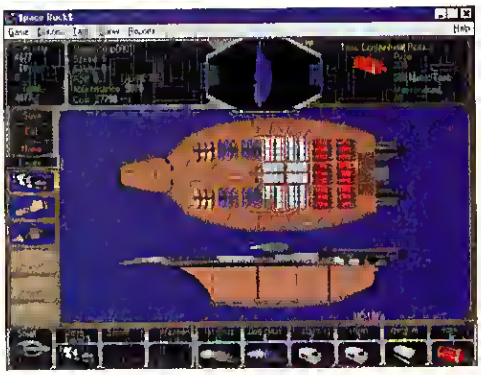


WORLDS OF WONDER Roger Zelazny is no longer with us, but his spirit may live on in the gorgeous sci-fi worlds of CHRONOMASTER.

SPACE BUCKS

Imagine real-time GAZILLIONAIRE with elements of AIR BUCKS and DETROIT, and plenty of customizable chrome. SPACE BUCKS may be accused of being another management game from **Impressions** in the tradition of their "games as incognito spreadsheets" line, but this game of interstellar drayage and extraterrestrial teamsters offers considerably more new wrinkles than its ancestors. First, you get to choose one of five different races (four are non-human) to play. Second, the game requires real-time decision-making, which adds a sense of immediacy and suspense. Also, like LORDS OF THE REALM (its most immediate predecessor), SPACE BUCKS features an improved interface that graphically cloaks the spreadsheet better than previous Impressions games. It even features business negotiations, which provide the flavor of diplomacy many people find appealing.

In addition, we love the way you can customize your ships to take advantage of various cargo strategies or develop your spaceport to line your capitalistic pockets more fully. The cargo holds (stasis, toxic, and ordinary) seem to make more difference to the bottom line than equivalent configurations in AIR BUCKS. You were unable to customize your ships to this level of detail in GAZILLIONAIRE, a competitor's version of spacefaring teamsters and the closest game to SPACE BUCKS we can recall. Also, the spaceport expansion gives the game something of a RAILROAD TYCOON feel.



BASE RACE Cosmic entrepreneurs in SPACE BUCKS will be able to expand their spaceports and customize their ship designs.

SPACE BUCKS is definitely the prettiest of all the games in its lineage, and it should take the game play up a peg with all its improvements. Although the game hadn't yet been play-balanced, we are excited about its potential. It looks like this game might appeal to old friends of the game style, and might just bring in some new blood as well.

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Circle Reader Service #44

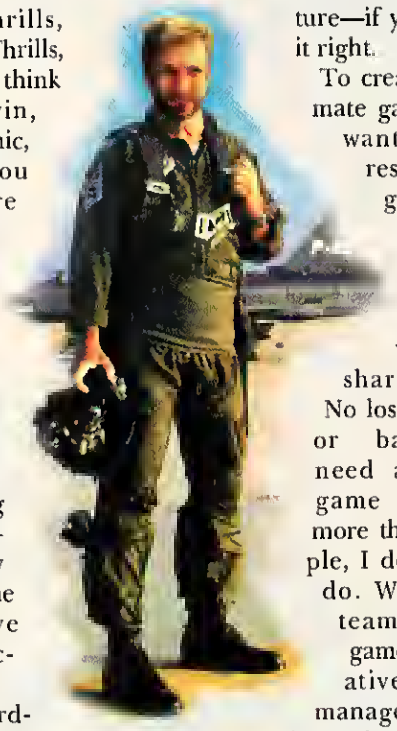
The 64 Gigabyte QUESTION?

Ask Brent Iverson, designer of such hits as CHUCK YEAGER'S AIR COMBAT and US NAVY FIGHTERS, to describe the game he'd create given no hardware or financial restraints, and you might expect an exciting nut-and-bolts description of the ultimate flight sim. What you'll get, though, isn't a discourse on frame rates and flight models, but a studied examination of what makes a game worth playing. Take the stick, Brent.

The ultimate game is somewhere out there, waiting for me to create it. What is it? I'm afraid my answer is going to be abstract. After five years of writing flight simulators, my brain is unable to comprehend any game other than a flight sim, and unwilling to design another flight sim. So, in abstract, what is this ultimate game?

It's addictive. It's full of things for you to do that tickle your brain's pleasure circuits. You get satisfaction from achieving your overall goals, and also from each action that takes you there. It's rewarding when you fulfill the goals, not just because the game arbitrarily rewards you, but because you enjoy experiencing the game-state you create as you play.

It's challenging. But playing it should produce thrills, not panic. Thrills, because you think you can win, and not panic, because you know you're eventually going to lose. An excellent player should be able to create his own thrills by seeing how quickly, or how carelessly, he can achieve the objectives.



It's rewarding to you as a person. That means more than just improving your hand-eye coordination. Maybe it gives you self-confidence. Maybe you learn more effective ways of interacting with people. Or maybe you just learn not to wear brown shoes with a blue suit.

It's fun for me to create. A game is more than just a disk in a shrink-wrapped box. It's also a year or two in the lives of the team that made it. When I hold the box, I want to remember something other than late nights and weekends at work, hard-to-find bugs, personality conflicts, management problems, and impossible schedules. I don't expect tra-la-la fun all the time, though. Working on gameplay and AI is always mind-numbing torture—if you're doing it right.

To create this ultimate game, I don't want unlimited resources. Just give me five excellent programmers and artists who all share a vision. No losers, whiners, or backstabbers need apply. Any game that needs more than five people, I don't want to do. With a large team, making a game isn't a creative act, it's a management exercise. It's too hard to make design changes, so your design gets frozen too early. With all the emphasis on scheduling and task lists, you forget that your customers won't care whether you implemented this week's task list on time. You forget that your real job is to create a fun game, not meet an arbitrary schedule.

And this game is... Well, it's a shooting, dodging, nail-biting game of intrigue and romance. It's a game of mass creation and destruction, with a virtual world as your sandbox. It's an abstract puzzle of shapes and movement, with infinite variations. And I'll meet you there, two years from today.

AFFAIRS IN THE CYBURBS

Get The Straight Scoop On ULTIMA IX From The Sources On ZDNet

Now that you've read about Origin's plans to put ULTIMA on-line (page 24), want to read more about it? Download GENCN95B.TXT from the *Computer Gaming World Forum* on ZDNet Compuserve. In that transcript of an on-line conference, Lord British himself describes Origin's plans. Want to know what Roberta Williams really thinks of PHANTASMAGORIA? Try reading her responses to *CGW*'s questions in the PHANTASMAGORIA topic of the Fall Preview, a discussion area in the forum. Want to find out what's going on in overseas software development? Read *CGW* Editor-in-Chief's reports from Europe in the "Hey, Editor!" section of the forum. Wilson will report from the European Computer Trade Show in London, as well as company visits to Bullfrog and Mindscape UK, shortly before this issue hits the newsstands.

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PHANTASMAGORIA

Finally, the wait has ended. The eagerly anticipated foray of Roberta Williams into the horror genre, PHANTASMAGORIA, appears to deliver on its ambitious promises. The tale, which evolves over seven chapters, becomes progressively creepier as our plucky heroine Adrienne uncovers the horror that dwells at the Carnovasch estate. Inveterate puzzle-solvers won't find a whole lot to sink their teeth into, but simple puzzle-cracking is only half of the game. PHANTASMAGORIA draws you into Adrienne's nightmare by giving you the full reign of a house that would have had even the folks in Amityville making tracks. It keeps the plot moving with a series of chilling visions, all done in stunning full-motion video. Be warned—some of the scenes can be disturbing, but a censor function will shield the squeamish from the very worst.

Sierra's silver screen production efforts really show—the acting is several notches above that found in most games, and the score really works towards setting an eerie, supernatural tone for the game. The interface is simple, and gamers will appreciate the fast-forward button that lets you skip redundant scenes.

GOIN' TO THE CHAPEL Adrienne unleashes the demon that has plagued Carnovasch for over a century.

Best played with the lights low and speakers cranked, PHANTASMAGORIA is a bulging bag of Halloween candy that delivers more spine-tingling treats than tricks.

IBM CD-ROM, $69.95. Circle Reader Service #1.

SIERRA ON-LINE, BELLVUE, WA (800) 757-7707

THUNDERSCAPE

"Mechamagic" is what **SSI** defines as the mixture of magic and steam-driven technology. Mechamagic is also the basis of power on the world of *Aden*, SSI's new home for a series of role-playing games. Aden has become a violent place ever since it was invaded by a foul race of Nocturnals who have taken over by doing the unexpected. A magic shield which guarded the northlands was thought to be invincible—until the Nocturnals showed up and proved otherwise. In a time the locals refer to as the Darkfall, the Nocturnals were able to cross Skellon's Pass by bringing down the shield which extended from the Radiant Citadel to Vanguard Keep. The game is called THUNDERSCAPE and it challenges you to bring a group of adventurers into Skellon's Pass, Vanguard Keep and the Radiant Citadel, plus an ancient city called Karegh-Konan to restore the shield. THUNDERSCAPE is a first-person perspective game with a strong emphasis on hacking and slashing. There are numerous levels to explore which contain more than their share of battle, traps and puzzles.

IBM CD-ROM, $69.95. Circle Reader Service #2.

STRATEGIC SIMULATIONS INC. SUNNYVALE, CA (800) 245-4525

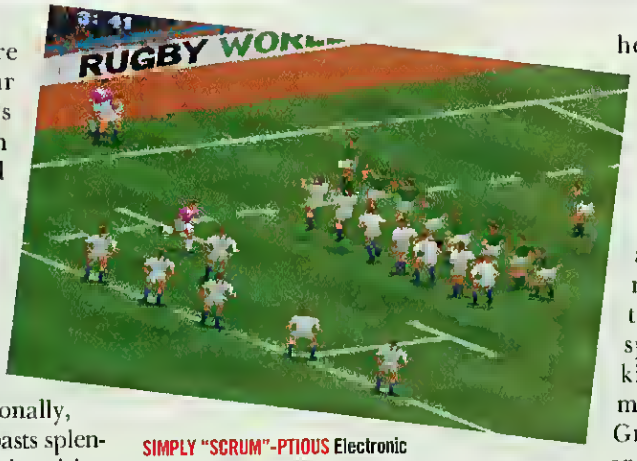
ULTIMATE FOOTBALL '95

If the start of the football season has you a little itchy, league play and World Cup play are all options. The gameplay itself surprised us with its intensity, although the controls are a little harder to learn than most EA Sports titles. Our initial take is that RUGBY is a kegful of fun. And you'll be able to impress (or frighten) your friends with talk of Kicking for Touch and Drop Goals. IBM CD-ROM, $59.95. Circle Reader Service #3.

ELECTRONIC ARTS, SAN MATEO, CA. (415) 571-7171

RUGBY

Any sport where you've gotta wear tape over your ears to prevent them from being ripped off or torn up merits some respect. Realizing the growing interest in the sport, **EA Sports** has developed WORLD CUP RUGBY 95. Traditionally, EA Sports games boasts splendid graphics and intuitive gameplay. Nothing's changed here. Scrummers and non-scrummers alike will find this game to be an accurate and delightful recreation of the European sport. Drop kicks, scrums, mauls and Grubber kicks are all here in glorious detail. Exhibition,

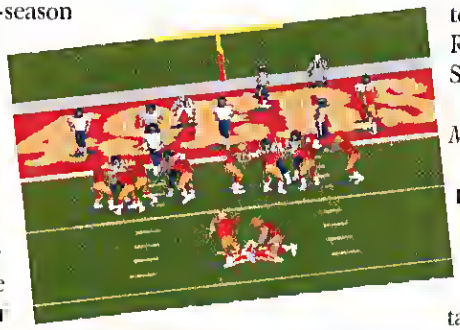


SIMPLY "SCRUM"-PTIOUS Electronic Arts has done a good job with an off-sport in World Cup Rugby.

PLAYING

you might want to check out **Microprose**'s pigskin update/Windows 95 re-release of their ULTIMATE FOOTBALL game. ULTIMATE FOOTBALL '95 includes most of the off-season trades, minicamp maneuverings and even early pre-season depth chart changes. Of course, releasing all this information before the season starts carries an inevitable price: the digital version of the Cincinnati Bengals, for example, will still have the services of Ki-Jana Carter.

In any case, the new version appears much the same as before. Yes, the game is AutoPlay-enabled for Windows '95, but any newness is largely an illusion. The graphics are unchanged, and the animation, while nice enough (with big sprites), still runs slowly on anything less than a Pentium. Thankfully, the sound is better than last year's version, although it still pales in comparison to newer sports games like NBA LIVE. The biggest and best improvement is that the action mode has been revamped, so that you aren't forced to juggle joystick and mouse simultaneously.



TD FOR ME Although the graphics haven't changed a whole lot, ULTIMATE FOOTBALL '95 has up-to-the-minute rosters and statistics

Those who wish to run leagues should know that ULTIMATE FOOTBALL '95 rivals FRONT PAGE SPORTS BASEBALL in the time it requires to compile complete seasons. Owners of the original may want to redshirt this version, unless they really want the new rosters and playbooks. IBM CD-ROM, $69.95. Circle Reader Service #4.

MICROPROSE. HUNT VALLEY, MD. (410) 771-0440

A PUMPKIN BY ANY OTHER NAME No that's not a McDonaldLand reject, that's a Xenotrope, one of PUMPKINHEAD's minions.

BLOODWINGS: PUMPKINHEAD'S REVENGE

What happens when you take a B movie and turn it into a computer game? Exactly what you think. Maybe the **Motion Picture Corporation of America Interactive** is trying to create a computer game cult classic of sorts with their release of BLOODWINGS: PUMPKINHEAD'S REVENGE. After playing this game, that's the only justification we could think of. To be fair, this DOOM-plus game makes some noble, innovative attempts. You have an inventory you can store objects in, and you can access full motion video clips from the movie that help advance the game. Yet, the action gets completely bogged down in mediocre graphics, muddy controls and hokey schmoo-looking creatures. The scary thing is, the game might be better than the movie. IBM CD-ROM, $49.95. Circle Reader Service #6.

MOTION PICTURE CORPORATION OF AMERICA INTERACTIVE. SAN MATEO, CA (415) 571-7171

DUST

"Tarnations, pardner, jest look at your scraggly self! Your boots are all torn up, your clothes are dirty, and you got no gun, boy! Well, come on into DiamondBack and git yourself settled. The Kid's comin' to town, and he's looking to hang yer sorry butt up by yer moustache."

That's the setting in DUST, the new "wired" west epic from **SSI**. Simply known as the stranger, you need to get situated in this wacky town and prepare yourself for a showdown with The Kid, whose a might upset with you for blowing his card cheatin'. Along the way, you'll make plenty of friends, get into streetfights and solve a few puzzles to boot.

On the surface, this adventure game looks like another MYST-alike. In a reality, its a whole lot more. Within a three hour timespan, we: moved around town; struck up a number of conversations with the residents (displayed in stop-frame video animations with surprisingly good voice acting); played blackjack and poker; and checked into a hotel. We're not sure if the game has the momentum to carry the fun throughout, but that's a pretty good start. IBM CD-ROM, $69.95. Circle Reader Service #5.

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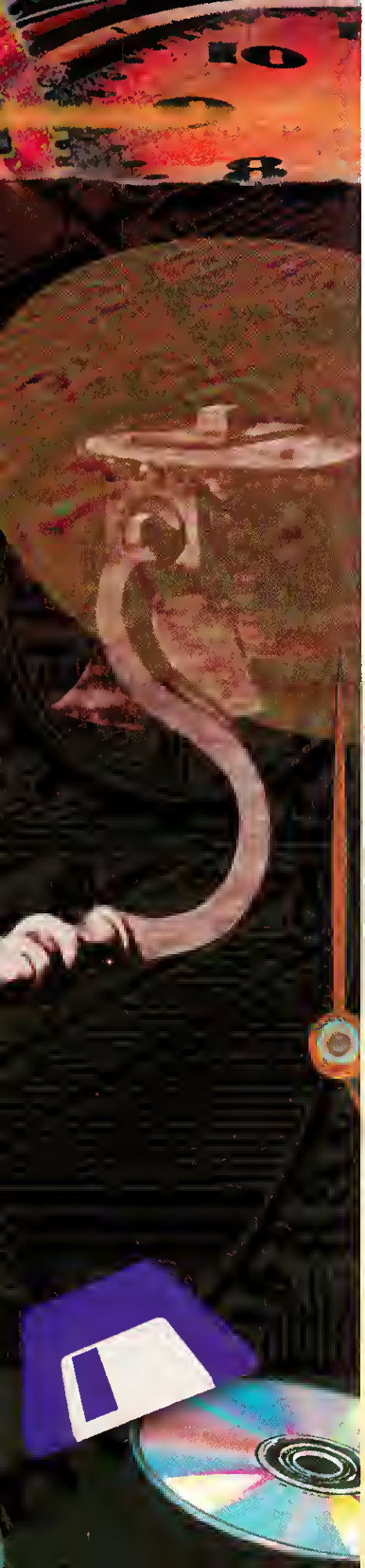

The Faces of Creation

The Inner Workings Of Game Design Are Complex And Highly Inter-related. The Designer Writes A Blueprint, Artists And Programmers Assemble The Game, And The Producer Makes Sure All The Gears Are In Sync. Find Out How Game Design Craftsmen Use The Tools Of Their Trade.

by Paul C. Schuytema

A great game's gestation can begin anywhere: as scrawls on a napkin, thoughts in a shower, an exciting novel, or from a carefully directed group discussion. However the initial idea is born, it is only that: an idea. As anyone who has ever thought of writing *The Great American Novel* knows, an idea and a finished project are light-years apart. You or I might come up with the perfect idea for our culture's seminal novel, but without writing skills, research, massive amounts of time, effort, sweat and tears—and the watchful eye of a good editor—the book will never even have the opportunity to gather dust at our local Waldenbooks. The same holds true for computer games.

The idea is the spark, and often that spark can carry the inertia needed to light the fire. But much hard work must follow if that great idea is going to develop into a great game.

You've surely been frustrated to see a full-color advertisement for some exciting game, only to find that it's going to be another six months before the game appears on store shelves. Just what's going on during that time? A game begins its life long before that first premature ad is placed. What goes into a game as it grows from an embryonic idea into a major hit—or a flash-in-the-pan? Who brings it to life, and how? Let's probe the life cycle of a computer game, from design to disk.

GAME DESIGNER

DESIGNING WOMEN AND MEN

Games often grow from very rough, basic ideas. One programmer may think, "I want to make a 3-D game about blasting demons with a shotgun." Another may sit down with a team and say, "Let's create as realistic a football simulation as we can," while yet another might suggest "Wouldn't it be cool if we could really make the ultimate aerobatic flight simulator?" Sometimes the marketing folks get involved. "Well, we've released Loro's Quest Ten and we didn't quite hit it the

way we wanted—the players just weren't happy. What can we do better for LQ 11?" Or there's the insidious "We need a 3-D shooter, because that's where the market share is. We'll just work on the story later."

All of these are variations on the initial ideas for past and future games. Yet, these kernels of creativity are so generic that they're nearly useless. Assume you were a programmer and I was to hand you the second idea on this list and say, "Here's a killer idea. I want it in beta within nine months." Would you be ready to roll? Could you craft a richly textured and balanced simulation capable of captivating the imagination of tens of thousands of players? (If you could, fax me your resume and we'll start a company, right now.) Odds are, you'd be adrift in a world of possibilities, unsure as to which of myriad directions to take.

On the other hand, what if I were to provide you with a comprehensive document, one which broke the game down into clearly defined and easily described programming tasks? Would your job become easier? Almost certainly.

Now, consider the fact that today's games are almost entirely developed by teams of anywhere from a dozen members to the giant 100-person projects of companies like **Origin**, **LucasArts** and **Sierra**. This alone necessitates far more time spent in the preplanning stages of any project than the "do-it-yourself" in a spare bedroom games of the late '70s and early '80s. Also, since more than a few games now sport budgets of millions of dollars compared to the relatively few thousands involved in the early days, no one is willing to risk diving into a project and designing it on the fly.

Naturally, it is the designer, or in some cases the design team, who is responsible for taking the initial idea and developing it into a sophisticated design document from which the programmers, artists, musicians and the rest of the development team can work.

DESIGNER PROFILE

STEVE BARCIA, SIMTEX SOFTWARE

Steve Barcia, president and chief designer at **SimTex**, started with a small, tight team. Working with just his wife and a friend, he created the initial version of MASTER OF ORION. From that humble beginning, Barcia has since risen to become one of the most respected designers in the computer game industry. All of that in the space of just a few years.

Barcia is unassuming. He shares with his wife an office so messy that he refused to allow me even a glimpse inside. His voice is soft and calculated, and dressed in a rumpled cream shirt, glasses, and well-worn suede dress shoes, he doesn't initially present the aura of a cutting-edge game designer. Spend a couple of minutes talking with him, though, and his voice becomes more animated, more authoritative. After five minutes, you learn that this man knows design, and knows it very well.

SimTex, the company which sprouted out of his original MASTER OF ORION seedling, is as unimposing as Barcia. Located in a suite of offices above a very tasty gyro joint in Austin, Texas, the SimTex team works a schedule more akin to the rest of the white collar world than the mania usually associated with game creation. In fact, with so much of today's business shifting more and more into a "push mode," SimTex seems like a welcome oasis of intellectual tranquillity. Not that the team doesn't work hard, they just seem to do so efficiently. Where an Origin team might crank zombie hours for months before the release of a product, the SimTex folks work along steadily at about 40 hours a week.

The offices themselves feel rather organic, almost fly-by-night. Most of the staff work on large folding tables rather than traditional desks, with boxes stacked up everywhere. In the chaos, Barcia hunts on an abandoned desk in a dark room, searching for a newly opened box of business cards. He smiles as he pulls one out and presents it to me. "We felt like a real company after we got these," he jokes.

Barcia is very analytical in his design work. He just seems to be able to think, effortlessly, in game design terms. SimTex has a queue of several dozen projects, although the company's goal is to reach a production level of perhaps four titles per year. Barcia and the SimTex team brainstorm ideas, and when they hit on one which feels right, Barcia will sit down and draw up a rough outline, an overview of the major concepts. Once SimTex decides on a project, Barcia tries to cloister himself away from the distractions which surround him and spend upwards of a month crafting an extremely thorough design document. This design plan is detailed to such a sufficient level that the programmers can begin working on components almost immediately. While many development houses begin work on a project before the design work is wholly completed, Barcia believes in nailing down 99.5 percent of the design, from rules to unit strengths to interfaces, before a single line of code is ever written.

THE CURE FOR DESIGNER BLUES Steve Barcia, president of SimTex and their chief designer, deeply believes in his obligation to his players to create a truly fun game.

"I THINK ABOUT THE END-USER ALL THE TIME WHEN I'M DESIGNING A GAME," SAYS SIMTEX CHIEF DESIGNER STEVE BARCIA. "WE'RE NOT INTO FEATURISM; WE'RE JUST INTO GOOD GAMES. IS THE GAME REALLY FUN? IS IT ADDICTIVE? BEING ADDICTIVE IS THE MOST IMPORTANT [INGREDIENT]."

"I think about the end-user all the time when I'm designing a game," says Barcia. "All the time. You have to. I do not adapt my games to compete with other games out there, because other people are already doing that. We're not into featurism; we're just into good games. For me, it's all game. Is the game really fun? Is the game really cool? Is it addictive? Being addictive is the most important [ingredient]."

With an education in electrical engineering, Barcia has the systematic skills to create a very functional design document. He learned computer science on his own, as a hobby, and his extensive programming skills give him an advantage over non-programming designers, as they allow him to easily gauge what can or can't be done in any design.

"Being a programmer," says Barcia, "it's very easy for me to come up with an algorithm that models what I was talking about in the design. So, I can give

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STEVE'S GUIDE TO BECOMING A GOOD DESIGNER

Nowadays, it seems as if everyone wants to jump on the computer game band wagon, to become part of an industry that seems glamorous, fun and exciting. While that may be true, it's also an industry fueled by unreal hours, mega amounts of hard work, and a whole lot of luck. Steve Barcia of SimTex offers these pointers for those of you who want to try your hand at game design:

1. Play a lot of games (it will instantly give you a lot of ideas).
   "I've been told that 96% of all game ideas are not new," says Barcia. "If this is true, then it's especially important for an aspiring designer to play a lot of games: computer games, board games, role-playing games, everything."
2. Learn to decide what you like and don't like in a game.
3. Learn to listen to other people, learning what they like and don't like in a game.
4. Read about different rule systems and learn how rule systems work.
5. Form a hierarchy of rules. If an idea violates a rule, you just have to toss it out and keep working until you find one that works.
6. You must be humble.
   "You have to deal with a lot of people," cautions Barcia. "If you're starting to get an attitude, then you'll run into problems."

the programmers that model very fast."

Considering what's needed for a science fiction game, Barcia might decide that space and planetary combat will be available. He then develops specific algorithmic rules to allow various attacks to work within his combat scheme.

"A lot of design is just defining your basis," reflected Barcia. "It's pretty systematic. Also, there's a realistic limit to the amount of control and rules variations you can give the player. Beyond that limit, the player will feel that he will not be able to understand these concepts.

"Simple rules of thumb are necessary. Like in [Master of] Orion, it's simple. The player has to clean up more pollution if he has more factories. That's simple. As long as the player understands that, then he doesn't have to know the nitty gritty."

For a design to be compelling, players need to feel the effects of their actions, to know that what they do in a game actually affects what happens. For Barcia, this means he must design game rules which rely very heavily on the player's input as the primary variable in nearly every calculation.

Barcia's SimTex creates, almost exclusively, strategy games, though they are currently developing a role-playing title. For Barcia, the quintessential strategy game design can be distilled into two basic components: grow, then conquer. Using this as a foundation, Barcia is then able to weave extremely compelling designs which truly involve the player in the experience.

"It's been my experience," reflected Barcia, "that if you give the player enough options to find the game that they like within your design, they will really enjoy it. With 1830 (Avalon Hill's railroad simulation), I was a little reluctant to consider doing it, because it just doesn't have the depth that a Masters of Magic has, but then it's a trains game, and we don't run that much of a risk of disappointing our public, because they will basically know what to expect."

Depth in a design comes not only from creating a complex game system, but from creating a game which encourages the player to play again. The hot word for designers throughout the industry is "replayability." In the classic Atari coin-ops of the late 70s and early 80s, this was refined to a science. Design was simple, almost spartan, but the games created a feeling in the player—almost a need—to play the game just one more time to get a higher score. SimTex's games don't rely on a numerical level of success, but rather on layers of relationships, allowing a player to attempt many different approaches when trying to win a game. That, coupled with certain random elements, keeps the player coming back for game after game.

MAGES, MANTA SHIPS AND MONOPOLISTS
SimTex has built their reputation on satisfying, well-designed strategy games.

There are basically two ways for a player to win a Barcia game: Keep playing it until you grasp the "grand scheme" which is present in all of his designs, or play it often enough so that you learn how to deal with all of a game's given situations.

"Things have to be kept in balance—that's pretty hard," says Barcia. "The player should have several ways in which to approach a problem. You also want the player to get excited. You need to get the player's adrenaline flowing—the player needs to be 'locked' into the game. That's not so easy in a strategy game. You have to get the player to feel that it's your empire we're talking about, it's your empire that you're going to lose."

Creating that suspension of disbelief is the pinnacle of design that all strive for, but getting the player to buy into the game's world is only part of the problem. The player needs to be challenged, meaning that a computer game must not only present a wondrous experience for the player, but it must also compete *against* the player, challenging the player and making him or her to work for the victory.

"There's a point where people stop playing a game," says Barcia, "and that's when they've mastered it. Then, it's not much fun any more. Then, it just becomes a process."

To keep the player enthralled, even a great design must be accompanied by great computer opponents which the player must match wits against. Artificial intelligence usually isn't the sole responsibility of the designer. Programmers often take on more of this development burden, since AI programming is very algorithm-intensive. Barcia, however, works very closely on the development of the AI routines, from designing the basic decision making algorithms to crunching the code himself.

"The AI is usually one of the last things to fall in," says Barcia, "because you can't really write it until you know the game—you can't start to balance things until then."

HONEST, IT'S A REAL JOB!

"Being a designer is not all glamour," cautions

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Barcia, "it's a lot of hard work. It can be very frustrating at times. I don't think that I've had a day off, that wasn't somehow business-related, for about a year and a half. But I put in lots of hours and never notice it. It's not stressful. I enjoy what I'm doing."

Fresh out of college, Barcia knew that he wanted to be a part of the computer game industry, but he just couldn't justify that to his parents or his wife's parents.

"For them," he remembers, "It wasn't real work. It was something kind of magical or mystical."

Finally, he had to strike out on his own with MASTER OF ORION. He made the leap, and it paid off. SimTex is one of the hottest small developers going, with publishers left and right knocking on their door for the honor of publishing their next title.

"Now, my parents still don't understand what's going on or what I'm doing," muses Barcia, "but they know that I'm doing it well."

GAME PRODUCER

YOU DO HAVE TO MAKE A BIG PRODUCTION OUT OF IT

While a designer is key to laying down the initial ideological foundations of a project, a producer is the alchemist who makes all the ingredients come together into an actual game that we can play on our PC. A producer is the true oddjobsman of the gaming industry, and must be versed not only in design theory but must also posses insighfful business sense. Of course, being a motivator is a key ingredient as well, since someone needs to whip the oarsmen when the release date is fast approaching and sleep is far more difficult to come by than instant coffee. Since more and more of the work on games is being done out of house (particularly when it comes to music and art), someone needs to coordinate the out-of-house work with the production schedule and keep the project moving along on schedule.

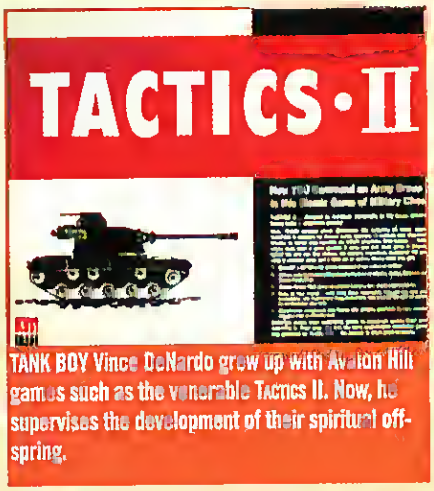
PRODUCER PROFILE

VINCE DENARDO, INTERPLAY PRODUCTIONS

Vince DeNardo's story is endemic to so many others in the gaming industry. He didn't set out to make games, but through a long and strange path, that's exactly where he has ended up. Currently, he is a master juggler, able to handle the organizational nightmare of close to a dozen projects simultaneously, and still genuinely smile when he tells you how much he loves his job.

DeNardo's journey began as did so many of the old guard. He got into board games at an early age, picking up a copy of **Avalon Hill**'s *Tactics II* when it first came out in 1959. He played until the little cardboard counters were grimy with use, and mostly, he played alone. "Most of my friends didn't like those kind of games, and the ones that did lived too far away for an easy game," says DeNardo.

"BASICALLY, I GET PAID TO MAKE GAMES," SAYS INTERPLAY PRODUCER VINCE DENARDO. "IN A NUTSHELL, THAT'S THE BEST DESCRIPTION OF MY JOB. I'M RESPONSIBLE FOR GETTING THE PRODUCT MADE."



TANK BOY Vince DeNardo grew up with Avalon Hill games such as the venerable Tactics II. Now, he supervises the development of their spiritual offspring.

In 1979, DeNardo made the irreversible leap into the world of computers when he purchased an Apple II just to play games. He played the Scott Adams series of adventure games, as well as WIZARDRY. At last, he didn't have to play solo. The computer provided him with the ever-ready gaming opponent he always wanted.

DeNardo found himself involved in advertising, and loving the magazine business, when a cast of the bones landed him a job at *Fire and Movement* magazine as art director. During those years, his dog-eared copy of *CGW* was never out of reach, and when it came time to upgrade his computer system, he decided to call *CGW* for some advice. Eventually, he found himself chewing the fat with Russell Sipe, *CGW*'s founder. Russell discovered that DeNardo had some abilities that he needed, and before DeNardo could catch his breath, he had become art director of *CGW*.

Five and a half years of heavy gaming experience working as art director/assistant editor at *CGW*, coupled with winning the Reader's Choice award for an ad he designed for **Koei**, led to DeNardo being snatched away by Brian Fargo at **Interplay**. Again, he slipped further into the gaming quagmire as marketing director.

Soon, DeNardo found himself sitting in on some design sessions for CASTLES II, when Fargo offered him a chance to produce the game. That opportunity came

SO YOU WANT TO BE A GAME PRODUCER?

Vince DeNardo reflects on just what it takes to be a winning game producer, and he offers these five "most holy" qualifications

1. Do you play games?

"You can't teach someone about games - they have to have an affinity. It has to be there from the start."

2. Are you responsible?

"The producer is the end of the line. The buck stops with him. Responsibility is essential."

3. Do you understand business?

"Again, you really can't teach someone that killer business sense - it has to come from their psyche."

4. Are you organized?

"Organization is extremely important, but you can give a newcomer some pointers. You can tell them 'Hey, you need to keep track of this, this and that.'"

5. Can you manage people?

"Essentially, that's what being a producer is all about. You've got to be able to motivate, to direct, to put out fires... to be a master of diplomacy."

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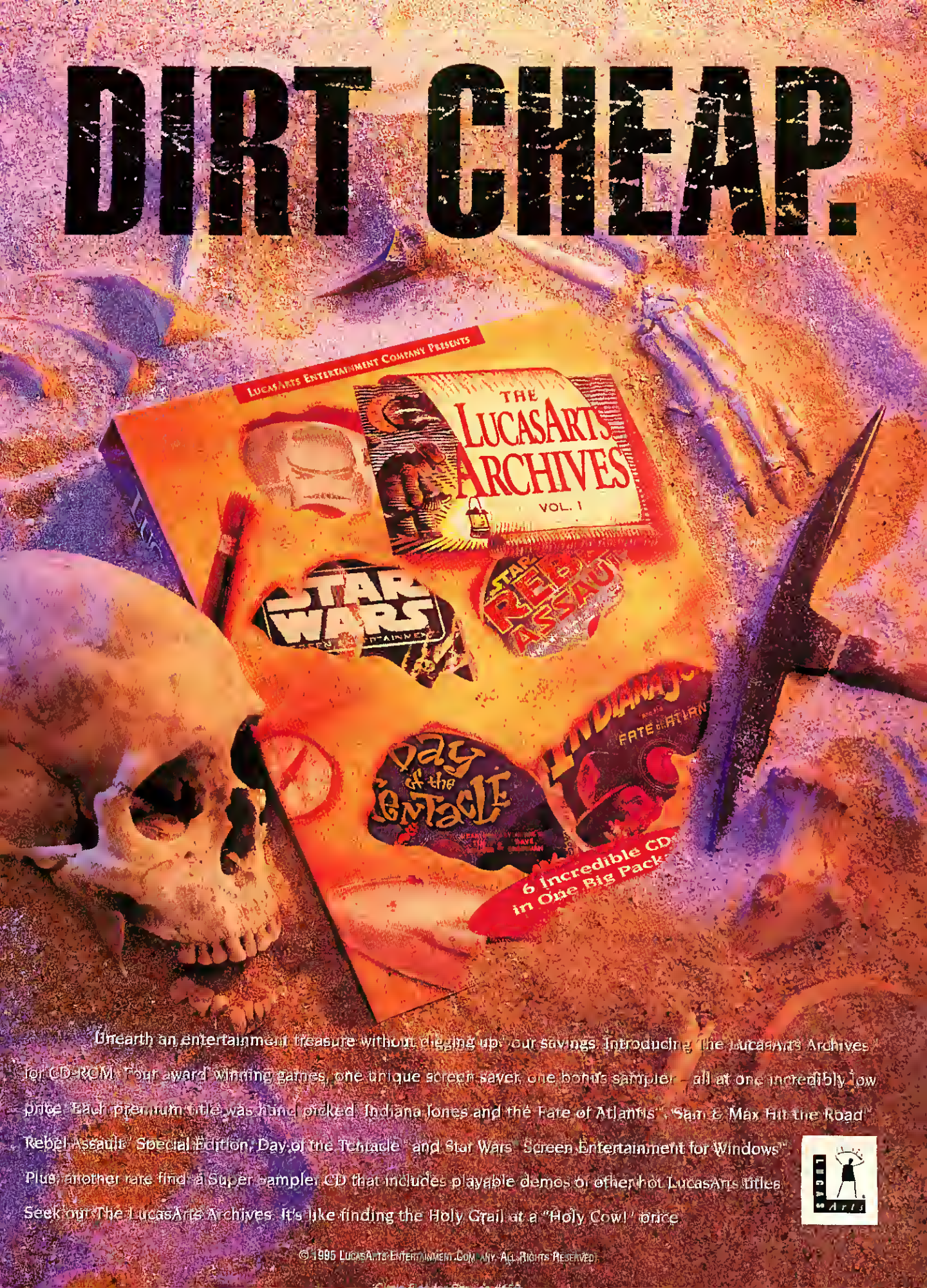

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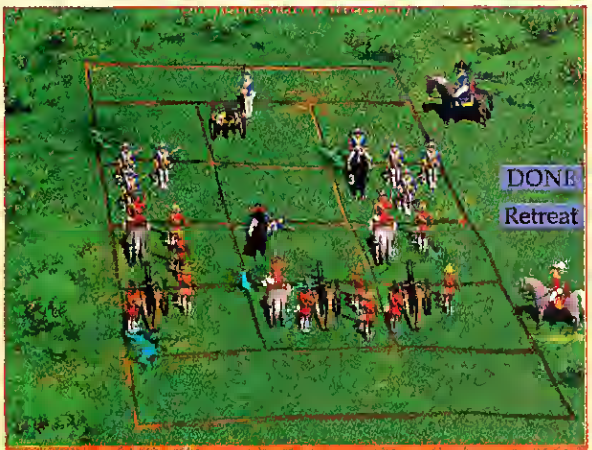
with a stern warning: Beware, because once the producer bug bites, there might not be any turning back. Fargo's warning proved prophetic. "Bye marketing," DeNardo declared at the time, "bye production, bye public relations. I'm sorry, but I want to make games."

For the past six years, DeNardo has produced dozens of titles for Interplay. "Basically, I get paid to make games," says DeNardo. "In a nutshell, that's the best description of my job. As a producer, I'm responsible for getting the product made."

DeNardo's involvement commences before a line of code is ever written. First and foremost, it is the producer's role to determine whether or not a game idea is viable. That requires not only business sense, but knowing the market and what game players are looking for. DeNardo must weigh a possible budget against anticipated sales. Is the game mass market (such as Myst) or a niche game (such as a strategy game like Perfect General)? "Sure, you can visualize a $3 million budget, but what if it's a niche game that's only going to sell 50,000 units? No way. It's not going to fly," says DeNardo. "I ask myself, 'is this the kind of game I might play myself?' If the answer is yes, I might become involved in the design end of it as well. That's the case with Conquest of the New World."



DENARDO'S DAVINCI Vince DeNardo's wargame background shows in the tactical battle screens of Conquest of the New World, complete with this animation of a cavalry officer falling off his horse.

DeNardo also needs to assess the technology required to sculpt the game to match the design team's vision. Can it all be done within the budget constraints? Can it be finished on time? Then, as a game gets underway, his involvement varies according to the life cycle of the game. Currently, DeNardo is up to his elbows in the production of Conquest, while he is simultaneously producing another ten or so titles, many being developed overseas in Sweden, England, France, and Japan.

"Part of the fun of the job is that you're never doing the same thing all the time," says DeNardo. "There's always some aspect of the project that needs attention. It might be that we've got an alpha here, and we're looking at it, and jeeze, it's missing something, it isn't a lot of fun. It's my job to step in and ask, 'Well why not?'"

While many producers rely on a multitude of computerized organizational do-dads to keep their heads above water, DeNardo prefers to simply count on his packed-to-capacity gray matter. "I've done it before, many times," boasts DeNardo. "I know all the aspects of a project, all of its component parts. It's easier just to keep it all in my head."

After years of the non-stop logistical grind, you'd think that DeNardo would be burnt out, but his energy is more effervescent than ever. "It's still my hobby," he laughs. "Late at night or on weekends, I play games. During the day, if I have the time, I try to boot up something that's current. It's good to refresh yourself, to keep up with what the state of the art is, because everything that you play and enjoy, you learn from. By staying involved with the hobby, you're constantly able to advance the state of the art. That's the bottom line—to make a better game. A better game is more fun to play, and will then probably sell better."

LEAD PROGRAMMER

PROGRAM GUIDE

A project may have an incredible design that's documented down to the last little interface screen, a budget out the wazoo, and a producer who knows how to sculpt a winning product out of a constellation of disjointed components, but in the world of computer games, that project is going nowhere until it lands a hot-shot programmer.

Programmers are the necromancers of the game industry. Seemingly speaking in tongues, they communicate in dialects as eclectic as assembler or as sophisticated as C++. For programmers, arcane commands such as 'JMP,', 'MOV,' 'Case' and 'main()' are the tools of their craft. Often living on no more than coffee and sheer desire, they are the hackers-made-good who turn design ideas into reality through their mastery of a computer's nuances.

Programming tasks are wide-ranging: One programmer may be charged with writing an install program, another with coding the responses to mouse clicks, and a real hot-shot may write the outrageously math-intensive routines which calculate the real-time 3-D positional transformations of a star fighter swooping in for the kill.

LEAD PROGRAMMER PROFILE

FRANK SAVAGE, ORIGIN

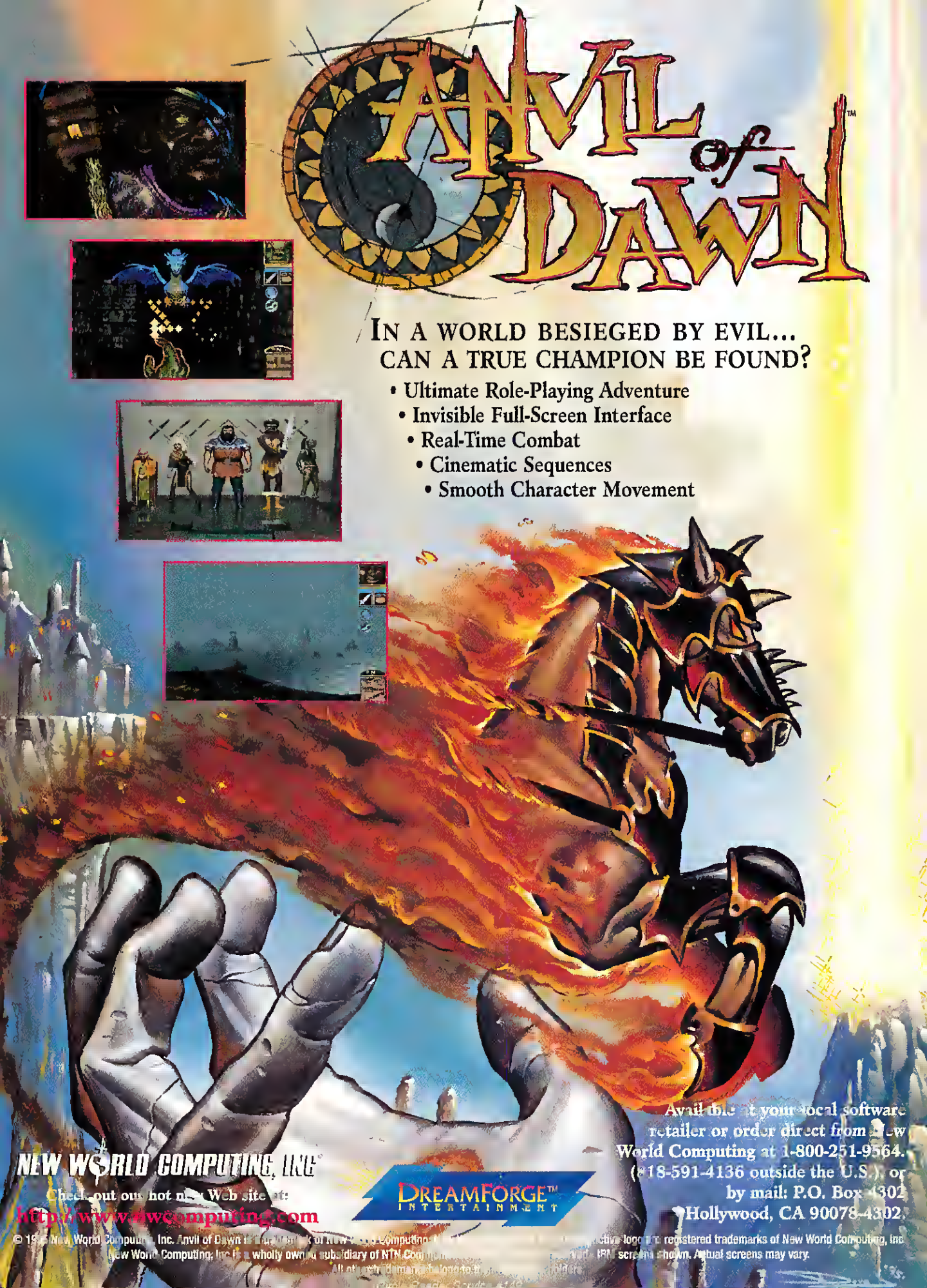
Frank Savage's desktop PC looks like something out of a *Terminator* movie. A towering aluminum structure supporting dark green circuit boards and incredible amounts of hard drive space. Sitting behind the monitor, barely visible in the light of a single 25-watt bulb, sits Origin's wunderkind programmer, wearing flannel over a jet-black T-shirt. Looking at the technology piled up in his office, it's hard to imagine that Savage is the same person who drives the lumbering 1972 Buick Skylark out in the Origin parking lot. (At press-time, *CGW* learned that Frank Savage has taken a new position with **FASA**, working in their new strategy games division).

For Savage, a love of computer games has always been a part of his being. Beginning with a tiny Timex-Sinclair, Savage eventually found his way, like so many other seasoned veterans of game programming, to the venerable Commodore 64. On that oblong little machine, he spent hours in the old **Infocom** text games such as Zork and Starcross. However, it wasn't until he discovered the graphics capabilities of the C-64 that he began to blossom as a programmer.

"I learned 6502 assembly so well," says Savage, "that I could look at hex dumps and tell you what the assembly was actually doing."

Savage worked a variety of jobs before joining the fold. While studying electrical engineering, he worked in the coal mines of southern Ohio. After that, he spent several years in the starched white collar world of computer consultancy, making, in his own words, "ungodly sums of money," and maxing out dozens of credit cards. All this time, Savage had been playing around with the still new IBM PC, playing games and writing games of his own. While walking amidst the ties and pinstripes of Chicago's Michigan Avenue, he was always dreaming about life as a game programmer.

"It all changed in 1990 when Wing Commander came out," remembers Savage. "I realized that my dreams of doing computer games were actually tiny and insignificant and ridiculous. These people really knew what the hell they were doing. I played Wing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COMMANDER every single day for months and months and months. I actually got license plates that said WING COMMANDER."

Every year, Savage made the trek from Chicago to Milwaukee for the annual GenCon game convention. In 1991, he met Origin's Warren Spector, hoping to find out more about the upcoming WING COMMANDER II. As it turned out, Spector was on a recruiting trip for STRIKE COMMANDER programmers and immediately spotted some serious potential in the young Frank Savage. Within two weeks, after only a phone interview, Savage was packing up his worldly possessions and heading off to Origin, never having seen the company or Austin, Texas, or having met anyone from Origin other than Spector.

SAVAGE COMMANDER Frank Savage got his start programming 3-D terrain for STRIKE COMMANDER before taking the Director of Programming slot on WING COMMANDER III.

For STRIKE COMMANDER, Savage worked on the three-dimensional terrain system and the fractal generation routines. All the while, he harbored fantasies about getting to work on the next of his beloved WING COMMANDER games. "I didn't expect to be anything more than a regular programmer on WING COMMANDER III," says Savage. "Just to be able to say that some part of this is me would have been enough, but when they actually gave me the director position, that was incredible. It's been really cool since then."

MORE THAN JUST A 'CODE COOK'

According to Savage, a good game programmer has to be able to do everything that an operating system such as Windows does. A programmer has to be able to talk to DOS at the most basic input-output levels and to be able to talk to every single possible hardware combination that might appear on the customer's machine. Armed with this ability, the first step in any project is to write all of the basic low-level foundation code, such as joystick routines, sound routines and file manipulation routines.

"It becomes a nightmare," laments Savage, "literally a nightmare, just to lay the groundwork.

"And we (at Origin) make it easier for programmers too," Savage chuckles with intended irony, "in that we have no documentation. No nothing. We have poorly or non-documented-at-all library code."

Savage's first task at Origin was to learn how all of this basic code, as well as Origin's libraries of C++ routines, actually worked. He remembers pulling up the source for a simple input-output class. Reading through the variable declarations, everything seemed neat and polished, but once he delved into the meat of the code, it made no sense whatsoever. Luckily for Savage, he was very adept at tracking down where a previous programmer had made a particular function work properly in a prior game. Playing sleuth, he could then deduce how to use Origin's library routines.

A lead programmer on a project, explains Savage, is the individual who is charged with the not-so-trivial task of understanding how all of the other programmers' code works. That individual must also keep track of where all of the code appears in the game and how it all interrelates and works together. It's also essential that the lead programmer makes sure that his or her team clearly understands what it is they are supposed to do at any given moment.

"The one thing a programmer does not want to be told is exactly what to do," says Savage. "They want to know what they can't do more than what they can."

At the beginning of a project such as WING COMMANDER III, the lead programmer must assemble a programming staff and then take a running charge at all the low-level code which the game relies upon. WING COMMANDER III was one of the first games which Origin attempted in 32-bit flat protected mode, so the initial stages were as mundane as figuring out what brand of compiler was up to the task. After that, the team set about to transfer the low-level code from STRIKE COMMANDER into the new 32-bit code. Working through those problems enabled them to really judge the efficacy of their compiler and debugger. From that information, Savage was able to ballpark an estimate of development time, which he guessed at 18 months.

The next step for Savage, as lead programmer, was to compile a milestone list. Milestones are specific components of a game which must be completed by a deadline. Otherwise, the game slips behind schedule. In WING 3, the team hit all of the milestones early or on-target and was able to wrap up, but not fine-tune, the game by June, 1994.

The next five months were set aside for finishing the game. Versions of the game were created for play testers, and through a seemingly endless "play, find bugs, fix bugs, play" cycle, the game began to gel

TAKE ME TO YOUR CODE Fluent in C, assembly language, low-level code and Loony Tunes voices, Frank Savage straddles the netherworld of zombie hours and computer game creation.

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—FRANK SAVAGE, ORIGIN LEAD PROGRAMMER

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into a coherent product. "It's critically important," says Savage, "that you leave enough time between getting everything you want in place and shipping the game, to tweak and debug and generally button-down the game."

Savage recalls a moment near the end of WING COMMANDER III's gestation: "I remember the day we finally got the tumbler bomb, which is the bomb which was going to blow up the planet, actually on a ship. We flew to the spot on the planet where we were supposed to drop, fired it, the bomb tracked itself right to the target, hit the target and just went 'pffft.' Nothing happened! I had been through that code, line by line, at least three times, to make sure that it was going to work, and nothing happened. It was 3:30 in the morning. Chris Roberts was sitting in my office, and I turned to him and said in my best little Loony Tunes Martian voice: 'There was supposed to be an earth-shattering kaboom.'"

Within a few hours, Savage had torn apart the code once again, and to his surprise, he discovered that there was a less-than symbol on one line of code where there should have been a greater-than, and that had kept the planet from going nova.

"A programmer's social life is controlled by the piece of code that he's trying to write at that particular moment," he muses.

"When I worked as a consultant in Chicago, I had shitloads of money, and I spent shitloads of money. But none of that compares to entertaining someone. Making people forget that they hate their job, or don't really like where they are in life is very important to me."

SOME SAVAGE TUNES

All good workaholics develop some rituals to help them through their day, and for Frank Savage, popping in a CD and jamming to some good tunes is essential to his mental well-being. What he listens to depends on his mood and what he's currently working on.

For cerebral programming, such as writing a high-speed texture map routine, Savage favors the eclectic sounds of Enya (he recommends all three CDs) and Lorena McKennett.

For down-in-the-trenches programming and debugging, his mood becomes more fierce, and so does his taste in music, with titles such as the *Conan the Barbarian* or *Batman: Mask of the Phantasm* soundtracks.

Believe it or not, Savage's most cutting-edge jams come when he attempts to wrestle with work's mundane tasks such as paperwork or project planning. For those tasks, he enjoys the gristly guitar riffs of Veruca Salt or Mekong.

CAN YOU SPELL OBSESSION?

For Frank Savage, caffeine is his drug of choice, but he enjoys that little lift in a way many of us have never experienced.

Savage explains, "I worked in the mines of southeast Ohio for 5 years. Electrical engineering work, high voltage power circuitry, basically giant construction equipment for kids. At that point, everybody in the mines used to chew tobacco, a lot, to the point where they just constantly had their mouths full and their teeth were black. Really lovely. They were always saying to me that nothing is more disgusting than that, so I used to chew coffee beans, in an attempt to show them that there is, in fact, something more disgusting than chewing tobacco. It worked.

"When I came to Origin, I found that I could not drink enough coffee fast enough to keep running, so I would eat coffee beans as fast as I could. In fact I still can't play X-WING without eating coffee beans. During a build of STRIKE COMMANDER on one machine, I'd sit at my other machine and play X-WING and pop coffee beans. With WING COMMANDER 3, for the last 2 months, I was working 24-hour days and then sleeping 6, and for the last month of that, I would eat coffee beans. I think I went through about tens pounds of beans for that damn game."

GAME ARTISTS

PORTRAIT OF THE ARTIST AS A YOUNG PIXEL

Great gameplay is the foundation upon which all else is built, and it is through the blended efforts of the designers, programmers and producers that gameplay comes to be. Yet equally important is how we perceive that game. Computers provide the player with two types of information: aural and visual. Like so many aspects of our daily lives, it is the visual which governs much of our interpretation.

That visual element, from the user interface to the highly-polished cut scenes after a successfully completed mission, are the responsibility of the game artists. Back in the early days of computer games, designer, programmer, and artist were often one and the same. As the industry has evolved, the quality of art needed to make games appealing to the general public necessitates a professional touch.

Game artists come from a wide field of experience and backgrounds, from film to programming, from fine art to sculpture to industrial design. It is the task of the artist to create a vivid and exciting portrayal of the computer game. In that way, they serve as visual interpreters, taking the design foundation of the game and transforming it into visual output that we can watch, enjoy, and most importantly, interact with. Because of the interactive nature of games, it is essential that artists work closely with the design and programming teams.

ART DEPARTMENT PROFILE

LUCASARTS

LucasArts seems to have a different vibe than many game companies out there. Perhaps it's the connection to its namesake, George Lucas himself, or perhaps it's the heritage of Lucas films which have come before. Whatever the influence, LucasArts, especially the art department, feels more like it belongs in Hollywood than in Silicon Gulch.

Walking into the art building, you can't help but notice the giant bat wings up on the wall, looking like some leather homage to Icarus. Below that, a chrome and Holstein-hide couch seems more for show than comfort. A few feet farther on and you notice a large laser cannon that once adorned the barge of the infamous Jabba the Hut. The atmosphere is active, yet subdued, ruled more by conversation than loud music.

Collette Michaud, the art director for LucasArts, occupies a cramped office in the back of the building. Hiding behind her door is a banjo, a giant potted plant and a large bottle of vodka. Every other space in her office is jam-packed with the tools of an artist of the digital age. There's a drafting table for old-style

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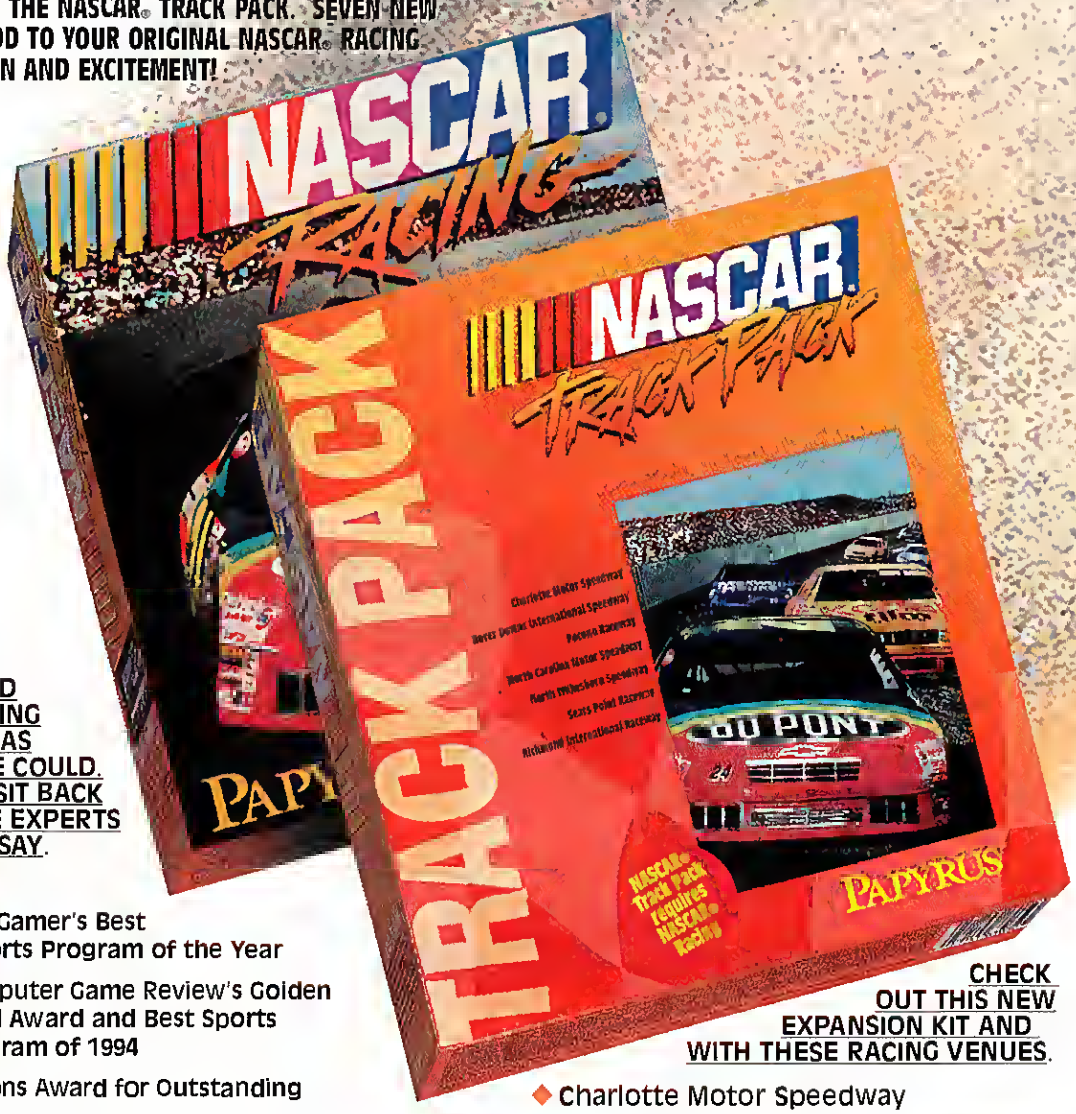

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"THE ARTISTS PLAY A VERY STRONG, UPFRONT ROLE IN THE DESIGN OF THE GAME [AT LUCASARTS], FLESHING OUT THE CHARACTERS AND THE LOOK OF THE GAMES." —COLLETTE MICHAUD, LUCASARTS ART DIRECTOR

sketching, and a pair of computers with a drawing tablet for digital work. Every inch of vertical space is plastered with sketches for MORTIMER, LucasArts' first foray into the realm of children's games.

Michaud is calm and in control—a rare trait in the hectic world of deadlines and impossible schedules. In fact, during our conversation, I never heard her misspeak, pause, or mutter any of the standard verbal punctuations such as "um" or "you know."

At LucasArts, gameplay and graphics are of equal importance, "because that's what people see," explains Michaud, "that's their first impression. The artist and designer come together at the very beginning of the project, and the artists play a very strong, upfront role in the design of the game, fleshing out the characters and the look of the games."

"My philosophy," she continues, "has been that you hire in really great artists and then turn them loose to do what they're great at."

At LucasArts, unlike many other companies, all of the artists work in the same area, whether or not they are working on the same game (instead of working in project teams with programmers and designers, as is Origin's approach). The theory is that the artists will work to inspire each other, and they can all keep tabs on what each other is doing.

"It keeps people interested," says Michaud, "they realize that it's not just this one little world that they're working on—they can get the bigger picture."

At LucasArts, like many of the larger developers, artists leap into the creative process from the start. Since artwork is such an integral part of LucasArts games, the company has come to rely on the storyboard as almost a design bible. FULL THROTTLE, for example, was fully realized, down to the last cut scene and puzzle, before any serious work began on creating actual game elements.

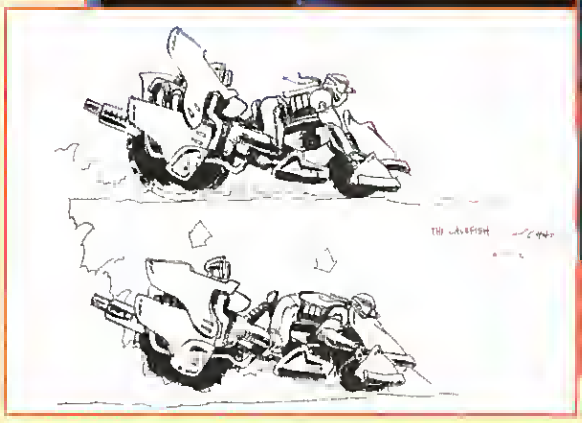
Once the lead artist and a game's designer work through the storyboard, the background artist—often wunderkind Peter Chan—will step in and begin sketching the background art for a project. Once the initial pencil studies are done, they are scanned in and the various animators can begin working on their own while Chan completes and colorizes the background art.

"The art process is like a bell curve," suggests Michaud, "and you try to keep as few people working on a project for as long as possible, because that's when the design problems are being worked out. Once you get past that point, you really ramp it up. But Peter Chan is usually on and off pretty fast, because he works so fast."

When artist Peter Chan first came to LucasArts, he worked on MONKEY ISLAND, drawing and painting the backgrounds in traditional media. The images were then scanned into the computer to be used by the other artists and animators. They soon discovered, however, that scanning just wasn't grabbing the colors properly. Gradually, Chan moved to doing all of his final art directly on the computer.

"We don't really do colors any more on paper," explains Michaud, "with the computer, we can really

LUCASART'S FINEST Peter Chan, regarded by the folks at LucasArts as something of a prodigy, works up some ideas for Full Throttle. Note the R2-D2 on his desk—a requirement for working at LucasArts?



CAN THEY SEE IN THE DARK? Peter Chan's study of a Cavefish biker from FULL THROTTLE really shows off his illustrative, comic-book style.

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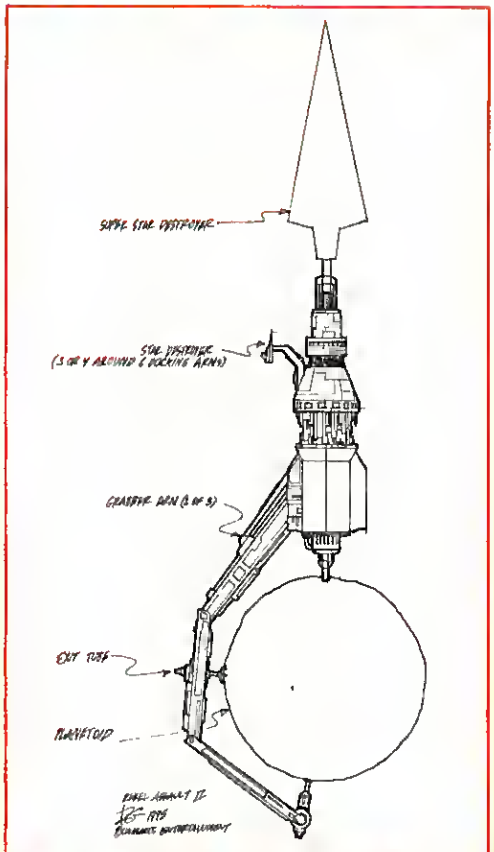
take advantage of the bright, luminescent colors."

FULL THROTTLE was animated on computers, with the artists working with traditional color paint programs to draw the individual frames. Since the game runs in standard VGA resolution, having any of the characters move to the back of the scene causes them to become very small and pixelated. When working with an image that small, it just doesn't make sense to draw a frame on paper and scan it in. Often, artists were working with individual pixels and anti-aliasing them (blending the colors of adjacent pixels to smooth out the edges of low-res graphics).

The character of Ben the biker was the creation of lead artist Larry Ahern, who drew all of the original study sketches. The animators then worked from these sketches to create an animated Ben. Often, an animator was given a background and an action and told to simply create the animation (with Ahern always hovering nearby, making sure that Ben remained true to form). In the early stages of the project, many of the artists spent hours watching the Western classic "The Good, The Bad, and the Ugly" to find just the right saunter for the lantern-jawed hero.

With MORTIMER, LucasArts is shifting from VGA to Super VGA resolution. In addition to making the graphics more finely detailed, the animators are now able to work more traditionally, drawing individual frames in pencil and then scanning them into the computer for colorization. Michaud observes that "everybody is really glad to get back to drawing again. The two, the pencil and the computer, are a good pair. It's a process that's really come together and intermingled in a happy way."



CLAMP, PLEASE Richard Green used this sketch to work out his ideas on an Empire docking station for the 11 kilometer long Super Star Destroyer. From this sketch, he would begin work in 3D Studio, creating the models for REBEL ASSAULT II.

3-D, PLEASE

LucasArts is also known for its 3-D graphics, elements which form the craft of a completely different breed of artist. Currently finishing up REBEL ASSAULT 2, LucasArts has learned volumes about creating a virtual *Star Wars* world which rivals that of the movies.

After the artists had finished the first REBEL ASSAULT, they were given some research and development time to catch their collective breath and do some brainstorming. Richard Green, one of the 3-D artists on REBEL ASSAULT, began toying with the idea of importing 3-D objects into a 2-D game world. "The 3-D objects were often too neat and smooth," remembers Green, "so we had to dirty the image down a bit to get it to look right. We ended up doing 14 different models for FULL THROTTLE—almost all the vehicles."

Green says that Peter Chan, the background artist, tends to draw with a rather "fanciful" perspective which doesn't naturally meld with the rigid geometry of a 3-D modeling program. The solution was to tweak the 3-D animation, bending the laws of reality, so that things looked just right. An example would be Ben riding off into the distance on a road. To get the path of the 3-D animation to work, Green had to create an invisible hill for the 3-D motorcycle to climb.

Like many LucasArts games, REBEL ASSAULT 2 began with a storyboard, but this time the art was not fully conceptualized. Green might have been handed a frame from the storyboard with a crude line drawing of a manufacturing base, and it was up to him to create the right look and the right feel (from a gameplay perspective) for the environment. "It really helps for the artist to have a good feel for the arcade action of a good game," says Green.

"*Star Wars* was the movie that changed my life," recalls Green. He seems to have a natural affinity for the designs of the Empire. "They like to exaggerate things, make them ridiculously huge." That observation led Green to create fantastic 3-D environments such as a machine which carves out the inside of an entire planet, and a space station which looks like a giant C-clamp around a moon.

Three-dimensional art is different than two-dimensional art in that the artist must create a model of an entire object, such as a motorcycle, and not just an image of it at a particular angle. For the huge objects in REBEL 2, Green relied on his experience to know when to add details to an object (if there was going to be a close-up of a particular area, for example) or to let the detail be vague and imply massive scale (such as the Super Star-Destroyer, a spaceship over 11 kilometers long).

"We're all aspiring to do the next great thing, to make the next leap," says Michaud. "We're always looking around, not just in the game industry, but in film, animation, clay animation, anything. We're constantly challenging each other. But I am worried that our art jobs will become so compartmentalized that they become assembly-line jobs. After all, we're artists. We still like to get our hands dirty."

A TEAM EFFORT

A great game is a wondrous thing. It can take us, for a few hours, far away from the routine of our daily lives. But a great game isn't just a passive escape—it's a very active, invigorating form of escapism which challenges, befuddles and excites us.

To create such a beast requires the efforts of many talented individuals. Since players have grown to expect more and more from our games, we have placed the burden on the developers to continue to stretch the edges of the medium.

The professions we've looked at are only some of the the many talented individuals needed to bring a game from gestation to fruition. Musicians must compose the music, others must create the sound effects we hear. Writers must compose stories and dialogue. As the game wraps up, quality-assurance teams must evaluate the gameplay as well as the stability of the code, and finally, when the game nears completion, someone must tell the world about it, by placing ads in magazines and making sure that magazines like *CGW* can review it for you.

The creation of a game is a long, winding, road that's earmarked with hills, valleys, and unexpected hazards. But when the effort comes together—when all of the component parts meld to form a whole—it is a truly exciting moment. After all, the play's the thing.

(...continued on page 284)

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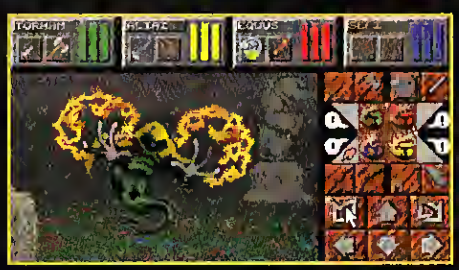

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The Sound And The Fury

What You Need To Know About The New Sound Cards To Enjoy Better Music With Your Games

by Mike Weksler

The first question we ask whenever we check out a new sound card is "How much of this actually augments the gaming experience?" Many new sound cards offer impressive features and disks full of bundled software, but what we're primarily interested in is how great they'll make our games sound. It's easy to get caught up in the hype of reverb, chorus and 3-D audio, but what's really important for gamers in the here-and-now are these: Sound Blaster-compatible digital audio and General MIDI compatible music.

COMPATIBILITY IS KEY

As long as we're in a DOS world (or running DOS games under Windows 95), you should make sure that your prospective sound card is Sound Blaster compatible for digital audio and General MIDI hardware-compatible for wavetable synthesis. This last item is something you want to be particularly careful about. You can get a sound card with a hardware-compatible MPU-401 MIDI interface on it, which is great for hooking up your computer to an external synthesizer or even a wavetable daughter-card. However, if your sound card claims that it is also General MIDI compatible, you should, for sanity's sake, make sure it doesn't require a large Terminate and Stay Resident (TSR) program to run (i.e., 20-30K).

THE ARENA

We installed and ran each sound card in a 486-DX4 system running at 100 MHz. Our sound test consisted of music from the first episode of Doom, the first episode of Heretic (two protected-mode games that have rich digital audio and compelling musical scores), and a suite of MIDI files. Additionally, each card was set up under Windows 3.11 and whenever possible, Windows 95. All daughter cards were plugged into the Sound Blaster 16 Value Edition.

For more information on sound cards not included in this survey (i.e., the **Aztech** Waverider, **Gravis** Ultrasound Max, **Orchid** Sound Wave 32, **Creative Labs** AWE-32, **Roland** RAP-10, **Turtle Beach** Tropez, Monterey and RIO daughter-card), please check out our December 1994 issue.

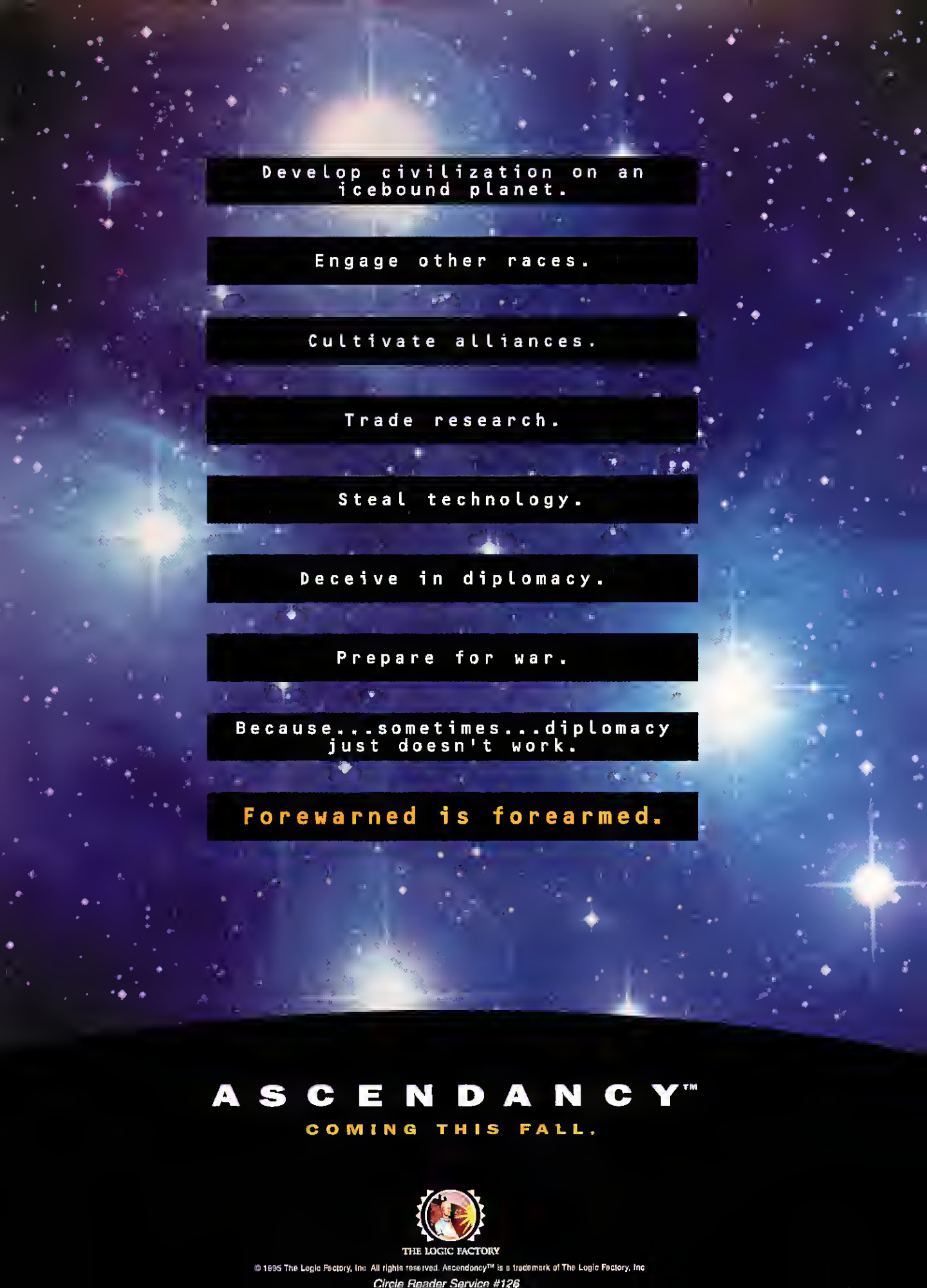
ALL-IN-ONE SOUND CARDS

The following sound cards include both Sound Blaster digital audio and General MIDI wavetable synthesis. Their main advantage is that they occupy only one expansion slot, are often priced economically and are bristling with CD-ROM connectors.

ENSONIQ

SOUNDSCAPE ELITE

The heavy-duty Soundscape Elite is designed with



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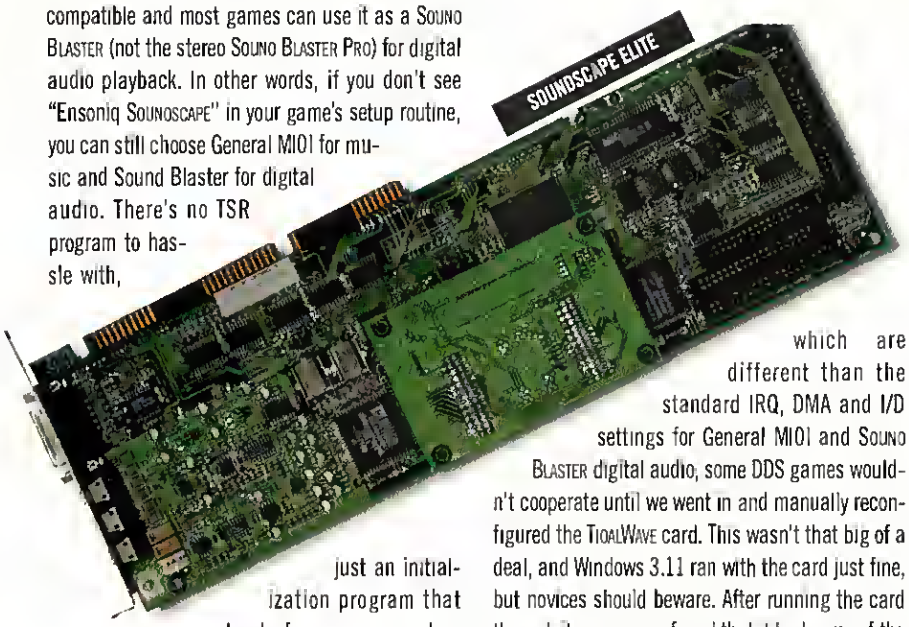
Circle Reader Service #126

the gamer in mind. It is General MIDI hardware-compatible and most games can use it as a Sound Blaster (not the stereo Sound Blaster Pro) for digital audio playback. In other words, if you don't see "Ensoniq Soundscape" in your game's setup routine, you can still choose General MIDI for music and Sound Blaster for digital audio. There's no TSR program to hassle with,



just an initialization program that unloads from memory when done. And while the instrument sounds occupy only two megabytes of RDM, the Elite sounds better than many four megabyte boards. Its strong characteristics seem to be its drum sounds—high-hats sound like high-hats and cymbals sound like cymbals, rather than the usual white noise. Any game that supports **Human Machine Interface**'s (HMI) sound drivers, such as Wing Commander 3, should have a setup option for the Soundscape Elite.

There are patch sets for both General MIDI, Roland GS and the MT-32. You can also hook your **Sony**, **Mitsumi**, **Panasonic**, or IDE ATAPI CD-RDM drive up to one of the Elite's four interfaces. Combined with useful documentation and frequent driver updates from Ensoniq's web site, it's hard to go wrong with this card. The only drawback we found is the lack of a DOS installation program. Windows 95 drivers and a plug-and-play version of this card are available.

Ensoniq Soundscape Elite. (800) 942-0096, http://www.ensoniq.com. Price $289.

CRYSTAL COMPUTERS

CRYSTALIZER TIDALWAVE

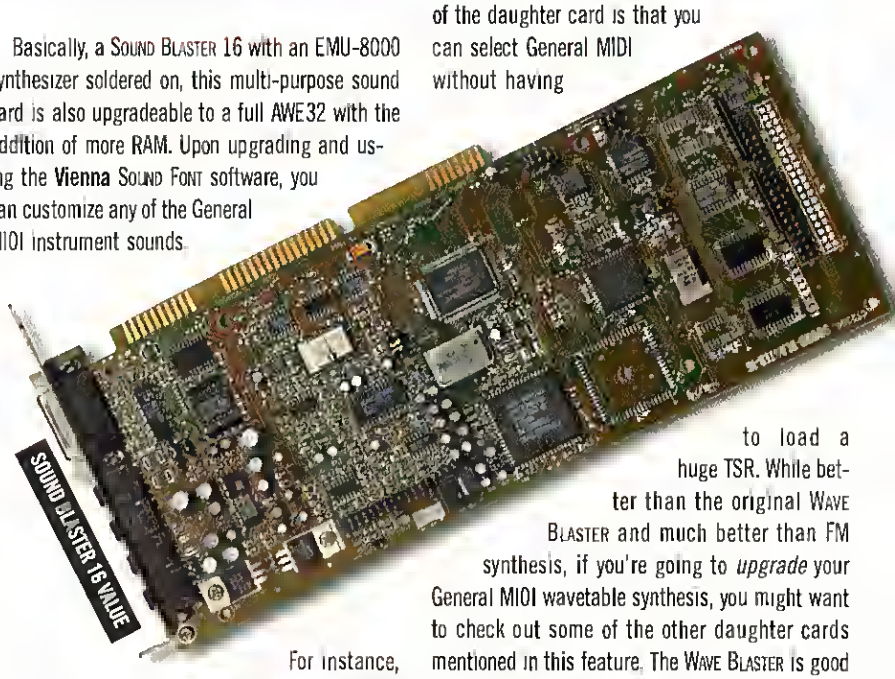
The Crystalizer TidalWave is similar to the Ensoniq Soundscape Elite mentioned above, except it uses **Korg**'s Dmniwave synthesis for some really great General MIDI wavetable music. Its gimmick is a plug-and-play chip and attendant software which, ironically, tends to make running DOS games even harder. The card has default settings which are different than the standard IRQ, DMA and I/O settings for General MIDI and Sound Blaster digital audio, some DOS games wouldn't cooperate until we went in and manually reconfigured the TidalWave card. This wasn't that big of a deal, and Windows 3.11 ran with the card just fine, but novices should beware. After running the card through its paces, we found that it had some of the best General MIDI wavetable music around, with very clean digital audio. The tiny driver that resides in the config.sys file didn't interfere with any games. Windows 95 drivers are available.

Crystal Computers Tidal Wave. (408) 383-2100. Price: $189.95.

CREATIVE LABS

SOUND BLASTER 32

Basically, a Sound Blaster 16 with an EMU-8000 synthesizer soldered on, this multi-purpose sound card is also upgradeable to a full AWE32 with the addition of more RAM. Upon upgrading and using the **Vienna** Sound Font software, you can customize any of the General MIDI instrument sounds.



For instance, if you hate the guitar you can digitize your own sounds and replace the default guitar sample. To be honest though, developers are more likely to take advantage of this than gamers.

The Sound Blaster 32 doesn't have a wavetable daughter card connector (frequently called a Wave-blaster connector), so you can't upgrade the lackluster General MIDI synthesis. That, combined with this card's use of a large TSR for General MIDI compatibility, might make you think twice about this card.

Creative Labs Sound Blaster 32. (800) 998-5227, http://www.creaf.com. Price: $169.99.

DEALING DAUGHTER CARDS

One of the best ways to upgrade to General MIDI wavetable synthesis is by using a daughter card. These cards have everything you need to get great sounding music, and—best of all—you don't have to buy a whole new sound card (unless your sound card doesn't have a daughter card connector). The real benefit is that a daughter card simply snaps onto an existing sound card, which means that there are no drivers to configure!

CREATIVE LABS

WAVE BLASTER II

The Wave Blaster II is a daughter card version of the EMU-8000 synthesizer found on the Sound Blaster 32 and AWE-32. One advantage of the daughter card is that you can select General MIDI without having to load a huge TSR. While better than the original Wave Blaster and much better than FM synthesis, if you're going to *upgrade* your General MIDI wavetable synthesis, you might want to check out some of the other daughter cards mentioned in this feature. The Wave Blaster is good compared to FM synthesis, but doesn't sound as rich as the competition.

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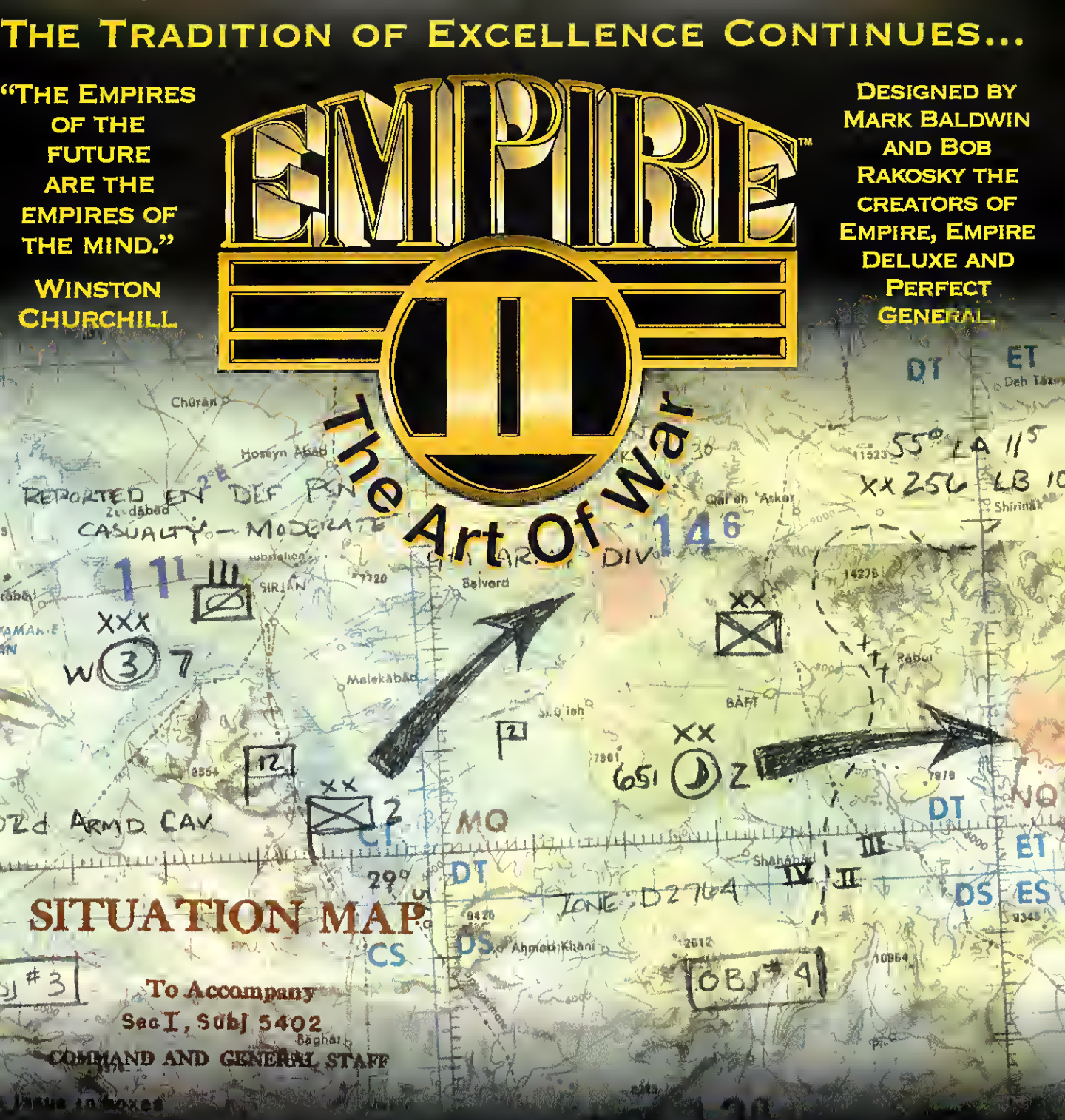

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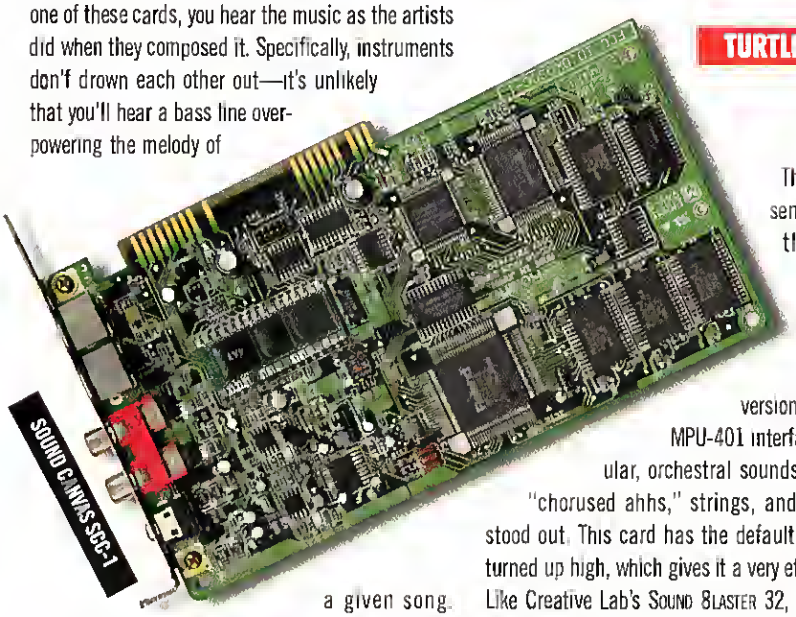
CREATIVE LABS WAVE BLASTER II GAMEPACK. (800) 998-5227, HTTP://WWW.CREAF.COM PRICE: $129.

ROLAND

SOUND CANVAS SCD-1D/15

If any sound product is king of the hill, this is the one. This mighty daughter card is all you need to really get the most out of your games. That's because most of the developers we talk to actually compose game music on the Sound Canvas. When you use one of these cards, you hear the music as the artists did when they composed it. Specifically, instruments don't drown each other out—it's unlikely that you'll hear a bass line overpowering the melody of a given song.



There are two models of the SOUND CANVAS: the SC0-10 and the SC0-15. The difference between the two is that the latter has the entire 354-sound GS patch set. If GS (a standard that augments the General MIDI standard) ever takes off, it may behoove you to be compatible.

ROLAND SOUND CANVAS SC0. (213) 685-5141. PRICE: SC0-10 $259, SCD-15 $329.

YAMAHA

XG WAVEFORCE DB50XGDC

The XG WAVEFORCE is a surprising product. It can hold its own in a head-to-head battle with the Roland Sound Canvas daughter card, and since taste in timbres is subjective, you may actually prefer Yamaha's offering over Roland's. We found that bass instruments came on a bit too heavy and seemed to obscure subtler sounds. (In MIDI lingo, this is referred to as a difference in the velocity of the samples). As far as gaming is concerned however, this is one great product.

XG is another standard beyond General MIDI, and if it gains a foothold, gamers are in for a real treat. Like GS, XG sounds far better than regular General MIDI wavetable synthesis.

YAMAHA WAVEFORCE 0850XGDC. (800) 301-7076 PRICE: $249.

POUR SOME MIDI ON ME

If your sound card doesn't have a daughter card connector, here are some stand-alone MIDI cards that you can plug into a second slot without upgrading to an entirely new all-in-one sound card.

TURTLE BEACH

MAUI

The MAUI is essentially the Turtle Beach RIO daughter card, only in a stand-alone MIDI version with it's own MPU-401 interface. In particular, orchestral sounds such as the "chorused ahhs," strings, and piano really stood out. This card has the default reverb effect turned up high, which gives it a very ethereal sound. Like Creative Lab's SOUND BLASTER 32, this card can handle extra RAM for storing your own samples. We'd recommend this product for music hobbyists as well as gamers.

TURTLE BEACH MAUI. (800) 645-5640, HTTP://WWW.TILE.NET/TILE/VENDORS/TURTLE.HTML. PRICE: $199.

ROLAND

SOUND CANVAS SCC-1

This is the stand alone version of the Sound Canvas SC0-15 daughter card. It's one of the best sounding MIDI cards we tested.

ROLAND SOUND CANVAS SCC-1. (213) 685-5141. PRICE: $399.

ROLAND

MPU-401 DAUGHTER CARD CONNECTOR

This MPU-401 MIDI interface card from Roland features a wavetable daughter card connector. If you have a daughter card and no place to plug it, you should check out this innovative product.

ROLAND MPU-401. (213) 685-5141. PRICE: $159.

GRAVIS

ULTRASOUND ACE

Gravis developed the ULTRASOUND ACE as an add-on for gamers who already have SOUND BLASTER or similar sound cards. Like all ULTRASOUNDS, this card is not for the technically faint of heart. But gamers w persevere will be rewarded with fairly rich MIDI sic, though not as good (in our opinion) as the ative Labs WAVE BLASTER II. If a game suppor ULTRASOUND directly, you can painlessly use it in mode, otherwise, configuration can be rough. This is a great complimentary product for those who only have a SOUND BLASTER PRO or equivalent and want to upgrade to wavetable synthesis. Perhaps the best value is the full-blown (i.e., not just the shareware episode) version of DOOM II that comes bundled with the ULTRASOUND ACE!

GRAVIS ULTRASOUND ACE. (800) 679-0024, HTTP://WWW.GRAVIS.COM. PRICE $99.95.

EDITORS CHOICE(S)

Sound is such a subjective thing that it's hard for us to recommend a single card as "the best." You should listen to several sound cards before deciding, and if your local computer store has them all boxed up, insist on having one unpacked. You wouldn't buy a stereo without listening to it first, would you? That said, though, here are our favorites. If you're looking for an all-in-one card and you're a gamer, don't mess around—look into the Ensoniq SOUNDSCAPE ELITE. If you want a daughter card or daughter card/sound card combination, we can't give a higher recommendation than Creative Labs' SOUND BLASTER 16 VALUE EDITION with a Roland SCD-15 daughter card. This combination is extremely simple get set up and running. As for the stand-alone MIDI boards, the SOUND CANVAS SCC-1 is our card of choice.

Remember, always shoot for the easiest card to configure. The best sound card in the world won't do you much good if you can't use it with any games, or if it's a major hassle to configure it for every new game you buy.

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2 PLAYER

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When Speed Is What You Need

Games Demand An Increasingly High Level Of Hardware Performance. To Keep Up, We Offer This Look At The Fastest Graphic Accelerators for Gamers

by Loyd Case

Evolution occurs at a break-neck pace in the computer industry. When we first surveyed graphics cards last year, the focus was DDS, DDS, DDS. And although DDS performance is still important, the emergence of Windows 95 has given forward-thinking gamers reason to consider Windows performance as well.

Last year, there were a host of 32-bit accelerators on the market. This year, we only tested 64-bit accelerators. Last year, almost all PC games were DOS VGA; if they supported 256 colors, they were low resolution (320x200 pixels). 640x480 games, for the most part, used only 16 colors. This year, there are numerous SVGA games out—640x480 with 256 colors (there are even a few games with higher resolutions). Last year, there were many different super VGA chips used; this year, **S3** seems to be the "in" chipset provider, although there are some new contenders, such as **Ark Logic**'s ARK2000PV and the **Matrox** 2064W. Last year, 3-D acceleration was a dream, this year, it's looming on the event horizon.

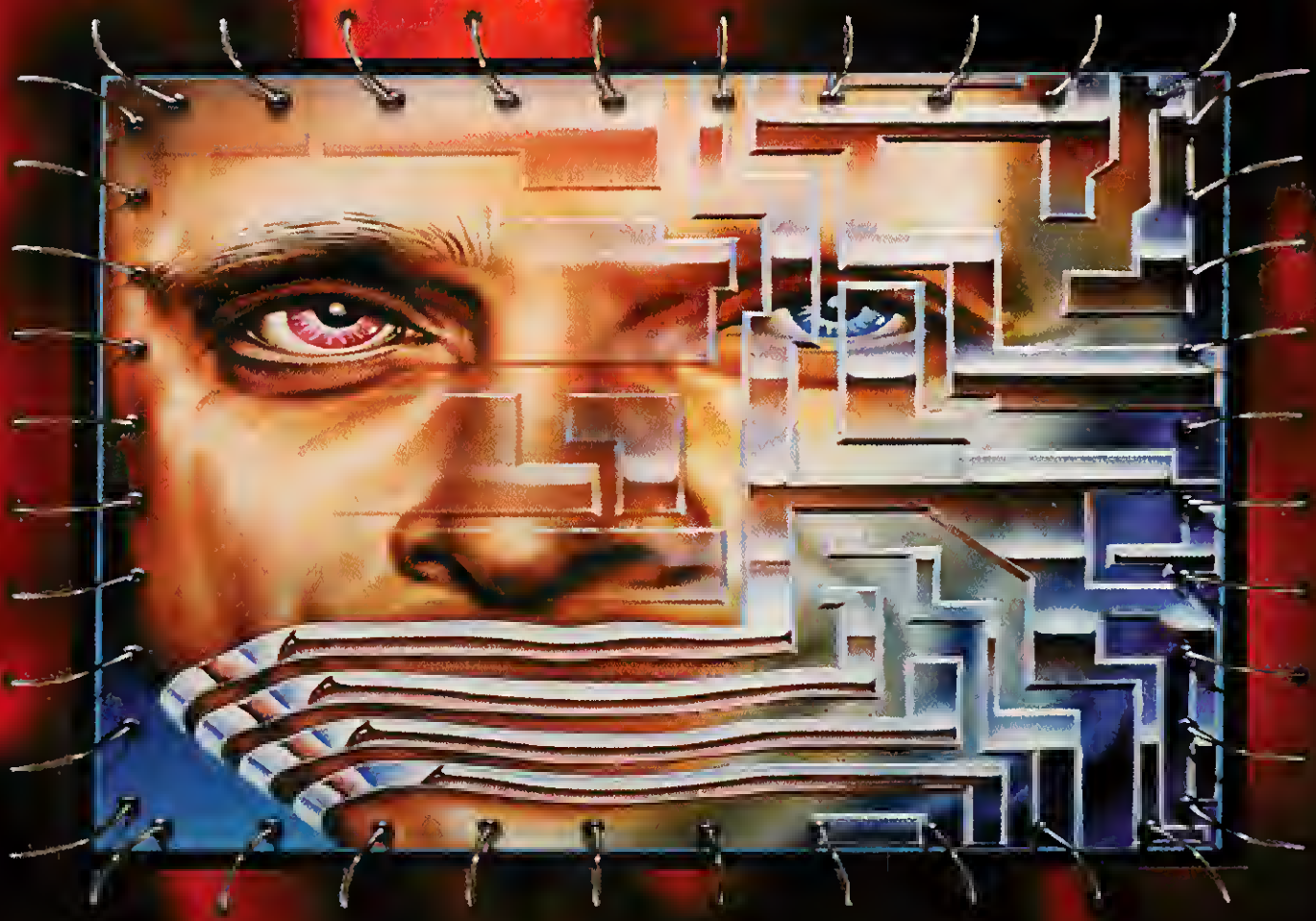
Keeping these thoughts in mind, we expanded our test suite to include higher resolution and greater color depth. We even included a VESA super VGA compatibility test. But enough yammerin'. Let's plunge into the cards...

ATI Corporation

ATI scored a minor coup by being the first video card supported by the early beta release of the Windows 95 Game SDK (Software Development Kit), which allows game programmers to develop for all graphics accelerators using standard programming methods. This means that games can run at high resolutions with lots of colors and great performance. All of the ATI cards we tested use the ATI Mach 64 accelerator. In addition to ac-

HARLAN ELLISON

I HAVE NO MOUTH, AND I MUST SCREAM



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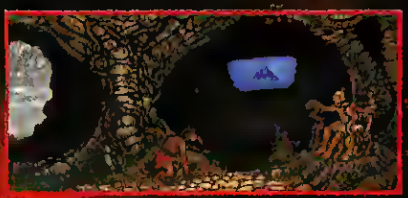

Summer 1995
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celerating typical Windows functions, it has built-in digital video acceleration. Windows 95 ships with a fully optimized driver for the Mach 64.

ATI GRAPHICS XPRESSION

THE GRAPHICS XPRESSION is ATI's low cost, DRAM-based offering. It offered pretty good DOS performance, but lackluster Windows performance. Installation was straightforward. One nice feature is this card's ability to store card parameters (such as refresh rate) permanently on the card. The Windows software utility for switching modes is also very easy to use.

Unfortunately, the card failed to complete VBETest, and it would not run the Vidspeed benchmark in SVGA mode. Be sure to check the compatibility of SVGA games with this adapter. If you get the XPRESSION, make sure you obtain a copy of UniVBE 5.1a (see sidebar). The manual is complete and well organized.

ATI GRAPHICS PRO TURBO

The GRAPHICS PRO TURBO is ATI's flagship. The version we tested came with 4 MB of dual-ported VRAM (there is also a 2 MB version). Despite its high-end nature, DOS performance was virtually identical to its less-expensive sibling, the XPRESSION. Windows performance was considerably better, however. The PRO TURBO card also failed VBETest with the same dismal results as the XPRESSION.

All other comments pertaining to the XPRESSION, such as documentation, utilities and setup, also apply to the PRO TURBO.

Diamond Multimedia Systems

Diamond Multimedia is tooled up for the video card market like a pasta machine at a noodle convention. With one exception, all of **Diamond**'s offerings use accelerator chips from S3.

STEALTH 64 GRAPHICS 2001

The GRAPHICS 2001 uses the Ark Logic ARK2000PV accelerator chip, a relatively new chip specifically designed for low-cost graphics boards. This board, along with the **Hercules** STINGRAY 64 VIDEO (which also uses the ARK2000PV) posted the fastest DOS graphics score in the roundup. Windows performance was surprisingly good for such a relatively low price. THE GRAPHICS 2001 is available in both VESA Local Bus (VLB) and PCI versions, with either 1 or 2 megabytes of DRAM.

Like all Diamond products, installation was a snap; there are no jumpers or switches to set. Although the Windows software tools used to change resolution, refresh rate and other parameters were a little different, they were still easy to use. The GRAPHICS 2001 completed VBETest with flying colors. Documentation is rather thin, but complete.

STEALTH 64 VIDEO 2001

The STEALTH 64 VIDEO 2001 (not to be confused with the GRAPHICS 2001) uses the newest member of the S3 64-bit accelerator line, the Trio64V+, which has some interesting new features, including the ability to accelerate some DirectDraw functions. This means that Windows 95 games will run a bit better on cards based on this chipset. The Trio64V+ is a fully integrated chip, including graphics accelerator and 24-bit DAC (digital-to-analog converter—the part of the video card that handles output to your monitor) in a single chip. The STEALTH 64 VIDEO 2001 also comes with a connector for a low-cost MPEG hardware accelerator.

The VIDEO 2001's DOS performance wasn't as speedy as some of Diamond's other S3-based cards; it was simply acceptable. Windows performance was decent for a relatively low-cost card.

Manufacturer	Card (PCI-based)	Memory (in bytes)	Chipset	3DBench	Vidspeed 320x200	Vidspeed 640x480	Cygspeed frames/sec	PCBench 9.0 Video	WinBench 95 640x480x256
ATI	Graphics Pro Turbo	4 MB VRAM	Mach 64	83.30	7043/1754	ONF	44.3	6242.64	13.60
ATI	Graphics Xpression	2 MB ORAM	Mach 64	83.30	7230/17B6	ONF	44.3	6249.90	12.50
DIAMOND	Stealth 64 Video 3400XL	4 MB VRAM	S3 96B	83.30	9443/1636	10221/1B15	35.3	4096.97	15.10
DIAMOND	Stealth 64 Video 2200XL	2 MB ORAM	S3 B6B	90.90	10220/1637	10221/1713	36.0	4192.09	15.60
DIAMOND	Stealth 64 Graphics 2001	2 MB ORAM	ARK 2000	•100.00	13266/2152	11955/1912	44.3	6725.09	15.10
DIAMOND	Stealth 64 Video 2001XL	2 MB ORAM	S3 Trio64V+	90.90	10227/1574	10227/147B	31.9	3877.25	15.10
HERCULES	Stingray 64 Video	2 MB ORAM	ARK 2000	•100.00	•13286/2366	•12193/206B	•45.5	•7273.60	15.00
MATROX	Millenium	2 MB WRAM	MGA 2064W	90.90	10119/174B	10122/3161	DNF	6079.10	15.60
NUMBER NINE	#9FX Vision 330	2 MB DRAM	S3 Trio64	90.90	10220/1560	10221/1540	33.7	3788.10	16.50
NUMBER NINE	#9FX Motion 551	2 MB ORAM	S3 B68	90.90	10020/1631	10221/1641	35.0	4231.53	16.60
NUMBER NINE	#9FX Motion 771	2 MB VRAM	S3 96B	90.90	85B7/1615	10221/1774	34.6	4137.42	•17.10
ORCHID	Fahrenheit 64	2 MB ORAM	S3 864	90.90	10220/1546	10221/15B0	33.7	3773.86	12.70
ORCHID	Fahrenheit ProVideo 64	2 MB VRAM	S3 96B	83.30	7074/1566	10221/1774	34.3	3815.56	15.00
VIDEOLOGIC	GrafixStar 300	2 MB EDO RAM	S3 Trio64	90.90	10220/1625	10221/1620	35.6	4379.22	15.30
VIDEOLOGIC	GrafixStar 500	2 MB EDO RAM	S3 868	90.90	9351/1625	10221/1650	35.0	4197.78	15.10
VIDEOLOGIC	GrafixStar 700	2 MB VRAM	S3 96B	83.30	7B39/1622	10221/1760	34.5	4038.32	16.30

• Indicate highest performance in category

Setup was simple and went without a hitch. Documentation was sparse, but complete. This adapter is a good bet for people who want a good Windows 95 accelerator but are on a budget.

STEALTH 64 VIDEO 22DDXL, 21DDXL (STEALTH VIDEO)

The VIDEO 2200 uses the S3 Vision 868 multimedia accelerator, which features built-in digital video acceleration. The VIDEO 2200XL, like most S3-based products, posted solid, if uninspiring DOS performance. Windows performance was good. The card also passed VBETest without any warnings or failures. Installation was simple and quick, and the software utilities supplied were similar to all of Diamond's offerings. The documentation was complete, although slightly terse.

STEALTH 64 VIDEO 300D SERIES (3200, 3240XL, 3400XL)

The STEALTH 64 VIDEO 3240XL and 3400XL are full-featured cards with 2 megabytes and 4 megabytes of VRAM, respectively. They both have connectors for Diamond's Motion Video Player, an MPEG hardware accelerator that also performs video capture. The STEALTH 64 VIDEO 3200 is a cost-reduced version with a fixed 2 megabytes of VRAM and no daugh-

Ain't that suite

Let's take a look at the benchmarking suite we used to put these video cards through their paces:

3DBench: 3-D frame rate benchmark developed by Superscape. It only runs at 320x200 and is a little out of date, but it's still widely used.

Vidspeed: This benchmark simply reads from and writes to the memory on the graphics card and measures the pixel throughput. We measured bytes per millisecond and raw 32-bit reads and writes per second.

Cygspeed: Cygspeed is another frame rate benchmark, probably more accurate than 3D Bench, but somewhat more finicky about the hardware it runs on.

PC Bench 9.0: This is the DOS video benchmark from Ziff-Davis Benchmark Operations. It is basically a measure of throughput of the video systems, but doesn't look at frames per second or other more game-oriented features.

Winbench 95: This benchmark, another from Ziff-Davis Benchmark Operations, is the standard for measuring Windows graphics performance. Winbench ran on a "clean" Windows 3.1 installation every time.

VBETest: VBETest is not a benchmark, but a compatibility test. It measures how closely a card follows the VESA VBE standard. If the test on a card generates warnings, this usually does not indicate a compatibility problem. But a failure means that there may be problems with some SVGA games. VBETest comes with UNIVBE 5.1a.

Microsoft Flight Simulator Benchmarks: This series of benchmarks makes use of a special FS5 driver, FC.FSO, which converts the normal transponder display on the control panel to a frame-rate number. The scenes are "canned" so the test results are consistent.

Our test system consisted of a 100 MHz Pentium PCI system equipped with 32 MB of RAM, 5.2 GB hard drive, Adaptec 294DA PCI SCSI controller, Viewsonic 17 monitor, Soundblaster AWE-32 with Roland SCD-15 MIDI daughterboard, and a Logitech 3-button Mouseman.

WinBench 95 1024x768x256	VBETest	FS5.0a VGA Dense	FS5.0a SVGA Dense	Digital Video? Acceleration	Price
14.00	Failed	45/58	12.0/35	Yes	$599
12.20	Failed	45/58	12.0/35	Yes	$219
16.40	Passed	36/72	12/36.0	Yes	$599
15.40	Passed	34.0/35	11.5/34	Yes	$259
14.00	Passed	35/68.5	11.5/34	Yes	$189
15.40	Failed	•59.5/59.5	12.0/30	Yes	$259
14.00	Passed	34.5/68	11.5/32	Yes	$199
16.40	Passed, VBE2.0	34.5/68.5	11.5/34	Yes	$379
16.40	Failed	37/74.5	12.0/37	No	$199
•16.70	Passed, Warn	37/37.0	12.0/36	Yes	$249
16.40	Failed	42/42	12.0/28	Yes	$329
12.30	Passed, Warn	37/37.0	•12.5/37	No	$329
16.40	Passed, Warn	DNF	DNF	Yes	$199
13.30	Passed, Warn	59/59	12/29.5	No	$189
16.40	Passed, Warn	35/59	12/29.5	Yes	$229
16.40	Passed, Warn	57/59	12/29.5	Yes	$349

Graphic Impressions

PCI Graphics Card	DOS Performance	Windows Performance	Documentation Setup
4	2	4	5
4	3	4	5
3	4.5	3	5
3	4.5	3	5
3.5	4	3	5
3.5	4	3	5
5	3.5	3	4
4	5	NA	5
3.5	3.5	4.5	5
4	4	4.5	5
4	4.5	4.5	5
3	2.5	3	4
3	2.5	3	3
4	3.5	4.5	4
3.5	3.5	4.5	4
3.5	4	4.5	4

All categories rated on a 5-point scale.

terboard connector.

DOS and Windows performance were virtually identical to the STEALTH 2200XL. The STEALTH 3000 series also passed VBETest without any problems. Installation was quick and simple, and the manuals were on a par with other Diamond documentation.

Hercules Computer Technology

Hercules has been in the business of making PC graphic adapters since the early days of the original IBM PC. Several years ago, a revitalized Hercules returned to the market it had pioneered with the original Hercules monochrome graphics card (remember those?) with the HERCULES DYNAMITE, which many DOS gamers swear by. This year, Hercules supplied only one card to the survey, but it's a notable one.

STINGRAY 64 VIDED

The STINGRAY 64 VIDEO, which uses the Ark Logic ARK2000PV multimedia accelerator, posted the highest set of DOS performance scores of the bunch. Its Windows scores were reasonably good as well. VBETest went by without a hitch. The ARK2000PV has some built-in digital video acceleration as well; Hercules, in fact, supplies a software MPEG decoder with the card.

Installing the STINGRAY was a snap, without any hardware jumpers or switches. The DOS-based software installation had only one quirk—a small TSR (Terminate and Stay Resident program) that is loaded to improve Windows performance but isn't necessary for DOS. Windows utilities were spartan, but they were straightforward. The thin manual contains everything needed to set up and run the card, but it is a bit unorganized.

The STINGRAY is a real sleeper, with hot-rod DOS performance, decent Windows performance and simple operation. Additionally, Windows 95 drivers will be released by Hercules in the near future. If they're anything like their beta counterparts, which we tested, they'll work quite well.

Matrox Graphics, Inc.

"What a difference a year makes" is an *apropos cliché* for Matrox. Last year, their line of 3-D accelerators posted great Windows scores, but were abysmally low when it came to DOS. Matrox' new offering changes all that.

MATROX MILLENNIUM

The MATROX MILLENNIUM uses a completely reworked version of its MGA graphics engine, the MGA 2064W. Capable of Gouraud-shaded 3-D acceleration, Matrox added the capability to manage and store texture maps directly in video memory. Matrox is also using a new kind of graphics memory called Window RAM (which has nothing to do with Microsoft). WRAM is cheaper than VRAM but offers similar performance. Most importantly for gamers, Matrox added a 32-bit, fast VGA core, and the numbers show it.

This card posted the third-highest set of DOS scores. Furthermore, the MILLENNIUM is the only entry in the roundup to have the VESA 2.0 Video BIOS (which can improve SVGA performance on games that support it) extension built into its ROM. It passed VBETest with flying colors. It also posted the highest set of Windows benchmarks (although the NUMBER NINE MOTION 771 gave the highest score for a single graphics Winmark).

Setup and installation was a snap, even though the software installation was completely Windows-based. Unfortunately, the final manual was unavailable at the time of the review. Matrox ships this card with an enhanced version of NASCAR (and some other enhanced software), where the effect of using the MGA polygon technology really shows.

The MILLENNIUM has connectors for an MPEG accelerator and a video capture board. It can also can handle up to 8 megabytes of WRAM. Finally, the BIOS on the MILLENNIUM is in flash memory, which means a BIOS upgrade can be shipped as software. All in all, a smart, well-rounded solution.

Number Nine Visual Technology

Number Nine pioneered the high end of the PC graphics market. Several years ago, they began producing cards for the mainstream computer market. All three **Number Nine** cards we tested are much improved over last year's offerings.

9FX VISION 330

The VISION 330 uses the S3 Trio64 chip, which integrates most of the functions of an entire graphics card, save memory, onto a single chip. Its performance was mixed compared to the other S3 Trio64 card, the GRAFIXSTAR 300 by **VideoLogic**—it was slower in DOS by a bit, but came out a tad ahead in Windows. It has a well-written manual and an excellent set of Windows utilities. The only tricky thing with setup is that setting the refresh rate in DOS requires a utility that must be manually copied over to your hard drive. VBETest failed in one function, but the VISION 330 ran all of our Super VGA software without fail. Overall, a nice card, especially considering its extremely low price point.

9FX MOTION 531

The MOTION 531 uses the S3 Vision868 accelerator, which has built in acceleration for digital video functions. The card ships with a software-based MPEG player. The MOTION 531 had slightly better DOS performance than the other 868 cards we tested and better-than-average Windows performance. It passed VBETest with a few warnings. The combination of low price point and above-par performance make for a very interesting card.

9FX MOTION 771

The 9FX MOTION 771 uses the Vision968 chip from S3. It posted the single highest Winbench score (17.1 at 640x480) and its DOS scores were high as well. However, VBETest failed one test—it couldn't set the 800x600 resolution at 16 colors. The other odd glitch was severe pixelization during the digital video introduction of MECHWARRIOR 2, although this didn't occur during WING COMMANDER 3's video cut-scenes. The Windows utilities are very nicely done. Like the other Number Nine cards, the 771 is priced a bit lower than the competition. Be aware that if you buy the two megabyte version of the card, you cannot upgrade to four megabytes.

Orchid Technology

Orchid has a long history of developing graphics adapters. This is one of the first companies to ship a Windows accelerator.

FAHRENHEIT 64

The FAHRENHEIT 64 uses one of the early S3 64-bit accelerators, the 864, which explains why it posted DOS scores slightly slower than most of the cards in the survey. The Windows benchmarks were sub-par as well. Additionally, we couldn't run FLIGHT SIMULATOR 5.0A using the VESA graphics driver, although the S3 driver worked. This was a little odd, as the card passed VBETest with only a few warnings. Overall, the FAHRENHEIT 64 is an undistinguished card.

FAHRENHEIT PROVIDEO 64

The PROVIDEO 64 uses the S3 Vision968 accelerator, which incorporates the ability to accelerate digital video functions. It also has a built-in VESA Advanced Feature Connector (usually shortened to VAFC), which was originally designed to replace the standard VGA feature connector and pass data signals (like those from an MPEG digital video accelerators) at a faster rate. Unfortunately, to date, there are few peripherals that support VAFC.

DOS performance for the FAHRENHEIT PRO was on par with other 968 cards, except for its inability to run FLIGHT SIMULATOR 5.0a in Super VGA mode. Orchid has acknowledged the problem and is working on a fix. Another flaw is that the card is physically long, which made it a very tight fit on our Intel motherboard. Windows performance was slightly sub-par compared to other Vision968-based boards.

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VideoLogic Corporation

VideoLogic is a British company which has, in the past, focused on digital video editing products. This legacy shows in its new line of graphics accelerators. All offer the VESA Media Channel (VMC for short), which is specifically designed to move streams of multimedia data at high speeds.

GRAFIXSTAR 300

The GrafixStar 300, based on the S3 Trio64 chipset, posted the highest combined DOS scores of any S3-based card. Windows benchmarks were solid, too. This card passed VBETest with only a few warnings. It is the only Trio64 card to offer optional digital video acceleration, through an MPEG add-on card that plugs into its VESA Media Channel. The manual is complete and well-done. The Windows utilities seemed a bit quirky however, perhaps reflecting their English origin. The GrafixStar 300 is distinguished by being the least expensive card in our roundup.

GRAFIXSTAR 500

Using the Vision868 chip, the GrafixStar 500 is another low-cost multimedia accelerator. It offered solid DOS and Windows performance and passed VBETest with but a few warnings. Unfortunately, Flight Simulator 5.0a displayed a vertically "squashed" image with a lot of flicker (this was a problem with all the VideoLogic boards). All the other SVGA games worked without any noticeable aberrations. This is a nice card at a very nice price.

GRAFIXSTAR 700

This is the high end of the GrafixStar family, using the S3 Vision968. Oddly, although still fairly good, this card's DOS performance was the slowest of the VideoLogic family. Windows performance was good and it passed VBETest with some warnings. Like the other VideoLogic cards, Flight Simulator ran in SVGA mode with a lot of flicker and a vertically squashed image. The GrafixStar 700 is priced pretty much on par with the competition.

DECISIONS, DECISIONS

Choosing the best card for your needs is a difficult proposition made even more difficult by factors like price, the importance of DOS versus Windows performance, and what kind of system you're running at home. Here's are some *CGW*-endorsed recommendations, broken down into different interest levels:

THE "BUDGET GOURMET"

If you're extremely budget conscious, take a look at the Number Nine Graphics 330 or the VideoLogic GrafixStar 300. Another interesting card is the Diamond Stealth 64 Video 2001, which combines reasonable performance with an MPEG daughtercard option.

THE HIGH ROLLER

If money is no object, the Number Nine Motion 771 and the Matrox Millennium are good choices, particularly if you have other applications that need the higher memory capacities and color depths. The Diamond Stealth 64 Video 3420XL and 3400XL are interesting cards because of their expansive capability and bundled software.

THE DOS HOT-ROD

The Hercules Stingray 64 Video and the Stealth 64 Graphics 2001 both use the ARK2000PV chip, and scored the highest set of DOS scores. Windows benchmarks were reasonable, and the cost difference between these cards and the least expensive cards on the market isn't that great.

EDITORS' CHOICE(S)

The three cards we liked the best are not based on S3 chips. The Hercules Stingray 64 Video and the Diamond Graphics 2001, which scored the highest set of DOS scores, both use the ARK2000PV chip. Windows benchmarks were also reasonable, and the cost difference between these cards and the least expensive cards on the market isn't that great. We also really liked the Matrox Millennium, whose combination of speedy DOS and Windows performance, when combined with digital video acceleration and 3-D acceleration make for a compelling solution.

MOST IMPROVED

The entire video card industry falls into this category. We were extremely impressed with the overall improvement over last year's crop of graphics adapters. The gap in performance between the slowest cards and the fastest ones was much smaller than last year. Setup, documentation and feature sets have been improved for the most part as well. If you're careful, it's really difficult to go wrong.

Reaching For The Card

ATI	(905) 882-2600
Diamond	(800) 4-MULTIMEDIA
Hercules	(800) 532-0600
Matrox	(800) 583-3393
Number Nine	(800) GET-NINE
Orchid	(510) 683-0300
Video Logic	(800) 578-5644

UNIVERSAL HELP FOR THE GRAPHICS IMPAIRED

In the beginning, there was VGA, and game designers saw that it was good. Unfortunately, the problem with VGA was you could have lots of colors or higher resolution, but not both. So the graphics card makers added more capability to their products. But there wasn't any standard. Thus was born VESA, the Video Electronics Standards Association. The VESA standard for Super VGA is the predominant technology used by high-resolution games like Wing Commander 3, Panzer General and most others. To achieve the standard, video card makers embed in their hardware (or supply as software) a VESA driver. Unfortunately, as many gamers have discovered, VESA drivers can be a bit buggy, and sometimes don't work at all.

Enter SciTech Software of Chico, California. They are currently shipping version 5.1a of UniVBE, the Universal VESA BIOS Emulator. SciTech has made a living out of dissecting graphics chipsets and boards and has developed a tight piece of software that only takes up 8 kilobytes of upper memory. UniV8E is a 32-bit, protected mode driver that delivers some significant benefits. First, it can patch underlying bugs in a video card's VESA driver, which means graphics cards with poor VESA implementations will still be able to run Super VGA games.

Second, UniV8E eliminates the internal confusion created by DOS games. Most current DOS games use 32-bit DOS extenders. Unfortunately, most VESA drivers are 16-bit. This means that the processor—a 486 or Pentium typically—has to switch from protected mode (32-bit mode) to real mode (16-bit mode) every time it accesses a new portion of video memory. This can have a measurable impact on performance in animation-intensive games. UniV8E presents a single, linear 32-bit address space, which alleviates the need for the processor changing gears. All in all, UniV8E is a useful addition for any gamer's toolbox.

You can download the current version of UniV8E for evaluation from the VESA forum on CompuServe (Go VESA), SciTech's FTP site (ftp.scitech.com) or the *Computer Gaming World* Web Site (http://www.zdnet.com/~gaming). The registered version of UniVBE 5.1a is $28.00; another $10.00 gets you the manual and software on a floppy.

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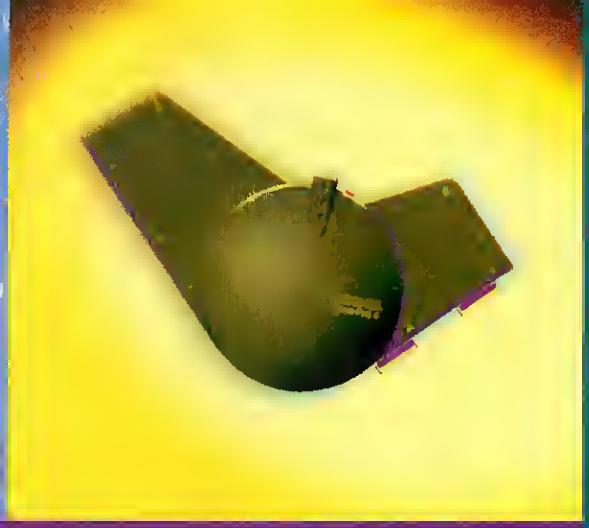

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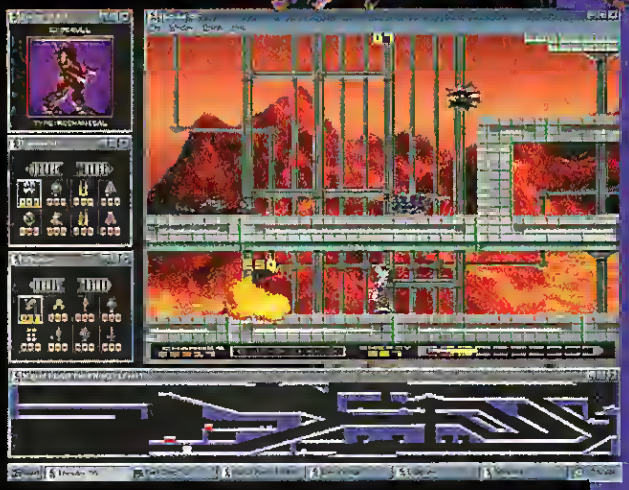

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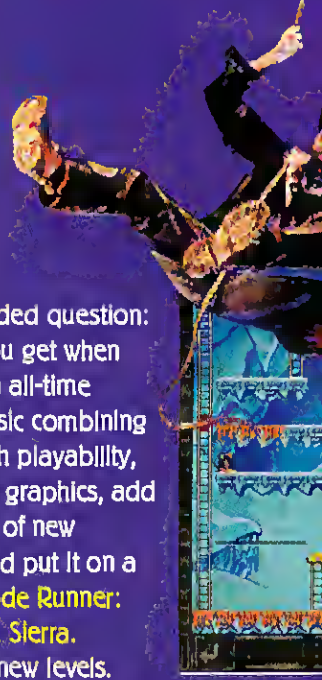

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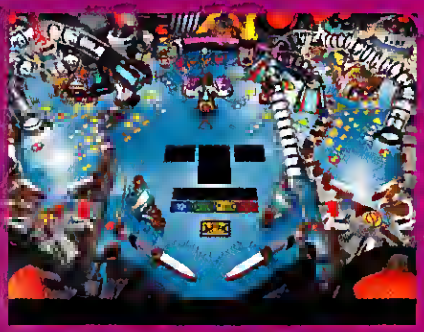

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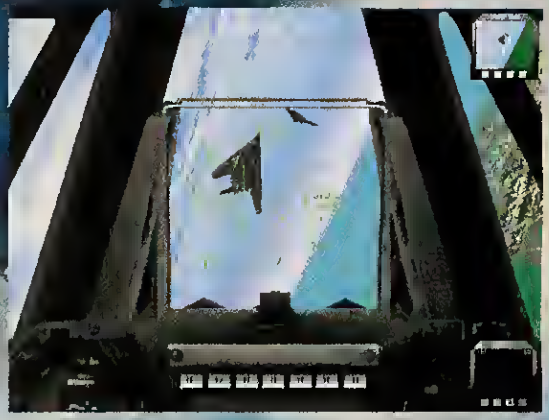


BAT ATTACK Trade force for stealth and try a sneak attack in Lockheed's radar-evading F-117 Nighthawk.

by Denny Atkin

Air combat is undergoing another revolution, one that promises to change strategy and tactics at least as much as did radar, the jet engine, and the air-to-air missile. This time, though, the revolution isn't based on a single advance, but on a combination of new technologies that include stealth design, computer-aided fly-by-wire control systems, and advanced thrust vectoring that lets you literally spin in the air. The planes that take advantage of these new technologies won't be entering front-line service until the early 21st Century, but Electronic Arts is offering you a spot in the cockpit just after the holidays in Advanced Tactical Fighters.

Keeping these planes in the air is a familiar engine—ADVANCED TACTICAL FIGHTERS (ATF) is based on the tried-and-true sim powerplant used in EA's U.S. NAVY FIGHTERS and MARINE FIGHTERS. But the similarity to the earlier titles is skin-deep. ATF sports a familiar interface and graphic look, but there's depth and complexity here not found in the earlier titles. Some of this comes from the advanced aircraft you'll fly—planes that call for completely new air-combat tactics—and a lot comes from a new alliance with respected aviation publisher *Jane's*. (You in the back who dropped to your knees yelling "we're not worthy," stand up already). Unique airplanes, multiplayer capabilities, four times the terrain detail, and a *Jane's*-backed information database add up to make ADVANCED TACTICAL FIGHTERS a lot more than just a way to milk a little more life from the USNF engine.

THE JET SET

The flyable planes in ATF's stable range from the advanced to the hypothetical. The Lockheed F-117A Night Hawk attack plane—better known somewhat improperly as the stealth fighter—is the only one you're likely to have flown before. Also there is its larger cousin, the Northrop B-2 Spirit, which performs a similar mission but carries a much larger load. The French Dassault Rafale rounds out the crop of 1990s planes. It's a fighter in the F-16 class, but with a reduced radar cross-section.

Next up are a couple of "what-if" jets, fighter derivatives of X-plane test articles. While the real jets were designed to test advanced design and control concepts, the planes simulated here are combat-ready. The FX-29 is based on the Grumman X-29, a forward-swept wing airplane with an unstable design that makes for fantastic maneuverability and excellent low-speed control. The FX-31A, based on the Rockwell-Messerschmitt X-31, uses thrust-vectoring paddles to move the fuselage up to 60 degrees from the direction of flight, without altering the direction of flight. This makes it an excellent dogfighter, allowing pilots to get off shots that would be impossible in a conventional fighter.

Finally, there's the F-32 Ghost Hawk, based on Lockheed's proposal for the ASTOVL (Advanced Short Take-Off Vertical Landing) fighter competition. "That's not even a real flying vehicle yet, it's a proposal from several manufacturers," says ADVANCED TACTICAL FIGHTERS producer Paul Grace. "What's interesting about that is that it's a supersonic, vertical-landing fighter. It's something like the YAK-141 that we're doing in MARINE FIGHTERS, but of course it's a much more capable combat aircraft. The Yak-141 is really more of an experimental aircraft—it doesn't carry enough of a payload to do anything interesting."

CAMPAIGN PROMISES

There's plenty interesting to do here, though, with six near-future campaigns in France, Egypt, Russia, and other potential hot spots. "The game takes several 2010-type scenarios where various conflicts all over the world could be occurring," says Grace. "*Jane's* has a section called 'Flashpoints' in their weekly magazine which describes world events and possible flashpoints for combat, and we're picking the ones where pretty high-technology fighters might be employed against other high-technology fighters, or against large numbers of low-technology fighters."

NOSE IN THE AIR The Rockwell-Messerschmitt FX-31's thrust vectoring allows it to to keep an attacker in its sights without changing its direction of flight.

The scenarios do seem eerily possible. One features the U.S. backing up the Egyptian government after Islamic forces attempt a takeover of the military, while another has the U.S. defending Belgium and the Netherlands after those countries refuse to join a trade embargo against the French. The Russian scenario is a follow-up to the USNF campaign, with U.S. forces bolstering the Siberian Freedom Party in combat over Vladivostok as it attempts to dethrone the hard-line Russian government. ATF is also compatible with the scenarios and planes from USNF and MARINE FIGHTERS.

The Quick Mission selection lets you take up to two wingmen against up to 15 planes of three types. But you don't have to go it alone—ATF features both network and modem play. "Our current design is to allow eight players to play," says Grace. "Whether we're going to support the campaign as multi-player is unknown. It's a comparatively complex task to do that, and my experience is that when people get involved in a multi-player situation they pretty much abandon all the rules and play whatever game they like.

"We're looking at an-eight player scenario where people could set up a mission either out of the campaign, or create their own out of the Quick Mission creator, and fly either combative or cooperative flights," Grace explains. "Multi-player will be network-only. We're not thinking right now of supporting Internet or any high-latency messaging systems—they're just too slow." If your house isn't wired with a Novell-compatible network, you can fly two player over a modem or null-modem connection.

THE PLANE TRUTH

The *Jane's* tie-in helps ensure that the flight models are accurate and the campaigns are viable, but it really comes into play in the new aircraft database. Each of the flyable aircraft is featured, with a photo album, parts list, fuselage cutaway, and views of the cockpit, engine, and control surfaces. Along with the basic descriptions of each plane found in earlier sims in this series, you'll also find detailed design and production histories. The final product is also likely to feature video segments showing each plane in flight. Particularly useful is an explanation of the special maneuvers each plane is capable of. "Since we're modeling

BIRDS ON THE MENU

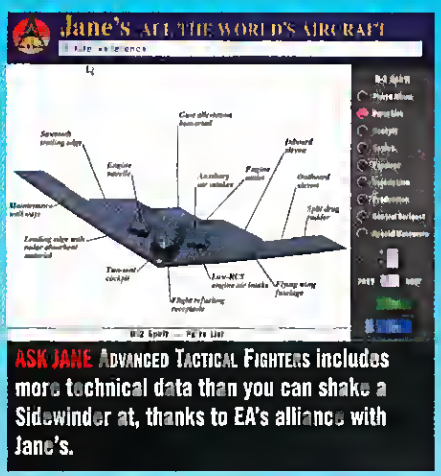
ATF offers a large flock of new birds to fly with as well as against. Along with many of the planes found in USNF and MARINE FIGHTERS, you'll also encounter the following:

Anti-Stealth Blimp
Attack Orone
Aurora spy plane
C-17 Globemaster
C-5 Galaxy
Decoy Orone
Eurocopter Gazelle
Eurocopter HAC Tigre
Eurofighter 2000
F-40 Phantom
F-5E Tiger
F-16 Fighting Falcon
FS-X
J-7E Fishbed
Mirage 2000
Mirage F1
Mirage III
Q-5 Fantan
RAH-66 Commanche
Recon Orone
Super Etendard
Super Frelon

PLANE JANE'S

ATF and Andy Hollis's AH-64D Longbow helicopter sim are the first titles to appear under the new joint EA/Origin brand, *Jane's Combat Simulations*. The five-year alliance with Jane's, the nearly century-old publisher of *Jane's All the World's Aircraft* (the reference bible of choice for aviation enthusiasts and industry professionals alike), *Jane's Defence Weekly*, and a host of other titles promises to give EA and Origin unprecedented access to a huge library of aviation facts, figures, and photographs.

When designer Paul Grace discovered that Charlie Lillis, whom he'd worked with on EA's CAR & DRIVER title, had moved to Thomson, publisher of *Jane's*, he "almost blew a gasket." Grace immediately started working out an agreement to give EA exclusive access to the Jane's reference library.



ASK JANE ADVANCED TACTICAL FIGHTERS includes more technical data than you can shake a Sidewinder at, thanks to EA's alliance with Jane's.

"We had a product in development that was going under the name ADVANCED TACTICAL FIGHTERS, which had video clips and drawings, and we were working with airframe manufacturers such as Dassault Aviation to get information about these aircraft," Grace explains. "We had this informational product, Jane's came up, we were able to put the license together, and we said 'Oh gosh! This is exactly the type of product we're interested in doing (with the license)'. We were able to pull the product together and decided it would be the perfect first Jane's title. I started talking with the guys down at Origin, and they had a game based on the Apache AH-64. That was already a very detailed product, so it seemed like a natural for the Jane's auspices as well.

"They're first-generations Jane's products. They were in development before the Jane's license came through, so they don't take full advantage of everything that Jane's has to offer," Grace adds. The next Jane's sim, a Windows 95-based World War II combat sim, will be built from the ground up using Jane's-supplied information. Grace already has a historical combat expert lined up on the American side, he says, but "I would hope that I can use Jane's to find some similar experts of WWII combat from the British and the Luftwaffe, and be able to put a lot of very personal experiences about air combat in the next product."

Certainly, the Jane's name does help get the attention of aviation-industry folks. "We can get in doors of defense manufacturers, defense contractors, and equipment manufacturers who don't know what the computer game business is all about. They just don't have time to get involved, and we just don't have time to educate them about how broad the industry really is," Grace says. Many airplane manufacturers associate computer simulations with video games about ripping people's heads off, Grace explains. But saying they're working on a Jane's products opens the doors easily. "Jane's has offices in the Pentagon, so they get just incredible access to analysis and timely data."

This cooperative agreement may mean sim fans will get access to data that's never been seen before outside of Jane's offices. "They have to publish pretty much a consistent level of information about anything, which means that what's in the book is the minimum subset of what they have on everything," Grace says. "They have incredible tremendous quantities of interviews, defense analysis, and of course vehicle descriptions; plus all kinds of photos and interesting things about aircraft that don't make the books." Indeed, the smorgasbord of information available makes for complications that would be any aviation fan's envy. "We're going to have to get on a plane and spend a few days pawing through their library just to figure out what's *there*," Grace explains. We feel for you, Paul.

things like the Herbst Turn, it would be useful to know what it is, when you'd want to use it, what it looks like, and how to do it," Grace says.

With all this focus on accuracy and detail, I was a bit surprised to find that an early version of the sim let me load AIM-9 Sidewinder missiles on an F-117, a plane with no air-to-air capabilities. I asked Grace about this. "We don't spend a lot of effort in getting exactly realistic loads because the people who know what they are should load their aircraft realistically," he explains. "The people who don't probably want the ability to cheat, and we didn't see a lot of value in preventing people from doing that. If they want to know if a particular aircraft would be really good if it could only carry Sidewinders, I'm tempted to let them put Sidewinders on and find out.

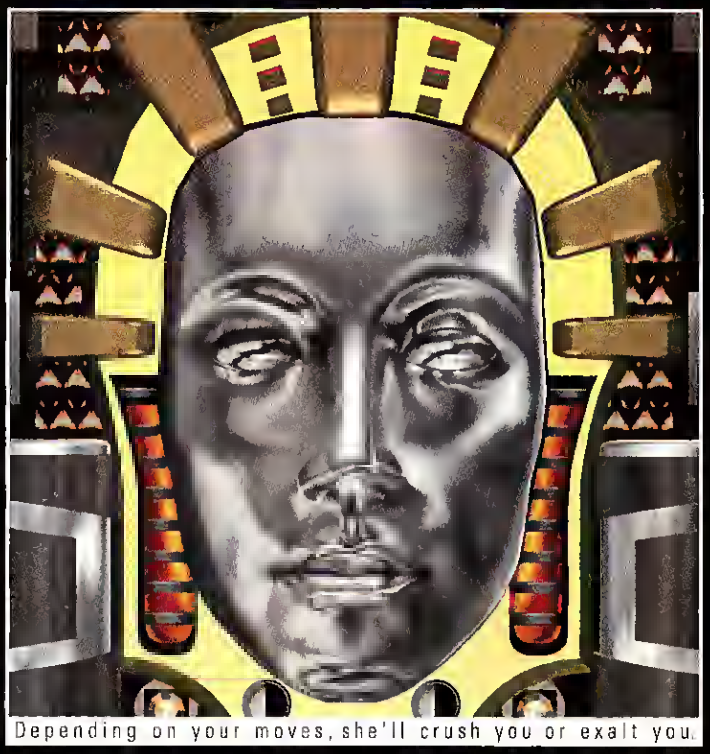
DESTROYING THE GALAXY ADVANCED TACTICAL FIGHTERS sports new victims as well, including the hulking C-5A transport.

"It's kind of like cheating at Solitaire—as long as we're permitting them to play a realistic game, the people who are concerned about realism are largely in control, and they don't 'cheat at Solitaire,'" he adds. "The people who don't care about the realism of *Jane's*—do I want to piss them off, or do I want to give them something they can play with? I lean very heavily toward letting them do what they want. If they want to cheat, they paid the money for the game. We permit people to be realistic, but we don't force them to."

That's not to say there aren't reasonable limits on weapons loads. "Hardpoints have a weight limit, and they have a general classification as smart or dumb hardpoints," Grace says. "The dumb hardpoints can carry things like iron bombs, and there are wet hardpoints that can carry fuel. We allow people to set up realistic weapons loads, and the defaults are realistic weapons loads, but we don't model anything that actually takes into account the connectors and the physical incompatibilities between say, French planes and American planes."

IT'S A WHOLE NEW GAME

ATF has a familiar look, but the first time you throw the hat upwards on your control stick and vector the plane's nose up 60 degrees to fire at a plane as it passes overhead, you'll realize that this is your early admission ticket to the 21st Century combat theater. Even jaded sim pilots are going to feel like they're back in basic flight training as they try to figure out how to get the best out of the next generation of fighter jets.



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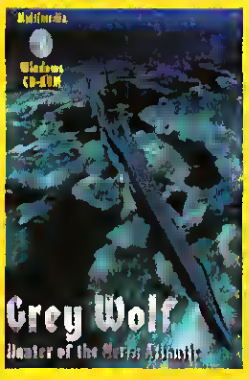

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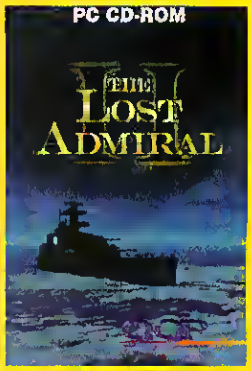

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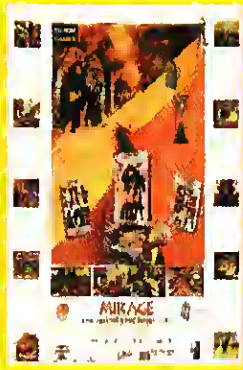

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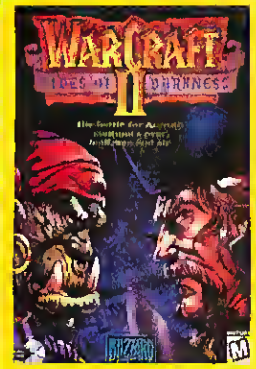

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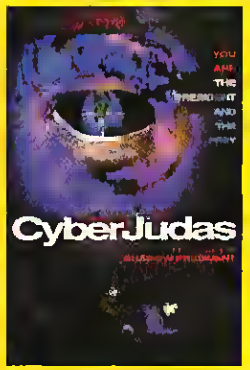

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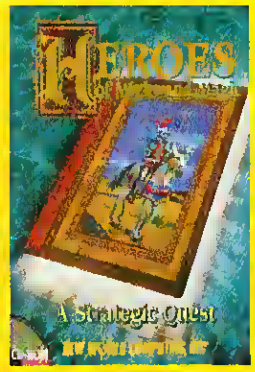

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Circle Reader Service #52

SNEAK PREVIEW
Game Still In Development

IF V BVILD IT...

Rome CAN Be Built In A Day With Impressions' Impressive CAESAR II

by Arinn Dembo

One of the nice things about computer games is that they frequently break the law of sequels; more often than not, the second version of a title is better than the original. Just look at CAESAR II, a soon-to-be-released gem from **Impressions Software**. Those of us who played the first CAESAR have been waiting almost two years for this product; and, after a sneak peek at the latest version, I think I can safely say the wait has been worth it.

The original CAESAR was a development game with three levels of complexity: the empire, the province and the city. The empire level was somewhat primitive, little more than a map. Basically, you kept the Emperor happy, rendering unto Caesar whatever he asked for. You took care of your province, and once you finished developing the place, you would be "rewarded" by being sent to a less civilized part of the empire, with more enemies of Rome and rougher terrain. (You must have thrown up on his Imperial sandals at some point.)

At the province level, your task was to improve the Roman highway system and defend your lands against its enemies with forts, walls and armies. It was fun, and a unique feature in a game of this kind, but unfortunately, the game didn't have its own combat system. In order to get a full, real-time experience on the battlefield, CAESAR had to be linked with another Impressions product, COHORT II, which was kind of a pain in the neck.

THE MAJESTY THAT WAS ROME A close-up view of a CAESAR II city shows off the game's outstanding artwork.

At the city level, you were building a Roman-style metropolis, complete with aqueducts, forums and temples. It was also quite enjoyable, even though the system wasn't very sophisticated. For example, evolution of larger public buildings was automatic. Stick two smaller temples together and they would eventually become a Pantheon. That kind of thing, combined with the graphics which were nothing to write home about, left something to be desired.

I'm very pleased to say that in CAESAR II, Impressions has addressed practically every complaint that gamers could have made about the original. They've taken a game which was essentially a little gem—good and enjoyable, but rough—and transformed it into a bona fide diamond. The graphics are 100% better, the Help features promise to be both educational and entertaining, and the interface is extremely easy to master, one of the best I've seen of late. But all of that is merely the tip of the iceberg. They've also improved gameplay and increased the challenge at every level. They've integrated a spiffy new combat system and, if all that wasn't enough, they've added event animation and other pleasing eye-candy. Barring an unforeseen shot in the foot, the fin-

THE BUILDING BLOCKS OF EMPIRE The beginning of the game may find your city nestled near hills much like the historical Rome. Later on, you'll find that walls offer more protection against barbarians.

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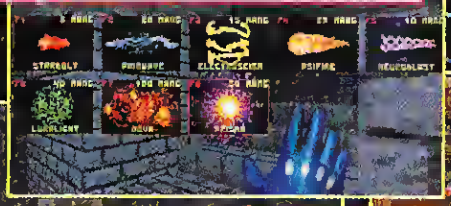

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ished product could very well become one of the most popular and rewarding strategy titles of the year.

THE EMPEROR DECREES MORE GAMING FOR THE MASSES!

A complete list of all the features offered in this new version would be exhausting, so I'll try to stick to the most interesting ones. At the Empire level of the game, your relations with Caesar have become a bit more complex, and the increasing difficulty of the game—as you're sent further and further into the hinterland—makes a bit more sense now. As a provincial governor, you are competing for Imperial favor by conquering these lands for Rome, and it is to your advantage to establish Roman rule—complete with Roman peace, Roman culture and Roman prosperity—as quickly as possible. Your success will increase your rank and improve your fortunes.

The Province level of the game has been enhanced by a system of industry. Instead of merely *defending* the province, you must *develop* it as well—not only to make raw materials available to the Emperor, but to provide employment for your city's population. Along with the forts, walls and roads of the old CAESAR, you can now build farms, mines and quarries to harness the natural resources of the province, and trading posts and ports to bring in goods from abroad; all of these structures must be attended by warehouses for storage and workhouses for plebeian labor.

And speaking of the province level—the new combat system is a winner! I think most strategy gamers will recognize it as a variation on the combat engine from LORDS OF THE REALM. There are various kinds of light and heavy infantry, troops with long-range weapons, cavalry and even war elephants; it's a gas, and the command interface is fairly refined. My favorite part was the "mop up" button. It basically gives the selected unit an order to jump into the nearest melee and finish off the enemy troops, saving a lot of pointless point-and-click at the end of a fight.

The City level, of course, is where this game really shines. The designers have genuinely captured the feel of Roman life and the expectations of the Roman people. As the player, you must meet the demands of the populace for various public services, not only to be able to collect the necessary taxes from them, but to avoid having the city destroyed by fire, rioting and crime. Romans are a civilized folk; they want housing, a plentiful supply of fresh water, good sanitation, schools, hospitals, libraries and amusements—not to mention access to a forum and a marketplace. And, although they aren't thrilled with having soldiers and watchmen around, they need the barracks and the prefectures to keep the crime rate down, quell public unrest and put out fires—ditto for the city walls, which no one likes and everyone needs in order to keep out barbarian hordes and malcontents.

After playing this game for a few hours, the Roman fetish for a well-planned grid of city streets becomes all too understandable. To make the most of the available space, and provide maximum access to all the public buildings, the roads in the city have to be laid out carefully. The same goes for the intricate web of reservoirs, aqueducts and fountains that keep the whole city supplied with water. The people need jobs as well, so the considerate governor will build factories in the town to make finished goods from all the raw materials arriving from the farms, quarries, mines and trading operations out in the province. Naturally, with industry comes taxes, so you will have to build temples to house the provincial treasury.

The modeling in this title is fascinating. For example: in the course of one game, I discovered I had not built enough housing to provide for a suddenly swelling population; and, since I hadn't built housing for them, the people built their own. A shanty town sprang up on the opposite bank of the river, rife with bitterness, fire and unrest—because they didn't have the things that all Romans want. It was a moment so true to reality that I was genuinely impressed—and of course, quickly took steps to "enfranchise" that collection of huts by the river bank with bath-houses, prefectures and access to their own forum. Funny that they calmed right down once they had proper sanitation, services and a little security. Someone should send the mayor of Los Angeles a copy of this game.

SHORT-LIVED REVOLT Lucanian troops find out what it means to defy Imperial Rome. The mop-up button will be put to good use here.

CAESAR'S LEGACY?

In short, CAESAR II should be a strong contender, and promises to appeal to a wide audience. There are several titles out on the shelves now that aren't as polished, and not nearly as much fun to play, as the late beta previewed here. If Impressions can maintain the high quality of the work they've already done with this product between now and its release date, I'm going to be first in line for a copy. As with all previews, of course, we'll have to wait for the final word when the game is released—there's many a slip betwixt the cup and the lip. At this stage, though, it looks as if Caesar's empire is destined for glory again.

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Circle Reader Service #144

SNEAK PREVIEW

Form Line Of Battle

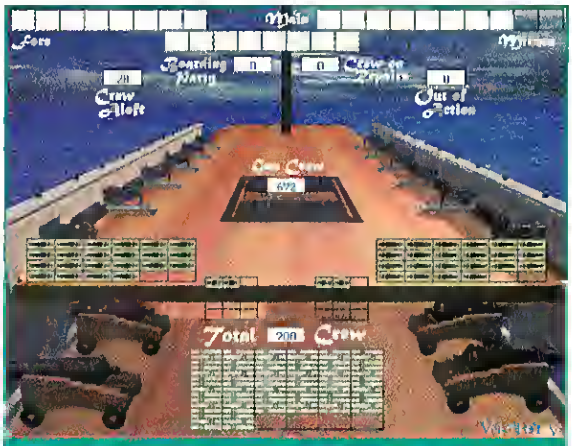
Wooden Ships & Iron Men Makes Sail For High-Seas Action

by Terry Lee Coleman

"Helm alee!" cries the post-captain. I pace as my flagship's bow slices through the waves, wood creaking in protest and sailors scurrying to reef the sails for battle. The gun crews run out their cannon, our hull looking like a mongrel cur baring its teeth. We cross the "T" of Nelson's flagship. The gun captain orders a deafening broadside. Decks tremble from recoiling gun carriages and a curtain of smoke masks the destructive power of the chain shot. But the smoke cannot mask the screams of sailors pierced with bloody splinters, limbs bruised and severed. It cannot mask the crash of the mainmast falling to starboard or the cry of victory from my decks as the smoke begins to clear. "Prepare to board!" cries my post-captain and I smile. It looks like Victory, indeed.

Such are the classic battles which fighting sail games attempt to convey. Those who wish to experience the grand age of sail may choose from several sailing ship simulations. Dave Arneson's *Don't Give Up The Ship* is exciting, but as with many miniatures rules, becomes unwieldy in large-scale engagements. **Simulations Canada**'s Man of War has the right emphasis on crew quality, but its playability is hurt by minimalist graphics and lack of flexibility.

Most gamers who have ever dreamed of sailing ships in the Napoleonic era have probably played (or at least seen) **Avalon Hill**'s Wooden Ships & Iron Men, a classic board game with all the sea-salt flavor you could wish for. Problem is, Wooden Ships, while a logical design, was fairly complex, even by board wargame standards. An early attempt by Jim Jacob failed to bring the game successfully to the C-64, but **Stanley Associates**, the folks who brought you 5th Fleet, are currently taking the realism of the board game and outfitting a new computer version of WS&IM.



SWABBED DECKS The clean graphics of the ship status screen lets you quickly determine such important stats as crew casualties, damaged sails and hull hits.

3-D BROADSIDES, SVGA SAILS

The first thing gamers will notice about Wooden Ships is that the water ripples with realistic shades of blue, with nary a hexgrid in sight. The ships are rendered in 3-D Studio, with rigging and other details painstakingly researched by Joe Balkoski, noted designer of 19th-century wargames.

The movement system is far easier than that of the board game, where simultaneous plotting of moves was both artificial and tedious. The interface retains the turn-based nature of its paper brethren, while leaving the cumbersome mechanics of the board game behind. An old-fashioned wheel marked with the eight main points of a compass allows you to steer the ship. During a turn, you simply click on the wheel for port or starboard turns, then move ahead, with the turn rate depending upon the vessel's size and speed. Speed changes immediately with different facings *vis-a-vis* the wind, forcing players to temper aggression with caution.

TACKING AND ATTACKING

Sailing aficionados may engage in tacking, wearing and otherwise dancing on the water in as realistic a fashion as they are likely to find this side of the *America's Cup* competition. Sail conditions may be either full, battle or plain, with the latter being sort of a mid-range degree of sail not even found in the board game. Fancy maneuvers are allowed, but they are a function of crew quality and numbers (remember, each sailor may only do one thing at a time). Each turn represents three minutes, and the overall effect works well, allowing time for maneuver and decision-making, while keeping the turns brief enough to create tension.

The computer executes both your turn and that of your opponent simultaneously. This isn't a problem, since combat is essentially a function of movement. So, a

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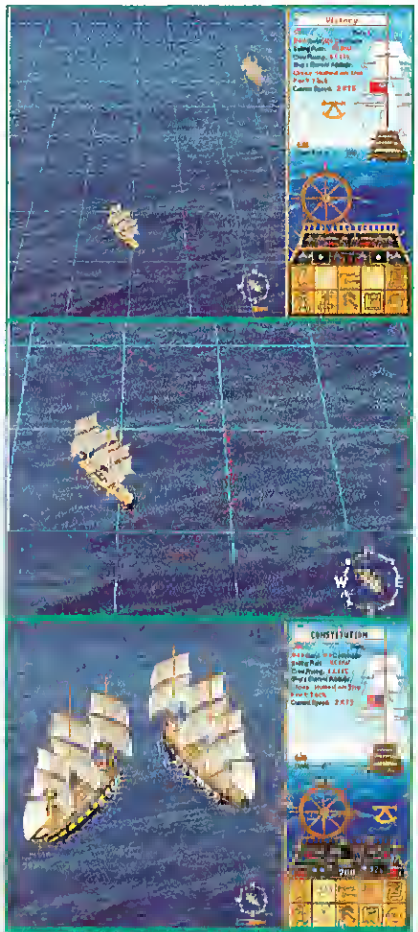
lot of the excitement comes from choosing when to fire, since you don't know what your opponent has planned for the turn. Will he move sharply away, just as you close for a broadside? If you fire too soon, you may give up a chance for point-blank fire, or even find your vessel boarded with no way to fire at the approaching enemy. Moreover, it takes a turn to reload, and you may *not* reload both port and starboard broadsides in the same turn, a simple yet very realistic rule.

The variety of shot has been retained from the board game, with captains able to choose between chain shot (a must for destroying rigging), ball shot (classic round shot), double shot (solid shot with twice the fun) and grape shot ("shot gun" shells for cannon, deadly to opposing crew). Ball shot has the longest range (up to 2,000 yards), but the other types require you to close on the enemy. Firing is simply a matter of clicking on the interface and choosing at which range to let fire. For those who have trouble judging distance, there is an optional square grid (which does not affect movement).

While I enjoy ship captains dueling in PIRATES! as much as anyone, I really prefer the more realistic treatment of boarding parties in WOODEN SHIPS. Crew must be allocated to attack or defense, damage control (patching holes), fire control, and gun crews. Grappling is not automatic, and once joined, ships out of control drift realistically—sometimes taking them into unforeseen dangers in multi-ship combats. Melee occurs automatically when enemy ships are grappled together, and each side takes percentage losses each turn until one side emerges victorious. The loser becomes a prize ship to be floated back to the mother country. Even smaller vessels can win boarding actions because of the system's emphasis on crew quality and morale. What's amazing is that all this, which would often be accompanied by a bewildering amount of charts in a boardgame, is accomplished transparently.

SEA LANES ARE OUR LIFELINE

The game's setting is the grand age of sail, bridging both the 18th and 19th centuries of naval conflict. What would-be sea captain can resist fighting famous engagements with vessels ranging from the *H.M.S. Victory* to *Old Ironsides* herself? Most actions involve battles from the War of 1812 and American Revolution, with some historical and hypothetical engagements against French or Spanish vessels. The scenarios are particularly nice for e-mail play, where two human admirals will benefit from the simple e-mail functions (a legacy of 5TH FLEET).



TACKING INTO THE WIND To turn the tables on its English foe (*top*), the *Constitution* performs a series of turns (*middle*), and finally brings its guns to bear.

All the scenarios I was able to play were carefully chosen for play-balance. There even seems to be enough randomness in the program's tactics to ensure some replayability. There is also a replay feature to allow you not only to view your triumphs, but to enter a battle and improve upon your defeats by intervening at the crucial moment.

Still, it is the campaign game which will appeal to any John Paul Jones wannabe. As a US Navy ship's captain, you undertake a cruise against British shipping in the War of 1812. Each turn represents two days, with sightings of enemy vessels occurring similarly to other sailing games. You may chase a merchantman, for example, only to find it escorted by a British frigate.

Your vessel may be a brig like the *Syren*, a sloop such as the *Hornet*, or one of the famous frigates: *United States, Constitution, Chesapeake*, etc. To embark on your cruise of destruction, your vessel will have to run the British blockade, a nice touch. The total length of the cruise will vary randomly from two to three months (25 to 60 turns), at which time your service to the US Navy will be rewarded.

If this wasn't enough, Stanley has designed a scenario editor where both players purchase ships from an agreed-upon point total. So, if you've always wanted to recreate the battle of Trafalgar, you can see how Nelson might have fared with a few less ships-of-the-line.

NEW SHIP ON THE HORIZON

Is everything perfect? It's possible that those who wanted the hexagonal restrictions of the boardgame will feel slighted. But I imagine they'll be won over by the elegance of the game system, which provides a nicely-paced tempo within a familiar turn-based structure. Others may wish that land, sandbars and the like were included, although my own experience is that those were the weakest battles of the original board game. Stanley Associates and Avalon Hill, along with Joe Balkoski, have done a good job of retaining the realism and nautical flavor of the board game, while injecting needed graphic life and a clean interface.

While simple to play, WOODEN SHIPS & IRON MEN is a potential classic because of the number of tactical decisions players get to make every turn. The scenarios have a good mix of historical and hypothetical battle situations, and the campaign offers enough role-playing aspects to keep any swashbuckling captain smiling. Unless the program takes a broadside below the waterline in development, it should be one of the best strategy games of the year.

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SNEAK PREVIEW
Game Still In Development

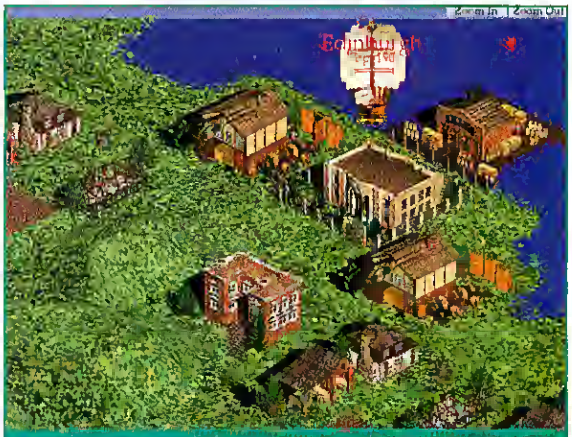
We Shoot To Conquer

Exploring Interplay's Upcoming CONQUEST OF THE NEW WORLD

by Johnny L. Wilson

Interplay's CONQUEST OF THE NEW WORLD (CNW) is more than the sum of its parts. CNW features exploration *a la* SID MEIER'S CIVILIZATION, but beautifully crafted vessels sail the pitch-black seas of the unknown, and beautifully animated figures explore the continents like more detailed characters from **Bullfrog**'s POWERMONGER. It features city building with a graphic look somewhere between the city tiles of CAESAR II and SIMCITY 2000. It features economic management similar to SID MEIER'S COLONIZATION or the upcoming CAPITALISM and tactical combat which feels like playing British Colonial skirmish rules in miniature. If CONQUEST OF THE NEW WORLD had a title song, it would feature the late Zero Mostel singing, "Something for everyone, our strategy tonight."

CNW is a quadruple-E game (Explore, Expand, Exploit, Exterminate) that is an E-ticket ride (formerly the best ride at Disneyland) to reliving a glorious and colorful era in history—the discovery of and settlement within the New World. CNW is SID MEIER'S CIVILIZATION with a more tactical feel, since your subjects uncover the New World a hill, river, mountain or meadow at a time compared to the large blocks of continents exposed by each move in CIV. Yet, CNW is SIMCITY on a grander scale, since your goal is to build multiple colonies (i.e. cities) rather than the one efficient megalopolis you are likely to create in SIMCITY. In addition, CNW has one very big advantage over the *CGW* Hall of Fame games just mentioned: it is multi-player over a local area network.



COLONIAL STYLE Cities in CONQUEST OF THE NEW WORLD show delightful detail whenever you zoom in for a close-up view.

CIVIL ENGINEERING Exploration in CONQUEST OF THE NEW WORLD is similar to that in SID MEIER'S CIVILIZATION, but colony building looks a lot like city construction in CAESAR II.

BAUD VOYAGE

You begin the game by establishing the ground rules. Players may choose to be an established colonial power (English, French, Dutch) or use a custom set-up (particularly useful in multi-player games on the network where you might want to confuse the opposition as to your intent). The established powers have built-in national characteristics (whether they establish colonies to primarily build their economy or to conquer and exploit native populations), but you can opt to be a Miser (collecting points for net gold gains), Builder (earning points for increasing the level of your colonies), Conqueror (gaining points for each colony conquered), Pacifist (garnering points on the basis of your economic level minus number of military units), Ally (receiving dividend points per your allies' victory points), Revolutionary (gaining bonus points for achieving independence), Trader (gleaning points from the commodities traded on the free market), Missionary (harvesting points for every converted native tribe plus level of churches), or a follower of seven other strategies. With a custom nationality, no other player will know for sure what you

Intentionally blank. Page does not exist.
Page numbering error in CGW.

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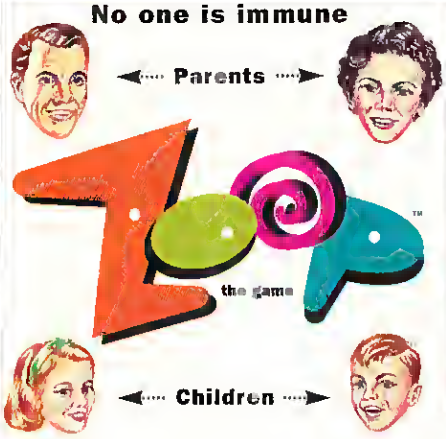
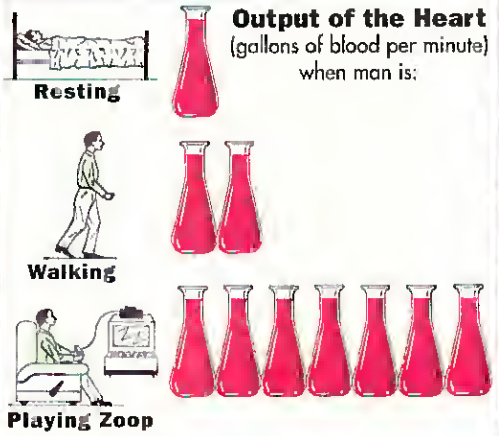
ZOOP - YOU MAY ALREADY BE ADDICTED

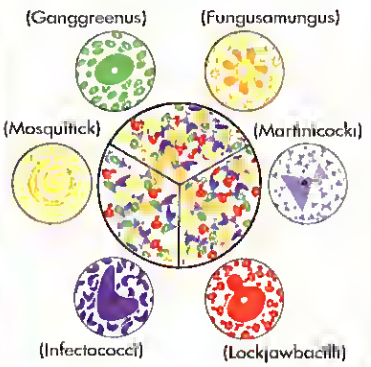
No one is immune





Output of the Heart
(gallons of blood per minute)
when man is:

(zoopx10^{10})



A healthy Iris

The same Iris *after* Zoop

The stages of Zoop
(what to look for)

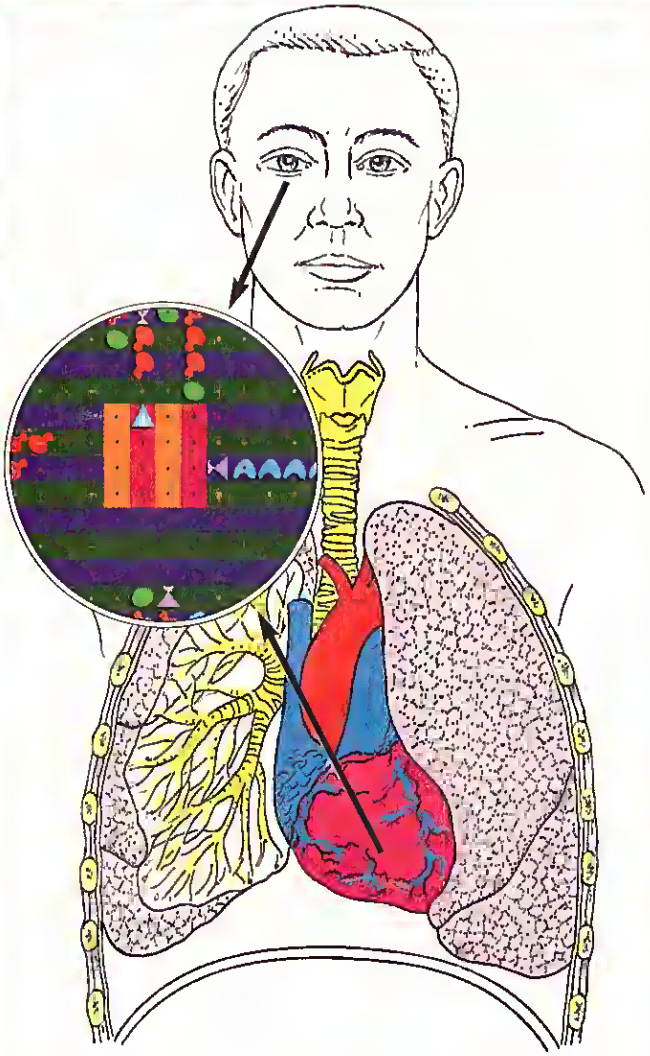
(Level 3)

(Level 6)

(Level 9)

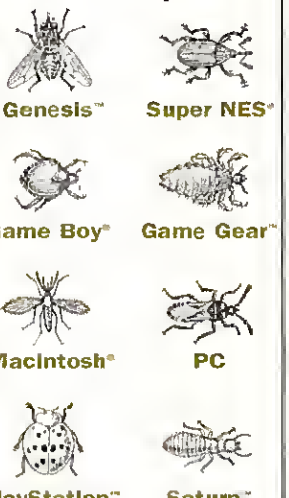
(Level 72)

(this pattern continues on, and sadly always leads to one's demise)



It looks like a hormless video game until it enters the bloodstream and mixes with your DNA. In order to eradicate this affliction we must learn its moves, understand its thinking and anticipate its next move. Only then can we begin to battle and conquer this killer.

Known carriers of Zoop



How Zoop affects the brain

It slowly eats at the Cerebellum restricting: movement, coordination, balance

It attacks the frontal lobes of the Cerebrum impairing: judgement, higher learning, reason

It mutates the Medulla causing irregular: digestion, respiration, heartbeat

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need to win. Whenever they see you on the horizon, they won't know if you're coming to trade, negotiate, or fight with them.

You sail your ship across a black screen and transform the ocean into royal blue seas by clicking on the ship and dragging until you reach a satisfactory destination point. This action can be repeated until you run out of movement points. When you finally strike land (each game has a custom map, so exploring is not feigned), you can send out your explorers (via the same click and drag interface) to transform the black shadows of an unexplored continent into the green slopes and meadows, hills, mountains and rivers of this new El Dorado—this land of wealth untold.

PARADISE FOUND

Once you have discovered some flat space, you can send out your settlers to found a colony and, if necessary, deploy military units to secure the area—your explorers or field units may encounter hostile native tribesmen and be forced to "pacify" them. Founding a colony moves you into the SIMCITY/CAESAR part of the game. You build up your colony's economic base by increasing the population, building up industries (farming, logging/milling, mining, shipping, and eventually, trading) and the quality of life with new housing, churches and taverns (which increase the magnetism of your population draw).

One word of warning is in order, though. The colonial administration building which represents the city center of a colony is intended to be the *center* of the colony. Should you try to build realistically from the seashore where your original landing occurs (as most cities grow naturally from the watersource or seashore back inland), you will be losing roughly half of your potential city growth. The game only allows you to build within a certain radius of the city center, so you waste a lot of potential space (after all, you can't build on water, can you?).

Once you build up an economic base, you'll be able to upgrade the colonial administration building and several other buildings to maximize your colony's potential. Many of the victory point conditions for winning peacefully are based upon reaching higher and higher levels of sophistication. So don't hesitate to upgrade, even though it may seem expensive.

THUNDER IN PARADISE

Of course, economic expansion via conquest has been around since Cain nearly inherited Abel's herds via fratricide. So, like all Quadruple-E games, CNW allows you the option of acquisition through armed opposition. When one side gives the order to acquire or destroy a military unit, the battle is resolved via tactical combat prior to any movement on the succeeding turn. The screen is transformed into a tactical combat area which resembles the well-tended lawns at Wimbledon, complete with a well-marked "court." The "court" for the tactical battles consists of two end zones (home areas) which sit at the end of 12 rectangular spaces. Each space counts as one tactical movement, and each military unit has a firing range of one square.

The tactical battle plays almost like football. Your "players" are the military units, colorfully rendered to look almost like animated 25 mm lead figures. The "end zone" is your home row. If an enemy can reach the home row without opposition, you lost the battle. So, you have to maneuver (in order to block your enemy's path, as well as to get the best shot) and fire in an impressively choreographed turn-based battle. I think a lot of people will buy this game just to set up two Conqueror-type nationalities and try to orchestrate their forces to engage in these tidy little battle sequences. It doesn't have all the subtleties you might want from tactical combat (maneuvering is simplified and cavalry charges are nonexistent), but it is colorful and entertaining with a modicum of tactical challenge.

VICTORY FOR THE VICEROY As soon as the tactical combat is over, players can see the results in a report like this temporary graphic before returning to the main screen.

MASSACRE AT WIMBLEDON Tactical combat in grassy terrain or forests looks like Red Coats trying to take over a tennis match, while battling across river bottoms offers a different look and feel.

CONQUEST, COLONIZATION, CIVILIZATION

CONQUEST OF THE NEW WORLD is more than just an amalgam of game styles and features. CNW is a tapestry of strategy, tactics, diplomacy and management built around the theme of exploration, discovery, colonization and war. I really can't imagine an aficionado of any of the games mentioned in this article who wouldn't want to play CNW. In spite of its computer gaming antecedents, CNW is a whole new world.

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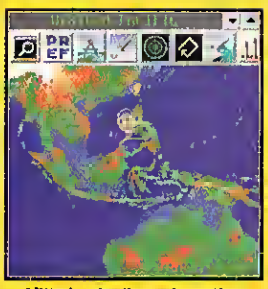

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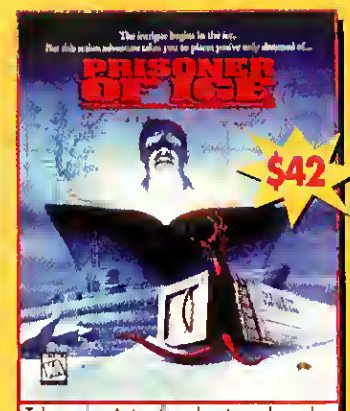

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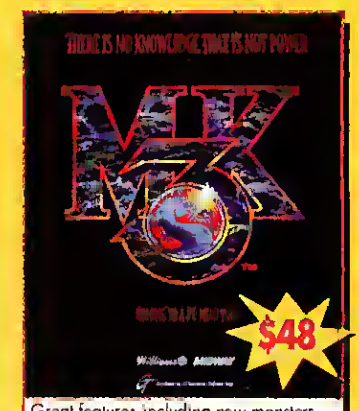

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39805 Atari 2600 Act on Pack #2 WINDOWS	26
33637 Axes the Gamecheater	36
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34448 Battledrome	19
21151 Battles of Napoleon	12
36654 Blood Bowl	32
33738 Breach 3	33
35715 BreakThru! WINDOWS	25
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39010 Brutal	37
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34074 Celtic Tales Balor Evil Eye	35
39394 Chaos Engine	20
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38649 ClockWerx WINDOWS	25
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37435 Collegiate U of Florida WINDOWS	19
37439 Collegiate U of Mich gan WINDOWS	19
37434 Collegiate UCLA WINDOWS	19
35717 Colonization	40
22035 Corridor 7	26
36303 Crystal Colburn WINDOWS	30
36087 Cyclones	42
34162 Dark Legions	34
34765 Dawn Patrol	41
37076 Descent	35
39219 D ages	26
36747 D scworld	35
33894 Doom I Knee Deep in the Dead	7
35719 Doom II Hell on Earth	45
39690 Doom II Nightmare Missions	23
32978 Dungeon Master 2	35
39915 Dynasty League Baseball	24
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36589 Flight Commander II	39
32632 Flight Light	21
37558 Flight Sim Caribbean Scenery 5 0	20
36695 Flight Sim Europe #1 5 0	26
37557 Flight Sim Japan Scenery 5 0	20
32901 Flight Sim Las Vegas 5 0	31
31728 Flight Sim New York Scenery	20
31657 Flight Sim Paris Scenery	20
37638 Flight Simulator 5 1	42
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40106 Game Creat on System	70
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34828 Golf Courses Pinehurst WINDOWS	23
36790 Good to Farm	31
39086 Greyhound 2	18
34008 Guilty	35
32527 Hand of Fate	25
32594 HardBall III D	
34006 HardBall IV	
32122 Harpoon II	
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36245 H	
27109 Holly	
38601 H	
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36972 Klik n' Play WINDOWS	
35210 Kn ghts of Xentar Upgrade NR	2
36790 Good to Farm	31
39086 Greyhound 2	18
34008 Guilty	35
32527 Hand of Fate	25
32594 HardBall III Diamond Collection	37
34006 HardBall IV	34
32122 Harpoon II	40
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37092 Navy Strike	25
39097 New Horizons	35
37763 One Nil	20
39101 Onslaught	41
34451 Operation Crusader WINDOWS	39
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38548 Pac In Time	26
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31956 Pax Imperia	35
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30098 Protest Gold	15
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37305 Point of Attack	27
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35935 Quoranti ne	34
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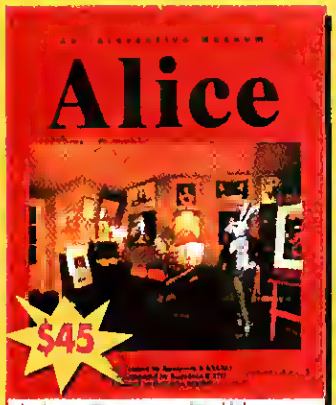

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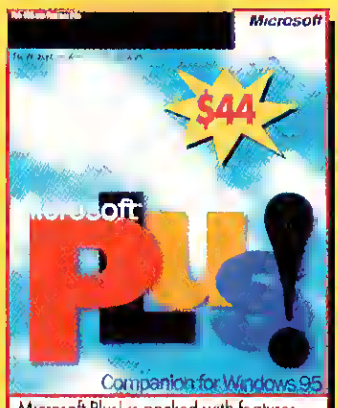

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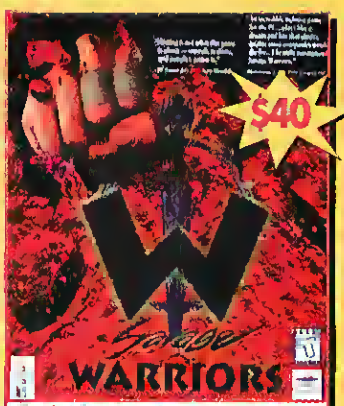

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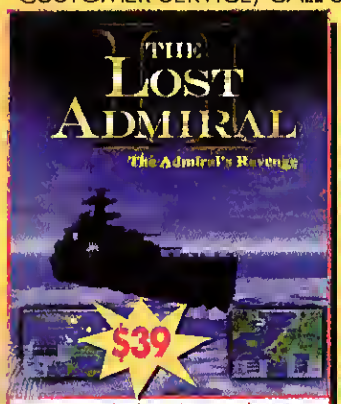

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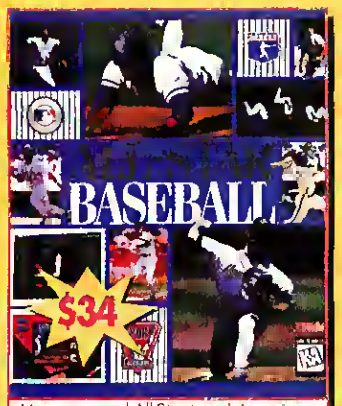

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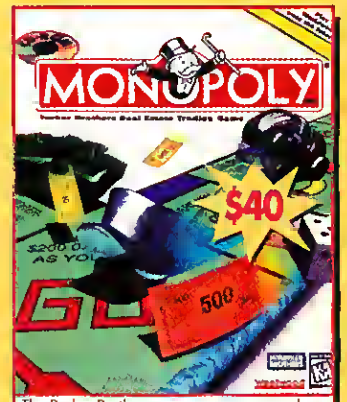

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Why We Think WINDOWS 95 Is Important

We were originally Windows 95 skeptics. We expected Microsoft's new operating system to be merely an enhancement for business users. We figured a few game developers would take advantage of the Win-G API (Applied Program Instruction), but we fully anticipated Win 95 to be a "ho hum" experience for gamers.

Then, we heard about a "Manhattan Project," some rumors about the Game SDK (Software Developers Kit). The APIs rumored to be built into Win 95 (Direct Draw, Direct Sound, Direct 3-D) sounded fabulous. Querying our sources at Microsoft, we knew something was up when each new e-mail response was carboned higher and higher up the corporate food chain. What we had heard was true, and then some!

We also heard that some major players in the industry (EA/Origin, Mindscape/SSI and Maxis to be specific) were adjusting their entire development schedules to work exclusively on native Windows 95 products. Everywhere we turned, developers and publishers were singing Win 95's praises. That was the game as far as we were concerned. You can't stop a tidal wave, even if you are a modern Luddite. That's why you're reading so much about Win 95 in every computer publication and lots of general publications, as well. No matter what you feel about Microsoft as a company, their marketing practices in general, or the past versions of Windows, 1996 will be the year we all do Windows.

So, do you want to hear about it from some guy on the net or do you want to hear about it from the magazine that told you about the EGA, VGA, SVGA, 8-bit sound, 16-bit sound, General MIDI, and wavetable revolutions? Do you want to hear about it from somebody else or the editorial staff who questioned 3DO; told you the Atari ST, C-64 and Amiga were dying; and warned you about the Siliwood convergence? We hope you want to hear it from us, because we think the Windows 95 tidal wave is extremely exciting. Let's surf it together.

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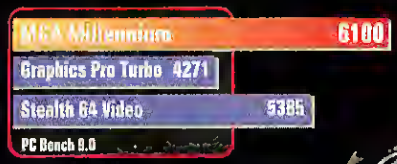

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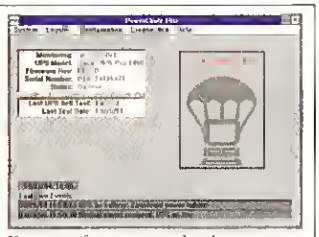

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Circle Reader Service #179

Allies On The March

Allied General Will Push Those Panzer Blues Away

by Terry Lee Coleman

SNEAK PREVIEW
Game Still In Development

What's in a name? Recognition, for starters. Regardless of appearances, anything with "General" in the title conjures up images of battlefields, hard victories won, and maybe even bitter defeats, but it certainly is appropriate for a wargame. Panzer General had more than just a great name. It let gamers balance themselves ever so precariously along a tightrope, playing the ultimate bad guys. Yet, once play began, any feelings of moral doubt were swept away by the whirlwind of the *blitzkrieg* and the chance to see what the Me-262 and the Tiger II tank were really made of when push came to shove on the battle-scarred fields of Europe. Nearly a year after its release, Panzer General is still enticing would-be Rommels to greet the dawn, trying to capture that last hex of Moscow or London.

SO WHAT'S THE POINT?

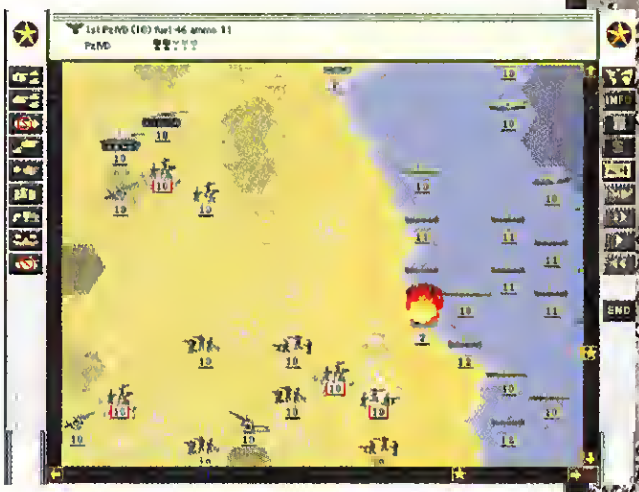
I was recently asked why, with the ability to play from the Allied side in each scenario of Panzer General, we needed Allied General? The most obvious reason that I could come up with is that you get to play the *campaigns* from the Allied perspective. What wargamer could resist being Patton, rushing for the Rhine, hell-bent for leather as a cavalry commander with armored steeds to make the ghost of Jeb Stuart drool with envy? Who could resist stepping into Montgomery's boots, sending his lightly armored rat patrols to infest Rommel's comfortable nests?

As with its predecessor, Allied General is filled with interesting scenarios, but the true richness of the game comes from the campaigns. The one which most closely resembles those of Panzer General is North Africa, where as Montgomery, you must drive the *Afrika Korps* out of Egypt, Libya and Tunisia. Here, though, the design team at SSI has changed the look and feel of the battles, even those already familiar to PG enthusiasts. For instance, Cairo represents the end of the line for the British. If Rommel defeats your forces there, you won't have to worry about defending England from invasion—you will be summarily removed from command, resigning in disgrace. Your task is helped somewhat in that Cairo has a much more grand tactical feel than in PG. Cairo itself consists of several city hexes, making it much more difficult for the Germans to evict your forces.

Similarly, in the Western campaign, the Battle of the Bulge doesn't begin with the vaunted German winter assault. Rather, your task is to take on the German forces at the greatest point of their historical advance, keep them from reaching Brussels, and rescue the isolated forces at St. Vith, Bastogne, etc. While everyone enjoys playing the underdog, I imagine most gamers really look forward to hours of crushing Panzers with Shermans, a mix of artillery, and that wonderful US air power.

Another nice thing about the Western campaign is that you may play from the British side as well as the American. Although there is some overlap in auxiliary units, if you choose to be British, your core units will be predominately British and Commonwealth, with a few resurrected Poles (much better trained and equipped than the pushovers of PG). The US forces are likewise restricted to American and some Free French forces. While this might not seem like much, it actually adds tremendously to replay value, since the force mix for the two nationalities is so different.

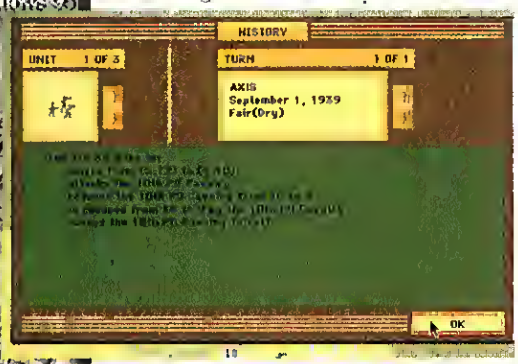
And then there's the Soviet campaign. Although Panzer General may be justly criticized for emphasizing playability over perceived realism, the fact is that there is still enough historicity to give the proper WWII feel. Al-



ALLIED REVENGE Now you can finally "do D-Day" in all its glory. Notice the Allied paratroops have landed before the transports hit, and that many of the front-line troops are overstrength units, due to having experience from the Sicily landings.

LIED GENERAL could not possibly have the Russian army rolling over the *Wehrmacht* in the middle of 1941, or gamers would simply reject it as poorly-conceived fantasy. So, when Operation Barbarossa begins, you find yourself as the Russian commander feeling much like your German counterpart in 1944. Early on, the Soviets are going to get their tails kicked; but you can make a difference on a local level, by delaying the German advance. The better you perform, the sooner you will get a chance to lead the counter-offensive near Moscow, Stalingrad or Leningrad. Like Cairo for the British, there is a worst-case scenario—Zhitomer—where your army's back is to the Ural mountains. Lose here and not only does Moscow go down in flames, but even the harsh Russian winter won't be enough to stop Guderian (as it did Napoleon in 1812) from going all the way to Vladivostok and waving as he passes you in your new Siberian home.

WINDOW TO THE BATTLEFIELD The new Win '95 interface lets you get quick info on ammo, entrenchments, and experience without numerous mouse clicks.



WHAT DADDY DID IN THE WAR A complete text file is kept for a full war record of each unit. Sure, it's chrome, but what a great idea!

SO HOW DOES IT PLAY?

The most obvious change for ALLIED GENERAL is that it is a true native-mode Windows '95 game. Like Alan Emrich (see *Gripeshots and Broadsides* column, CGW # 125), I think more wargames should be developed in Windows, unless there is a compelling reason not to. Certainly the version of ALLIED GENERAL that I played at SSI offers a lot of advantages over the DOS-based PANZER GENERAL. You no longer have to click back and forth between the strategic and tactical screens, because the strategic display is now just another window to be enlarged, moved about or minimized as needed. Also, the information is no longer all over the screen, but is placed atop the display, where it is easier to read. The unit status screen has been reorganized to make more sense to non-wargamers. Instead of merely selecting one unit at a time, you could click on three US 1943 infantry units and select them all at once.

Of course, there are also plenty of new units, such as ski troops for the Finns, which add to the fun (the exact number of new units was a closely guarded secret at press time, but I do know there *won't* be Bicycle Infantry at Stalingrad). Most importantly, the units move about the screen just as quickly as they do in a DOS program. Plus, the AutoPlay and auto-detect hardware features of Windows '95 mean you shouldn't have to struggle to get your wavetable sound card to play the thrilling martial music or the Lowell Thomas-style voiceovers of the custom newsreels (more on this later).

Perhaps the best news about ALLIED GENERAL is that the extremely capable computer opponent from PANZER GENERAL has been retained, with just a few tweaks to make it tougher. (As opposed to the AI of another sequel, X-COM: TERROR OF THE DEEP, which basically gave the new aliens more hit points). For example, no longer will your fighters be able to pick off solo bombers, because the AI now has a priority to escort them with interceptors.

There was also a tendency for the Hard setting of PANZER GENERAL to affect the number of troops more than the actual quality of the AI's play (which is why I always suggest to gamer friends that they play PG on Medium difficulty). Sometimes, the Hard setting was actually *too* aggressive, which can help a human general clever enough to take advantage. The SSI Special Projects Group promises that the subtle changes they've made to the topmost level of difficulty in ALLIED GENERAL will be the toughest computer opponent of any wargame on the market, and I've seen nothing to make me disagree.

The design team is also offering more options for e-mail play. The first of these, for addicts like the *CGW* staff, is that any save game slot may be designated for play-by-email (as opposed to the scant two slots of PG). Passwords are now encoded, so that you cannot simply go into a hex editor and find your opponent's secret *Ultra* code, as it were. Of course, you may still modify experience levels and prestige points for both sides as well. The toughest thing for e-mail generals to get used to will be that once you end your turn, you can no longer access it until your opponent has made his next move. So, there are no more "Well, I didn't like losing that Matilda to a Rugged Defense, so I'll just replay the turn, knowing where my buddy's Tiger II tank is now." While some enterprising lad will no doubt hack through this protection eventually, it should allow the generally honest gamer to set temptation aside.

One of the irritating things about PANZER GENERAL's e-mail play was that you couldn't see enemy units pop into

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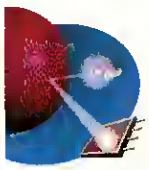

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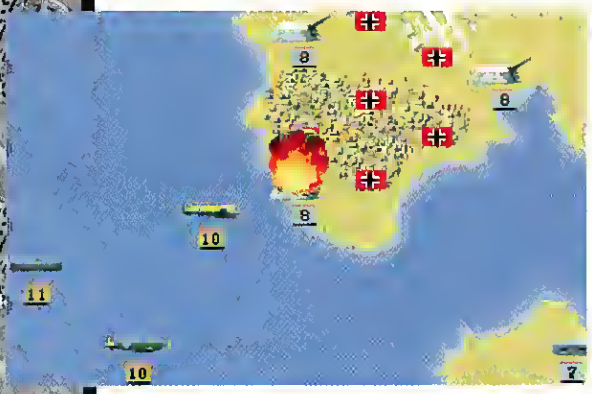
view as they attacked, even though you could see this in action versus the computer. The Win 95 interface works well here, as you may open a windowed VCR function, and play your opponent's last turn, stopping with each individual combat if you wish.

Another nice touch is that each unit gets rewarded with more than the minimalist "battle honors" of PG. Instead, every move of an individual formation, every single combat, is logged into a text file. If you are fortunate enough to keep "Kelly's Heroes" around for the time it takes to develop into a 5-star combat unit, you would have a rich history of how many tanks you had destroyed, for example, outside of Paris as your forces were driving toward the Rhine.



EARLY INVASION The hypothetical battles include Operation Jupiter, where the Allied air can make headway versus German shore defenses.

SO WHERE DO YOU FIGHT?

The Russians are probably the easiest to start with, since this campaign begins with you picking on the hopelessly outnumbered Finns in 1940, while the Non-Aggression treaty with Germany is still in effect. Of course, the Soviet High Command is hardly more forgiving than its German counterpart, so you have to move quickly, lest snow and those pesky ski troops keep you from reaching Helsinki in time for a major victory.

The British in North Africa pose a problem, in that there seems to be little chance of making a training scenario—Rommel is a lot bigger threat than the Poles or Finns. The flip side of this is that should you complete the difficult North African campaign, you may either retire as a war hero, or continue on to D-Day and the Western campaign in Europe.

The Americans are sort of the middle ground between these two approaches. They meet fairly tough opposition, and are largely composed of green units. But they have the dual advantages of excellent equipment (*seven types* of tactical bombers!) and lots of prestige to make up for any initial deficiency.

As in PG, there are a lot of famous battles, with some overlap between the two games. Nonetheless, the designers have done a good job of changing the feel and altering the scale where necessary. Stalingrad is a grittier contest from the Russian point of view, as you attempt to isolate Paulus' *6th Armee* and roll up the German southern flank. When attacking Berlin in 1945, the Russians and US armies have different conditions for victory. The Americans simply want to end the war, while the Soviets want revenge for four long years of war and millions of deaths in their homeland.

Some battles are even split along party lines, so to speak. When assaulting the Westwall as the British, you will have liberated Belgium and Holland. Flush with victory, you have a happy Allied command giving you a reasonable amount of prestige. (Evidently, you have a better personality than the historical Montgomery.) If you are playing the Yanks, however, you may have the same number of core units as the Brits, but a more tank-heavy force is the norm; and your prestige is running pretty lean (guess Eisenhower isn't terribly impressed by your Patton impersonation).

There are a few hypothetical battles as well, all of which are more historically plausible than the German invasion of Washington in PG. Finland may be invaded for liberation by the Allies—something planned but not executed because of the Fall of Berlin. Yet the most intriguing scenario is Operation Jupiter, the early D-Day invasion proposed by Churchill. Although you have a chance to end the war early, you are forced to do it without the extra months of preparation so crucial to the success of Operation Overlord.

SO WHAT ELSE IS THERE?

Visually, the new maps are drawn in similar SVGA style to those of PG. The big improvement is that you may now display them in up to 1024 x 768 resolution. You may also scroll over units to get information in a dedicated recon window, rather than the useful, but quaint, "spyglass" of PG.

Yet, the biggest changes in ALLIED GENERAL are in tone and perspective. The reluctance to use period radio, television and news broadcasts in the multimedia clips of PANZER GENERAL had a lot to do with the subject being portrayed. No US software company would want to look as if they were promoting "closet Nazism," so the design team had to be perhaps too careful in choosing dialogue or showing real film of the Germans blowing up buildings.

Since gamers are on the "good-guy" side this time, they will benefit from a lot of additional flavor (one planned scene has Churchill and Stalin conferring on how best to "drive out the fascists," for instance). The film clips for ALLIED GENERAL are essentially Movietone newsreels, entitled "Allies on the March," which describe how the Allied forces under your command are doing. The sound and look are terrific—they even aged the film to give it the proper dated feel—and should add even more to the gaming experience than the voice-overs and archival film did for PG.

With a potentially better focus (if that's possible) than its storied predecessor, and an even more elegant interface combined with a stronger AI, it's hard to see how ALLIED GENERAL could fail to be one of the major hits of the year. Now, let's see...where did I put that industrial-size pack of *NoDoz*, anyway?

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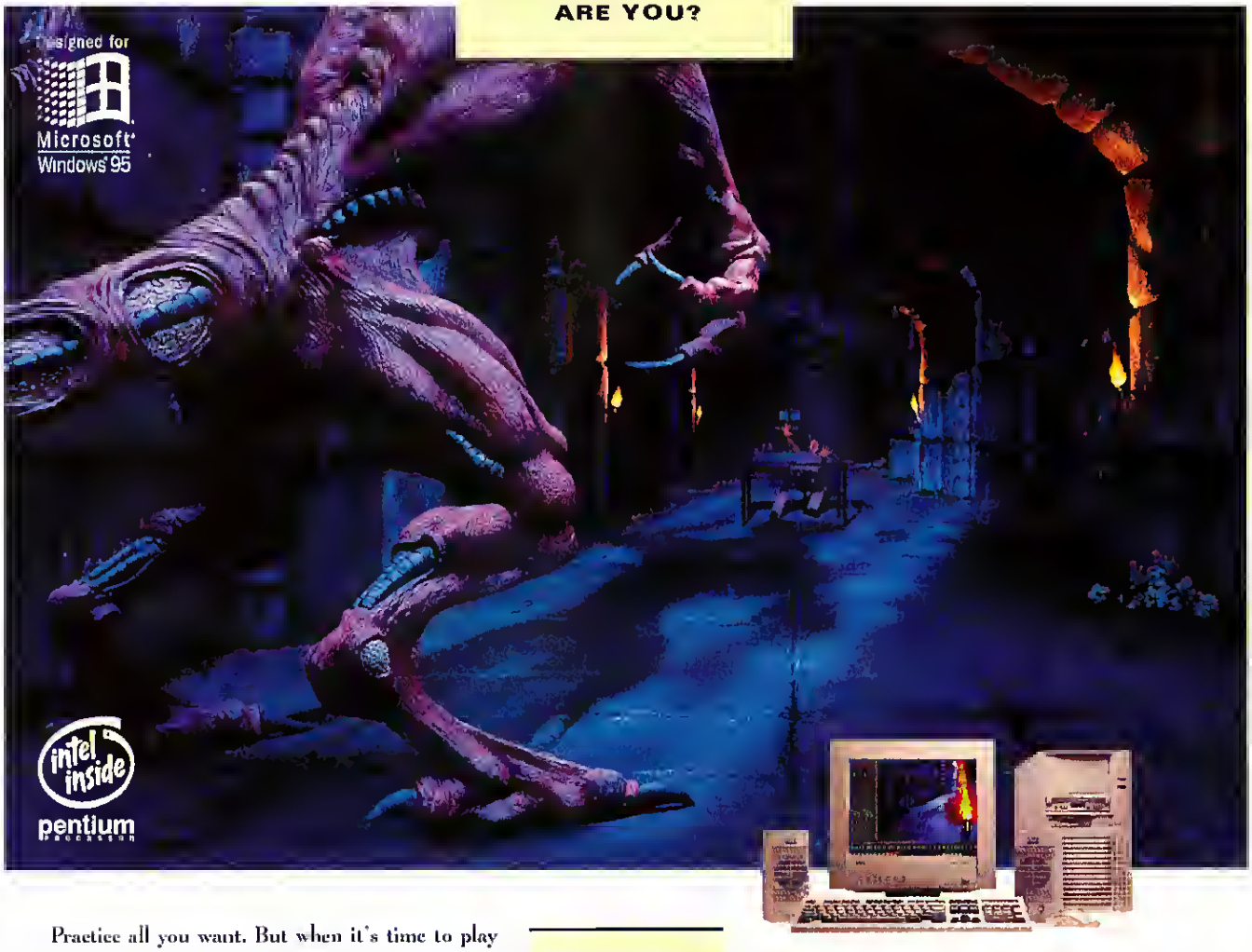

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Circle Reader Service #67

What's Up, DOS?

Getting Ten Top DOS Games To Run Under WINDOWS 95

by Mike Weksler

We've said it before and we'll say it again: Windows 95 is going to be great for gamers—once most games are specifically written for it. In the meantime, what's a tried and true, black and blue DOS gamer supposed to do? Read on and we'll show you how we got ten popular DOS games to run under Win 95, as well as methods you can try to get all of your old DOS games up and running under the new operating system. We did it on a 486-DX4 100MHz computer with 16MB of RAM, running the release version of the Windows 95 Upgrade.

DOS BOOT

We're assuming that you've upgraded to Windows 95 from a Windows 3.x/MS-DOS 6.x environment. However, we're aware that many new systems sold will come with Win 95 pre-installed, and consequently without a version of MS-DOS installed. Fortunately, in our testing, most of the games mentioned in this article ran fine in Win 95's MS-DOS mode—we only had to revert to an older version of DOS once. For games that do need an older version of DOS, you'll need to use a boot floppy created by DOS 5 or 6.

While a boot disk with a previous version of DOS will help run your games, we highly recommend that running games is the *only* thing that you attempt with it. For example, don't use an MS-DOS 6.2 to defrag your Win 95 computer's hard drive. If you use hard disk compression specific to Win 95, you may have to make special modifications to your boot disk to get it to recognize your Win 95-compressed partitions. (For information on some interesting startup hacks for using multiple configurations under Win 95, see this month's "Under The Hood," page 286.)

MISSION: INCORRIGIBLE

We used a three-step methodology to test ten popular DOS games under Win 95. First, we took the simple route of creating a shortcut, using the default settings. If that didn't work properly (or at all), we modified the shortcut to reboot the computer into Windows 95's MS-DOS mode and run the game. If *that* didn't work, we reverted back to a previously installed version of MS-DOS.

STEP 1: THE SHORTCUT:

The most desirable, and the easiest way to run DOS games under Win 95 is to set up a *shortcut* (**Microsoft-speak** for an icon pointing to a file) that will start your game and return you to the Win 95 desktop upon completion. It's really a simple matter of right-clicking on the desktop, selecting *New*, selecting *Shortcut*, and following the subsequent prompts.

Note that your DOS session will inherit the configuration your computer uses to launch Win 95. This means that if your configuration files (autoexec.bat and config.sys) are set up to run without expanded memory, you won't have access to expanded memory in any DOS session—we're not through with the configuration file nightmare, at least as far as DOS programs go. If you're running a game in a DOS session and you need CD-ROM drivers, sound card environment settings and a mouse driver, then you're still going to need config files. We recommend setting up **Quarterdeck's** QEMM to give you both XMS and EMS, with enough conventional memory to run most of your games.

STEP 2: DOWN TO THE METAL WITH DOS MODE

If your game won't run properly from a shortcut, it's time to tell Win95 to reboot in its MS-DOS mode. Right click on the game's shortcut, select *Properties*, click on *Program*, then *Advanced*, and finally click on *MS-DOS Mode*. You'll get the option of either using a canned configuration, or complete custom-built autoexec.bat and config.sys start-up files.

We found that for a game that needed to run in MS-DOS mode, a good QEMM setup or a decent set of configuration files optimized under MS-DOS Memmaker would do the trick. (Note that you can generally just paste in your old DOS 6.x configuration files, and they'll work with little or no modification.) In this mode, Win 95 reboots, runs your game in MS-DOS mode, and then boots back to Win 95 when you end the game.

STEP 3: BACK TO OLD FAITHFUL

If the above solutions don't work, it's time to revert to a previously installed version of MS-DOS. You'll need to configure your system to restart in MS-DOS mode, or use a boot disk created on a DOS 6.x machine. Use your pre-Win 95 configuration files and you should be set.

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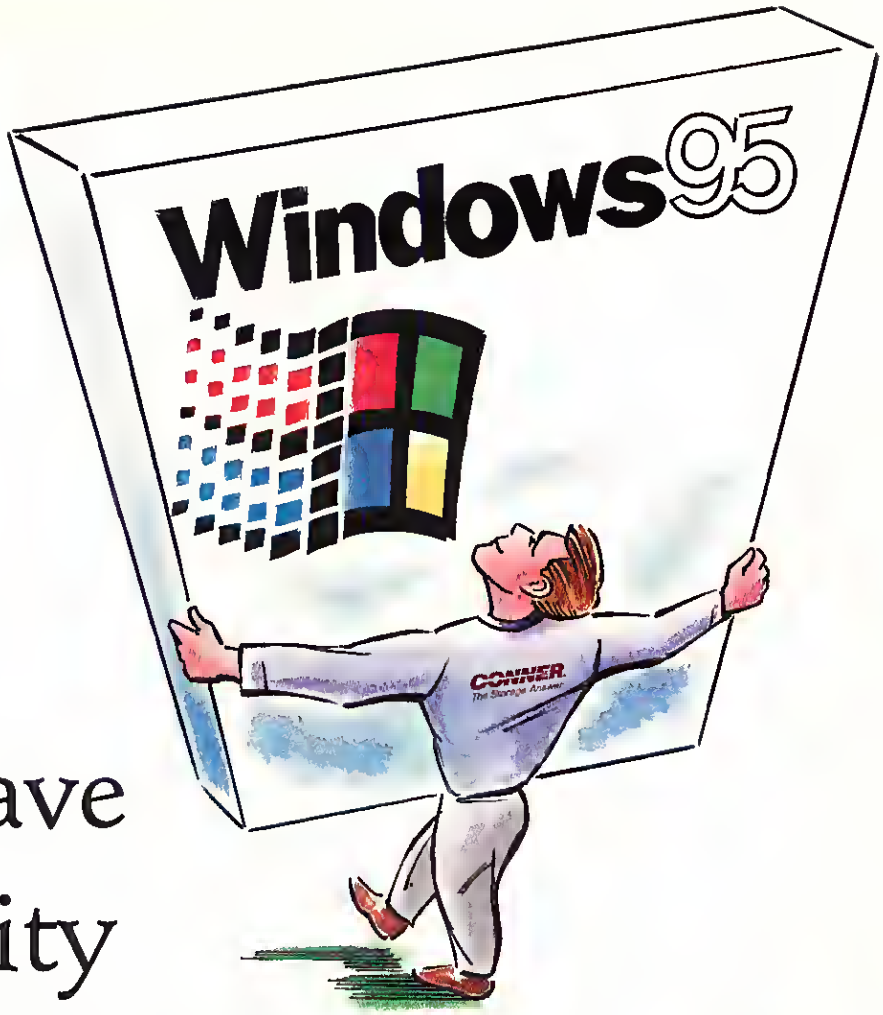

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Circle Reader Service #54

LET THE GAMES BEGIN

These are the games we ran on a Win 95 system. We ran most of the install programs in a DOS window, and created shortcuts on the desktop to actually play the games.

DARK FORCES

We launched the *Start* menu's MS-DOS prompt shortcut and ran the DARK FORCES install program from there. It ran smoothly, detecting Sound Blaster 16 and Roland DB-15 daughtercard. After exiting the DOS window, we created a shortcut and the game ran perfectly—just one click and we were blasting storm troopers into oblivion. This is about as easy as it gets and it was a great confidence builder for us.

MECH WARRIOR 2

After running the MECH WARRIOR 2 install program, we created a shortcut on the desktop. We couldn't get the game to run from a default shortcut, even when going into MS-DOS mode. It wasn't until we went back into the install program and set the digital audio on our Sound Blaster 16 Value Edition to Sound Blaster Pro mode that the game worked properly.

TIE FIGHTER

It's clear that the testers at Microsoft like to play **LucasArts** games. We experienced the same ease in running TIE FIGHTER with a default shortcut that we did with DARK FORCES. However, because Expanded Memory is required, you have to boot the computer in an EMS configuration prior to invoking Windows 95.

FULL THROTTLE

We started up Win 95 with a set of config files that enabled XMS, and installed FULL THROTTLE using the same steps as the above games. We were able to install and run FULL THROTTLE from a shortcut as long as our config files gave us over 580K of conventional memory.

STAR TREK: THE NEXT GENERATION

The install program for STAR TREK: TNG didn't like running under Win 95, even with a shortcut that had the setting "Prevent program from detecting Windows" turned on. We had to revert to a previous version of MS-DOS to run the install program, then start the computer up again in Win 95. Once this step was completed, we were able to beam onto the bridge directly from Windows.

U.S. NAVY FIGHTERS

U.S. NAVY FIGHTERS was a piece of cake. We installed the program, created a shortcut, set up an MS-DOS session with our QEMM optimized config files, and were rocketing off the carrier in no-time.

FLIGHT UNLIMITED

After an uneventful installation, much to our surprise, this resource-hungry game fired right up. Given the speed of our DX4-100, we opted to reconfigure the shortcut to reboot to MS-DOS, even though it would run in Win 95 mode.

NBA LIVE '95

After installing NBA LIVE '95, we were able to jump right into the game with a default shortcut. Unfortunately, we couldn't get any digital audio. We set it up to run in MS-DOS mode and it was a break away dunk from that point on.

TONY LARUSSA 3

We installed TONY 3, ran the game from a default shortcut and were hitting 'em out of the park in no time. Even a Toledo Mud Hens fan could get this game up and running!

PERFECT GENERAL II

We experienced a true "lock-and-load" experience with PERFECT GENERAL II. The installation was a snap, save the slightly undesirable bug of the General MIDI driver not running properly. We reconfigured for FM music and the game fired right up.

THE MORE THINGS CHANGE...

After running these DOS games under Windows 95, you should note that while they do indeed run, they still require all the same DOS annoyances: sound card installations, rebooting, and all sorts of other undesirable hacking. However, from what we've seen so far, it's not *that* much more difficult than running games in DOS—it just requires some new and different voodoo magic in some cases.

Native Win 95 games that take advantage of AutoPlay (insert a CD and it starts automatically) and device independence (the game automatically knows what sound and graphic card you have) should send DOS games the way of the vinyl LP. Hopefully, like the shift from vinyl to CDs, we'll see our favorite classic MS-DOS games ported to Windows 95.

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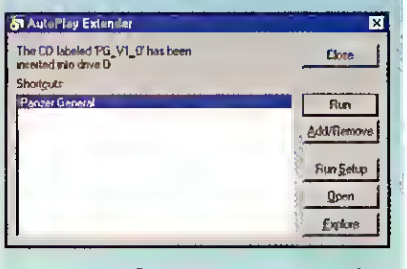
Even your old CD-ROM games can be AutoPlay-enabled, thanks to the CD AUTOPLAY EXTENDER, a unofficial add-on utility hacked out by



a **Microsoft** programmer. Point your Web browser at *http://www.windows.microsoft.com/windows/software/powertoy.htm* to grab this little goody, which lets you specify a unique program to run for each CD you insert.

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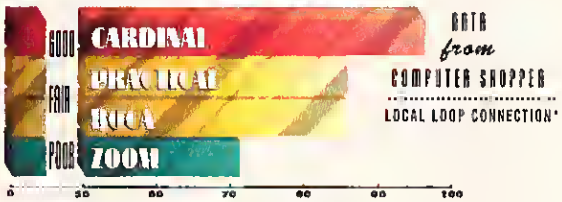
MOST BANG FOR THE BUCK* *REPRINTED FROM PC MAGAZINE March 14 1995



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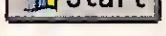

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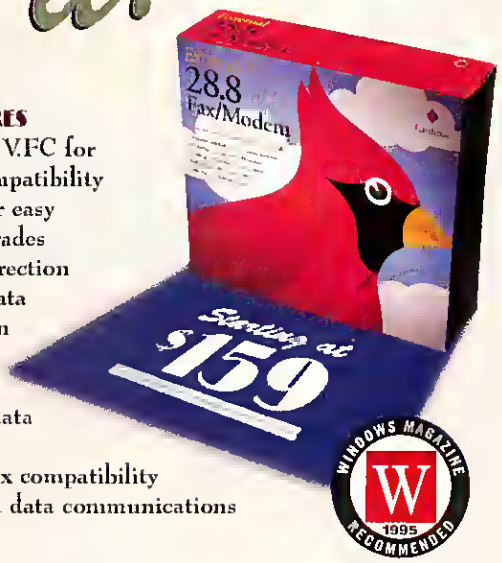

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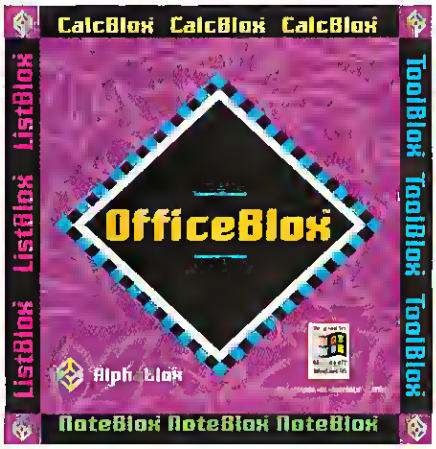

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Rebel Redux

SNEAK PREVIEW
Game Still In Development

Rebel Assault II Gives Gamers That Rebel Gestalt

by Joe McAllister

At least *Star Wars* fans don't have to wait as long for a new game as we do for George Lucas' next trilogy. Since the last *Star Wars* film came out in 1983 (*Return of the Jedi*), gamers have had four *Star Wars* games to play—X-WING, REBEL ASSAULT, TIE FIGHTER, and DARK FORCES—while movie-goers scoured the entertainment pages for news of the next *Star Wars* film and sat through forgettable substitutes like *Stargate*. Those who've played REBEL ASSAULT may argue that there was more replay value in the movies than in the game, but that didn't stop swarms of gamers from being assaulted by it. There have probably been more players of REBEL ASSAULT than the three other *Star Wars* games combined.

LucasArts claims to have sold more than 1,000,000 copies of the original REBEL ASSAULT, which puts it in the top five percent of computer game titles sold. Of course, this figure includes games sold on all platforms plus bundled copies in entertainment packs and hardware kits. But a million copies is a million copies. And when a game sells like blaster weapons in a Mos Eisely gun store, a sequel can't be too far behind.

VADER WEAR Director Hal Barwood gives stage directions to Darth Vader and an Imperial Officer during the filming of REBEL ASSAULT II.

ROOKIE, NOT WOOKIE

The original game put the player in the space boots of Rookie One in a story that loosely followed the plot of *Star Wars*. As Rookie One, you had to make numerous attacks against the Empire, and the whole game reached its climax as you dropped a particularly bitter pill down the old intake hatch of the evil Death Star (after a rather harrowing trench run, of course). Before you could get to that point, though, there were a series of missions to be completed. You had to fly in spacecraft like the X-wing fighter against sand walkers, enemy fighters and Star Destroyers. Some missions involved shooting our old friends the Storm Troopers in a sort of hand-to-hand combat with blaster weapons. All of the missions were pre-rendered flight paths that allowed a modicum of mobility and required a high degree of hand-eye coordination (and practice) to shoot the required targets, arcade-style, and win the brass duck of level advancement.

AGGRAVATED ASSAULT REBEL II cockpits are modeled after those in X-WING. Targetting and shooting are similar to the first game, but the graphics are much better.

Despite offering the opportunity to experience the Star Wars saga first-hand, there were two major problems with REBEL ASSAULT. The first was that you were locked into a pre-determined motion path that was the same every time. Though the game did afford enough mobility to plow into, say, an asteroid or a trench wall, you couldn't just peel off and fly somewhere else. It was a parade of targets from which there was no escape.

The second problem is one of the biggest design flaws in any computer game. Designer Vince Lee, who cut his teeth on cartridge game design and programming, decided players could only save the game between Chapters, which are each composed of several missions. Die three times in a Chapter and, as Yoda would say, back to the level beginning go you. Some players liked the added challenge of having to make it through a number of missions before being able to save. Others got frustrated, tossed their copies of REBEL ASSAULT into a pressurized space lock, and blew the hatch.

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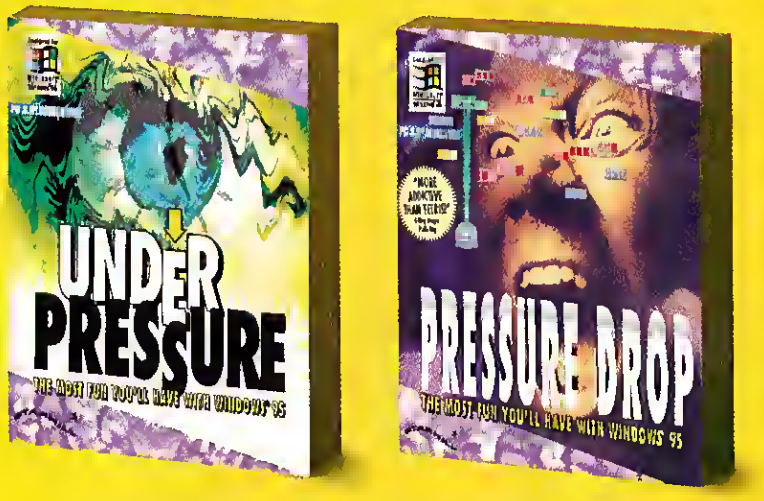

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ble for this, your mission is to head out there and bash some Imperial heads. Don't expect any ridiculous training missions (thankfully) this time around—urgency is of the utmost. The only thing there is time for is to hop into this new X-wing fighter and vaporize wave after wave of attacking Tie Fighters and every other space-junker the Empire can hurl at you.

After putting the Ties away, be forewarned that you might wind up shipwrecked on a desert planet crawling with Storm Troopers. When that happens, you'll witness first-hand how the Emperor has been putting his Imperial tax dollars to work. Storm Troopers no longer look like grainy cartoons. Instead, they look like the real McCoy. That's because LucasArts actually flew a platoon of those armored drones down and filmed them for digital composition into the game.

As a result, REBEL ASSAULT II features full-motion video (FMV) segments of *Star Wars* characters. Most of the FMV stuff occurs during scenes between gameplay, but some of it has been used to enhance gameplay itself. The best example of this is a scenario where you're working your way down a corridor blasting Storm Troopers who look just like they do in the movies. And they should; the same costumes used for the motion pictures were used for the game. Overall, the effect of using FMV segments with rendered backgrounds makes REBEL ASSAULT look richer, more realistic and more evocative of the Skywalker *oeuvre* that made the whole thing seem so whiz-bang nearly 20 years ago (yes, it's been *that* long).

FIRE UP! In addition to space-based missions like this one against attacking Tie Fighters, players will also be able to pilot speeder bikes and the infamous Millenium Falcon.

The gameplay still involves the point-and-shoot combat you faced in the earlier days, and you're still limited to a predefined flight path for each mission. However, this time you'll fly X-wings whose cockpits *look* like those from X-WING, speeder bikes that are straight out of *Return of the Jedi*, and even the end-all space bucket of galactic combat herself, the *Millenium Falcon*.

DARTH BABY!
LET'S DO LUNCH

Finally, no good *Star Wars* experience would be complete without having a genocidal character with powers of the Dark Side, and bad table manners to boot. Here is where REBEL ASSAULT II really shines, like the reflection off a dark helmet. None other than Darth Vader himself will take center stage to threaten the servile Imperialists with a certain telekinetic strangulation if they disobey his resonant orders.

And if that isn't enough, the Rebel commander (Vince Lee is again lead producer) has also included the ability to save the game after each mission. Just don't try flying outside of the designated flight path, because the universe in REBEL ASSAULT II still isn't big enough to handle that. The specified motion paths have been retained in order to keep up the high-res environmental richness and fast-shooting intensity. While this greatly simplifies gameplay, it still allows for some thrilling scenery and exciting moments. As Vince Lee put it: "It's still digital smoke and mirrors. We're just using shinier mirrors and more opaque smoke."

Which is more than you'll find from George Lucas in the cinema, at least until, oh, 1998 or so.

Cinematography And Special Effects

REBEL ASSAULT 2 relies heavily on full-motion video composited with computer-rendered backgrounds. While we might not think of cinematography as traditional "art," a new genre of artist is evolving who manipulate the images taken by a cinematographer and mesh them with synthetic worlds to make them look real.

Mark Christiansen works to merge the worlds of video and computer art together in a seamless fashion. It's his job to take images shot in the studio (such as an X-Wing pilot, dressed in full regalia, sitting on a wooden chair and bouncing on a large inner tube to simulate the movement of flight), combine them with the 3-D models Richard Green creates (see the "Anatomy of a Game Design" article in this issue), and create a polished, complete scene. "The funny thing is," Christiansen says, "the things that I'm most proud of will end up being the things most people will take for granted"

An example is a scene he has composited of a live actor, a cockpit of a space ship, a portion of the original *Star Wars* movie featuring a TIE pilot, and a computer animation of canyon walls whizzing by. Through his point-and-click mastery, Christiansen is able to create a fluid scene of a pilot streaking through something akin to Beggar's Canyon, viewed from inside the cockpit. The trickiest part of the collage is making sure everything bobs and moves together. That requires an expert eye and a true sixth sense as to how motion is perceived.

Christiansen also had to contend with things we never think about, such as the flickering reflection of the canyon walls in the pilot's visor (which flashes by in the opposite direction due to the curvature of the visor). "You may not pay too much attention to that reflection," Christiansen points out, "but if that wasn't there, you'd notice."

"We have the movies to live up to," he adds. "*Top Gun* kind of raised the bar on what counts as exciting flight footage. *Star Wars*, shot in the 70s... It's got this more laid back, kind of laconic space-jockey feel. The ships tend to be kind of bouncy, like they're driving around in big Cadillacs. Basically, what I'm doing is taking these nicely modeled backgrounds and putting dirt ands smudges all over them."

-Paul C. Schuytema

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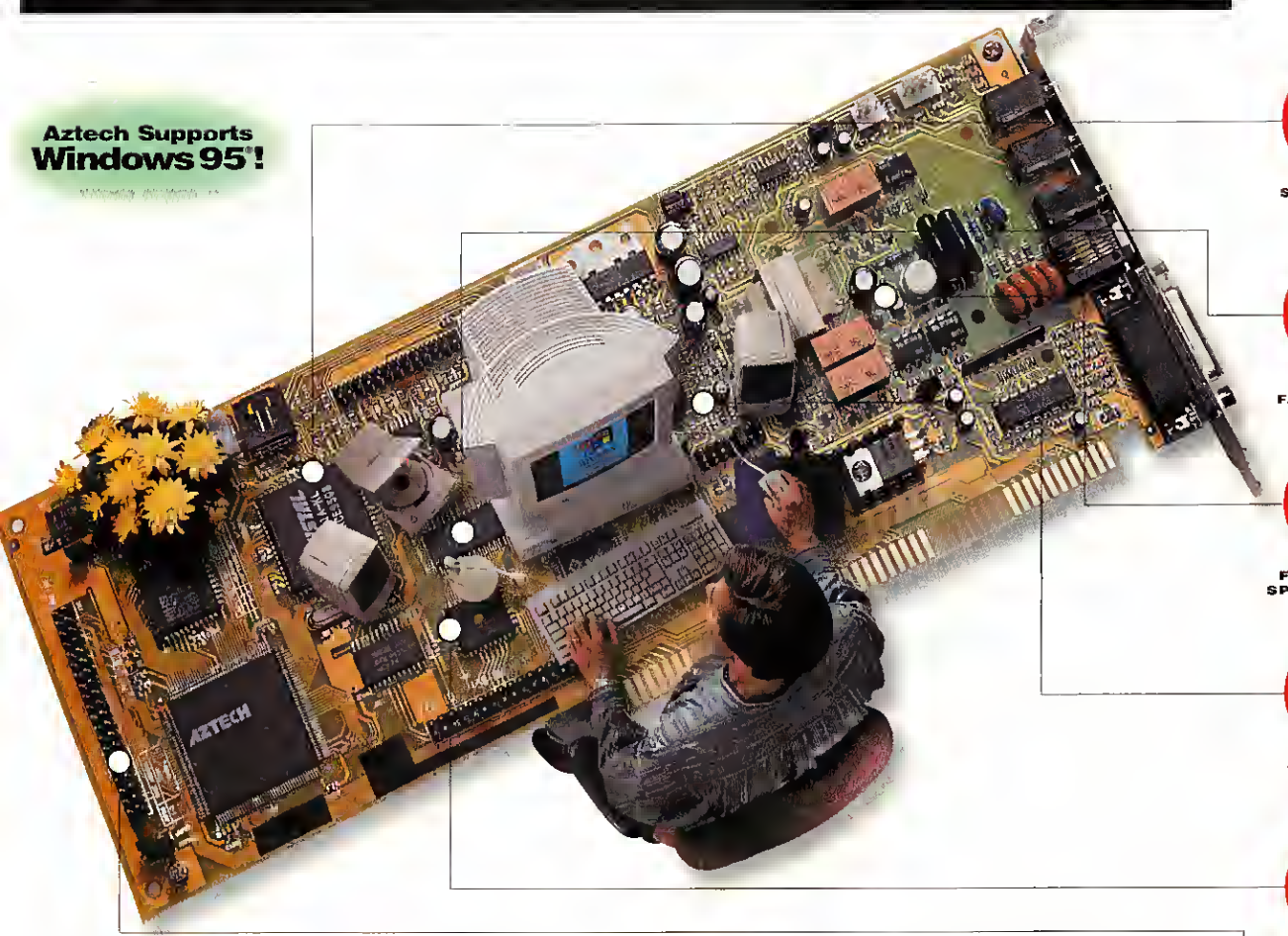

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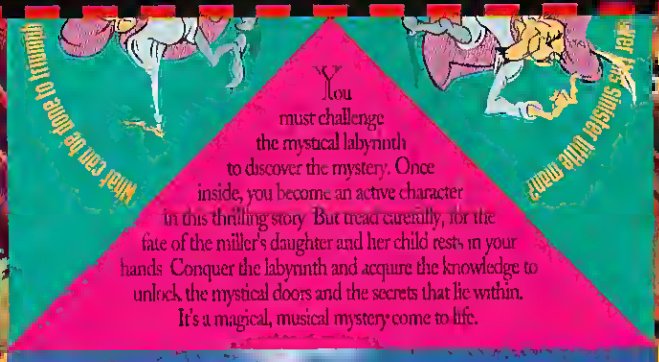

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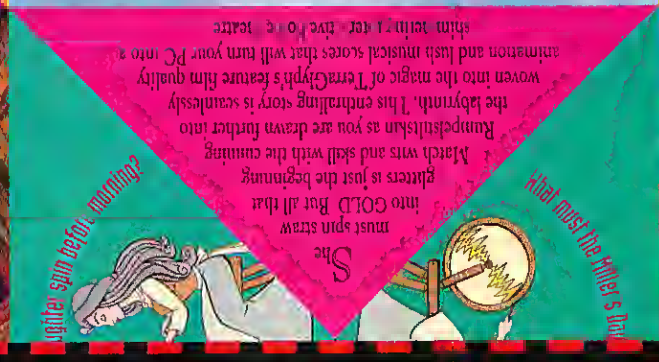

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FAMILY GAMES For All Ages

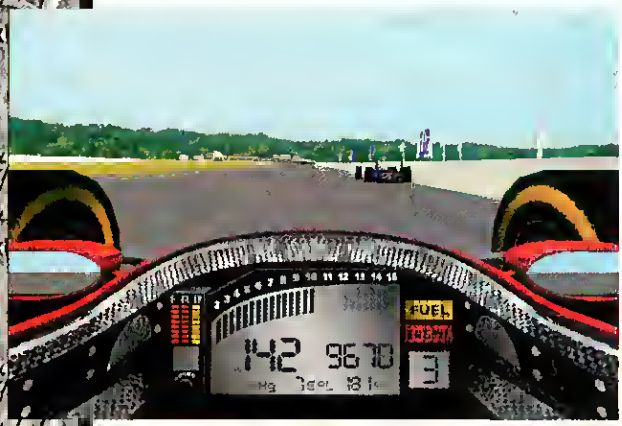
In The Windows Circle

INDYCAR II Opens Windows On Next-Generation Racing

by Gordon Goble

SNEAK PREVIEW
Game Still In Development

Papyrus racing simulations have known nothing but the checkered flag. In 1988, INDIANAPOLIS 500—THE SIMULATION brought a new level of realism to PC racing, while 1993's INDYCAR RACING added texture maps that made the visual experience authentic as well. This was fine-tuned with metal-scraping intensity in 1994's NASCAR RACING. Now this trio of award-winners is soon to admit a fourth member to its exclusive club. INDYCAR II is in the final stages of development, and should be upon us before Christmas.



ASPHALT EATER Grabbing gears on the Michigan front straight never looked this good.

LAPPING UP NEW FEATURES

There's not a ton of new stuff in INDYCAR II. The high resolution texture mapping and solid AI we've seen before. But INDYCAR II enhances those features and plunks them under the mighty umbrella of Windows 95. And DOS, and the Macintosh, and maybe even Windows 3.1x. This will be one product whose appeal won't be stifled by platform incompatibility. (Check out the *IndyCar Mac-inations* sidebar, Mac, and see why your version may well be the most stunning).

The INDYCAR II preview copy I took for a spin still had its hood open, so there's not a whole lot of room for in-depth early analysis. There it was, a keyboard-controlled car on the Michigan track, a gaggle of semi-intelligent competitors, and not much else. But if first looks are any indication, and if the comments of INDYCAR II Producer Todd Farrington are taken at face value, this holiday season will be a sweet time indeed for open-wheeled computer racing.

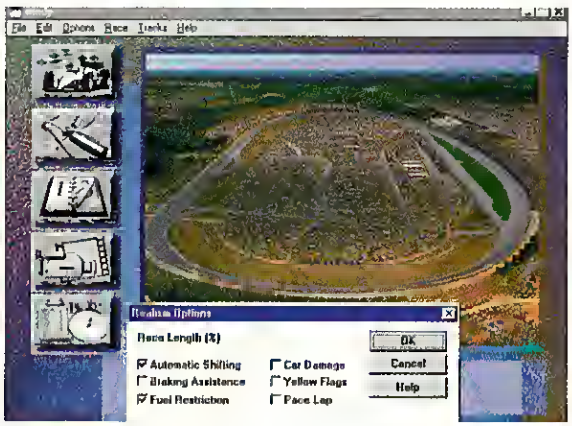
WINNING INTERFACE

And it's a sweet experience that's easy to get into. With Win 95 installed and my INDYCAR II shortcut set up, my world of high resolution formula car racing was but a double-click away. Menu selections are point and click, and Farrington says the interface will be "completely redone to adhere to Windows, with icons, pull-down menus and dialog boxes everywhere." Installation, of course, will also be a snap, since Win 95 does away with audio and video configuration.

On the track, INDYCAR II looks like the original, with NASCAR's high-res graphics wrapped on top. The crisp, clear visuals really help you determine what's happening way up ahead and just how close your drafting buddy really is. Farrington promises that the final build will include more texture-mapped detailing than even NASCAR, complete with a gorgeously textured cockpit. The IndyCar paint kit (now accessible through the program) will also offer more options.

The F10 key will take the driver to an exterior car view. Part of the fun of racing games is watching the carnage when there's a pile-up, and even that's going to get more exciting. Papyrus promises break-away wheels, spoilers, and side pods, as well as a chassis that might just skid on down the track bereft of exterior accompaniment. We're not talking about detached drivers' heads bouncing down the pavement, but virtually nothing else will be sage.

As for the $64,000 question: will cars



KEEPING TRACK A new interface lets you set up your game, from track selection to race options, and slip easily into the stream of pavement.

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be able to flip over? Well, not yet, but, "plans are there for flipping...", as are several very cool innovations that *may* become available in expansion disks or with standard game patches. Could we be hearing a talking crew chief? "We'll try and get some of this stuff into the game, but I feel if you can't do it right, don't do it at all. What we can't get now will have to wait."

Experienced INDYCAR drivers will have to get acquainted with some new keyboard mapping. The 1 through 9 keys, currently reserved for boost, will now activate various elements of visual detail, with boost moving to the plus key. They'll also have to deal with a pace car (yes, it will be invincible), in particular a Camaro topped with flashing lights, and maybe—just maybe—local yellows.

PHYSICS CLASS

Awesome graphics aside, car modeling and physics are areas that have seen much labor. I'd be lying if I said I could decipher the improved AI and car tuning on a build where keyboard control is mandatory, but Farrington says that "the car will have improved physics. It's a brand new car model, not a re-build. It will be much more realistic, and the opponent AI will be much better, like NASCAR but re-tuned for the INDYCAR environment."

HOT WHEELS High-res graphics from NASCAR RACING help inject INDYCAR II with loads of visual horsepower.

This constant push for realism has been a Papyrus philosophy from day one, and although this thinking has brought about the best racing simulations ever built, it does have its detractors. On numerous occasions I've heard comments from real-life racers that driving the real thing may sometimes, on given tracks, be easier than a Papyrus simulation.

Obviously Papyrus can't reproduce elements like car stress and G-force—the type of feedback that gives one a clue as to how fast to take a corner. Farrington admits that its been a big question mark at Papyrus—do they forsake grueling reality for easier gameplay? The answer right now is no, they don't, so if you found Detroit a tough test with damage turned on, it will remain so. These guys stick to their mandate

LOST TRACK

Unfortunately, something INDYCAR RACING had that INDYCAR II won't will be the sport's namesake track. In the real world, there's been a segmentation among the ranks of the sport, revolving around the formation of the new IndyCar Racing League and its hold on the esteemed Indianapolis facility. "It is with much regret that I say that licensing difficulties will not allow us to use the Indianapolis track in the simulation," says Farrington, "I would love for someone over there to call me, and I would bust my hump to get it in, but that hasn't happened yet."

The Brickyard will be missed, but INDYCAR II *will* feature all the other circuits we've come to know and love (or despise). So will the voice of Paul Page. The musical accompaniment will be all new, however. "We'd like the music to reflect the high-tech feel of an IndyCar. It'll be very upbeat and clean, with a little touch of fear in it." Sound effects will also be updated, and the sound of air jacks and air guns are in. "I've got to figure out what hitting a wall sounds like underneath a helmet," says Farrington.

SMOOTH DRIVING

The high-res mode of INDYCAR II will still remain a game for fast machines only. But from what I could determine, we all could well be in for a "smoothness upgrade." The word at Papyrus is that Windows' multitasking environment, which allows one thread for drawing and another for physics and other calculations, will result in better overall performance of the game.

Most of the Papyrus crew has remained intact for INDYCAR II, with people such as David Kaemmer and John Wheeler overseeing the design. Slated to hit the shelves in mid-November, INDYCAR II should shape up to be a must-have for racing buffs.

IndyCar Mac-inations

For the most part, INDYCAR II for the Macintosh will be similar to INDYCAR II for Windows 95, and that in itself is a big step forward for long suffering Mac racers. One feature, though, will give the Mac product an edge—voice recognition.

Macintosh drivers will be able to verbally access information such as current standings and tire temperaturas, while barking commands ahead to their crew. Fuel load, various tire commands, and stagger and wing adjustmants may all be signaled in advance by hitting a single key (to trigger the pseudo-radio mic) and speaking a command like "change right front tire pressura to 60 pounds."

So, why do Mac drivers get to yap away while Win drivers race in silence? At this stage Mac voice recognition technology is more advanced. It is speaker-independent, so you don't have to "train" the computer for every person who's going to use it, and you don't have to insert artificial pauses between words. INDYCAR II will racognize approximately 60 words while ignoring the rest, meaning you can call your crew chief a wiener and he'll still initiate alterations and repairs.

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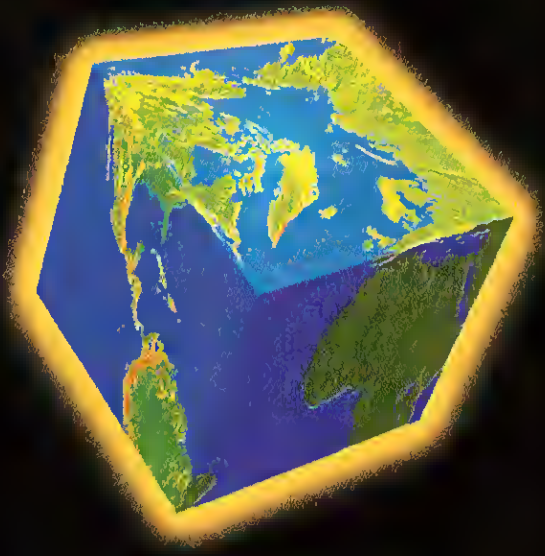

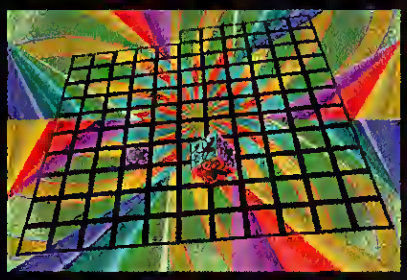

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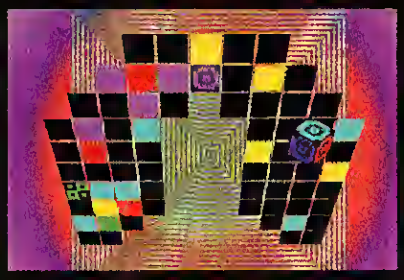

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Rocky Road Excitement

Al Unser Jr. Delivers A Thrilling, If Short-Lived Ride

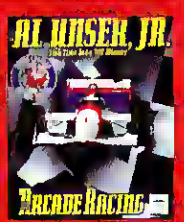
by George Jones

Rocky is the road that begins with you booting up a game for the first time and immediately noticing the negative. This was the case when I first played **Mindscape**'s Al Unser Jr. Racing for Windows 95. After putting on my driving gloves and helmet and starting up the game, I got a little huffy. "Why is it so damned hard to control with my joystick? How come there's no display of the track on the screen that shows me where my opponents are? How come, no matter how many times I crash, the leader never pulls away from me?" A bad, bad sign indeed.

Twenty minutes later, I was completely hooked...

How in the world did a game which I had such an initially negative impression of grab me by the seat of my pants? I'm not really sure, but I think it has something to do with the Cardinal Rule of gaming: It should be *Fun*. Al Unser Jr. Racing is fun with a capital "F". For a while, at least.

Al Unser Jr. Arcade Racing



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Publisher: Mindscape, Novato, CA
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PURE 100% ARCADE REALISM

A disclaimer is in order right off the starting line. This is *arcade* racing action. Face it—any racing game that is more easily controlled with a gamepad than a Flightstick Pro (repeat—this game doesn't like joysticks of *any* kind) has to be considered a graduate of the Pole Position school of racing.

Gameplay involves three modes of racing. There's the championship season, pitting you against nine other racers, including Al Unser Jr. himself (a tough nut to crack). There's also a full-fledged Pole Position mode that puts you at the back of the pack and pits you against a countdown clock—you've got to hit various checkpoints before time runs out. In addition, there's a practice lap mode which lets you whiz around the track of your choice.

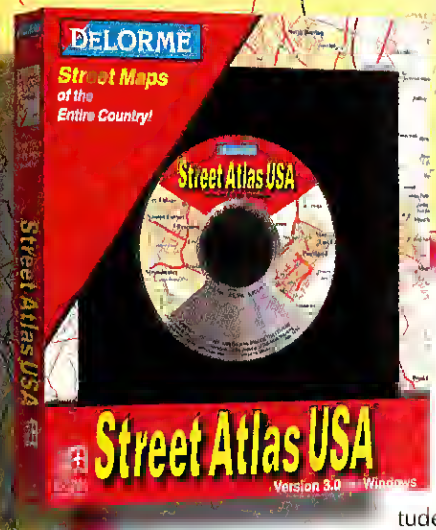
Once you've selected a difficulty setting (there are three, each of which increases your car's speed and your opponents' aggressiveness) and the racing mode, it's time to put pedal to metal. During the championship season, your starting position is dependent upon your finishing position in your most recent race. In Timed Mode, you always start off dead last. Unfortunately, there is no such thing as a qualifying run and a struggle for the pole position. This could have given Al Unser Jr.'s season mode a little more depth, and it would have added another welcome 30 minutes to the relatively short game.

On the track, there is one, and *only*

"BRIDGE"-ING THE GAP Gorgeous graphics and super-fast gameplay put Al Unser Jr. on the same track as coin-op racing games.

one way to drive—fast. There are two buttons: one for acceleration and one for braking. Of course, anyone who bothers to brake has a definite problem. The cars are indestructible, a characteristic I find highly conducive to driving bravado. You'll laugh as you whip past an opponent by slinging around a corner, bouncing off a rock wall and into the lead. I did mention that this isn't the most realistic game around, didn't I?

In many games, as in real racing, a championship season is the ultimate challenge. For many, the ability to race around 15 different courses, keeping cumulative points, is a huge deal in a game. However, I'm not so sure about that in this game. In addition to the championship season,



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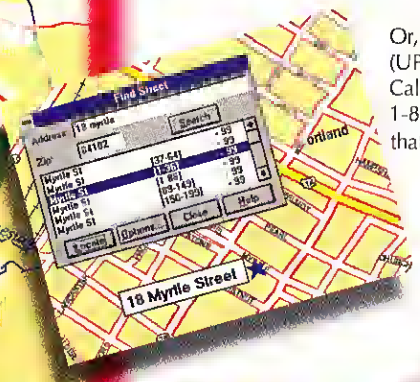

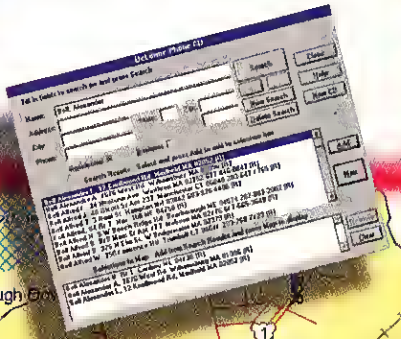

This is a 32-bit application for Windows 95 also runs on Windows 3.1 and Windows NT™

which I won all too quickly, there is the Timed Mode. This mode offers more Fun Per Hour over the long haul as you drive from checkpoint to checkpoint in the time allotted. Failure to make a checkpoint in time means you're finished. Chances are you'll find yourself playing this portion, which is extremely challenging at the highest difficulty setting (damn those infernal computer racers), long after you've raced past everyone on the championship circuit.

As I said, nothing is real in this racing game. Your car takes no damage as it bangs around, and fuel considerations are non-existent. Needless to say, you can forget about pit stops. All of this is too bad. The game has a case of the simples.

Multiplayer play, which could have rounded out the game considerably, is also *in absentia*. Fortunately, Mindscape is promising a patch within a few months that will provide multiplayer network and modem play. That may raise the starting flag all over again.

TASTES GREAT, LESS FILLING

AL UNSER JR. looks as good as it plays. The graphics are amazing---this game looks vibrant enough to rival the arcade coin-ops, and with its low-to-the-ground perspective, it conveys a sense of speed that is as good as any other game currently on the market. Which makes our next observation even more impressive—this is a *Windows* game. UNSER JR. is Windows 95-native, and is backward-compatible with Windows 3.1 as well.

We did have one quibble, however—it is impossible to resize the gameplay windows. This means that, no matter what, you have to play the full screen. And that pretty much defeats one of the great advantages of gaming in Windows. Oh well, at least you can still Alt-Tab to your word processor if you see the boss coming.

WINNER'S CUP Win the season championship and you'll be rewarded with one raucous screen of still art. Try to contain yourself.

Another problem with the game's graphics is that there's not much there besides the gameplay screens. There are exactly two post-game screens, one that shows you losing and one that shows you winning. Both are poorly done, but even if they were well-done, it would still get kind of boring staring at the same two static screens after every race.

TIME FOR TIMER Timed Racing mode, where you try to finish before the clock runs out on you, is the best part of AL UNSER JR. RACING.

HALF-FULL, HALF-EMPTY

What's the final verdict on AL UNSER JR. RACING? How about a resounding "maybe"?

The game is undeniably fun to play. Veteran gamers will dig its quick-hitting, 20-minute fixes of excitement. Newcomers to the gaming market—especially those with 16-bit backgrounds—will like it even more, particularly the POLE POSITION mode. Mindscape is obviously banking on many Windows 95 users picking this up as one of their first games.

Unfortunately, there just isn't a whole lot here. If it weren't for the timed racing, I would have polished off the game in about four hours. As entertaining as AL UNSER JR. RACING is, I have to admit being a little frustrated when I considered its potential versus its merits. Given a few more enhancements, it could have been a contender. Imagine being able to make pit decisions, or being able to allocate points to the various parts of your car (jeez, I could do that even in the original 8-bit Nintendo incarnation of this game). AL UNSER JR. could have reached the winner's circle. Instead, it's the kind of game that's fun to play for about five or six hours, and maybe once in a while after that.

THE EDITORS SPEAK

AL UNSER JR.

RATING ★★★½

PROS Gorgeous graphics and a great sense of speed provide lots of fuel for intense arcade excitement.
CONS A lack of depth in both gameplay and presentation means that AL UNSER JR. would quickly get lapped on your hard drive.

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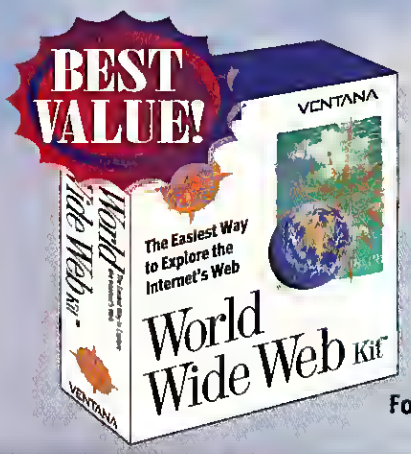

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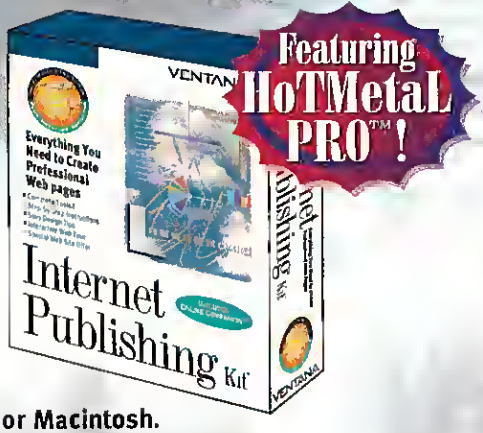

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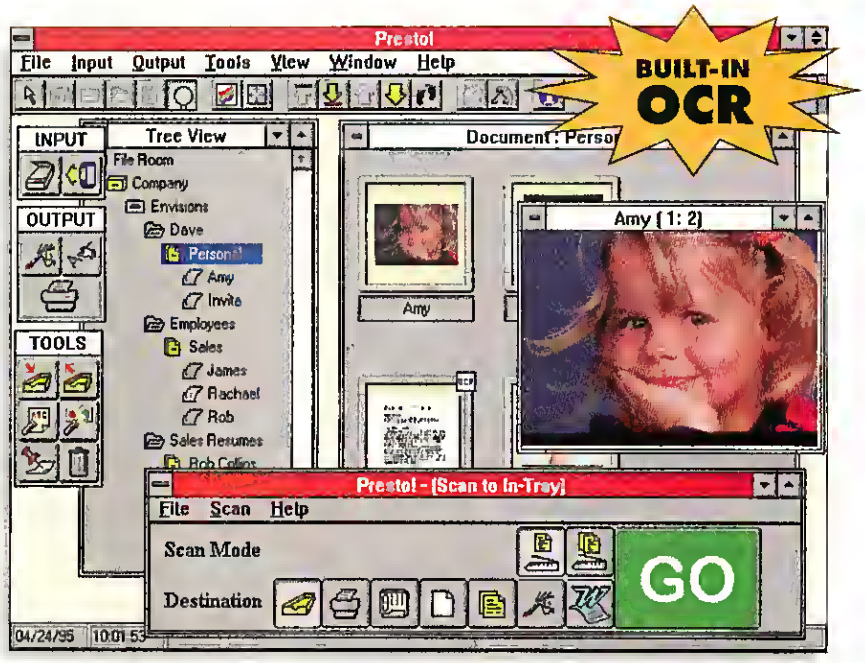

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Circle Reader Service #58

The Sound And The Fury^3

SNEAK PREVIEW
Game Still In Development

Microsoft Cranks Up The Velocity In FURY^3

by Paul C. Schuytema

COMIN' IN FAST! A communications tower is the first target on the rocky plains of good old Terra. Just watch out for the BW-12 Bion fighter swooping off to flank you as you make an attack run.

WINDOWS GAMES HAVE NEVER BEEN ABOUT SPEED, BUT THAT'S changing with Windows 95. FURY^3 will be **Microsoft**'s first in-house action game, a real high-speed romp over alien landscapes, courtesy of the Terminal Reality graphics engine (which made its debut in the shareware title TERMINAL VELOCITY).

The story is standard fare for a sci-fi shooter: go out there and nail the aliens. This time, the aliens are a genetically engineered race of unfriendlies known as the Bion warriors. The warriors helped humans out once, but then turned on us faster than we could say "Aliens are our friends," and nearly ground fair old Terra into dust. Naturally, we want revenge. Your task is to take on these nefarious Bions and pummel them back into the space dust they came from. You must travel to each of their eight worlds and perform three sweeps, destroying everything in sight.

If the structure of the game sounds familiar, well it is. FURY3 is very similar to TERMINAL VELOCITY. I won't go so far as to say that it's identical, but this is clearly TERMINAL VELOCITY's fraternal twin. (see the review of TERMINAL VELOCITY in this issue on page 186). Like TERMINAL VELOCITY, FURY3 is a high-speed game of zoom and shoot, which is the latest craze in DOOM-type games. You fly over mountains, through valleys and into mine shafts and tunnels, all at blistering speeds.

That the speeds are so fast and that the game was created as a native-mode Windows 95 app is more of an exciting harbinger of this new operating system's potential than anything else. Yes, we can have lightning-fast games running at the same time as our spreadsheets.

The graphics feature richly colored textures and loads of hills and mountains but, as in TERMINAL VELOCITY, the haze (used so the CPU doesn't have too much to process at once) seems a tad too close. Other than that, though, the feeling of zipping through a range of rocky crags is pretty darned convincing.

Missions essentially consist of flying to a target (using a nice, simple navigation compass), taking it out (the target might be a structure, a crane, a Bion Walker, etc.), and then proceeding to the next objective. Of course, targets are everywhere. I particularly enjoyed taking out the loner helitanks hovering by themselves in valleys, but swooping low and blasting a Bion Walker is nearly as satisfying.

You might also stumble upon a tunnel entrance. Then you can fly like a madman through the caves, blasting and trying to squeeze through the occasional closing-shutter doorway.

To completely destroy one of the Bion's worlds, you must navigate through three missions and then take on a final boss. These are usually large, mechanized beasties who inhabit one of the tunnels. Needless to say, they put up quite a fight.

You have the opportunity to snatch up many wonderful weapons systems, from the stock rapid-fire laser to myriad high-potency missiles. Of course, as you're zipping around, Bion fighters swarm you like flies. To recharge your precious shields and ammo, you'll have to blast open a few Bion bunkers and nab some good powerups.

While not too deep a game, FURY3 looks like it will be mighty fun. Those of you who have already logged some hours on TERMINAL VELOCITY won't see anything new, but for those of you looking for a pretty, light shooter that will compliment your suite of Microsoft Office products, FURY3 has real some potential (and it beats the pants off of Hover, the lame-o game that ships with Windows 95).

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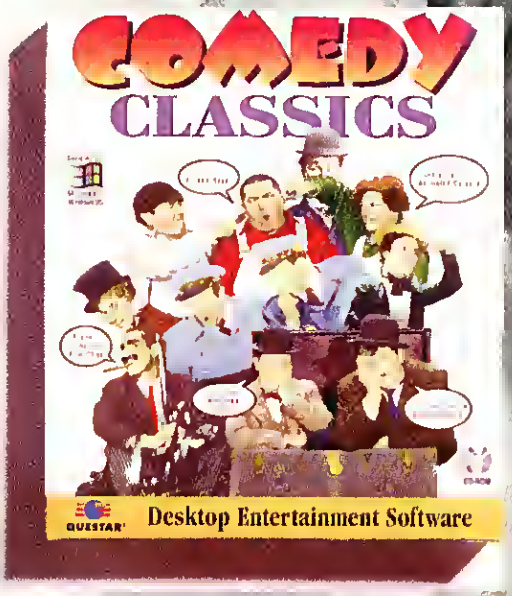

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Circle Reader Service #186

Bloody Mordor

Life's Short In MORDOR, And It Builds Character(s) The Hard Way

by Petra Schlunk

For many of us, the word "Mordor" conjures warm remembrances of fuzzy hobbits, Middle-earth, and a powerful struggle for the One Ring. MORDOR: DEPTHS OF DEJENOL, a fantasy role-playing game for Windows developed by **MakeItSo Software**, is unrelated to such things *except* in its ability to evoke nostalgia. In the case of this game, because of its similarity in feel to the first WIZARDRY games, the memories awakened are of the way games "used to be."

The story behind MORDOR is that long ago, foul monsters and other evils took over the *Mines of Dejenol*. Now, young adventurers can sign on to learn more about these mines. There are even rumors that in its deepest caverns lurks a being called *The Prince of Devils*. The guilds responsible for training adventurers hope that someday...someone (hint, hint) will emerge to destroy this Ultimate Bad Guy.

While MORDOR subsists on this nominal story line, it is even less important to this game than it is to most computer role-playing games (CRPGs). One may even go so far as to say that the story is irrelevant since the actual goal of MORDOR is to give players an environment in which they can explore, kill monsters, and gather treasure for as long as they like.

PARTY WITH CLASS

Upon starting the game, you can create a party of from one to four characters from nine races. These include familiar standbys (elves and dwarves), plus a couple of new races: the *osiri*, who are related to elves, and *morlochs* who are big, ugly, hairy magic users. All characters must also be aligned to good, evil, or neutral and automatically begin as *nomads*, the most basic character class in MORDOR.

There are 12 character classes, each with a guild. These classes include various magic users, thief, and warrior types. A character can switch classes by joining another guild. However, membership to different guilds is limited by a character's race, alignment, and statistics, so not all characters can become members of all guilds. As in real life, a character will not lose the education (skills and levels) that they learned in other guilds. Also, they can always go back to those guilds and continue learning where they left off. So, your characters can become truly multi-classed in MORDOR.

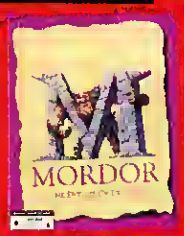
CHARACTER ASSASINATION

For players with no hope of parole, characters can attain up to *nine hundred and ninety-nine* levels in each guild, giving you some idea of how long people are meant to keep playing MORDOR. Nevertheless, don't plan on getting too attached to any particular character. This game seems to have been designed so that characters, especially new ones, are just so much disposable adventurer material. The purpose of early characters, therefore, is to start mapping the dungeon and collecting information and treasures; information that better-developed characters will capitalize upon.

This unfurls for us the automapping feature of MORDOR—unusual in that the map is permanent! No matter how many times you "restart" the game with new characters or parties, they will begin with your latest version of the map. This means that early parties that have reached gruesome endings will still leave a legacy of useful information (including the locations of pits, teleporters, chutes, quicksand, and secret doors) for later parties. This permanent automapping certainly feels odd, and even "wrong," at first, but it turns out to be one of the best features of the game.

MORE DOORS The business district in Mordor consists of eight graphic hot spots to allow you to navigate from place to place.

Mordor: The Depths of Dejenol



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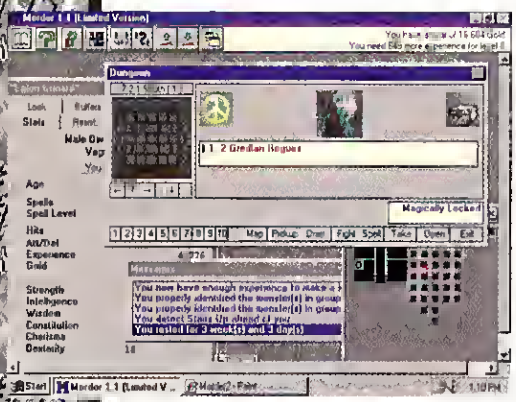
HACKING ON A HARD ROLE

In MORDOR, there are two basic locations: a city where the guilds, store, bank, etc., are located and the dungeon with its many levels. From the city, where players perform their traditional role-playing housekeeping chores, a party of up to four characters (each of whom may travel with companion monsters that can aid them in combat) ventures into the top level of the dungeon. The first-person perspective offered is quaint, a bit like the original MIGHT & MAGIC, in that while you can see walls and doors ahead of you, you can't see pits, teleporters, monsters, or other dangers until you step directly on them.



MORDOR SHE SMOTE If the peace symbol on this screen changes into a skull and crossbones, combat begins automatically.

When you do encounter a group of hostile monsters, real-time combat begins. Fortunately, combat is completely automatic, relying on default combat instructions, unless you decide to do something unusual such as casting a special spell or opening a treasure chest while engaged in battle.

After eliminating a group of monsters, a room or area will be clear for a period of time. Eventually, however, a new group of monsters will appear and guard the area. Characters injured in battle, or while trying to disarm a trapped treasure chest, should be healed through the use of spells or special items. The alternative is hoofing it back through the dungeon to the city. (There are no good shortcuts in MORDOR.)

LEVEL LEANINGS

When a character collects enough experience, he can go to his guild in the city and increase his level in that guild. However, a character can only go up *one* level at a time. Experience points in excess of that required to reach the level beyond the next one are simply lost.

This process is called getting "pinned." Basically your character is stuck at one experience point below the next level that could be reached until he can get to the guild. This is annoying, but what is worse is that there is a chance that every time a character makes a level he will be assigned a quest to kill a particular monster or find a special item. Until the character completes the quest, he can't go up in levels.

Since the placement of monsters and items has a large random component to it, there is a strong possibility that you will not be able to complete a quest for a long time. That means that your character will be stuck at a lower level of experience when he should have earned enough experience to be several levels ahead by the time he completes the quest. Worse, the only other option is to forfeit the quest, which strips your character of a certain number of levels, including the skills gained while earning those levels!

BARD IN A GUILDED CAGE

While gaining levels in a guild improves your skills and hit points, it does nothing to improve other character statistics (strength, wisdom, etc.). These can only be increased through drinking special potions or reading tomes. Since access to new guilds and the ability to cast certain spells or use special items often depend on a character's statistics, improving them is a vital part of the game.

Unfortunately, events which lower your vital statistics are disturbingly common in MORDOR. Dying is an inevitable fate for characters, and ressurrection may find your character "having complications," where those items you thought were at hand have mysteriously vanished. Your character may even be unable to cast certain spells because he has become too weak, clumsy, or stupid. All this is irritating, to say the least, and artificially adds to game time.

SAVING (DIS)GRACE

MORDOR boasts a feature that automatically saves your game every step of the way. Even if you turn this off, your game will be saved every time you emerge from the dungeon and every time one of your characters dies. Fortunately for those of us who actually become attached to our characters, MORDOR allows you to backup the game file into another directory from which you can restore your game if something really bad happens. It's a pain, particularly for those of us used to the save-fight-die-reload method of testing a party versus a particular encounter, but at least first-level computer users can figure it out.

MORDOR is an ambitious and worthy effort for those who enjoy an epic dungeon crawl. It doesn't lack addictive elements and can boast some long-lasting appeal for role-playing gamers who enjoy killing monsters, collecting treasure, and building mega-level characters. Yet, the game certainly can frustrate those seeking a good storyline or who get attached to their characters.

THE EDITORS SPEAK

MORDOR

RATING 3

PROS Addictive "hack 'n slash" heavy role-playing game designed for long-lasting play; outstanding online help files and tutorial, great use of Windows. Value-priced.

CONS Numerous frustrating features (frequent deaths, loss of characters' statistics, finite lifespans for characters, and innumerable quests that leave characters stuck at experience levels for long periods of time) are built in to the game to make it impossible to complete in a reasonable period of time.

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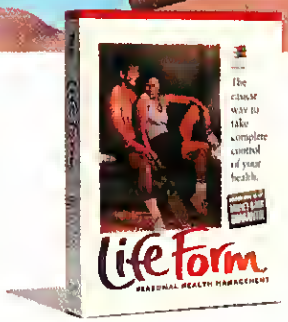

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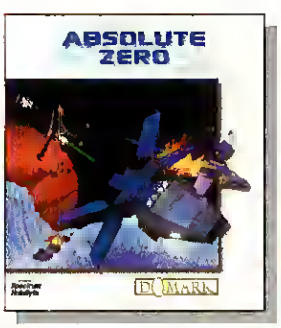


Circle Reader Service #145

The Dungeon Revisited

SCORPIA DROPS IN ON DUNGEON MASTER II AND BARELY ESCAPES WITH HER SKULL

by Scorpia

INTERPLAY'S DUNGEON MASTER II: THE LEGEND OF SKULLKEEP is, of course, the follow-up to the original DUNGEON MASTER. While not exactly a sequel—the cast of characters is different from the first game—those who played DUNGEON MASTER will find much that is familiar. Unfortunately, this game is not a step forward, but a significant step backward.

As in the original, you assemble a party of four from a pool of pre-created Champions; there is no individual character creation. One novelty is that you begin with one person in the party already: Torham Zed, who represents the player. The other three members are your choice. Read up on the Champions in the manual, and look them over carefully before choosing; if you change your mind, you'll have to start the game over.

Also as before, characters can have one or more of four professions: Fighter, Ninja, Priest, and Wizard (Torham comes with all of them). Any character can learn a profession by practicing it, although he or she must start with at least some mana to become a spellcaster.

Advancement is strictly by doing: fighters become better by swinging away, wizards and priests by casting spells, etc. Each level gained in each profession generally confers benefits aside from greater skill: increased hit points, stamina, attributes, and mana, depending on which profession has advanced.

After the party is complete, you can begin your task: entering Skullkeep, restarting the machinery to open the Zo Gate, and then passing through it to the Void for the confrontation with Dragoth, who is planning a little invasion.

Somewhere between a third to a half of the game is taken up with finding the four Clan Keys to open the way into the Keep. The remainder of the game deals with repairing and re-starting the Zo Gate machine in the Keep itself.

DM II is strictly a hack-and-slash production. Except for buying and selling in the merchant shops, there is no character interaction of any kind, and almost everything you come across outdoors and in the Keep will be hostile. Combat is thus a major activity in the game.

On the right-hand side of the screen is a set of icons representing the party members and the items held in hand. To swing at an opponent, you click on the weapon icon, and choose from a list of attacks. There will be one or more, depending on the skill of the fighter and the weapon being used.

This is the same style of fighting as in the first game,

SCRY SIGHT

At press time, IntraCorp announced the signing of three professional voice-actors for the cast of CHRONOMASTER, their upcoming CRPG which is being developed by DreamForge and was designed by Roger Zelazny and Jane Lindskold. Lolita Davidovich will play the role of Jester, the sentient computer, Ron Perlman will assume the role of Mila, and Brent Spiner of *Star Trek: The Next Generation* fame will play Rene Korda, the protagonist.

Legend Entertainment has reached an agreement to publish an adventure game called CALLAHAN'S CROSSTIME SALOON (working title). The game is based on the Spider Robinson anthologies of short stories which feature an alien version of *Cheers*. In the short stories, Callahan's is an East Coast bar where aliens and humans intermingle, and it is the most miraculous place on earth. In addition to solving everyone's problems and saving the universe, Callahan's is the site of vicious punning and ribald humor. Creating this game has been a life-long dream of designer Josh Mandel, a veteran graphic adventure designer who came up through the Sierra ranks.

and obviously has some drawbacks, since all combat is real-time. Generally, unless you're very quick with the mouse, you'll be able to get off only one hit before having to move away and get ready for the next strike. You *could* just stand there and bash it out, but most of the critters in the game hit rather hard, so this is not a recommended course of action.

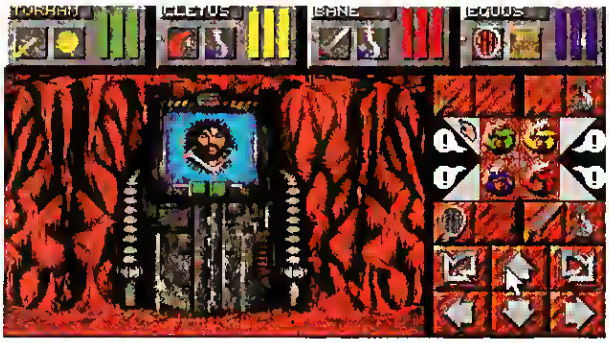
Magic is also much the same as before. Mages and priests create spells by putting together combinations of syllables. Each syllable has its own mana requirements, and the mana is used immediately the syllable is chosen. Once complete, the spell can be cast immediately, or held for later.

Unfortunately, you can only create one spell at a time. If a character is holding a spell, no others can be made by that person until the held spell is cast. This makes spellcasting in combat difficult. Suppose Torham has a held fireball ready. The party enters combat and he sends off the fireball. He's not going to have the opportunity, in the middle of real-time combat, to create another spell. The action doesn't stop while a spell is being made.

Using offensive spells, then, is usually a matter of having them ready beforehand, casting them off first thing as the combat starts, and then leaving the rest to the fighters up front.

Priest spells operate in the same way, except that most of them create potions, so it is necessary to have an empty flask in hand when casting priest spells. This includes healing since all healing is done via potions.

Regardless of a character's starting expertise in the wizard or priest professions, he or she does not know any spells at all at the beginning of the game (none are listed in the manual). Spells are learned by finding or buying items with spell abilities; the necessary symbols are marked on the item. Some experimentation is usually needed to determine exactly what the spell does. You can also do trial and error casting, putting together syllables and hoping for a good result. Those who played the first DUNGEON MASTER will be ahead of the game, as many of the spells carry over to SKULLKEEP. There are, however, some important new ones that can only be learned the hard way.



ADVENTURERS ON ICE At the beginning of SKULLKEEP, you'll find yourself in a dank cellar with a selection of adventurers in cryogenic freeze. Simply thaw-out your favorite three companions.

Sad to say, time-dependent sequences are still with us. For example, after you finally get into the Keep proper, the first thing you have to pass are the three gates. This requires standing in an alcove, quickly hitting three buttons in the proper sequence, then backing down the hallway as fast as possible before all the gates close again. Even with a speed spell activated, it may take a few tries to pass them. There are several other similar situations just as annoying, so be prepared.

Once again, food and water are necessary items, but this time, at least, they are not the problem they were in the first game. Outdoors, you'll find some dinosaur-like critters that provide excellent meat, and, with the proper item, you can teleport out of the Keep to re-stock food supplies, then teleport back in to your previous location.

So far, only one technical problem has been reported with the game: some sound cards, including real Sound-Blasters, don't work or don't work properly. Interplay has a patch out to fix this problem. It's available from them, and also on many online sites, including the Internet. Interestingly, while I couldn't get my Gravis to work with the game in native mode, the MaxBos (SB) emulation worked just fine (why the emulation worked when real SB cards had trouble is a mystery, but I'm not complaining!). Aside from that, SKULLKEEP ran cleanly, with no crashes, lockups, or other strange activity.

Unfortunately, that may be the best feature of the game. As anyone who played the first DUNGEON MASTER can see, there has been no advancement in the interface or mechanics. Combat and spellcasting are still awkward, and in one respect, there has even been a step backward. In the original game, a character turned automatically to the side or rear when attacked from that direction. In this game, you have to turn the character yourself. Why this change was made I don't know, but it certainly isn't to the player's benefit.

As is typical of too many CRPG's, the Champions are poorly equipped. Many come with little or nothing in the way of weapons and armor, or, for that matter, ready cash. The idea that experienced spellcasters don't know any spells at all is ridiculous; at the very least, a few simple spells should have been provided in the manual.

One of the biggest problems with this game, however, is having to engage in excessive combat to advance the characters. While the immediate vicinity of the village (although three shops and an empty house hardly qualify for the term) can be permanently cleared of critters, monsters regenerate continuously in all the other locations.

No matter how many you kill, more keep coming. So, exploration in the outdoors is often a matter of the party running and evading hostiles, while trying to pick up items (such as the Clan Keys). As your party moves from location to location, you will need to take quite a few "bashing holidays," fighting whatever is around to gain experience. And you really

DUNGEON MASTER II: THE LEGEND OF SKULLKEEP

Price: $39.95
System Requirements: IBM Compatible 386 25 MHz (486 25 MHz or better recommended), 4 MB RAM, VGA, CD-ROM, 23 MB free hard drive space, mouse; supports all Sound Blaster Pro Audio compatible sound cards.
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MAC

Cool Crafts 5025309
Children's Ed
WIN 386/25 LCIII 4mb M
MAC

Mac Pak: Beginning System 7 & 7.5, Intro to Claris Works, and Audio Guide to Quicken 5032404
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do need the experience; only strong characters can survive to the end.

Eventually, this becomes boring and mechanical. The combats advance the party, but not the game itself. You beat on things for awhile, then nip off to a safe place for healing and renewing spells, then go back and do it all over again.

SLUGS ARE US These nasty slugs are everywhere, but it only takes a few thrusts with a trusty sword to dispatch them into a puddle of ooze.

Matters do not improve after you get into the Keep. There's a room full of mages on the second floor you have to clear out; these aren't a problem, since they take time to regenerate, and likely you won't be coming back this way again.

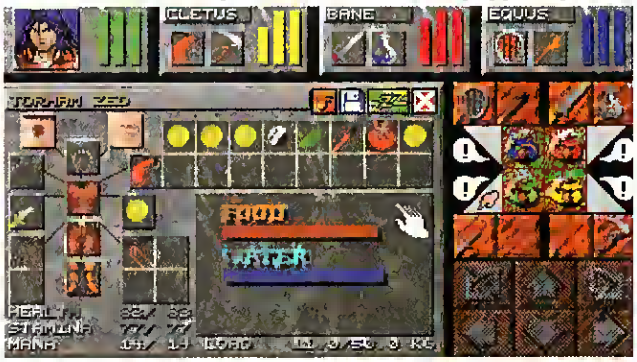
The first frustration is an area with several slug-like creatures that regenerate quickly. There are important things to do and items to find here, and you pretty much have to do it while evading the monsters. Stopping to fight (unless absolutely necessary) is suicidal, as the slugs are tough and they just keep reappearing.

More aggravation comes in the form of Attack Minions. The Attack Minion is a new spell in the game which creates a floating spiked ball that shoots lightning bolts and goes after any nearby hostile. Dragoth knows this spell, too, and for most of your time in the Keep, you'll be seeing many, many of these evil minions.

First they come singly, but later on they show up in twos and sometimes threes. The minions have a potent attack, and while fighting one is possible, multiples are just too much. So you mainly send off your own minions to fight them while you get out of there, and hope you're not followed. The minions are not bound to an area (the way outdoor critters are); they'll follow you up and down ladders, and into rooms, too. Shutting the door won't help; minions have Zo spells to open doors.

All this, mind you, is going on while you try to figure out how to get the Zo Gate machinery operational again. Everything has to be done in the proper order, and several repairs made. Finding those repair spots isn't easy with a pack of monsters on your tail, and you may end up going over old ground, several times, looking for what you missed (and with no clear idea of what you're looking for, either).

Adding to the fun is the furnace in the caves under the Keep, which sometimes goes out. Then you have to trek back down there to start it up again. There's nothing like getting to the Zo Gate at the top of the Keep, and discovering it won't open, because the furnace isn't working.



TORHAM ZED'S STUFF Your alter-ego is one Torham Zed. While the inventory interface seen here is clean, it has a decidedly dated and uninspired feel about it.

However, all that pales in comparison to the final confrontation. The Zo Gate leads into the Void, a big empty place with a few cloud banks to walk on. To reach Dragoth, you have to cross over two "disappearing bridges" (yes, timed sequences again), and—you guessed it—Attack Minions are heading your way.

Dragoth has plenty of them and he isn't shy about calling them up. All by himself, he's more than enough to take on, but the minions make this fight almost impossible.

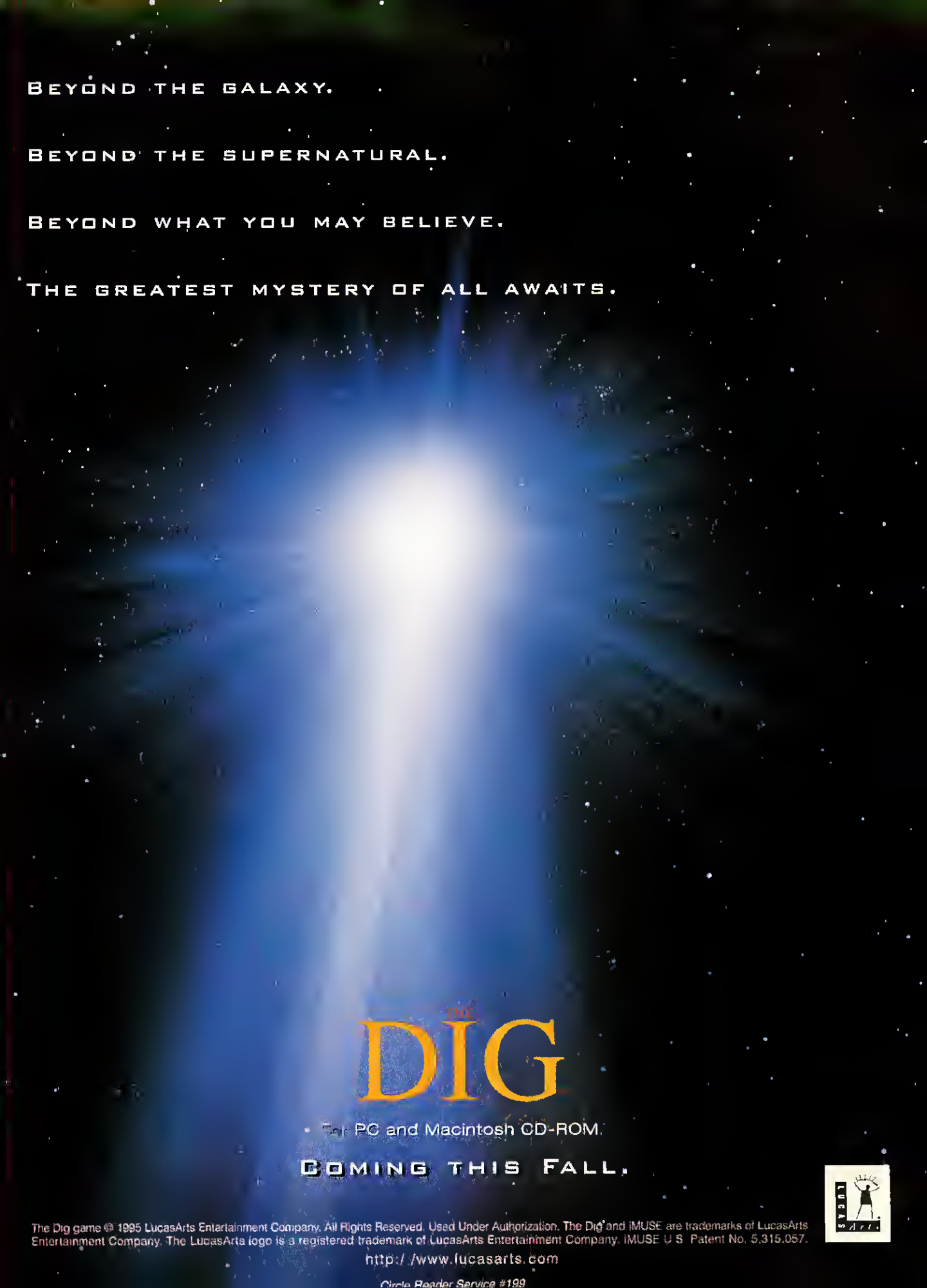
Think about it: you're on a small patch of clouds, trying to avoid shots from both the minions (coming from all directions) and the big D, and doing fancy footwork to keep from stepping over the side and falling back to earth. There is no place to hide, nothing to duck behind, because it's all open.

Once your ready spells are used up, you don't have time to create more. You can only rely on any spellcasting items you may have saved up for this, and hope you can hit Dragoth with them. He doesn't stay in one place for very long, and he can throw up a reflection spell to send that fireball or whatever right back at you.

I didn't get through this combat, though it wasn't for lack of trying. I spent a day on it, going through a wide variety of tactics from stealth to brute force (with, of course, more restores than I care to count), and whenever it seemed the party might be getting somewhere, those Attack Minions popped up and ruined everything.

Unfortunately, that was the last day I had; deadline time had arrived, and the article had to be written. With a little more leeway, I could probably have managed it; others, I know, have finished the game. Whether or not I'll go back to it now is uncertain. Fighting Foozle & Friends is one thing. Fighting Foozle and continuous reinforcements is quite another.

Overall, SKULLKEEP was a dreary experience. Not since PAGAN has a game aggravated me so much in so many aspects (come to think of it, I think I'd prefer PAGAN to this). Very little has changed for the better since the first DUNGEON MASTER, and there is much that is worse. Some may want to play this for nostalgia, and others because they enjoy this style of game. However, those looking for a good CRPG, or even a decent hack-and-slash extravaganza, won't find it here, after the long wait for DM II, that's really a shame.



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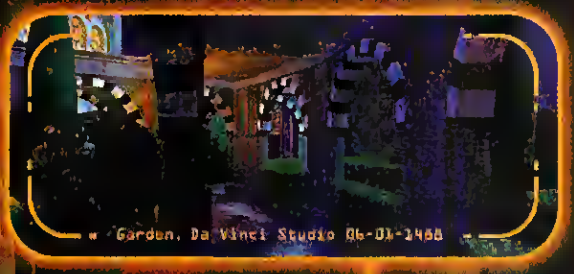

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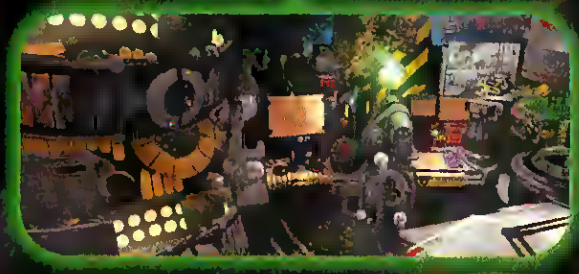

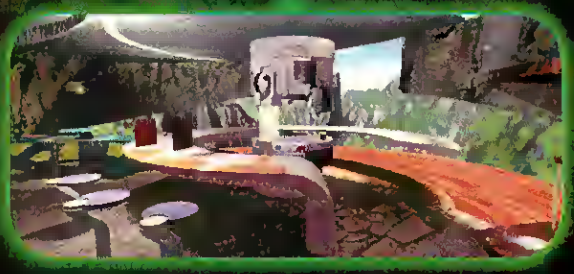

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Tales Of The Tavern

Scorpia Casts The Runes And Offers Up Hints You Can Use

SO HERE WE ARE, PREPARING OURSELVES FOR THE SUPPOSED INUNDATION OF NEAT NEW GAMES THIS autumn. I say "supposed," because we all know how often games don't make their release dates these days, and I don't recommend holding your breath while you wait. We just have to hope that at least some of them will show up before Christmas; it would be a nice change of pace to have several good games to play.

Before getting to the mail sacks, I'd like to say a few words about Fred. People are always asking about him, and every once in awhile I print an explanation, which cuts down temporarily on the questions. As you figured, this a "once in awhile" (grin).

Back in those halcyon days of early 1983, when Russell Sipe (then publisher of *CGW*) asked me to write for the mag, my original column was "Scorpion's Tale." I envisioned the Tale as a tavern where battered and weary adventurers would hang out with a relaxing beverage and pick up some tips before heading off on their next attempt to save the world.

Naturally, every tavern has a bartender (and sometimes a bouncer). So I "found" Fred, who fills both roles. Fred is half-Grue (you really don't want to know about the other half), and, not surprisingly, has no trouble at all keeping the peace. He does have his foibles, such as the shrunken-head garland he puts up every Christmas season, but no one around here really minds (especially when they take a close look at it and say, "Hmmm, isn't that the designer of...") Anyway, enough about Fred for now; on to the good stuff!

Discworld: Our boy Rincewind is having a bit of trouble getting the monk's robe into his hot little hands. Well, that's not surprising, as this puzzle is somewhat on the obscure side. The solution requires using the butterfly (you *did* get the butterfly from the park, yes?) in the right place on the night side, so Rincewind can pick up the robe back in the present (future?). Don't let yourself feel cornered here.

Stone Prophet: Once you've finished with the Shrine of Nefertiti and the Obelisk, the best place to go next is the Harvest Temple. This is a key location, and completing it (the underground chambers, that is) will go a long way towards helping with the other dungeons. And you really want to leave Pharoah's Rest alone for awhile. This is part of the end game, and it will be some time before you're ready for that.

Star Trek: A Final Unity: A few adventurers are experiencing problems with getting off Allanor. That mention of a shuttle dock on the way in has them looking for non-existent exits. Nope, that's not it. The only way out from the computer room is the same way you came in. The party has to go all the way back to the entry room and transport to the Enterprise from there.

Lands of Lore: The perennial question pops up again, namely, getting past Scotia's Gate. This comes later, after you're done with the Urbish Mines. Only Paulsen (who is hiding down there) has the item you need to destroy the gate. So the sooner you go through the mines and find him, the sooner you'll be on your way to Yvel City.

Ultima VII: The Black Gate: Another "popular" problem is getting onto the right track in this game. The proper way is to forget about Abraham and Elizabeth (you don't catch up to them until the very end; they'll always be one step ahead of you). Instead, talk to the gypsies up by Minoc. They will send you in the proper direction.

Alone In The Dark III: So there you are, in that nasty lava-filled cave, and no apparent way out. You've jumped across all the blocks (sounds like rather a pagan activity, doesn't it? hehe), but now there aren't any more, and the exit is still out of reach. Have you arrived at a dead end? Not really, you have something in your inventory that can get you out of here. What could it be? Well, there's a pretty heavy Indian motif here, right? Think about that one for awhile.

Ultima VII: Serpent Isle: Some people are wondering what happened to the Banes after they kill off their possessed friends. The Banes don't seem to be in those special prisms, and they're not. Catching them isn't quite that easy. Have you checked your fancy Black Sword lately? Now you know why the demon in it had to be freed earlier. Of course, the Banes still have to be transferred into the prisms (one at a time, too). If you're not finding anything in the Sword, you may have forgotten to do something back in Moonshade.

Dragon Lore: A number of people are having a difficult time resuming normal size after visiting the sprites in the mushroom village. Look around a bit more carefully. There's another "house" that's open (and not really that far from the one with the sprite). In there you'll find the item you need to restore Noel to his proper height.

And that's it for this look into the mailbags. In the meantime, if you need help with an adventure game, you can reach me in the following ways:

On Delphi: Visit the GameSIG (under the Groups & Clubs menu).

On GEnie: Stop by the Games Round-Table (type: Scorpia to reach the Games RT).

By US Mail (remember to enclose a self-addressed, stamped envelope if you live in the United States): Scorpia, PO Box 338, Gracie Station, New York, NY 10028.

Until next time, happy adventuring!

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Once More, Into The Breech

Roger Wilco Gets Another Crappy Job In Space Quest 6: The Spinal Frontier

by Charles Ardai

TIDY IS AS TIDY DOES Roger's housekeeping leaves something to be desired, but at least he's proud enough of his role as a "maintenance engineer" to hang a mop on the wall.

Sierra On-Line's Space Quest games are, at their best, both a guilty pleasure and an acquired taste, a little like Mad magazine or Jim Carrey movies. They're very silly; they are also relentlessly preoccupied with matters related to the bowels and other topics that some people find hilarious simply because others find them embarrassing. Never has this been more true than in Space Quest 6: The Spinal Frontier, which opens with space janitor Roger Wilco publicly being stripped to (and finally of) his jock strap, and ends with his being miniaturized *a la* "Fantastic Voyage" and inserted into someone's small intestine for an innerspace clean-up job. In between, it ain't exactly "Hamlet"—nor, unfortunately, is it Space Quest at its best.

PICTURE MAKES PERFECT?

There is one dimension in which the designers have made an attempt to be less crude here than they have been in the past. Betting that gamers are no longer satisfied with the standard quality of graphics associated with Sierra adventure games, they have sprung for the sort of detailed cel animation used to spruce up the visuals of Sierra's very good and very successful King's Quest VII. Combined with first-rate voice performances and an engaging storyline, such graphics can go a long way toward making a game feel more like a movie. But that only works if all the pieces come together just right, as they did in King's Quest VII. Here, I'm afraid they don't.

The graphics are better than in any previous Space Quest, but nowhere near the level of King's Quest. (The various alien landscapes and creatures look less like something out of a Disney or Warner Brothers cartoon than like the flat, sketchwork drawings in **Broderbund**'s Where in Space is Carmen Sandiego?) The storyline is a grab-bag of hit-or-miss wisecracks and pratfalls—more "Spaceballs" than "Young Frankenstein," to be Mel Brooks about it. Most disappointing of all, though, is the voice acting. Gary Owens contributes his inimitable narration and a few of the other performers do good work in small roles, but William Hall hits all the wrong notes as Roger and too many of the character parts are voiced as though the actors reading the lines were trying out for a revival of "Hee Haw."

Space Quest 6: The Spinal Frontier

Price: $49.95
System Requirements: IBM Compatible 4B6 25 MHz, 8 MB RAM, SVGA, 5 MB free hard drive space, mouse, DOS 5.0 or Windows 3.1; supports Sound Blaster compatible sound cards, General MIDI and Pro Audio Spectrum.
# of Players: 1
Protection: None (CD-ROM)
Design: Scott Murphy and Josh Mandel
Publisher: Sierra On-Line
Bellvue, WA
(800) 757-7707

...AND STOP CALLING ME SHORE LEAVE

This is not to say there are no funny gags this time around. Running into E.T. sleeping it off in the corner of a liquor store is good for a laugh, and having the manual override button in your shuttlecraft call up an artificial co-pilot named "Manuel Auxveride" is a stroke of genius (though borrowed genius, since the gag is cribbed from the first "Airplane" movie).

There is also something resembling a decent story here, though as usual for a Space Quest, the storytelling takes a back seat to the puzzles and the jokes. Our hero, Roger, having saved the known universe as captain of his own garbage scow the last time out, is stripped of his rank on a technicality and returned to the janitorial duds he wore back in Space Quest 1.

After serving for some time under Commander Kielbasa on DeepShip 86 (a ship which looks surprisingly like Wilco's jock strap), he is awarded shore leave on the Times Square-like pleasure planet Polysorbate LX. Meanwhile, unbeknownst to him, sinister forces have begun to move against him. Even after he gets himself rescued from Polysorbate LX and uncovers their plot, he has to step lively to foil them first in outer space, then in cyberspace, and finally in innerspace.

It will surprise no one who has played one of these games before that somewhere in the mix there is a maze to navigate (though a simple one, thankfully), and somewhere else an old-fashioned logic puzzle to solve. There is also an action game, "Stooge Fighter 3," which puts the

TIME
STANDS
STILL

BRING ON BIG MO Goily Joe and Big Mo go mano-a-mano in Stooge Fighter 3. Just watch out for that little cigarette-eating beastie living in the ashtray.

Three Stooges in karate outfits and has them beating each other up in the style of STREET FIGHTER. (The concept is funnier than the execution. As far as arcade game parodies go, "Stooge Fighter" can't hold a candle to "Astro Chicken" in SPACE QUEST 4.) These are the usual sorts of filler you find in a SPACE QUEST, and complaining about them is like complaining about Andy Rooney lilling up the tail end of "60 Minutes": you know what you're going to get going in; if you don't want it, you don't have to turn on the set.

Where I feel on more solid ground complaining is in regard to the game's other puzzles. For one thing, too many of them depend on the player's spotting a tiny or obscure object against a dark and cluttered background. In the first scene, a demolished bicycle leans against a garbage heap, with a crucial ID card dangling from its carcass; if it weren't for the fact that a "Getting Started" tipsheet that comes with the game tells you it's there, I would never have noticed it. A few scenes later, your success depends on your realizing that you can click on two wall panels and three pipes that, for the longest time, just looked like so much background art to me.

There is also the matter of randomly timed events, which the designers have used liberally in the game's first chapter. In the opening scene, you can't even move until you grab hold of a passing robot, and in order to do that, you have to wait for the right robot to pass and then time your grab just right. The wait isn't long—but in another sense any wait is too long once you've figured out what to do and just want to get on with doing it.

In a later scene, progress depends on your talking to a roaming blade runner named Blaine Rohmer. I had to wander among three screens for something like ten minutes before he finally showed up.

Things come off somewhat better in the middle third of the game, after Roger makes it back to his ship from a trap on Delta Burksilon V; there's a good brig escape sequence and a twisted re-imagining of what happens when you take morphine. (You start to morph, naturally.) The endgame, which has Roger inserted microscopically into a cohort's stomach, pancreas, gall bladder, intestines, and so on, includes a couple of decent puzzles—I especially like the idea of hitching a ride on an intestinal tapeworm. But I have to admit that a couple of hours of crawling around inside someone's guts left me slightly queasy.

WAIT, THIS ISN'T 10 FORWARD! No, it's 8 Rear, DeepShip 86's quaint little club, which is hurting for business at the moment.

HARD TO SWALLOW

Even if you have a stronger stomach than I for subjects gastroenterological, the game may still manage to give you an ulcer, for reasons that have nothing to do with its storyline. For one thing, it runs slowly. Obviously, the faster your machine, the less of a problem this is; but even on a fast 486 with scrolling turned off and graphic detail tuned to a minimum, waiting for Roger to amble snail-like across the screen can be a trial.

Compounding the problem is the fact that Roger has the bad habit of going to places on the screen other than the ones where you clicked (he kept walking behind the bar at "Orion's Belt," for instance, even though I was clicking in front of it) and taking long, circuitous routes to get from any given Point A to Point B.

Then there are matters of poor design, the most annoying example of which is that you have to position your cursor much too carefully (and have it set to "Walk") in order to make the "Exit" points at the edges of a screen appear. It is possible to walk to the edge of a screen and still not be allowed to exit, just because Roger is a few pixels to the left or the right of the "correct" location.

Add to this the poor line readings by William Hall (who robs jokes of their humor by emphasizing the wrong words in a sentence) and the graphics that too often look like they were drawn by B-team illustrators rather than Sierra's top artists, and you get a game that only occasionally lives up to its pedigree.

In some ways, the best thing about SPACE QUEST 6 is its title: both the subtitle, which offers the best pun in the game, and the mere fact that the game is a new SPACE QUEST at all, regardless of how good it is. There were something like five "Police Academy" movies and eight or nine "Friday the Thirteenth" installments, and it wasn't because they kept getting better every time. People like what they are familiar with, and those sorts of people will like SPACE QUEST 6 just fine.

As for me, though, I'd rather see something brand new, different, and more inspired than yet another go 'round in a well-worn groove. Inspired silliness and crudeness can be great fun—look at FREDDY PHARKAS or LEISURE SUIT LARRY. But take away the inspiration and what's left, the merely silly and the merely crude, gives you sadly little to get excited about.

THE EDITORS SPEAK

SPACE QUEST 6

RATING 3

PROS You can count on a fairly funny gag every few scenes. The look of the game is the best of any in the SPACE QUEST series.

CONS KING'S QUEST VII has spoiled us for any game with only adequate visuals, sound, and scripting; plus, the game's technical performance is surprisingly weak.

Roger Zelazny and Jane Lindskold's

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Steve Wortofsky,
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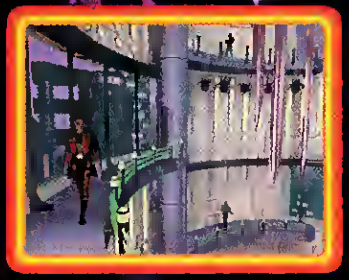

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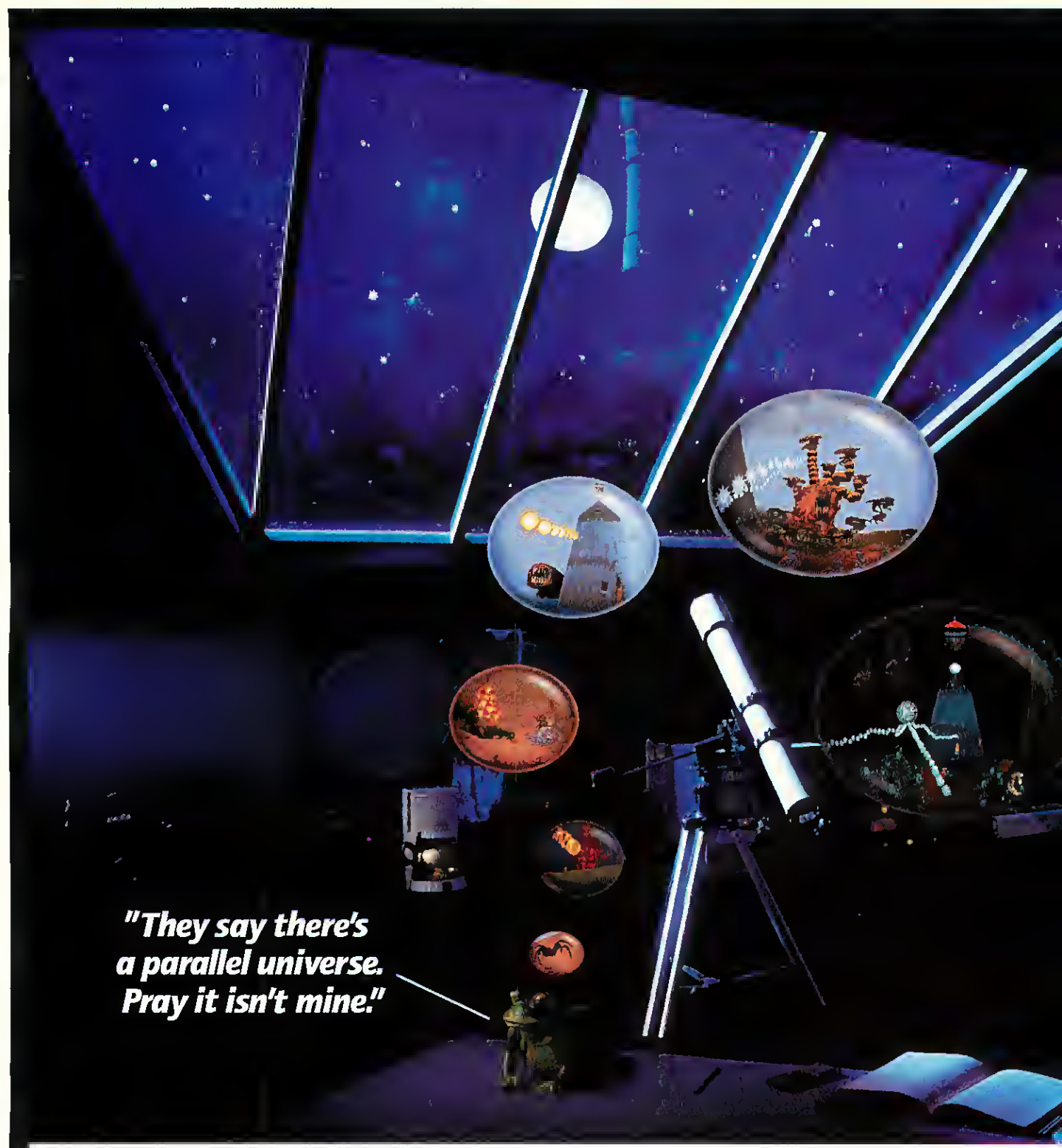

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Adventure To Nowhere

Koei's NEW HORIZONS Is A Low-Budget Excursion To The New World

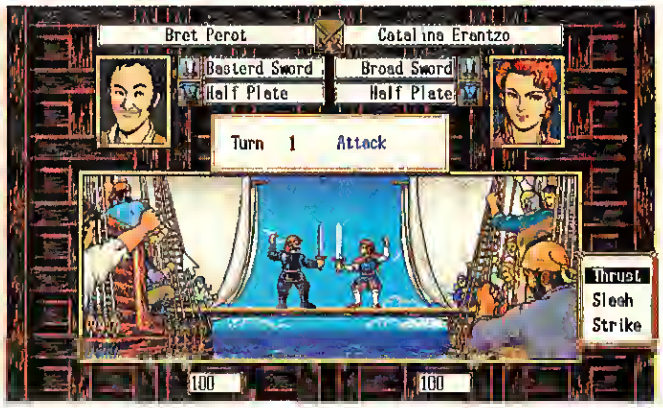
by Arinn Dembo

IT WAS A FINE, FINE MOMENT FOR *HOMO SAPIENS*. IN THE FALL OF 1522, AFTER THREE HELLISH YEARS AT SEA, THE LAST pathetic remains of the expedition dragged themselves back to Spain. Four out of five ships had been lost along the way, and of the 270 men who began the voyage, only 21 had survived.

Ferdinand Magellan himself, so often credited with "circumnavigating the globe" in our history classes, never completed the trip; he was dead by May of 1521, killed in the Philippines. The skeleton crew which achieved the Spanish shore were led by a spear-carrier called Sebastian del Cano; unless you've made a deliberate study of the voyage, you'll probably never have heard his name. But Sebastien del Cano brought his men back alive, and while Magellan's bones moldered half a world away, del Cano delivered final proof that the Earth was round: there he stood, alive and well, the entire circumference of the planet having passed beneath him.

I have a weakness for human victories, which is why I like history and why I love historical games. The famous voyage that concluded in 1522 was part of a bold age, when the European powers were reaching out to encompass, explore, convert and conquer the globe. It was a great time to be young, white and unattached. The royal families of Europe were handing out ships to anyone who could scrape together a sextant and a tall tale.

Coincidentally, 1522 is also the starting date for **Koei**'s latest offering, NEW HORIZONS. It's hard to imagine how you could go wrong setting a game in this milieu—after all, it has everything. Certainly, when I loaded up NEW HORIZONS, I didn't see how a game dealing with this period could possibly be bad. But now, after two weeks of painful instruction, I'm ready to admit that I was wrong.



WALK THE PLANK Dueling in NEW HORIZONS pales when compared to previous games such as PIRATES!

New Horizons

Price: $59.95
System Requirements: IBM compatible 386 or better processor, 4 MB RAM, VGA graphics, 6 MB hard drive space; supports AdLib and Sound Blaster sound cards.
Protection: None
Publisher: Koei Corporation
Burlingame, CA
(415) 348-0500

SEE EUROPE ON JUST PENNIES A DAY!

I hate to sound shallow, but the first and most obvious problem with NEW HORIZONS is the presentation. We're dealing with a lush, exciting epoch of history: outlandish beasts, strange people and places, fabulous hordes of gold, gems and spice. Call me crazy, but I think that when you're trying to capture the feel of such opulent times, you should probably spend more than $1.98 in production values.

Now, don't get me wrong. I play a lot of strategy games, and I'm used to graphics and sound that are far from the cutting edge. I don't expect sets by Cecil B. DeMille, or sprites that reach out of the screen to throttle me. But even on generous terms, NEW HORIZONS is sub-standard. The core graphics are at least five years out of date (the last time I saw screens this crude was in ULTIMA III) and it has teeth-grittingly awful music, reminiscent of the old DONKEY KONG coin-op at the supermarket.

There are some nice screen shots tacked on in odd places, like the "gambling" screen in various pubs—and there's even some better-quality music during the opening credits. The introduction, by the way, is by far the most advanced sequence in the game, both graphically and musically; it's actually fun, in a kitchy, *anime* sort of way. I kept expecting Minmei to come twirling out, singing "My Boyfriend is a Pilot." Once that's over, unfortunately, you get dumped into the game, and the clunky VGA graphics with their Nintendo-esque perspective hit you in the face like a wet fish. The transition is about as graceful as a pig in a tutu.

Speaking of awkwardness, the interface is in the typically Mandarin-obtuse layout we've come to expect from Koei. Com-

The Scroll

Some Things Are Better Left Dead And Buried.

Its spell terrified a city, populated, enjoyed a prince of Ancient Egypt to spread the cult of the dark god, Myankhonor, and ensured that the blood of the serpent people ran through the veins of all his descendents. Centuries would pass, and it would be buried in the end of a long, lost tunnel in a temple beneath the unsuspecting city of Alexandria. But in 1920, one Yussuf Al Rashid begins to dig a hiding place for his ill-begotten money and unearths the 2,000 year old magical scroll which sets in motion an adventure which begins with death and could finish with the end of the world.

VIC TOKAI INC.

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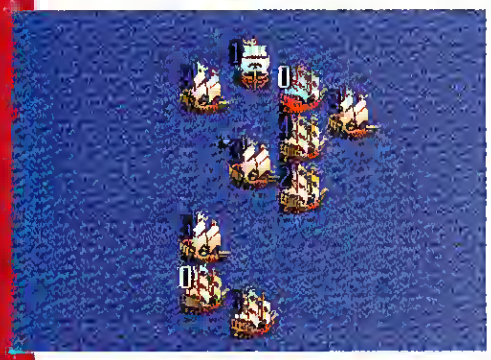
PC CD-ROM

Circle Reader Service #17

mand menus are not always put in the most convenient places (to be charitable), and sometimes you have to consult several lists in order to accomplish a task that should be fairly linear. Unfortunately, NEW HORIZONS takes the standard level of inconvenience to brand new heights; even getting around the screen is now a pain.

You see, most of your movement in the game consists of either a) walking around the little VGA towns or b) sailing on the high seas. While walking is fairly simple—you just use the number pad to toddle in any of four directions—sailing can be *very* difficult. The sailing interface takes into account the strength and direction of both wind and current, which means that you run into real-life problems like not being able to bring your ship into port against a headwind. You have to keep track of the amount of food and water onboard, and the days literally fly by as you sail—the sea lightens at dawn and darkens into night in the space of a few seconds.

All of this is bad enough if you are merely trying to get from point A to point B without losing your crew to hunger and dehydration, as when you choose to play an Explorer or Trader in the game. If you choose to play a Pirate character, you also have to intercept other fleets at sea, an ir-



KETCH 22 Sorting out the keyboard commands is even tougher than figuring out what's happening in this jumbled representation of naval combat.

ritatingly complex process roughly the keyboard equivalent of catching a fly with a pair of chopsticks. It takes split-second timing, careful maneuvering, and visits to three different menus just to intercept and try to attack. After having several intended victims slip away from me because of this little keyboard tango, I was ready to do serious bodily harm to whomever was responsible for the design, and I think most gamers will have the same reaction.

THE BARTER OF SEVILLE Much of the game requires walking through mundane-looking ports of call like this in order to trade, recruit, and gamble.

STYLE VS. SUBSTANCE

The primitive look and obstructive interface of this game will probably prove to be an impermeable barrier to most gamers; but if they can overcome those, there are other hurdles awaiting. There are a lot of perfectly good games with uninspiring graphics and crappy music, and there are even some that can overcome an annoying interface on the strength of the ideas and the gameplay. The big problem with NEW HORIZONS, though, is that it leaves something to be desired in the substance department as well.

The game has six characters you can play, including a token female. I played her, naturally, since I recognized her name: Catalina de Erantzo (Erauso in some texts), La Monja Alfarez—"The Nun Ensign". She's one of the great folk heroes of Latin America. Of course, she's a bit out of her time here—this game starts in 1522, whereas the real Catalina wasn't born until 1592—and they did geld her character, assigning some kind of insipid, girlie-type motive for her piracy, which is too bad. But still, seeing her in the game was a high point. The male characters are also pretty interesting. And it's unfortunate, considering the great material they had to work with, that the role-playing elements of the game are so often ham-handed and intrusive.

From the start, you find yourself being dragged around the screen for moments of character development which (although you may not be particularly interested in them at the time) are impossible to ignore. In better games, these are handled with brief animation sequences; NEW HORIZONS is a little too low-budget for that kind of thing. Instead, you have to trudge back and forth across the screen—hell, sometimes across the whole bloody Mediterranean—so someone can deliver a cartoonish word bubble in a pub. In most cases, the game cannot progress until you have dutifully trudged across the screen for that word bubble, whether you care or not.

When I ignore everything else, I see some potentially powerful stuff being kicked around in this game—love and money, economics, politics, adventure and discovery, honor and glory. Strangely enough, the game is fine on the conceptual level; there were moments when I wanted to continue playing, not because I was really enjoying myself, but because I was starting—completely against my will—to be interested in the plot. If the execution had been better, the idea would have been unbeatable; six characters with separate victory conditions make for a lot of replay value, and there's so much to do that players wouldn't bore easily.

NEW HORIZONS deserved to be better than it is. I wish that someone had invested the time and money it would have taken to make this a worthwhile game. But since no one did, it's probably best if gamers save their time and money, as well.

THE EDITORS SPEAK

NEW HORIZONS

RATING 2

PROS Interesting historical era, fairly good writing and nice mix of characters.

CONS Primitive graphics, annoying interface, awful music and clumsy handling of role-playing elements. The interception routine is ludicrous.

FASTEN YOUR SEATBELTS.
THE RIDE MAY GET A LITTLE BUMPY.

APACHE

The Combat Helicopter Simulation

From Digital Integration

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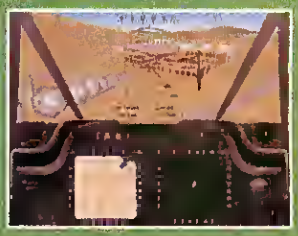

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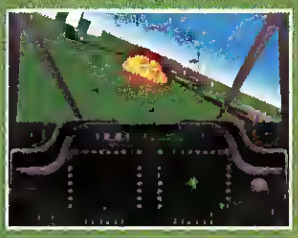

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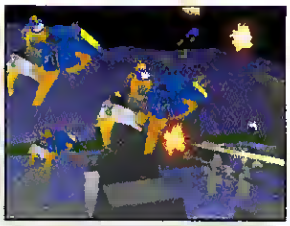

As the defender of a weaponless colony, you must convert your mining equipment into machines of war.

Over 200,000 of your comrades have just been viciously slaughtered. A superior alien life form is pounding you with simultaneous air, surface and subterranean attacks. And, by the way, you have no weapons...yet.

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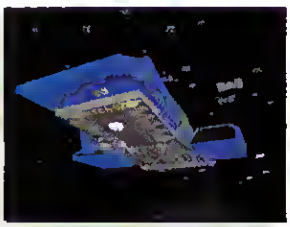

You may successfully fend off the first attack, but can you survive simultaneous land, space and subterranean assaults?

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Days Of Fire, Knights Of Steel

MechWarrior 2's Nuclear-Hot Gameplay Looks Right On Target

by Martin E. Cirulis

GIANT FIGHTING ROBOTS? GET REAL! FROM *GIGANTOR* TO *ROBOTECH* TO THE DREADED TEEN-driven 'Zords of those annoying *Power Rangers* my daughter loves so much, the Japanese have been the first and foremost to recognize the appeal of huge, anthropomorphic fighting robots. They have created an entire subgenre of SF-action by bonding the Western love of machines to their own ancient Samurai tales.

FASA'S 'DROIDS

These days the fans of Japanese animated films and series—or animé, as it is called now—have grown to fairly large numbers in North America, but there was a time, way back in the early 80's, when you'd have to walk a long mile to find someone who knew what "Mecha" were. And, while most American businesses were starting to grudgingly admit there might be an eastern Pacific Rim, there was a small game company called **FASA** which found inspiration in the trickle of Japanese media arriving on these shores.

The kids at FASA took the giant combat robots from various animé and used them as a basis for a new SF universe, where human empires battled each other across the galaxy using these anthropomorphic tanks. The initial game was called BATTLEDROIDS, but a quick call from a bored lawyer from the **LucasFilms** copyright division caused 'Droids to become Mechs, and BATTLETECH was born. While the game was deemed far too silly by most hard-core wargamers, the more mainstream and younger gamers ate it up, and FASA landed a hit. A few years later, during the early 90's, **Activision** cashed in on the solidly entrenched popularity of the BATTLETECH universe and created the arcade-action hit, MECHWARRIOR, named after the pilots of the immense war-machines.

After countless hours of playing the boardgame, Mech fans were thrilled with the chance to actually "pilot" the mechs they had come to know so well, and it was certainly one of the slicker games in the quaint world of the 286 and slow 386. But times changed, and IBM technology grew almost as fast as the sophistication of the players; within a couple of years the cry for an improved MECHWARRIOR went up—of course, as it turned out, it was far simpler to ask than receive.

The birth of MECHWARRIOR 2 has been so rocky that less than a year ago, I had to break it to my friends that I had heard through "official channels" that MW2 had joined CHAMPIONS: THE CRPG in permanent computer game limbo. Regardless of the shenanigans and how long it took to get here, I'm happy to have been wrong, and even happier to have been one of the first to get my sweaty little paws on the most eagerly awaited game of '95. I think the thing that impresses me the most is the guts it took Activision to hold onto this game until they got it right.

HELLO, MR. RIFLEMAN A Wolf Clan Timber Wolf squares off against a Jade Falcon Rifleman IIC in a toe-to-toe grievance match in an arena built just for the occasion.

MECHWARRIOR 2: 31ST CENTURY COMBAT

Price: $79.95
System Requirements: IBM compatible 486-66 or better, 8 MB RAM, 45 MB of uncompressed hard drive space, 256 color SVGA, MS-DOS 6.0, 2x CD-ROM; supports Sound Blaster compatible sound cards
# of Players: 1
Protection: None (CD-ROM)
Designers: Sean Vesce and Zachary Norman
Publisher: Activision
Los Angeles, CA
(800) 477-3650

THE NEW ART OF WAR

In actual game structure, MW2 follows what is now the standard model for SF sims: the player pilots various mechs through a series of sequential missions, with the player's rank increasing with the progressive difficulty of the scenarios. MW2 uses the simpler sim plot-path by giving you missions that are connected to one another only through a very loose storyline; failure to complete a mission, even through the destruction of your own Mech, does not have any result other than repetition. So far, nothing to write home about—but where this game begins to distinguish itself is in the options.

First of all, players can choose a career path serving either the Wolf or Falcon clans, each presenting twenty-odd distinct missions, effectively doubling the play-life of the game. (There is also an instant-action "gauntlet"-like mode for when you're not into the stress of a career.) While this kind of "play both sides" feature is standard in most historical sims, it is relatively rare in the realm of SF action games. Another nice touch is the freedom a player has when it comes down to which Mech to take on a mission. Based loosely on the Clan concept of "Bidding," it comes down to this: your commander will place a maximum size of Mech required to complete the mission and give you the option of taking along one or two "Star mates"—AKA wingmen. Each successful mission earns a player points, and for every ton lighter than the recommended weight your Mech is when you go into battle, you will earn extra points. So while you and I may both successfully complete the Wolf Clan mission track, the one who won with less firepower and, hence, more skill, will be rewarded with the higher score.

In a nice, almost barbaric touch, the designers have stayed loyal to their source material and made even promotions in The Clans a dangerous thing. Instead of just the usual "You've completed mission X so you've earned a promotion to the rank of Y," every few missions a player must face a trial by combat.

For the gamer who wants to feel in control, there is an incredible wealth of tinkering options here. Not only can players choose from up to 15 different types of Mechs, ranging from 20 to 100 tons, but each one has from 2-4 variants. If that isn't enough, you can also rip the guts out of a chassis and start picking and choosing from the skeleton on up, selecting parts ranging from armor to heat dissipaters to engine size (which translates to vehicle speed) to an impressive array of 27 weapon systems, capable of dealing destruction in a variety of graphically stunning ways. And the best thing of all, though it may slip the notice of some, is that this whole design system enjoys the benefits of over a decade of playtesting. This means a game that is both flashy AND balanced, an all-too-rare occurrence in today's gaming scene.

MAD DOG MECH: This Mad Dog ain't sniffin' to see if you're friendly. Trash his turf and the goosing he'll give you won't be from a wet nose.

THERE'LL BE A HOT TIME IN THE OL' COCKPIT TONIGHT!

Of course, all the great background and toys won't carry the day if the battlefield doesn't measure up. Well, Mech-jockeys, fear not: MW2 doesn't just measure up, it surpasses everything else seen so far. And that's fact, not hyperbole.

From the cockpit on out, everything here is pure essence of BATTLETECH. Instead of viewing the original boardgame as just a title to be hung on an arcade experience, real effort has been made to incorporate all the things that made BATTLETECH what it was. Mechs bound high over alien worlds on thundering jump jets, missiles fly from their tubes, shaking your cockpit with their exhaust, ammunition explodes inside wounded machines, limbs twist and then blow off to crash heavily to the earth... and the heat, the interminable, damning heat.

One of the most limiting factors in the life of any Mech in the boardgame was the heat generated by the weapons embedded in your machine. You could be loaded for bear, but if your Mech lacked the heat-sinks needed to discharge the waste energy, you would soon become a towering inferno instead of a charging titan. MW2 stuck to the letter of the law, and, even

LEG HIT! At times, you have no option other than the joust—just aim low and try to take out a leg. Mechs tend to slow when they have to hop around pogo-style.

though this is essentially an action game, any pilot who wants to survive a scenario will have to keep a close eye on the heat signature, deciding if one more particle cannon shot is worth overriding the good sense of your computer and risk setting off your own ammunition.

Perhaps the greatest achievement in MW2 is the supreme playability of the Mech controls. Earlier Mech games, such as EARTHSIEGE, did a fair job of portraying the sense of Mech combat, but at the expense of the player interface. Control was anything but intuitive. For all of the options available in MW2, the control is pleasingly simple. Things seem to work as they should, and in the heat of combat, you aren't scrambling for the right key to tap. In fact, you can play very decently with just joystick controls and only occasional keyboard taps. If you're going for broke, though, and have the full suite of goodies (rudder pedals for torso rotation, throttle control for speed, hat switch for virtual cockpit viewing, etc.) well, then you're in Mech heaven.

ROBOT CITY The Mech that you've targeted is showing some damage, but the one right in front commands more immediate attention.

JUST LOOKING AT IT MECHS MY EYES WATER

Though the terrain is molded from the universe of the polygon, there is very little that feels dry or generic. Alien worlds have distinctive environments: hills, mountains, cities, ice canyons and even mesas are all crafted with care, and even a certain amount of realism. And the environment is not just eye-candy; it can affect everything from vision to heat dissipation. While you may have perfected the use of jump jets to bound away from enemy fire, a mission on a high-gravity world can turn all your dashing maneuvers into slow stumbles. Fog and night effects can be compensated for by two different optical modes, but both have their weaknesses as well.

Perhaps taking a note from MAGIC CARPET, the worlds in MW2 are not just wallpaper, but are alive in their own right. Players will stumble across working mines in the mountains, dodge traffic in the cities, chase mono-rails into fusion power plants and glance nervously at the sky as fighters streak high overhead. And the detail extends to combat vehicles as well. The universe does not consist of just Mechs to fight; there are DropShips, auto-turrets, tanks, bunkers, command vehicles and individual soldiers in battle-armor waiting for you out there across the depths of space.

And all of this comes to you in glorious graphics ranging in resolution from a respectable 320x200 for those of us just a bit behind the PC tech times to ice-perfect, 1024x768 SVGA for those with Pentium muscle under the hood.

PLANT A SEED AND MECH IT GLOW

Of course, there are a couple of things still missing.

While the terrain is nice, it is still too smooth. The desire for trees and water may seem like an aesthetic one, but they are important tactical considerations in the BATTLETECH universe. I can see the technical difficulties in including them, but without them play-balance shifts slightly towards the "Go straight in with guns blazing" school of arcade action. The limited scale of most missions also hedge the game to that side of the fence, with only five or six vehicles involved in most combats, and the fact the enemy AI seems to be a big fan of mixing it up at close range regardless of the Mech has the same effect. Also, some people may find a couple of the scenarios excessively tricky and the time-limit on most missions doesn't leave you with a lot of time to explore tactical options.

Essentially though, these are the only flaws to be found in MW2, and the game's subtitle, 31ST CENTURY COMBAT, fills me with hope that we may see a series of expansion disks that will flesh things out, until we have a full-fledged SF warfare sim destined for the *CGW Hall of Fame*. Already Activision is promising an eight-player network module that registered owners will be able to download free from an Internet web-site, and a Win95 version to ship late in the fall.

And speaking of Activision, once again I feel they must be saluted for delivering a game of this caliber virtually bug-free. While the pressure, especially after all the delays, to release this game before it was perfect must have been tremendous, Activision resisted what has become a sad trend in the industry and gave us a game that performs to the highest standards (while the game seems to be bug-free, and I had no problems with it, it does appear that quite a number of players are experiencing configuration problems with MW2. For help with these, check out the Game Publishers B forum on CompuServe).

It would have been easy to go on longer about all the things that made me grin while exploring this game, but I think most of us have gotten the idea. MECHWARRIOR 2 is simply the best giant robot game ever made and arguably the most enjoyable ground combat sim of any genre.

Long live the King

THE EDITORS SPEAK

MECHWARRIOR 2

RATING ★★★★★

PROS Great gameplay, great graphics, and adherence to the original BATTLETECH universe make MW2 the top-dog of Mech battle sims.

CONS Less-than-stellar AI and the lack of landscape features (such as trees, water and boulders) often reduce tactics to toe-to-toe slugfests.

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Circle Reader Service #80

Muscle Bound And Fancy Free

TERMINAL VELOCITY Looks Full Of Brawn, But Lacks The Brains

by Mark Clarkson

TERMINAL VELOCITY, the new first-person flying shooter from **Apogee**, provides gripping, high-speed action from moment one. But as I played it more and more, I began to realize that it had one fundamental flaw: it looks pretty and talks a good game, but the beauty begins to fade after only a few dates.

SMASH-MOUTH FLYING Since everyone is your enemy in TERMINAL VELOCITY, it tends to make for a target-rich environment.

TAKE NO QUARTERS

The underlying philosophy of TERMINAL VELOCITY is to provide fast-paced, arcade action in which any gamer can quickly immerse themselves without wasting any time with manuals or learning curves. And it does just that—I was up and running exactly five minutes after popping the CD-ROM into the drive.

But this might be the game's very undoing. While most games mix things up a little—a recon mission here, a surgical strike there—TERMINAL VELOCITY gives you nothing but total mayhem from start to finish. It seems that every mission is exactly the same: you fly to a series of targets and destroy them while fighting off swarms of enemy ships and keeping an eye out for power-ups. Then again. And again.

The immense levels are crawling with all sorts of targets of opportunity—ammo dumps, tanks, fighters, killer pontoon boats and alien buildings—none of which are on your mission plan. But by going out of your way to destroy these guys, you'll power your ship up to the utmost. And you'll have tons of fun making things go *boom*.

Of course there are secrets galore. Bored into the earth, or hidden inside gigantic sun-bleached saurian skulls on each world are secret tunnels leading to twisty, curving passages *a la* DESCENT. Cruising through them is usually worth the effort as you'll run into all sorts of weapon enhancements, shield generators and a coolness factor straight out of a movie as you rocket through closing blast doors and dizzify yourself in rotating tunnels.

Likewise, there are goodies hidden throughout the game world; you'll miss out on most of them if you blindly follow your direction finder. Unfortunately, when you do cruise off the beaten path and go exploring, there's really not a whole lot to do besides flying to a series of targets and destroying them while fighting off swarms of enemy ships...

Thankfully, the pace picks up a bit when you play against or with your friends. TERMINAL VELOCITY's COMM-bat option supports head-to-head play over a modem, serial cable or network by pitting individuals or teams against each other.

THE STORY SO FAR

Of course there's a cursory plot dealing with aliens bent on galactic conquest, but you needn't pay it much mind. You, as usual, are humanity's last hope and the TV-202 is your instrument of destruction. Initially equipped with a pair of meager lasers, along the way you'll be able to up the ante to ion cannons, missiles, torpedoes, afterburners and much more.

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As you fly missions you'll find more weapons aimed at you than at a beat cop in Los Angeles. Although the enemy fighters each perform differently (some are faster and others are heavily armed, while some are camouflaged to blend in with the environment), none of them are very smart. Occasionally they'll throw in a loop or spin to avoid fire, but more often than not they'll give up a position on your six to bypass you and play target. As the game progresses, or as you crank up the difficulty, baddies come at you in bigger swarms with bigger weapons. Don't even think of clearing them all out—they appear to be spawned out of thin air if your fighter gets a little lonely.

TUNNELS OF FUN On approach the secret tunnels look harmless enough; enter them and you'll experience something totally different than the surface action.

LASER-RAMA Straying off the beaten path definitely pays off in the long run—where else could you upgrade your laser blasters so powerfully?

PRETTY PICTURES

TERMINAL VELOCITY has a high-resolution luster, even in the low-res mode. The 3-D terrain comes very close to equaling MAGIC CARPET's sheer beauty. Fighters cast realistic shadows on the ground. Ground targets go up in bright orange fireballs belching chunks of debris and smoke into the air. And each level of the game brings about a unique new planet with a unique look and original characteristics. There's a desert world studded with pyramids and fighters straight out of the movie *Stargate*. There's a Death Star-like world with an entirely artificial surface. My favorite is an asteroid where building-sized meteors rain from the sky.

The environment is about as close to three dimensional as I've ever seen. You can fly low and skim the ground—watch out for running into hills—or pull up and boost through the cloud layer. Unfortunately, as fun as zipping through the skies is, that too, like the game, tends to get old a little faster than I'd like.

THE VIRTUOSITY OF VELOCITY

I guess that's the biggest problem with TERMINAL VELOCITY. For all its good looks and fast action, there just isn't a whole lot to the game. You fly fast. You blow up some enemy ships. You destroy some enemy targets and find some hidden tunnels. Finally you destroy the boss. And that's the never-changing pattern.

To be frank, I have a hard time trying to decide if I like this game. It's a game I want to like, but it doesn't hold my interest for very long. At the same time, it's a game I want to dislike, but it is incredibly fun in limited doses. One thing is obvious, however. Like Eggs Bennedict without the Hollandaise sauce, there's something crucial missing.

TERMINAL VELOCITY doesn't seem worthy of its impressive environment. The landscapes cry out for a different, more varied kind of action. I envisioned myself bobbing and weaving through the canyons and popping above and below the cloud layer rather than simply pointing my nose to twelve o'clock the whole time.

In the end, a lack of depth is all that really holds TERMINAL VELOCITY from becoming a big winner. The simple shoot-em-up arcade formula, while better than REBEL ASSAULT, still might as well be played on a console system like the Sega Genesis or SNES. It's fast and it's fun, but it ain't that deep.

THE EDITORS SPEAK

TERMINAL VELOCITY

RATING ★★★½

PROS Excellent graphics throughout and fast, fun arcade action give TERMINAL VELOCITY some serious blast appeal.

CONS The game's monotonous missions and lack of gameplay depth limit its long-term appeal.

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Circle Reader Service #206

Skewed, Blued And Tattooed

In Origin's CRUSADER, A Vengeful Soldier Is Out For Blood In An Environment With Greater Interactivity And Range Of Movement

by Martin E. Cirulis

SNEAK PREVIEW
Game Still In Development

"EVERYTHING OLD IS NEW AGAIN"

THE FIRST PERSON TO SAY THIS PROBABLY WASN'T THINKING OF COMPUTER games at the time; nevertheless the sentiment fits our hobby perfectly. Nowadays it seems that every company is always looking for The Next Big Thing: the next gimmick that will set the gaming world on fire, wrench the industry in a new direction for the next year and spawn an army of clones. But there is another side—the game developers who never forget what has gone before. For every 10 designers trying to quantum leap-frog the industry, there's a guy who remembers, a guy who just wants to breathe new life into forms thought long dead.

In this case, that guy is Tony Zhurovec from **Origin**, and his game is called Crusader: No Remorse. And for an old Arcade Vet such as myself, it's like seeing an old friend in a new suit.

PUT AWAY THE DRAMAMINE

Sometimes it seems that first-person is the only perspective left in the gaming world. In their rush to mimic the wonderful world of DOOM these days, designers are seemingly only willing to view gameplay through their alter-egos' eyes (what's the last non-MORTAL KOMBAT type game you can remember that didn't use this perspective?) Even in the crusty, venerable world of CRPG's, the skewed 3-D perspective has gone the way of the dodo. Now I'm a big fan of first-person games, but current technology forces them to present fairly non-interactive environments (though things are getting better, thanks to games like Origin's SYSTEM SHOCK. Sometimes I find myself yearning for an environment where the world isn't simply wallpaper to set off big explosions against while you careen about like a hamster in a dryer.

Well, CRUSADER hearkens back to the days when those with queasy stomachs didn't live in fear of action shoot-em-ups. The game takes all the power that

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normally goes into fast head-twists and puts it to use in producing an isometrically skewed, beautifully SVGA-rendered 3-D world where just about every prop does something, or at least blows up real good. Though still in early beta form, CRUSADER is one of the best-looking and best-sounding games I have had the pleasure of playing in a while—and I don't mean that in the sense most of you may be thinking. When we speak of great-looking action games, we usually talk about how great the big things look (i.e., planes, race cars, starfighters), in relation to how fast the game is moving. But in CRUSADER it's the little things that count. Everything looks and behaves as if you were playing Gunfight in your sister's dollhouse, right down to the little swivel-chairs that spin wildly when hit by stray bullets and the wonderful modeling of human beings.

And the level of detail is not just for the sake of pretty backgrounds that get shot up; this is also a working world that will test your mind as well as your aim. Consoles can be accessed for crucial information like security codes or alarm controls, safes and chests can be opened, and there are plenty of other interactive goodies around. You can imagine my surprise when one terminal gave me control of a security robot in another part of the complex; I was able to wreak some serious havoc with my robot alter-alter-ego before he was finally brought down and I was "returned" to my character. If this kind of interactive environment is pursued into the final release, I can see each level of CRUSADER requiring more than a few run-throughs to discover everything.

Of course, all the while, every evil goon and robot for miles around is trying to punch your ticket, and surveillance cams are watching your every move. Finally, a shoot-em up that'll have you thinking of strategy instead of simply making you queasy.

55 GALLON DRUMS OF BARBEQUE SAUCE The fully interactive environment means that you can really light up your enemies by blasting barrels of fuel.

CRUSAOER GONTROL CRUSADER's interface is surprisingly intuitive; vital information is displayed at the bottom of the screen, and the keyboard or mouse is used to control our crimson hero.

SVGA ACTION, ARCADE MORALITY

As for the structure of the game itself, it is an interesting mixture of elements, old and new.

The story is pure computer game sci-fi. You are an elite soldier of a futuristic Military-Industrial Corporation that rules most of the world. When a botched double-cross leaves you miffed and stuck with a sudden moral epiphany, you chuck your job—but not your cool red battle armor—and join the growing rebellion. Needless to say, while the rebels can always use a good shot, they are somewhat less than trusting of somebody walking into their midst in wolf's clothing, and you spend much of the game proving yourself.

The game I played consisted of 18 missions where the player is beamed solo to various military and industrial sites to achieve objectives ranging from the destruction of key equipment to rescuing hostages to the theft of vital information or devices. Several times I had to get information or a pass card from an agent inside a base, so blazing away mindlessly at everything that moves may be a bad idea. For the most part, the missions appear to be of the "succeed or die" variety, with partial success not being an option.

As you progress, you gain access to more and more powerful weapons, and discover new and fascinating ways to kill

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and be killed. Here, the serious-hearted may be offended by the almost "MORTAL KOMBAT" effort put into the graphic death scenes. Not only do people bleed across floors and disintegrate in screaming agony, but at one point I accidentally blew up a barrel of chemicals beside a security trooper and he burst into flames, shrieking and stumbling around the screen for a couple of seconds before falling to the ground as a blatantly fried corpse. But those of us hardened by years in the arcades will probably find it perversely amusing.

The intuitive control scheme was more effective than I expected, actually. Using the keyboard (mouse and joystick control will be in the final version), I was easily able to move my tough little Crusader in a variety of ways. In addition to the obvious forward, backward, left and right movements, it's also possible to duck, tuck and roll. By the time CRUSADER ships, there should be plenty more animations, including a sidestep move.

SHOWOOWN Although there are plenty of enemies, you also have some friends around—quick trigger fingers don't always pay off in CRUSADER.

THE EVOLUTION OF ENVIRONMENTS AND MOTION MECHANICS

With the development of CRUSADER, it appears that Origin is firmly committed to the creation of complex and realistic presentation in its SF adventure/action games. From SYSTEM SHOCK to BIOFORGE to CRUSADER we can see a coherent policy of refining computer games to accurately simulate the way real people move, instead of worrying solely about the way the game looks and feels.

In SYSTEM SHOCK (itself an evolution of the work done in the two ULTIMA UNDERWORLD titles) we saw the first real attempt to introduce subtleties of human movement into the first-person perspective game. You could crouch, crawl and lean around obstacles. Also, the world was an interactive one, with numerous screens and devices that could be fiddled around with. BIOFORGE took human movement even further, giving us the most fluid animation for human movement yet seen, quantum leaping previous "camera-angle perspective" games. And the world was even more interactive, with players being able to think more in terms of what a real person would do in order to solve problems. CRUSADER, even though it will primarily be seen as an arcade game, still pushes further into creating valid sci-fi worlds by creating crystal-clear artifacts and by taking into account such things as bullet ricochets. Needless to say, it has very realistic-looking body movement.

With all the talk these days of treme rates, simulators and silly VR, it might be wise to keep an eye on the subtler evolution going on. Origin has gone a long way towards making computer games the truly immersive experiences that we all went them to be.

A nice touch here is that this game's arcade values have been melded with the distinctive mode of storytelling that Origin has previously used in games like WING COMMANDER. Between missions, players will actually be able to wander about the rebel base the same way they charge through the enemy strongholds, but instead of blazing away, the point here will be to activate live-action video clips where your fellow rebels will tell you what's on their minds. At this point the clips are non-interactive, and it remains to be seen if they will be affected by your actions (it seems unlikely). Video clips are also used for briefings and for interacting with double-agents while on a mission.

When you get tired of talking, just walk your character into the commander's office, and he'll brief you on your next mission. From there it's only a short walk to the teleport pad, and you're on your way to another couple hours of blood, gore and glory.

BUCK THOSE DOOM CLONES

While those who reject shoot-em-ups or are just against excessive violence in general will probably turn their nose up at CRUSADER, I think many others will see something unique in this game; it will certainly be welcomed by those equilibrium-challenged individuals who have been left out of the whole DOOM craze. While there appear to be a couple of problems with the AI's movement routines that will hopefully be worked out in the future—more than once I was saved by a guard walking off a catwalk and into the sea—this game is obviously a well-crafted piece of work, and there is very little reason to believe the standards will fall before it hits the shelves. I found even the beta of this game immensely playable and a great deal of fun. Tony Zhurovec certainly deserves a great deal of credit just for trying to buck such a strong trend in the genre.

Now if only they would put in a multiplayer mode...

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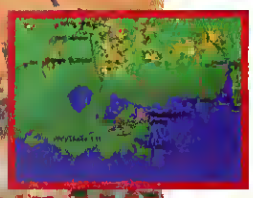

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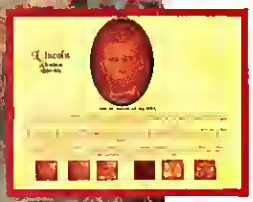

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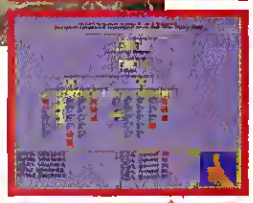

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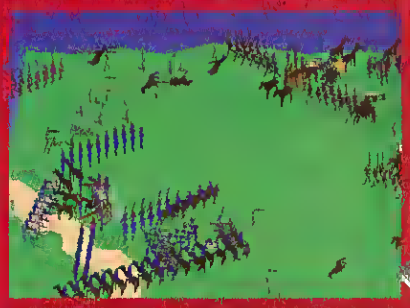

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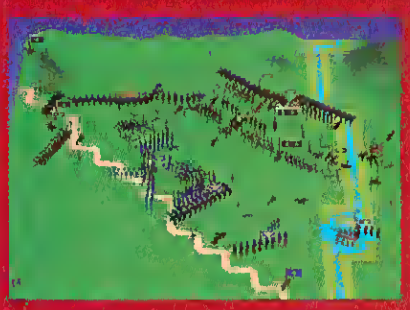

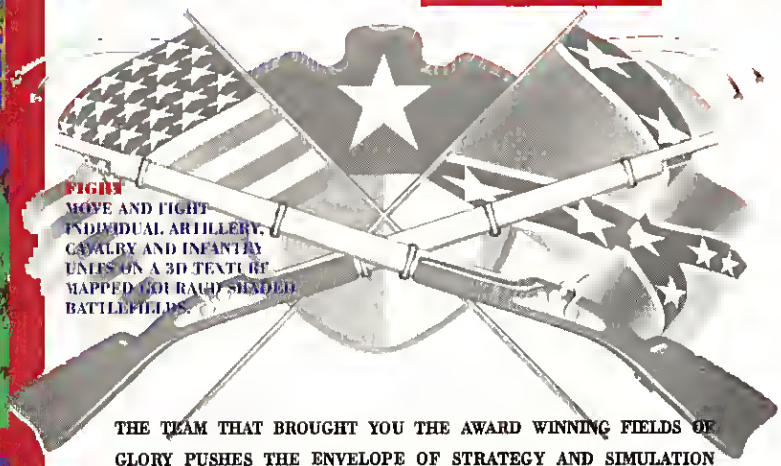

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Beast of Burden

SAVAGE WARRIORS' Bark Is Better Than Its Bite

by Jason Kapalka

BAZOOKA JOE Unlike most fighting games, SAVAGE WARRIORS allows the use of chains, baseball bats and even rocket launchers. Occasionally, you can use part of the landscape to your tactical advantage...

IT HAS BEEN FORETOLD. ON THE DESIGNATED DAY, A FIGHTING GAME WITH A DECENT PLOT SHALL BREAK FORTH from the ether. The infernal regions will suffer a sharp, sudden drop in temperature. Monkeys will fly from places heretofore hidden from the sun. The earth shall shake, the stars fall from the heavens, and the seas will turn to blood. And reviewers across the globe will keel over in sheer shock of what has been wrought.

Fortunately for the Earth, stars, seas and me, **Mindscape**'s new punch-'em-up SAVAGE WARRIORS heralds no such Gaming Apocalypse. I started explaining the story to a friend as the impressive intro sequence rolled:

"Who's that green guy," he asked.

"That's the, er, 'Master,'" I replied. "See, he's teleported fighters from across space and time to his island. There, they..."

"Yeah, Yeah—fight in a deadly tournament for ultimate power. Where's the kick button?"

So SAVAGE WARRIORS doesn't exactly shake the foundations of the gaming universe with its storyline. It is, however, a decent introductory-level fighting game. Flawed in a few key areas, perhaps, but with outstanding graphics and a real desire to deliver the goods.

SAVAGE WARRIORS

Price: $69.95
Requirements: IBM compatible 486 or better (486DX or Pentium recommended), 8 MB RAM, SVGA, 2x CD-ROM drive, MS-DOS 5.0; supports Sound Blaster compatible sound cards, Gravis Ultrasound and AdLib
# of Players: 1 or 2
Protection: None (CD-ROM)
Publisher: Mindscape
Novato, CA
(800) 234-3088

A KICK WRIT IN STONE

The gameplay will be as familiar to fighting veterans as the plot, obeying the rules first laid down by STREET FIGHTER II and later etched in stone by MORTAL KOMBAT. You duke it out with the computer or a human opponent in a two-dimensional side-view environment using punches, kicks and various special moves to pound your opponent into groggy submission.

These fundamentals haven't changed in years, which practically makes them holy scripture in the fast-forward world of video games. Instead of tampering with elemental laws, new fighting games tend to focus on visual presentation: fancier graphics, gorier gore, and more bizarre and esoteric "combos," "specials," secret characters and codes. The current craze seems to be the semi-three-dimensional games, like VIRTUA FIGHTER I & 2, TEKKEN and **GTE Interactive's** FX FIGHTER—the actual play is still in two dimensions, but a "camera" swoops around the characters and the arena rather than being fixed on the sidelines. SAVAGE WARRIORS opts for a strange compromise between sideline view and the new free-roaming one, making for a weird hybrid I can only call "semi-semi-3-D."

Essentially there are five ways to watch the carnage. You can choose between VGA or Super VGA resolution, with VGA giving you the standard side-to-side scrolling of STREET FIGHTER and MORTAL KOMBAT, and SVGA presenting a very detailed but very tiny image of the entire arena. Next, you can select between the regular sideline view or a slightly elevated perspective, with the "camera" fixed a few feet above the combatants and looking down at a 45 degree angle. Finally, there is a complete 3-D roaming camera option, which is similar to VIRTUA FIGHTER and its ilk. The wealth of choices here is nice. Too bad none are completely satisfactory.

LET'S DO THE BIO MOTION

The characters—ten of them, plus a boss and four secret, jokey types like a cocktail waitress, basketball player and dwarf—are beautifully rendered through a process Mindscape calls "3-D Bio Motion." What is 3-D Bio Motion, you ask? I wish I could figure it out. If they're polygons, they're better rounded and disgnised than any I've ever seen. If they're bitmaps, they're bitmaps that can be smoothly rotated and viewed from any angle. Whatever the case, it's a pretty impressive trick, although you'll need some pretty heavy hardware to check it out. Regard a 66 MHz 486 as the bare minimum, with a Pentium absolutely necessary to get the detail settings out of the basement.

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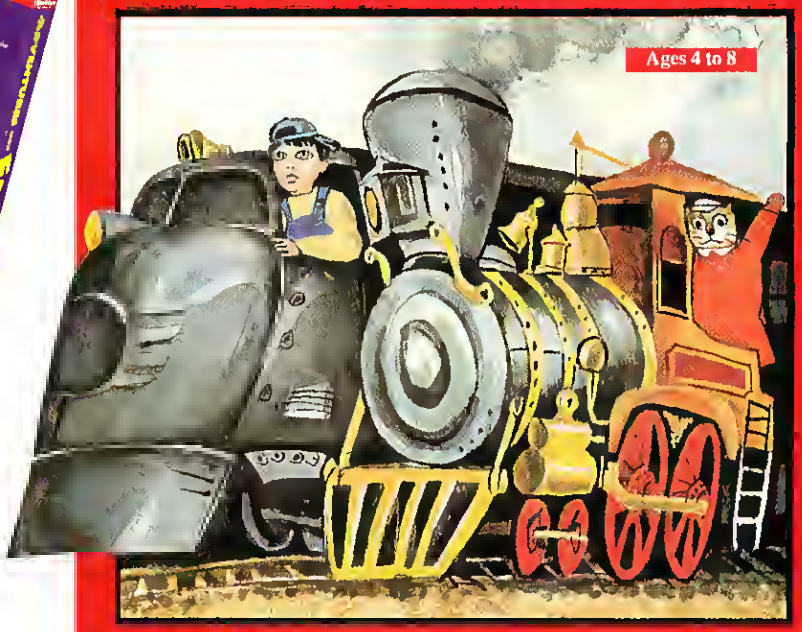

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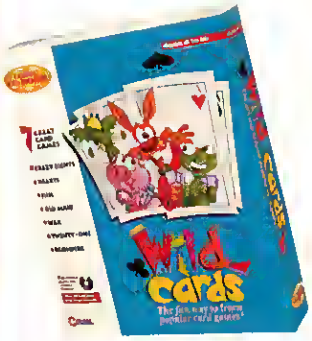

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The real problem is that SAVAGE WARRIORS renders all this fancy 3-D modeling more or less superfluous. When you're playing in the fixed-camera modes, as you will be most of the time, the characters might as well be flat bitmaps from the STREET FIGHTER era. And the full 3-D mode is more of a novelty for replaying fights than a functional option; the viewing area is constricted and all the colorful backgrounds are reduced to a plane of uniform, boring plainness. Why go to all the trouble of making these nifty 3-D characters when the game forces you to watch them in 2-D? It's a question for minds more profound than mine.

SPECIAL ATTACK OR MATING GESTURE? Fergus' pink, fleshy hulk attack presents quite a spectacle, enough to impress any red-throated booby; unfortunately, each warrior has only three special attacks, which can grow old quickly.

Once you get past the graphics, SAVAGE WARRIORS is a curious blend of features. Part of the feature set, like the extensive selection of characters and numerous secret "cheat" codes, are apparently aimed at experienced fighting fans. Other aspects, like the overly simplistic control scheme, seem targeted towards the novice gamer. Much like the game's visuals, I have the feeling no one will be completely happy with the end result.

The ten standard characters are all interesting and colorful, ranging from a hulking Roman gladiator to an Egyptian sorceress to a reptilian humanoid from the Jurassic era, there's certainly no lack of variety. All the warriors have at least one spectacular special move: Neftis' shrinking ray and Fergus' Celtic Hulk attack are among my personal favorites.

But sadly, once your initial infatuation wears off you'll begin to notice a real lack of depth. Each character has exactly three special moves, no more and no less. More importantly, the game fails to overcome the two-button limitation imposed by the PC's architecture. This doesn't mean that SAVAGE WARRIORS is as stultifyingly simple-minded as, say, RISE OF THE ROBOTS; but neither does it have the variety of FX FIGHTER, which uses numerous complex combinations to give each fighter a respectable "vocabulary" of attacks. In SAVAGE WARRIORS, you punch and you kick. You jump-kick, you duck and leg-swipe. And that's about it. Forget about combinations, high, low, strong and weak attacks. Or finishing moves for that matter; you just wade in and flail away until your opponent falls down. Even the special moves mostly boil down to simple projectile attacks.

It's still fun in a mindless way, but the long-term appeal of fighting games lies as much in their strategic elements as in their brute immediacy. Classics of the genre such as STREET FIGHTER II are distinguished by a fine balance of attacks and counterattacks—assault tactics and the appropriate defensive maneuvers which are built into game engines and honed on the Darwinian battleground that is the video arcades. SAVAGE WARRIORS lacks this subtlety; you rapidly reach a plateau of skill beyond which little improvement is possible.

Yet not everyone is looking for a game that requires endless practice and refinement of technique. Sometimes you just wanna smash someone. With its large array of fighters and arenas, SAVAGE WARRIORS provides plenty of scope for the casual player, so long as you don't look for anything too involving. And while the focus of the game is obviously on physical violence, none of it is particularly gruesome. This might also be a good choice for parents leery of letting little Johnny play games in which he can rip someone's spine out through their nostrils.

In the end, SAVAGE WARRIORS isn't the best fighting game currently available for the PC—that honor goes to either FX FIGHTER or MORTAL KOMBAT 2. But it's far from the worst. And I certainly hope to see those clever Bio Motion graphics show up in future products, hopefully put to better use. Maybe one day I'll even figure out how it works. *That* will probably be the day the earth shakes and the stars fall from the heavens...

SAVAGE WARRIORS CHEAT CODES

To enter these codes, first type CHEAT at the main menu. Select the "Secret Way" option, and type in any of the following codes:

- **REPLAY:** Allows 3-D combat
- **ELEVENTH:** Lets you play as the Master (2 players only)
- **DUNK:** Lets you play as Scott (2 players)
- **PAM:** Lets you play as Pamela (2 players)
- **GARDENER:** Lets you play as Tom Tack (2 players)
- **NUMBERONE:** Lets you play as Captain Warriors (2 players)
- **EASYSPECIALMOVES:** Simplifies specials to:
  - Forward, Forward, Punch
  - Forward, Forward, Kick
  - Away, Forward, Punch
- **EVILDEATH:** Extra blood mode
- **CIRCUS:** Play in the arena in 2 player games
- **NOPAIN:** No weapons allowed
- **TYSON:** No special moves allowed
- **NOGAIN:** Weapons cannot be knocked out of fighters' hands
- **WOO:** Special moves take no energy to use
- **NBK:** Only one round
- **FINALFIVE:** You must play all five rounds
- **SNOWWHITE:** Characters are tiny

THE EDITORS SPEAK

SAVAGE WARRIORS

RATING 3 stars

PROS This fighter packs impressive graphics, fluid animation and loads of interesting characters.

CONS The game lacks strategic depth, and the viewing options, while unique, are generally unsatisfying.

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Alien Skeet Shoot

CHAOS CONTROL Takes Players On A Conveyer-Belt Ride Through A Shooting Gallery

by Jason Kapalka

FLYING TOASTER ATTACK Since you can't control the flight path in CHAOS CONTROL, all that's left to do is move the mouse and shoot.

There are lousy games with great graphics. There are lousy games with nice music and sound effects. There are even crummy games that distinguish themselves with elegant interfaces, neat storylines or nifty manuals. But CHAOS CONTROL, a French import from **Philips Interactive Media**, is the first bad game I know of in which the high point is the installation program.

It really is quite slick. Just slap the CD in your drive, type D:CHAOS, and you're off and running. No tinkering with IRQs and DMAs, no multi-megabyte hard-disk hogging, no memory configuration hassles. Forget Windows 95—this is as close to plug & play as I've seen.

But that's the catch: once you've plugged, you have to play, and aye, there's the rub...

SAVE ME, JESSICA!

The introduction and the cutscenes, featuring computer-generated spaceships and "Japanime"-style cartoons, aren't the problem. We've seen it all before and it's no dumber here than usual: evil extraterrestrials attack Earth; hope for all humanity rests on one stoic star pilot's shoulders, blah blah blah. The only twist is that the square-jawed hero is a female for once, one Lt. Jessica Darkhill, whose feathered blonde hairdo and combat miniskirt would look right at home in an early 80's Quiet Riot music video.

It's only when you get to the actual gameplay that you realize CHAOS CONTROL bears more resemblance to a very noisy screensaver than to any computer game we've seen before. People complained that REBEL ASSAULT, with its pre-generated flight footage, wasn't interactive enough. Well it's practically FALCON 3.0 compared to this.

Worse than REBEL ASSAULT, you have absolutely *no* control over your flight path. Essentially you're stuck watching computer-generated footage from the first-person perspective. You zoom past the Statue of Liberty. You zoom through the streets of New York. You zoom through a Tron-style virtual reality. You zoom through a half-built space station. You do a lot of zooming, but it gets pretty boring zooming through the same places in the same way every time.

The graphics are pretty, but not exactly photorealistic—everything's made up of polygons. It looks like a decent flight sim, but *feels* like you're permanently trapped in some sort of non-interactive shareware demo. Not only do you have no control over your general route, but you have no control over any aspect of your ship other than targeting. You can't crash. You can't go off course. You cannot, in fact, do anything except move your crosshairs around (with the mouse) and fire at whatever aliens blunder across your path.

The aliens, like the flight footage, are pre-recorded and attack in the same formations and patterns every time. They're so much a part of the background that they don't even really explode when shot. Instead, a fuzzy cloud of smoke is superimposed over them like in a really bad "B" movie. The "strategy" of the game, then, is basically to click on any moving object until it goes *poof*.

CHAOS CONTROL

Price: $59.95
System Requirements: IBM compatible 486-33 or better, 4 MB RAM, VGA graphics, 2x CD-ROM drive, mouse; supports Sound Blaster compatible sound cards.
Protection: None (CD-ROM)
# of Players: 1
Designer: Infogrames/ I-Motion
Publisher: Philips Interactive Media
Santa Monica, CA
(800) 443-3386

90% PERSPIRATION, 10% AGGRAVATION

Now, there have been plenty of games constructed in the same mold as CHAOS CONTROL. Arcade fans will remember a variety of similar games like STARBLADE from the late 80's, all of which relied on graphical wow-power to blind players to the fact they were engaged in an exercise slightly less complex than PONG. CHAOS CONTROL doesn't even have this manner of cheap, distracting flashiness. The audio doesn't help matters. During the, er, "flight" segments all you hear are endless laser *shwoops* and monotone commands to "*Fire...Fire...Fire.*" Meanwhile the increasingly sloppy cut-scenes look like hastily-

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dubbed foreign *animé* flicks, with a "what the hey, let 'er rip" attitude towards grammar.

Surprisingly, things get worse. I-Motion's cleverly concocted gameplay will manage to insult everyone from diehard action fans with the reflexes of a mongoose to the most uncoordinated and casual of players.

JESSICA OARKHILL, AMERICAN HERO It's refreshing to have a laser-toting female protagonist—it's just a shame that Ms. Oarkhill doesn't have a more exciting world to save.

As an experiment, I started the game and sat back to see how far I'd get without hitting a button. Pretty far, as it turns out. I was able to make it through about four fifths of any given level. But somehow, actually finishing a level requires much boring, painstaking practice.

This is because most aliens fire the nanosecond they appear on the screen, and shooting them after that will only boost your score, not preserve your armor. You have enough armor, so you'll *always* clear 90% of any given mission, regardless of what you do. But making it through that last 10% requires the tedious memorization of the locations where baddies will pop up so you can scrag them before they appear. The end result is that veteran twitch-and-shoot fans will be frustrated by how little difference their mightiest efforts make, while novice gamers and others less enchanted by the idea of "tactical" memorization will end up dying over and over and over again just as the final goal comes into view.

In the end, CHAOS CONTROL comes off like a sub-par PC translation of one of those mindless target-practice games currently popular on high-end console systems like the 3DO, which many gamers rightly sneer at for their lack of play value. For those who buy games based solely on advertisements, this game does provide one more helpful tip for the future: beware of any product whose advertisement devotes more space to a contest than the game itself.

THE EDITORS SPEAK

CHAOS CONTROL

RATING 1 star

PROS Your first impression of the game is all warm and fuzzy because of the nice, effortless installation.

CONS The depth and thrill of the gameplay is straight from the PONG school (but the students obviously slept through a few classes).

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EA's Powerplay

NHL Hockey 96 Makes The Competition Look Like Pucking History

by Gordon Goble

SNEAK PREVIEW
Game Still In Development

Every nation has its icons. In the United States, it's the bald eagle, Bill Gates, and the laser-guided bomb. Up here in Canada however, there is one entity above all else—hockey.

Foster Hewitt, the original voice of this country's Saturday night staple, "Hockey Night in Canada," died several years ago after decades of play-by-play service; needless to say, he didn't know much about computer games. But if he were around today, he just might take a shine to a product that will in all likelihood contend for 1995's Sports Game of the Year. That stunning example of programming profundity? It's named NHL Hockey 96, and for those who think this will be just another mild-mannered upgrade in the successful **EA Sports** stable, think again.

From audio to graphics to player intelligence to a magnificent front end, NHL 96 looks like it will skate circles around even its own beloved pedigree and permanently transform computer hockey.

TAKING IT TO ANOTHER LEVEL High on the list of NHL Hockey's improvements are high-resolution graphics, lifelike player caricatures and an enlarged puck.

A ROARING RINK

Subtlety is not this game's strong suit, especially in the audio department. A searing, fuzzed guitar layered over punky/funky rhythms immediately grabbed my attention, and the powerful CD-quality stereo sound throughout only became more apparent in the heat of battle. Off-target slapshots reverberating against the boards, the cheers and jeers of a resonant crowd, the ultra-realistic sound of bodies colliding, rink music that sounds just like an arena—it is all here. If you've ever attended an NHL contest within the confines of a typically cavernous arena, NHL 96 will delightfully tickle your memory.

Visually, NHL 96 will benefit from a major facelift. Off the ice, it is colorful and artistic, its interfaces filled with icons, switches, and sliders, much like its hoopster sibling, NBA Live 95. Drop down menus are no longer *en vogue*.

At the rink is where it counts, however, and here is where NHL 96 lifts this computer hockey thing to even loftier heights. Those bladed little fire hydrants of previous incarnations are pucking history; in their place are large lanky players whose graceful maneuvering and realistic use of their sticks left me slack-jawed and glassy-eyed. **Accolade's** Brett Hull 95 started pushing compu-hockey in this direction, but EA has scooped up the puck and appears to be making the rush on goal.

Now Pavel Bure has a Canuck logo on his jersey front, a number "10" on his back and a little Pavel shadow underneath him. Also underneath him are ice reflections and textures. The boards are filled with the logos of corporate sponsors, and the protective Plexiglas is slightly opaque for that "glassy" look. Allowing for the slower machines out there (read: your old 486-66), there are several detail settings, most of which are changeable on the fly. And that's a good thing, since NHL 96 will offer a high-resolution mode.

Hi-res is the way of the future, and in keeping with the times NHL Hockey is incorporating a 640x480 mode that is more wondrous than I could imagine. Even more spectacular is the fact that, even in its pre-release form, it ran quite effortlessly on a 90 MHz Pentium system.

But honestly, with the new improved graphics, gamers will find even the low-res mode to be more than satisfactory. I must admit to feeling a tad foolish when I wandered in and said "Wow, that looks

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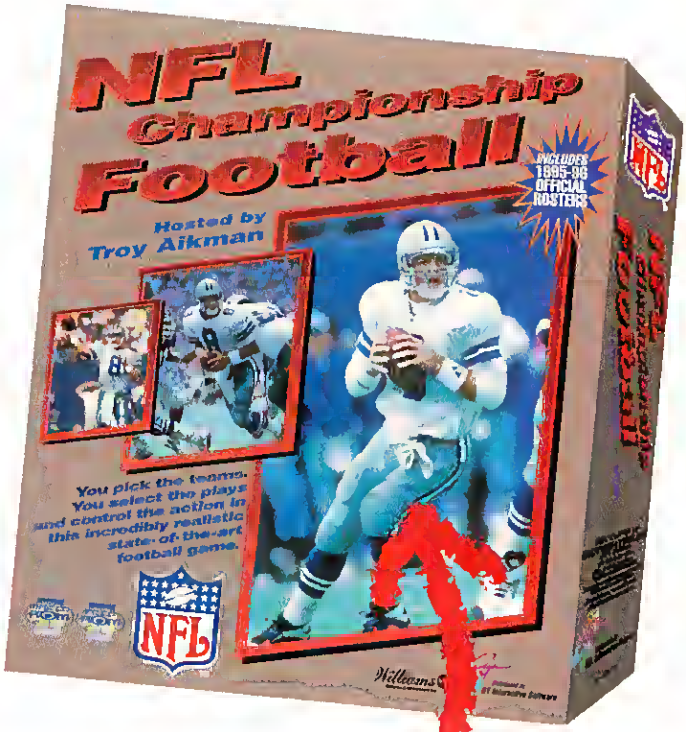

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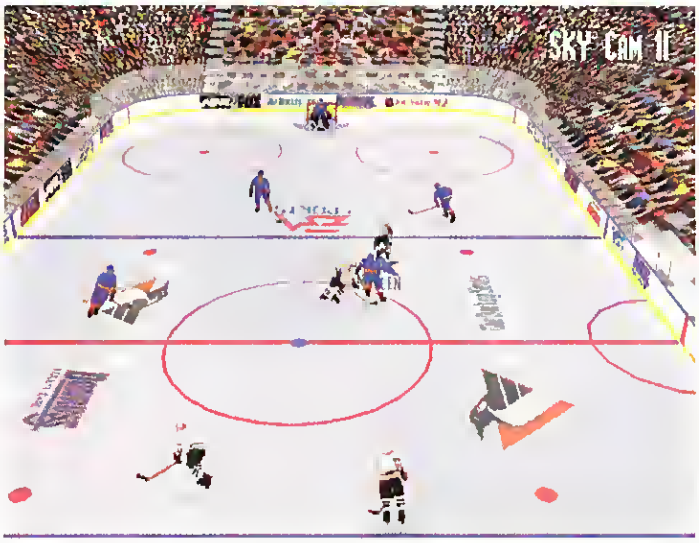
great!" only to be told I was commenting on the 320x200 mode. Superior anti-aliasing (pixel shading) techniques deserve the credit here, I was told.

ALL THE ANGLES

The scary thing is, innovations kept on hitting me, one after the other. During my first game, NHL 96 Producer Ken Sayler terrorized my efforts with yet another new feature—the free-floating camera. There I was, trying desperately to pop the biscuit in the old basket and *boom*, the camera angle shifts, and shifts again... Some of these angles, of course, are more suited to replay than gameplay, but there are still about four or five workable playing views, which is an embarrassment of riches in the realm of computer hockey.



HOT SHOTS NHL's unique swooping, soaring adjustable camera angles cast the game in a new light.

ICE HOT

But we dedicated gamers know all too well that all the above is meaningless fluff (albeit fantastic meaningless fluff) if the meat of the product ain't sizzlin'. Fortunately, if there's one thing the NHL 96 team can do, it's cook up games.

As I mentioned before, the individual player animations are pretty darn slick, with arms, legs and sticks moving together in happy concert. As for team play and an overall sense of realism, EA's pretty much nailed that too. Check out this sequence of events: with a one-man advantage, I found myself deep in the opposition's corner. The other team had gone into a defensive "*box*" formation, so I dumped a pass back to my defenseman, perched right where he should be, just inside the blue line. I deked and negotiated a quick cross-ice pass to the other pointman, who one-timed a howitzer blast toward the net. I missed, mostly because my opponent had spent some time learning the fine points of *manual goaltender control*. After all that, a *fight* broke out (yep—fighting's back). Yikes. Is this live or is it Memorex?

Although I was pleased to see just how intelligent the players have become, I was sternly warned that the AI

Electronic Artists Of The Great White North

Canadian-made through the efforts of nearly three dozen guys and gals who love their hockey, NHL Hockey 96 is just one of a gaggle of games, on several platforms, to originate from Electronic Arts' Vancouver facility. By the end of 1995, this prolific group will have pumped out NHL Hockey 96, NBA Live 96, FIFA 96, The Need For Speed and PGA Tour 96 among others, making EA Canada (EAC) the current undisputed interactive sports gaming champion of the world.

With 200-plus employees and three floors of ample modern office space (including a weight room and arcade), EAC has quickly become a powerful force. From the purchase of Vancouver's Distinctive Software Incorporated (Test Drive, Hardball) in July of 1991 (the branch has since kept expanding, hiring skilled individuals away from nearly every facet of the entertainment industry and recently adding an off-site motion-capture fa

DREAM TEAM Electronic Arts Canada has a remarkable devotion to quality hockey, racing and basketball.

cility. Today, fully one-third of Electronic Arts' total revenue is a direct result of work from the Vancouver studio.

That this group's products are now getting a has it respect from critics and gamers alike obviously has something to do with its sheer size and power—more money buys more talent. But it takes more than that. As a reviewer, there's a feeling you get when meeting with certain developers—little phrases or incidents that show they're keyed into what works and what doesn't, as well as what their target audience wants. I picked up on one such incident during my tour of the facility with NHL 96 programmer Kurt Kennett.

We were taking a breather in Kennett's cubicle when I took a gander at the wall. Plastered about his workspace and on his desk were pages and pages of photocopied reviews of NHL Hockey and its competition, each with highlighted passages, cut-outs and notations. It was like some sort of weird shrine to us journalists. Even more amazing was Kennett's spontaneous recollection of something a reviewer had written a year ago. These guys are listening.

Every
player dreams of it...

was only halfway there. Jeez... I was having a hard enough time as it was.

Veteran NHL HOCKEY fans will be happy to know that I found it difficult to replicate most of the few "vulnerable spots" that existed in NHL's previous versions. Face-off success wasn't dictated by which direction I faced, computer opponent shots-on-goal totals were palatable, and in general, "guaranteed" goal-getting plays such as my never-fail wrist shot to the corner were no longer a given. That isn't to say that there aren't some niggling problems with the game—there are—but I was told in no uncertain terms that the next month of AI fine-tuning would catch any and all such problems.

One heads-up for joystick enthusiasts: there's a bunch of very cool double-tapping player maneuvers that can only be executed with a gamepad, so get equipped.

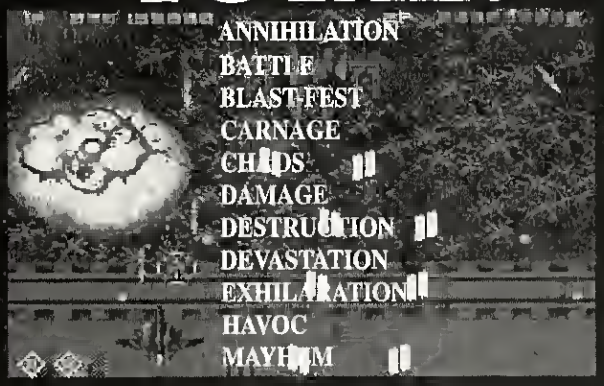
THE ICEMAN COMETH Elaborate wire frame models like this help make NHL HOCKEY's player animations come off so well.

CREATURE COMFORTS

Other notable comforts include a cumulative all-time logbook that keeps track of every moment a given human has played, independent of his chosen team, and a modem play option (14,400 baud or better) with chat mode. Three levels of play (rookie, pro, and all-star) will test the abilities of every gamer. And the rink announcer will actually mention players' names as well as their numbers. NHL 96 also includes photos of nearly all 708 NHL 96 players and DonRuss hockey cards of both the digital and hand-held variety for most of the stars.

NHL HOCKEY 96 will be released about the same time the new hockey season begins (around November). On that date, PC hockey may just be completely redefined.

TOTAL:



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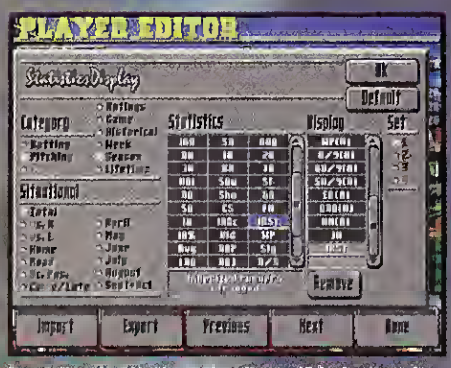

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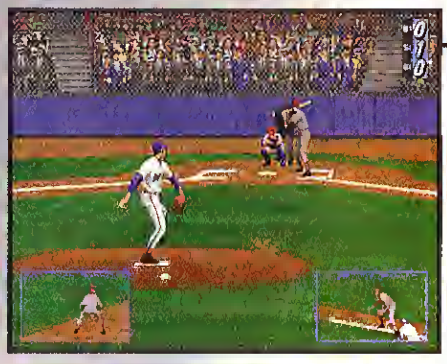

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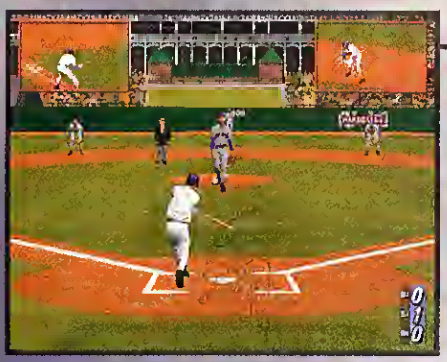

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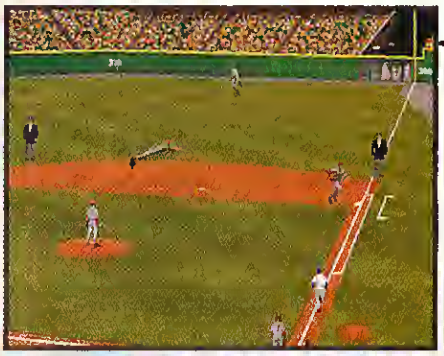

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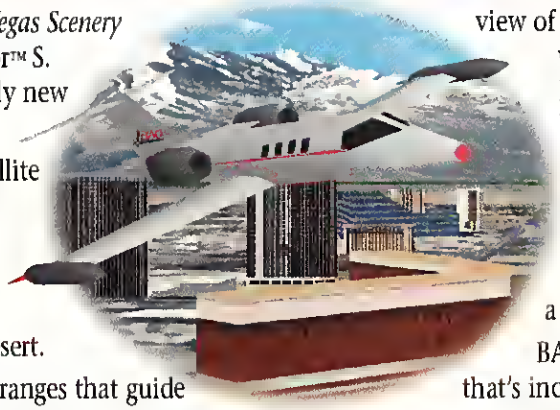

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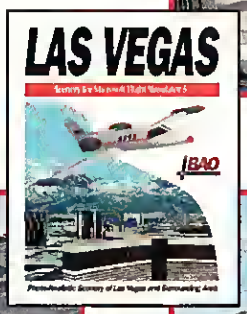

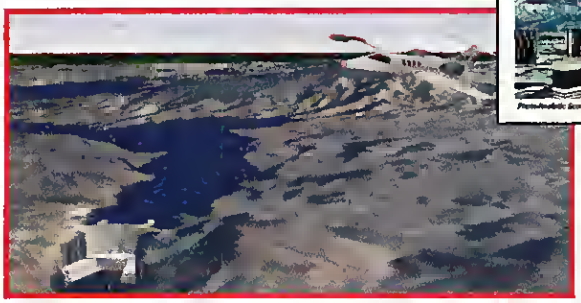

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On The Chopper Block

APACHE HELICOPTER SIMS ARE POPPING OUT OF THE TREES

by Denny Atkin

As you wander into your local software emporium this Fall, you're likely to encounter so many Apaches on the simulations shelves that you'll half-expect to turn around and see Geronimo or Cochise asking "Can I help you?" **Origin**'s AH-64D Longbow, **Interactive Magic**'s similarly named Apache Longbow, and Bryan Walker's upcoming Apache sim from **Domark** are all in the pattern. Even video gamers are getting in on the fun with an enhanced version of **MicroProse**'s venerable Gunship 2000 for the Sony PlayStation (Gunship 2000 has been the pinnacle of realistic PC helisims for the last few years, but the "Grand Old Chopper" is beginning to show its age).

Veteran fixed-wing sim pilots will be in for a shock the first time they take the controls of a simulated Apache. There are many similarities between helicopter and airplane flight, but there are just as many differences. And unless most of your sim flying has been from the cockpit of a virtual Harrier, you'll find the combat tactics of hovering are radically different than the "turn-and-burn" maneuvers you're used to.

WHIRLY 101

A helicopter's controls physically resemble those you'd find in a conventional aircraft, but due to the mechanics of helicopter flight, they work in a very different manner. I recently had a chance to tour an Army UH-60 Blackhawk base and talk with a pilot at length. He explained that at high speeds, modern helicopters like the Blackhawk and Apache can pull off many aircraft maneuvers, such as rolls and even loops. (He also explained that anyone caught doing that in a Blackhawk would very likely find themselves driving a desk—at best—when they returned to base.) At low speeds, though, helicopters handle in a manner all their own.

The joystick in a helicopter, referred to as the cyclic, looks and feels like a conventional control stick. It alters the angle of attack of the entire rotor disk (picture a plate spinning on a chopstick). At low speeds or in a hover, moving the cyclic initiates movement forward, backward, or to the sides. Once you start moving faster, the plane's rotors begin to work more like an airplane's wings, and the cyclic is used to dive, climb or bank.

To the pilot's left is the collective lever. This control governs the amount of lift that the rotor blades generate. As the blades rotate, the collective is used to alter the amount of lift by collectively changing the angle of the rotor blades. (Unlike an airplane's wings, rotor blades have the same shape on the top and the bottom, so they don't generate lift until the angle of attack is increased.) As the pilot raises the collective lever, the blades generate more lift, and the helicopter climbs. Most sims allow you to use a throttle controller to simulate the collective lever. Modern helicopters, and most sims, tie the collective and throttle together in one control.

The cyclic and collective are used together to control the helicopter's altitude and

ON THE RADAR

The full-force flight model that received accolades in Fighter Duel Pro for the Amiga is about to arrive on the PC with a new high-res graphics wrapper. Due to be released around the holidays by Philips Media, Jaeger Software's Fighter Duel is written in optimized assembly code which should give even local-bus 486 owners smooth texture-mapped graphics in 640x480 resolution. The program forgoes campaigns and missions to concentrate on pure head-to-head air combat. You'll be able to test your skill in the F4U-1 and F2G Corsairs, F6F Hellcat, P-51D Mustang, four Spitfire models, three Me-109 models, FW-190, and the ubiquitous A6M Zero.

speed. To begin forward motion, the pilot pushes the cyclic forward. As the chopper pitches forward, the rotor lift begins to be converted into forward thrust. As this happens, though, the helicopter begins to sink towards the ground, so the pilot simultaneously pulls up on the collective to generate more lift. Once the helicopter is in straight-and-level flight, the cyclic controls airspeed for the most part, while the collective controls altitude.

The third control element is a set of rudder pedals. In helicopters with conventional tail rotors, such as the Apache, the rudder pedals control the pitch of the tail rotor and are used to yaw about the vertical axis (the tail rotor is also used to counteract the torque generated from the main rotor blades; some choppers, like the Russian Hokum, use two sets of main rotor blades, spinning in opposite directions, to neutralize this rotational torque). In a hover or slow-speed travel, you'll use the pedals to turn the Apache. When traveling faster, you'll execute an airplane-like bank using the collective; pedal force can be added to tighten the turn (almost like using rudders in an airplane).

You can get by with just a joystick in most airplane sims. With helicopter sims, though, you'll do much better with both a joystick and rudder pedals, using the keyboard or, preferably, a throttle controller for the collective. If you can't spring for a full-blown **CH** or **Thrustmaster** setup, the **Gravis** PHOENIX provides all these controls in a relatively low-cost single unit.

THE RUN AND SHOOT—APACHE STYLE

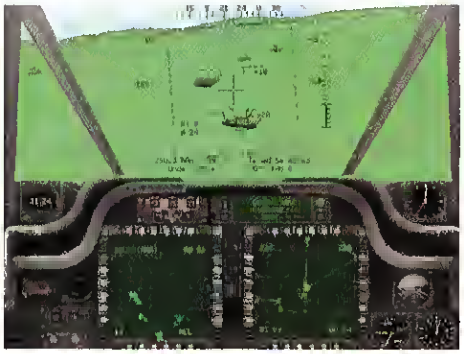
Unlike the aforementioned Blackhawk pilot, you're under no restrictions as to how you maneuver your simulated Apache. If you're chasing an enemy Hind (Russia's deadliest chopper), you may just need to do a roll to stay on his tail, and you'll be happy to know the Apache can pull it off with finesse. Some airplane-style maneuvers do come in handy. If you need to quickly gain altitude, pull back on the cyclic and the Apache will zoom upward just like a plane. Push forward to trade altitude for airspeed.

Yet helicopters have a few unique capabilities of their own. You can, for example, "put on the brakes" if a chopper's on your tail, or if you're about to become one with a large ground object. Push down on the collective while pulling back on the cyclic, using the rudder pedals to maintain heading. If you can coordinate your actions properly, the Apache will slow dramatically without losing altitude. Push forward again on the cyclic to level out.

Another fun and sometimes useful aspect of helicopters is the ability to fly sideways, or even backwards, at up to about 60 knots. Another handy maneuver if you don't have ground cover and must make strafing attack passes is the torque turn. Pull into a steep climb, and as your speed drops to zero, kick the rudder pedals to reverse your direction 180 degrees. As your speed increases, pull out of the dive.

TACTICAL CONSIDERATIONS

All of these fast maneuvers are great for general flying excitement, but they can also prove useful in an air-to-air situation. Typical helicopter combat, however, relies more on stealth and cunning than reflex. The best way to stay alive is NOE (Nap-Of-the-Earth) flying, following the contour of the terrain and using hills, trees and buildings to mask your helicopter. Altitude just makes you an easy target for SAMs, AAA, and other aircraft.



COMIN' IN FAST Closing in for the kill on a mobile anti-aircraft gun, the old fashioned way—up close and personal, in Interactive Magic's APACHE.

When you near a target, perform a pop-up, moving above your cover just long enough to target and fire, and then dropping back to safety. With the Longbow version of the Apache, though, you don't even have to pop up to select your target, thanks to the 360-degree radar and target-acquisition sight mounted on a boom above the rotor. Some missions may find your target designated by a laser from special forces troops or another helicopter; here, also, you'll only pop up to fire.

FLYING LOW AND NOE APACHE AH-64D LONGBOW from Origin boasts impressive FLIGHT UNLIMITED-like terrain detail and realistic mission planning features.

Historically, helicopters were rarely faced with dogfight situations. Sim designers, though, are likely to put you face-to-face with an angry chopper pilot defending his homeland. If you end up facing another helicopter in combat, try to take him out at range with a Stinger rather than waiting for him to get close enough to use your gun. If you're closing on an enemy chopper and he performs a braking maneuver to try to get you to overshoot, pull up hard, converting your airspeed to altitude. Then push the collective down and nose down, and you should be able to stay on his six.

If you find yourself in a head-on situation, the quickest way to turn around and give chase is to perform the equivalent of an airplane wing-over—pull a hard, banking turn with rudder-pedal assist, then dive in behind the enemy. If he ends up on your tail, performing the braking maneuver outlined above might put you in his sights as you pull up (so make sure you flare to one side as you pull up). Hopefully you'll surprise him, he'll overshoot, and you'll be able to turn back into him and take him out.

HAPPY LANDINGS

Even if you're a confirmed jet jockey or ace air warrior, give one of the new Apache sims a try. I've been flying Interactive Magic's APACHE for a couple of weeks now, and I find it a refreshing challenge, forcing me to reconsider basic flight skills and combat tactics after years of flying fixed-wing fighter sims.

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Whirlin' Dervish Of Destruction

IM's Col. "Wild Bill" Stealey (rt.) with Apache pilot Jeff Mullins

Interactive Magic's APACHE Puts A New Spin On Combat Flight Simulation

by Tom "KC" Basham

THE TEAM OF INTERACTIVE MAGIC AND DIGITAL INTEGRATION HAVE FIRED THE FIRST SHOT IN THE upcoming war of helicopter simulations. Numerous sim producers have turned their attention to the thus-far-neglected helicopter arena—a flight simulation sub-genre consisting entirely of three titles: **Nova Logic's** COMANCHE, **Electronic Art's** LHX and **MicroProse's** GUNSHIP 2000. With at least that many new helicopter simulations currently under development, I-Magic has crossed the finish line first and beat the glut of upcoming sims. APACHE visibly traces its roots back to Digital Integration's previous hard-core flight simulator, TORNADO.

NIGHT STRIKE Flying a night mission in APACHE captures the true sense and sensation of infrared image enhancement.

GRAPHIC VIOLENCE

Using a similar graphics engine to TORNADO, APACHE provides clean, crisp, and reasonably detailed 3-D polygon graphics. The graphics engine does not suffer pixelation problems faced by texture-mapped graphics styles, which devour CPU cycles while producing difficult-to-distinguish objects. Depending on whether you fly in the deserts of Yemen, the hills of Korea, the island of Cyprus or training missions at Ft. Hood, you'll find a variety of terrain and landscaping.

Most objects tend to be highly detailed, especially other helicopters and the LHA USS Tarawa, the moving amphibious assault ship used as your base of operations in Yemen. Tracers and missiles arc across the battlefield while ground forces, including neutral vehicles like cars and trucks, maneuver below. Some objects, especially fighter aircraft, seem to be drawn a little small at ranges of two to three nautical miles, but considering that your attention is usually focused on the ground, this is a minor quibble. Regardless of snow, rain, fog or dark of night, the war must go on. Accordingly, APACHE includes day, twilight, night, and foggy weather missions.

Apache

Price: $69.95
System Requirements: IBM compatible 486 33 or better, 8 MB RAM, SVGA graphics, 25 MB hard drive space, CD-ROM drive, mouse; supports most major sound cards
# of Players: 1-16
Protection: None (CD-ROM)
Designer: Rod Swift
Developer: Digital Integration
Publisher: Interactive Magic
Research Triangle Park, NC
(919) 461-0722

TAKING IT TO THE ENEMY

Each of the four theaters possess a series of missions which (as with TORNADO) can be played individually or as part of a campaign. Flight hours and mission performance are logged per "pilot." Players begin each mission on an excellent mission-planning screen. Like TORNADO's mission planner, the one in APACHE allows the usual waypoint and armament controls. You also have the option to view a simulated fly-over of the operations zone and see satellite recon photos. Missions include a variety of targets, and if you don't like your performance in one you have the option to fly it again.

Be prepared for some large firefights; during one battle in Yemen I must've encountered a few hundred enemy and allied ground units (including tanks, rocket launchers, air defenses, etc.). The sky was literally lined with tracers. This battle consumed considerable CPU time and significantly reduced the otherwise smooth frame rate. If possible, plan your mission to avoid encounters with such massive forces to keep the frame rate up.

SYSTEMS CHECK

APACHE includes a reasonably complex avionics model. During single-player games, you may switch between the Gunner and Pilot cockpits at will. Each cock-

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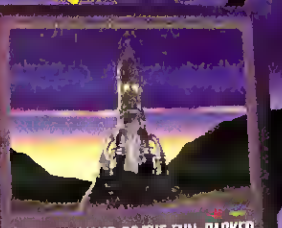

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pit has two independent multifunction displays (MFDs), letting you select four different information screens simultaneously. Primarily, you depend on the Integrated Helmet and Display Sight System (IHADSS) which, mounted to the pilot's helmet, acts like heads-up displays (HUDs) found in other combat aircraft. During normal flight, the IHADSS fills the forward cockpit view like a traditional HUD and targets weapons anywhere around the helicopter. The IHADSS displays all necessary flight and target information with one notable exception: it lacks the real AH-64's sideways velocity indicator. This complicated some tasks, such as unmasking (popping out) from behind a hill and landing, as I had no accurate way to judge my sideways velocity.

A dedicated Helmet Tracking View removes all cockpit artwork. In this mode, only the IHADSS symbology appears and weapons are automatically targeted to the object nearest the center of the IHADSS display. As the helicopter turns (or the display is rotated), target locks switch allowing virtual Apache pilots to target weapons "where they turn their head" like real Apache pilots. The Pilot Night Vision System (PNVS), or night vision equipment, is available in all display modes. Although I spent most combat time using the helmet-mounted view, I found its "automatic target selection" feature a little difficult to use with the chaingun. Often, the chaingun would destroy a target, the IHADSS would automatically select the next target, and the chaingun would damage or destroy it before I could let off the trigger. This led to a few reprimands when I inadvertently destroyed a few friendly vehicles operating near the enemy (and *nobody* likes reprimands for that!). Additionally, the Target Acquisition and Designation Sight (TADS) adds three additional visual displays with varying magnification levels: a telescopic Direct Visual Optics (DVO), Forward Looking Infra Red (FLIR), and Day TV (DTV) which provides a television image magnified between 28x and 126x. Although not as complex as a real AH-64, APACHE's weapon system provides a reasonable approximation of a real crew's workload, and its avionics suite is one of Apache's strongest features.

MISSION PLANNING The mission planning interface is packed full of goodies, from animated NOE (Nap Of the Earth) fly-throughs, to sophisticated waypoint management and weapons management controls, all in movable SVGA windows.

PACKIN' HEAT

Carrying laser-and radar-guided Hellfire missiles along with Hydra rockets and the cham gun, APACHE presents numerous firing systems. For example, users can ripple fire laser-guided Hellfires and redirect missiles to new targets in flight. Players can pop over a hill and "freeze" the radar display. Ducking behind the hill, the player can fire radar-guided Hellfires over the hill based on the frozen radar display, although the player must unmask and update the radar image before the missiles arrive at their targets.

SIM VS. REALITY

The burning question with any flight simulator is always, "how does it fly." APACHE flies pretty well. Despite a few oversights, APACHE gives a better representation of helicopter flight than any other PC helicopter simulation to date. The real AH-64 includes numerous "flight modes" which basically dictate how the tail follows the nose and how the pilot must use the pedals during flight. APACHE includes only one such mode, but arguably the most important, which generally keeps the tail behind the aircraft without requiring pedal inputs unless the pilot specifically wants to yaw the aircraft.

Collective, cyclic, and pedal controls all operate as expected. Control adjustments usually require compensating adjustments in other controls. Pitching the nose down with the cyclic accelerates the helicopter but requires additional collective to maintain altitude. The automatic flight mode, however, counteracts torque changes thereby minimizing the amount of compensating pedal movements.

Translational lift effects appear to be present, but ground effect appears to be absent. I could find no indication of ground effect over any terrain type. At 72% collective, APACHE's helicopter would take off and indefinitely climb. The manual explains that hovering requires less collective beneath 50' but I was unable to reproduce that effect. More importantly, this helicopter can accelerate forward with the nose pitched as much as two degrees above the horizon. Real helicopters cannot do that.

MISSION COMPLETED

APACHE is clearly targeted for the "hard core" realism audience with significant emphasis on weapons, avionics, and flying. Like all simulations, Apache has some errors and concessions in the flight model; however, it generally gives a very good representation of helicopter flight. The game has excellent multiplayer options, including the ability to let two players fly together as a single Apache crew. While it may not qualify you to fly a real AH-64, it gives a better sensation of helicopter flight than any of its predecessors.

THE EDITORS SPEAK

APACHE

RATING 4½

PROS Clean graphics (up to 600x800 res), decent flight model, excellent avionics, great mission planner and multi-player options make APACHE the king of the helicopter heap, for now at least.

CONS The flight model contains a few errors. The lack of a sideslip visual queue and problems with the automatic target selector in the helmet-mounted display keep this sim from being all it could be.

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Circle Reader Service #250

Send In The Marines

The Navy Gets Some Help from Harriers With MARINE FIGHTERS

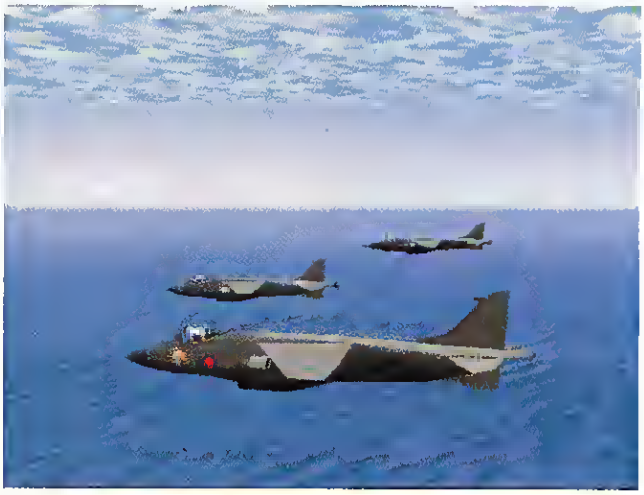
by Denny Atkin

THERE ARE FASTER PLANES THAN THE HARRIER. THERE ARE MORE MANEUVERABLE PLANES THAN THE HARRIER. There are certainly sexier planes than the Harrier. But I dare you to try and find a plane that's as cool as the Harrier. This Vertical/Short Take-Off and Landing (VSTOL) attack jet has fascinated aviation buffs since its inception, and its unique flight characteristics make it a popular choice for sim pilots.

In fact, some sim buffs were so anxious to fly the Harrier that they discovered ways to patch **Electronic Arts'** U.S. NAVY FIGHTERS (USNF) to allow flying a crippled version of the plane. Now the chocks are off, and the MARINE FIGHTERS data disk for USNF adds two fully flyable Harriers to the sim's stable of aircraft, as well as the Russian YAK-141 Freestyle VSTOL fighter, and—a simulation first—the AC-130U Spectre gunship.

You also get a new arena to test your flying skills in. The Russian/Ukrainian war from USNF has spread to the Kuril Islands, which the U.S. has pledged to help Japan liberate from Russian control in exchange for Japanese participation in the larger war.

All of these additions don't make for a radically different experience—MARINE FIGHTERS looks and plays about the same as USNF. That's not a slight, though, as USNF still ranks as one of the best jet combat sims available today, and it's a great foundation to build on. MARINE FIGHTERS fine-tunes and expands upon a good thing.



HURRYING HARRIERS Utilizing your wingmen properly can make all the difference in successfully completing an intercept mission.

STRAIGHT UP

MOST MARINE FIGHTERS missions start on the deck of the U.S.S. Wasp, an amphibious assault ship that carries Harriers and helicopters, or from forward camps with tiny dirt runways. With no catapult or arrester gear available, you'll need to take advantage of the Harrier's VSTOL capabilities to get into the air and land—or so you'd think. The MARINE FIGHTERS manual includes instructions on using thrust vectoring for short takeoffs, but actually all you have to do is give the Harrier or Freestyle full thrust with the engines vectored straight back, and the jet pops off the carrier deck just as it would with the proper 40-degree thrust vector. Landings are more as you'd expect, with realistic vertical landing performance that's affected by your plane's fuel and weapons load.

Once you're in the air, the flight models are of the high standard set by USNF, complete with stalls, spins, altitude effects, varying turning performance, and so on. Harrier pilots can take advantage of the adjustable exhaust nozzles on their planes, which can rotate up to 100 degrees from the horizontal, and use Vectoring In Forward Flight (VIFFing) for an air-combat advantage. By adjusting nozzle angles, Harriers can stop on a dime, quickly translate left and right, and even fly slowly backwards. While VIFFing is interesting to try in guns-only one-on-one engagements, traditional maneuvers work just as well in the campaign missions.

Most missions are best flown in the McDonnell Douglas AV-8B Harrier II Plus, the plane with the heaviest load-carrying capability. Occasionally the BAe Sea Harrier FRS.Mk 2, a version optimized for air defense and naval strike, is the better choice. You can also choose the YAK-141 Freestyle, a supersonic jet with a traditional rear exhaust and special lift fans

Marine Fighters

Price: $29.95 (requires US NAVY FIGHTERS)
System Requirements: IBM compatible 486-33 or better, 8MB RAM, SVGA graphics, 24 MB hard drive space, CD-RDM, mouse; supports most major sound cards
# of Players: 1
Protection: None (CD-ROM)
Designer: Brent Iverson
Publisher: Electronic Arts
San Mateo, CA
(415) 571-7171

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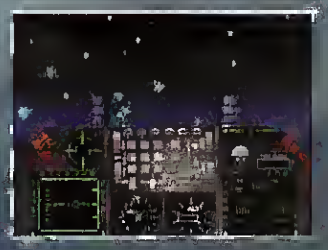

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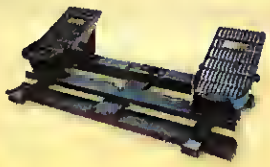

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for VSTOL, but its small load-carrying capabilities make it a poor option for the most part.

The other new flyable plane, the AC-130U Spectre gunship, isn't actually used in any of the campaign missions, but can be selected in the mission builders. While the experience of flying a large transport rigged as a gunship is exciting just because it's a sim first, MARINE FIGHTERS' implementation of the plane feels incomplete, with no targeting information available from the right view, where the side-firing guns are located. Flying the plane while looking out the side and manually aiming the guns is quite a challenge.

CAMPAIGN 97

If you're an experienced USNF pilot looking for a challenge, the Kuril Island campaign missions won't disappoint. As in USNF, you'll be presented with a variety of ground attack, air defense, and escort missions. But these missions are tough—don't plan on completing most of them on the first try, and at least one took this experienced PC pilot 12 tries to win. You'll be faced with batteries of SAMs, squadrons of defensive fighters and, in some missions, time limits as well. Unfortunately, while the missions do follow a logical sequence, the outcome of one mission doesn't affect the scenario of the next. You wash out after failing five missions. If you enable the "Fly Any Plane" cheat, you can also fly any of the USNF Ukraine missions in the new MARINE FIGHTERS aircraft. (Try the ground-attack missions in the AC-130U if you're looking for a real challenge.) The video segments between missions aren't present in the MARINE FIGHTERS campaigns, but I can't say they're missed, either.

JUST DROPPING IN If you thought carrier traps on the *Eisenhower* were challenging, try dropping straight down onto the deck of the even smaller *Wasp*.

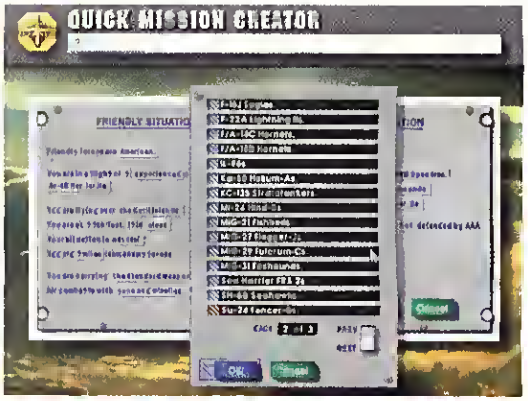
The Quick Mission builder puts you and up to two wingmen against up to 15 opponents of three types. A welcome addition is the ability to choose a custom weapons load—no more selecting an air-to-air mission only to find your plane loaded down with Mavericks. You can fly Quick Missions in either the Kuril or Ukraine theaters, and engage in standard or guns-only combat.

The Pro Mission Creator feels the same as the USNF version, allowing you to place and group air and ground targets, set mission completion requirements, and so on. In MARINE FIGHTERS, though, ground forces can attack each other, which makes for much more interesting and sophisticated scenario possibilities. You might have to protect an allied ship not only from a group of SU-24 Fencer attack aircraft, but also from Sarancha-class fast-attack missile hydrofoils. Or you might have to take out a group of tanks before they overrun a U.S. battalion.

FINE-TUNING

MARINE FIGHTERS does more than just add new planes and missions to USNF. It also serves as a tune-up pack, addressing many of the complaints about its predecessor and fine-tuning the program's playability and realism. Dozens of enhancements range from more realistic weapon and radar performance to better target selection AI by wingmen (if you tell one to attack a MiG-27 and he destroys it, he'll move on to the next one automatically). Flight models have been fine-tuned, with better stall behavior, and the radar no longer magically sees through hills.

As in USNF, there are no instrument panels, but rather pop-up Multi-Function Displays (MFDs) that appear in the corners of the screen. A new setting makes the MFDs larger in higher resolutions, a welcome addition as they were previously nearly useless in 1024x768 resolution. Other improvements include turbulence effects, a more useful radar warning receiver display and better joystick responsiveness.



CLICK AND FLY An improved Quick Mission editor lets you not only choose your opponents, but also which weapons you'll use to blow them out of the sky.

The CH FlightStick Pro is now supported, and config files are included for the Gravis Phoenix as well. If you're looking for an immersive combat experience, MARINE FIGHTERS supports the Forte VFX-1 virtual reality helmet.

CLIMBING TO NEW HEIGHTS

The best thing about the improvements in MARINE FIGHTERS is that they apply to USNF as well. If you go back and play the original missions, you'll find the better AI and flight model improvements there as well. Not all of the limitations of USNF are addressed—I'd love to have seen a campaign where your performance affected the next missions. But there's plenty here to make the expansion disk.

THE EDITORS SPEAK

MARINE FIGHTERS

RATING ★★★★½

PROS New missions to fly, improvements to the original USNF and the chance to fly a Harrier make this add-on well worth the price.

CONS No multi-player mode and the fact that the campaign missions aren't inter-dependent keep this sim from reaching greater heights.

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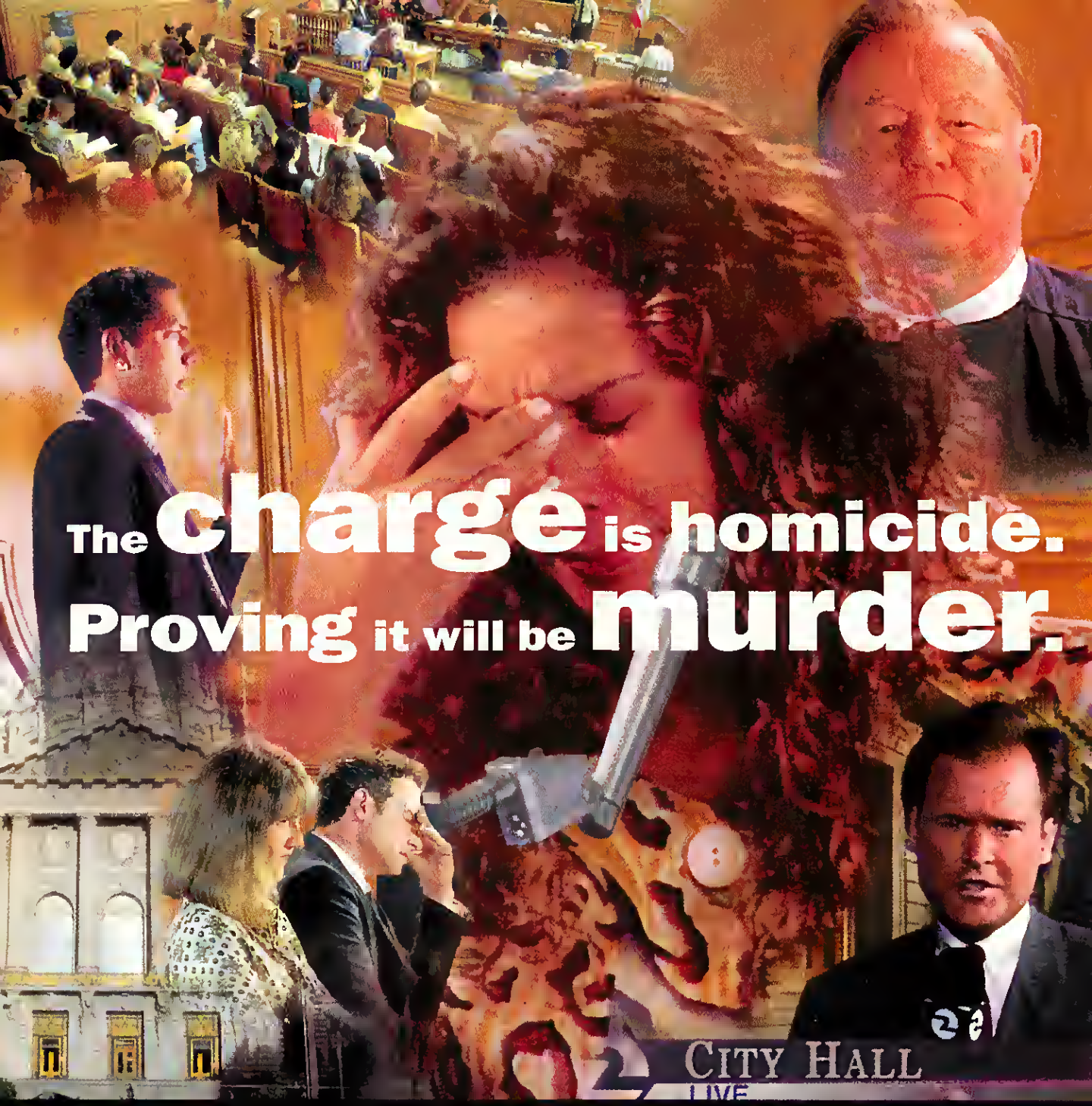

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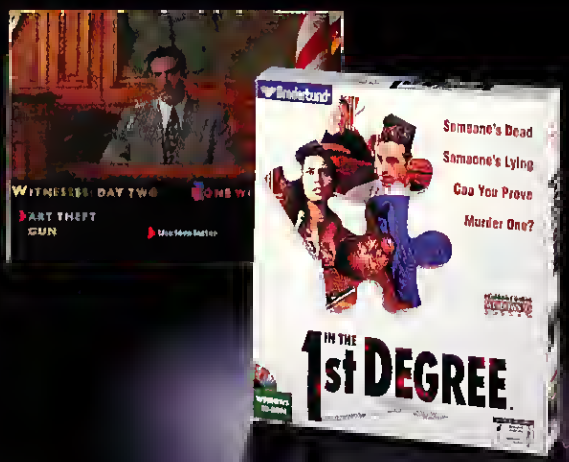

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Cracking The Wargame Code

WARGAME JARGON EXPLAINED FOR CADETS WHO WANT TO BE VETS

by Alan Emrich

UNLESS YOU GRADUATED FROM WEST POINT OR SPENT YEARS MANEUVERING COMBINED FORCES IN real or simulated wargames, the language of wargaming may sound foreign to you at times. Have you wondered what some reviewer was saying when they described a series of games as "operational-level?" What size unit is a "division," anyway? Well, there are simple answers to these questions, and the good news is you don't have to be admitted to The Citadel to learn them.

There are several advantages to learning the jargon of wargaming, in addition to being able to talk shop with the grognards (an old French word for wargaming veteran from "to grumble"). Knowing the vernacular will help you find the wargame at the battle scale you prefer playing, as well as help you decipher some of the more pedantic (though valuable) tips we offer in our strategy articles. In short, gamers who know the terminology are like gamers who know the history: better prepared to enjoy the games and able to get more out of them.

There is no need to throw up your hands when you read vivid discussions of Caesar's legions, Napoleon's guard, and Rommel's panzers, or get nervous when you hear the words "Order of Battle" (OOB). With a little help, you can decipher some of that jargon and get more out of your wargaming experience. Veterans of this subject are urged to share this primer with interested observers and new recruits.

BEHOLD, THE UNIT

The term "unit" is synonymous with "playing piece" in a war or strategy game. Boardgamers also call them "counters" from the days when they were cardboard pieces, but what they really do is represent a military formation of a certain type and size. For example, one type of piece (unit) that you could manipulate in a game might be a cavalry brigade. Thus, this unit is composed of cavalry (you know, armed guys on horses), and represents a number of men organized into a formation known as a "brigade."

Okay, you can handle that a unit is a playing piece, and you have a pretty good idea what cavalry is. So, "What is a brigade?" I hear you ask. Ah, here is where the mystery religion of military organization gets exposed. The definitions of military groups have been around since Napoleon's time, the grand

G-2

* At the Origins game convention, we got some hands-on time with TalonSoft's first release, BATTLEGROUND: ARDENNES. This platoon-level wargame covers the Battle of the Bulge, and offers the traditional "counter" look, along with more miniatures-like iconic unit depictions. The "Battleview" feature that allows players to zoom in and view the game as if the player were looking at the battle from atop a nearby hill is sure to be a hit piece of eye-candy for jaded wargamers. The BATTLEGROUND game engine seems versatile enough to translate to other eras of tactical warfare. Soon to come are BATTLEGROUND: GETTYSBURG and then BATTLEGROUND: WATERLOO. For more information, contact TalonSoft at (410) 821-7282.

* Scott Hamilton at HPS Simulations is taking the improved interface and game mechanics of PANTHERS IN THE SHADOWS and putting them into the flagship game of the series, TIGERS ON THE PROWL. Version 1.2 of TIGERS is available directly from HPS (or on CompuServe and GEnie).

(continued on page 230)

G-2 *(continued from page 229)*

* Spectrum HoloByte bought out SimTex Software, the company that brought us MASTER OF ORION, MASTER OF MAGIC and 1830. The deal involved Spectrum paying SimTex's price largely in Spectrum common stock. It looks like SimTex and MicroProse will be wedded and producing games for a long time to come.

* WARLORDS II DELUXE has been essentially completed by SSG, but some changes in the manufacturing process have delayed its release in the United States. That means that the gears will be shifting back toward their own Bulge game, THE LAST BLITZKRIEG. In typical SSG fashion, the strength of the artificial opponent continues to grow, as do the many player options. The latest rumor is that online play will be added prior to release.

* Frank Hunter, who took us down THE ROAD FROM SUMTER TO APPOMATTOX, says that progress is being made on his Napoleonic epic. The scope of the project is being narrowed, and the new working title is THE ROAD FROM ULM TO WATERLOO (covering the years of the French Empire, 1805 to 1815). Since we're still waiting for the classic *Empires in Arms* to be converted to the computer by Avalon Hill, Frank's game should be a welcome treat for fans of Old Boney.

* At Arsenal Publishing, TACOPS for Windows is "coming soon." This modern tactical combat game is a must for aficionados of this subject. Arsenal is also busy working on PANZERS EAST, RUSSIAN FRONT (1941 to 1945). The map scale is five meters per pixel (half that of TACOPS) with highly accurate terrain maps over which to campaign. This one will be released for both Macintosh and Windows users.

* Congratulations to the 1994 Origins Award-winning computer games. SIMCITY 2000 won in the category of Best Military or Strategy Computer Game of 1994, while DOOM II took the Best Fantasy or Science Fiction Computer Game award.

* Many people are wondering what Spectrum HoloByte was thinking when they issued a press release announcing that GEnie would be the online home of MAGIC: THE GATHERING. This MicroProse computer conversion of the smash hit collectable trading card game is a sizzling-hot property, so people are wondering how Spectrum could "hide" it on one of the smaller networks. It seems that GEnie's good relationship with Simutronics, who are doing the online conversion of MAGIC, made for an easy initial deal with the online network. What people are failing to notice is that nowhere has this agreement been described as *exclusive*. Gamers can expect to be building decks and trading cards on networks other than GEnie, especially considering the fact that MicroProse has laid off all the DOS programmers who were originally working on the project and brought in hot-shot Windows programmers to rework the product. Can you spell Microsoft Network?

era of military organization (see chart below).

Note that some formations are made up of multiple units of the next smaller size, but they have more total soldiers. That is because of the additional personnel required to operate that higher formation unit. For example, a platoon is generally composed of three squads. Let's say that each squad has a full compliment of 18 soldiers; 3 x 18 = 54. So how can a platoon have 60 soldiers? Simple; at that higher level of command, more officers and support personnel become involved in supporting that group of three squads (i.e., that platoon). The higher up you go, the more support personnel become involved in everything from command decisions to supply and logistics. Think of this manpower inflation as the glue that holds echelons of troops together.

Symbol	Unit Size	Strength
.	Fireteam	3 to 10 soldiers
..	Squad or Section	6 to 18 soldiers
...	Platoon	30 to 60 soldiers (3 Squads)
I	Company	100 to 300 soldiers (3 or 4 Platoons)
II	Battalion	400 to 1,200 soldiers (3 or 4 Companies)
III	Regiment*	1,200 to 3,500 soldiers (3 or 4 Battalions)
X	Brigade*	2,500 to 5,000 soldiers (2 Regiments, usually with additional supporting Battalions)
XX	Division	6,000 to 20,000 soldiers (3 or 4 Regiments or Brigades)
XXX	Corps	20,000 to 70,000 soldiers (2 to 4 or more Divisions)
XXXX	Army	50,000 to 250,000 soldiers (2 or more Corps)
XXXXX	Army Group or Front	125,000+ soldiers (2 or more Armies)

* = According to Jim Dunnigan in his *Complete Wargames Handbook* (William Morrow, 1992), "The main difference between a regiment and a brigade is that a brigade is often a bit larger than a regiment and capable of operating independently, while a regiment is normally part of a division."

SINGING THE SCALES

The scale of a game and its corresponding vernacular, such as the word "tactical," is a bit less precise. A game's scale is defined by three important elements: the size of the units (i.e., how many soldiers are represented by each piece), the amount of time each turn of the game simulates, and the ground (i.e., map) scale.

Tactical games cover small-scale actions. Every unit represents anywhere from an individual soldier or vehicle, upwards in size all the way to a platoon. The space occupied by an individual unit (i.e., the "hex" or "square" area on the map where the unit is located in the game) can be anywhere in scale from one meter across to about 400 meters. Each turn usually represents anywhere from 20 seconds to 12 minutes. Tactical games generally feature short battles for the control of hilltops and towns, and the morale and panic levels of units is a paramount concern. Examples: STEEL PANTHERS (SSI) and PERFECT GENERAL II (QQP).

Grand Tactical games cover the gray area between tactical and operational levels. Although "tactics" (the precise maneuver of units) is still paramount,

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"strategy" (the allocation of resources on a broad scale) starts to come into play. Grand tactical games often cover a large battle (such as Waterloo, Gettysburg, or the D-Day landings) with units anywhere in size from companies to regiments or brigades. Game turns usually represent between 10 minutes and an hour or two of real time. Grand Tactical games focus on winning a single important battle, so the objectives often include capturing key sites on the battlefield, having a favorable casualty ratio, and breaking the opponent's army before your own army's morale cracks. Examples: FIELDS OF GLORY (**Spectrum HoloByte**) and BATTLES OF NAPOLEON (**SSI**).

Operational games represent a further tipping of the scale from Grand Tactical. At an operational scale, tactics become less important than strategy. Here, a player would control units representing battalions up to divisions, and groups of ships or aircraft. The ground scale is usually in the 10 to 50 kilometer range, and the time scale is usually between a day and a week. Morale is usually factored into broader ratings for each unit at this level. Generally, opposing armies try to outmaneuver each other where they can, and outslug each other where they can't. Obviously, a good operational-level commander knows the difference. Examples: PANZER GENERAL (**SSI**) and FIFTH FLEET (**AH**).

Strategic level games usually deal with "big picture operations," such as the entire European theater of war, including logistics or economics. They feature units representing corps, armies, and army groups on the ground, entire fleets at sea, and entire air forces. The map scale is often 150+ kilometers per hex/square range (sometimes much more), with game turns representing weeks to months to seasons to even a year or more. At this scale, the players often control the political and diplomatic functions of a nation as well. These games tend to reward the player who manages to get the biggest masses of troops and equipment at the right place at the right time rather than focusing on subtle maneuvers. Examples: PACIFIC WAR (**SSI**), CLASH OF STEEL (**SSI**) and THE BLUE & THE GREY (**Impressions**).

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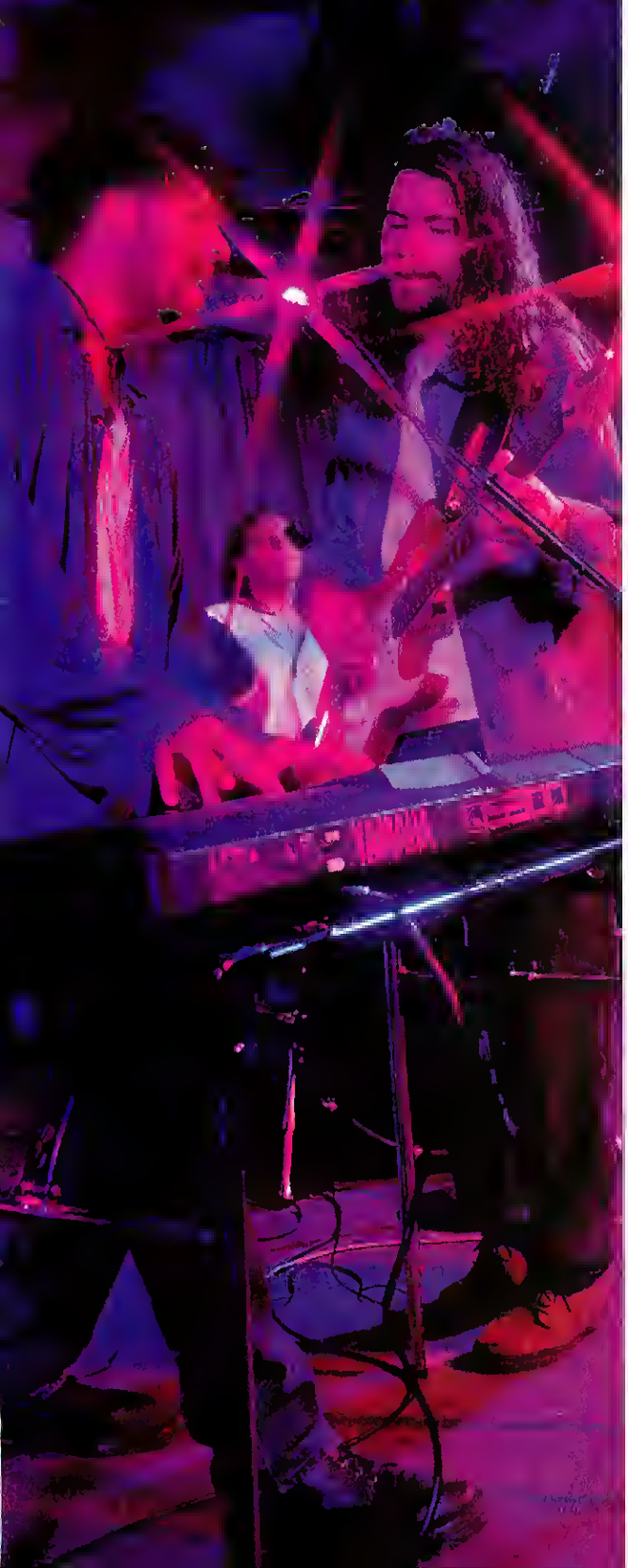

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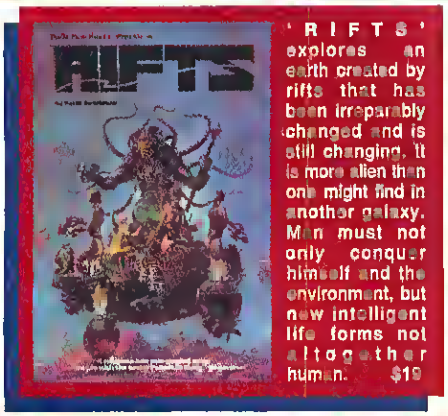

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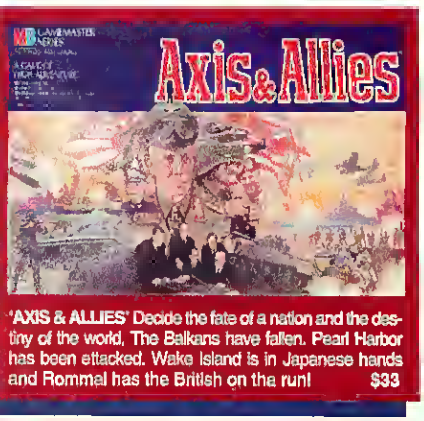

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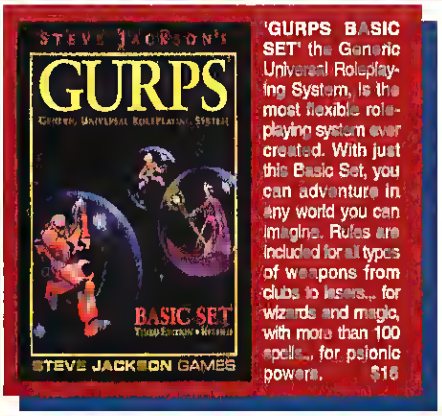

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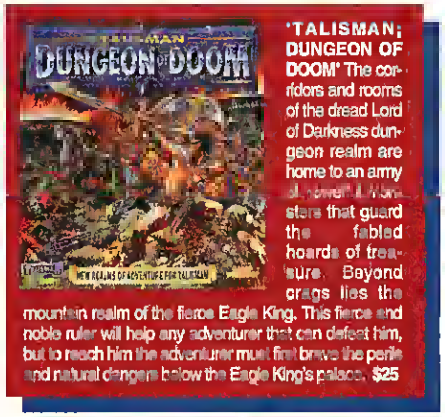

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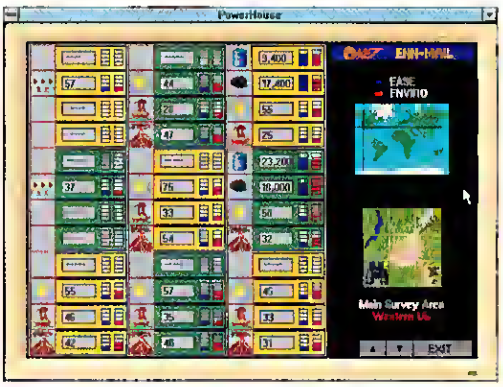
Falling Futures

Life As An Energy Czar Is Anything But Electrifying In POWERHOUSE

by Martin E. Cirulis



SURVEY-O-RAMA The survey report shows the anticipated output and environmental damage potential for the eight regions surrounding your initial survey site.

I HATE IT WHEN I'M RIGHT. IN MY AUGUST "*WHAT'S THE DEAL WITH...*" COLUMN, I BEMOANED THAT IN OUR industry, the word "playtesting" has come to mean "debugging," rather than a refinement and tweaking of the gameplay experience. **Impressions,** a company that is, unfortunately, developing a reputation for great ideas but poor follow-through, fails to break their trend with a new game of global energy production and economic dominance, aptly named POWERHOUSE. While most of the trappings of a good economic strategy game are here, they are left hanging, loosely joined—like a good suit on a scarecrow.

POWER TO THE PEOPLE

POWERHOUSE is set in 2020, when all of the worst nightmares of those nutty right-wing conspiracy guys have come true: The UN has taken over and there is a New World Order. Yes, folks, in just 15 years the United Nations will have gone from a confused bunch of self-interested suits, unable to agree on which shoe to tie first, to a world-governing force capable of abolishing all the world's energy resource companies, and replacing them with only four supra-national Corporations—the PowerHouses. You, of course, are one of the four commerce geniuses selected to head an energy corporation, and you have the two-fold responsibility of providing the people of Earth with electrical power and, ultimately, crushing your three competitors in order to utterly dominate the energy production industry.

This energy-starved world has been divvied up by the UN into a number of large regions which, except for the one initial territory where the PowerHouses are setting up shop, are closed to exploitation at the beginning of the game. Once the energy needs of a territory are met, usually around the 75% capacity level, the UN will open another territory bordering the "developed" land. In this way, you are forced to consider a series of localized strategies, instead of just meandering all over the world exploiting you can get (as it works in the real world). Of course, the game never really explains how the people in the unopened territories stay warm and read at night.

POWERHOUSE

Price: $69.95
System Requirements: IBM compatible 386 (486 or better recommended), 4 MB RAM, 256 Color SVGA, 640 x 480 color monitor, Windows 3.1, MPC-1 CD-RDM (2x or better CD-ROM recommended); supports Windows-compatible sound cards
# of Players: 1
Protection: None (CD-RDM)
Designers: David Lester and Chris Foster
Publisher: Impressions
Cambridge, MA
(800) 545-7677

Once a territory is open, the player allocates survey teams to determine what each square will yield (the world actually consisting of little square tiles containing a single terrain type). Survey teams, after three turns, reveal the four highest yield types of energy available, both in the square they occupy and in the surrounding eight squares; since most territories consist of at least a hundred-odd squares, it's usually a good idea to hire at least three survey teams, and possibly a couple more when you can afford it. Energy production types are much the same as they are today and players can choose to exploit Oil, Coal, Nuclear, Hydroelectric, Solar, Wind, Geothermal or Wave power in a square, depending what their survey teams reveal.

You then decide what kind of production facility is best and where to put it. After paying for the land rights, you place your first "rig" (a single facility) on the "site," which can contain up to ten rigs. Players can budget research for increasing their technology in each of the energy categories, or in subsidiary equipment such as Transformers, Capacitors, Refineries, or Generators. Once a site is in production, the player will receive a million dollars for every energy unit they provide to the territory in which the site is located.

If it were just a matter of seeking out the best energy sites and building the right kind of rig, things would be simple enough. But players must also pay upkeep on all their rigs, pay surveyors and researchers, absorb the cost of improving older technology, cut each territory a royalty on each site within their

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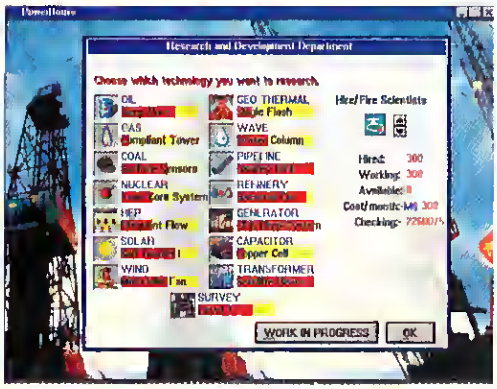

INDUSTRIAL-STRENGTH POWER-UPS PowerHouse offers an excellent number of options for energy production. But the play is so unbalanced that this "Work in progress" button offers an unfortunate epitaph.

borders, and worry about hostile takeovers and bank loans. And, of course, the battered environment is not forgotten, each type of site having its own enviro-damage rating: fossil fuel sites generally being the worst, but Nuclear sites the most expensive to clean up. If a player allows a site to become too dirty, not only will fines be incurred (luckily for would-be planet-ravagers, the EPA of the future seems as crippled as the current version and, consequently, fines are usually trivial), but a poor environmental record will lower your reputation with territorial governments and they will, in turn, buy less power from you, given a choice.

All this, combined with the odd revolution, hostile stock buy-outs and sneaky sabotage attempts against the competition, and anybody would assume that a player would be kept sweating and happy for weeks at a time. Unfortunately, sometimes the whole is far less than the sum of the parts.

STOCK MARKET CRASH

The problem with PowerHouse it that is has an incredibly high "Who Cares?" factor, where the game is so out of balance with itself that many otherwise interesting features are irrelevant to actual gameplay. The default setting for PowerHouse is 100 years of play. By the tenth year (already *120 turns*) of the game, the average player is so rich that any problems incurred are irrelevant. This is true even on the game's highest difficulty setting. The first three years are the most interesting, when you have to carefully measure money coming in with expenses and R&D—here an exploding Nuclear plant can seriously damage your reputation, as it is unlikely you will have the $15 billion or so required to clean it up, and leaving glowing citizens lying around for a few years will seriously damage your ability to do business in a territory. When you are worth a trillion dollars, however, this is not so much of a problem. Even an entire territory suffering a revolution and nationalizing all your sites means only a trivial dent in your cash flow by the time you're even a quarter of the way through a full game.

A major contributor to this "easy money" problem is the ridiculously high efficiency of the renewable energy sources like sun, wind and tidal. Even at the lowest tech levels, there is no real need to resort to fossil fuels which require at least a generator site to produce money, run out quickly and have high environmental costs. In this world, the Gulf War would have been fought over broken solar mirrors, not burning oil wells.

The stock market system is completely useless. Stocks are either ridiculously cheap when you need to raise money, or so expensive nobody can afford to buy them. Likewise, the debt system is far too generous, as players can run a couple billion dollars in debt with no real effect on their profit curve. Also, there is a huge advantage based on player order within a turn—a player going first in a turn can easily build enough energy sites to monopolize a territory before the next player can compete. All of these oversights, which should have been easily identifiable to a playtester looking at the *game* instead of the *program*, leave an actual player asking "Who Cares?" long before this game is finished.

A COST BENEFIT ANALYSIS

In the end, regardless how slick the production, how neat the video clips and how convenient a Windows interface can be for a strategy game, PowerHouse is another game released before its time. The game system needs a lot of fine-tuning, and even the program is pretty buggy. One of the bugs is a cardinal sin for a Windows application; it sometimes boots you back out to DOS on exiting a game. While a patch disk could go far in making this game enjoyable to play, I'm afraid it suffers from the same fatal flaw that many business sims have—the failure to create increasing challenges to go along with the player's increasing bank account.

Like Transport Tycoon before it, PowerHouse is fun for those initial few years of struggle; but once you hit a plateau of success early on in the game, you are left with an interminable stretch of time where your biggest challenge is trying to figure out what to buy with all your riches. Unless Impressions announces a big fix for this game, it might be best to let your computer play the last 97 years of PowerHouse, while you go off and find a few friends in order to play Monopoly.

THE EDITORS SPEAK

POWERHOUSE

RATING 2.5

PROS PowerHouse offers an intriguing twist on the economic strategy game concept. The first few years of a game provide a decent challenge...

CONS ...but the last 90+ years of a game are repetitious and uninteresting. The play balance is too far off to maintain player interest for long.

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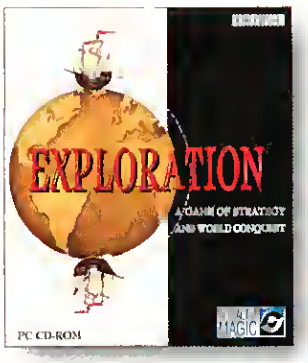

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So Sioux Me!

CUSTER'S LAST COMMAND Lets You Ride Into The Battle Of Little Bighorn On A Cavalry Mare Or On A Sioux Stallion

by Alan Emrich

ONE HUNDERD AND TWENTY YEARS AGO, ON JUNE 25, 1876, LIEUTENANT COLONEL GEORGE ARMstrong Custer had the ultimate bad hair day. His long, curly golden locks were resting upon Crazy Horse's totem pole by nightfall. Sure, the heat was bad when that detachment of Custer's 7th Cavalry closed in on Sitting Bull's Indian village in the late afternoon, but things got considerably hotter for both sides once the Army's raid began. As Custer and the remnants of his men fell back across the Little Big Horn river and rallied on a knoll that would forever be known as Last Stand Hill, they shot their horses and used them for barricades. What were Custer's immortal last words while going down and outnumbered by 10 to 1? "Take no prisoners, men!"

LAST STAND MAN

Incredible Simulations lets you relive those gory days of yesteryear with their new CUSTER'S LAST COMMAND. Incredible Simulations, the folks who brought us DEFEND THE ALAMO!, are becoming known for their last stand simulations. (Their next effort, tentatively titled DAY OF THE ZULU, will be a Zulu War double feature: Isandhlwana and Rorke's Drift.) Like their distributor, **HPS Simulations**, Incredible Simulations is largely a one-man show. The star of these last-stand computer wargames is Jeff Lapkoff, who does everything from game design and programming to art and sound.

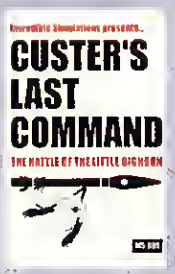
For those of you who remember the Alamo (DEFEND THE ALAMO!, that is), CUSTER'S LAST COMMAND is several steps up from that first effort. An attractive multi-color map with large, legible units adorns the screen. Using a hexagon grid (rather than ALAMO's square-based grid), units can take on different guises (mounted, dismounted, broken, etc.) and each has a distinctive look on the display.

In addition to a plethora of historical "What if?" options that a player can choose from before commencing play, CUSTER also allows the human player to be either, neither (you can just watch the computer battle it all out), or both sides. There is even a play-by-E-mail option (of which I plan to take full advantage). I even found the still frame shots that adorn the combat result windows, and the brief sound effects, still enhancing play after considerable repetition, long after I would have disabled these features in similar games.

THE GATLIN' BROTHERS A pair of gatling gun units at near-full strength look out over the scenic Little Big Horn River.

CUSTER'S LAST COMMAND

Price: $44.95
System Requirements: IBM Compatible 286 (386 or better recommended), 2 MB RAM, VGA, 3.5 MB free hard drive space, mouse; supports all Sound Blaster compatible sound cards.
# of Players: 1 or 2 (with PBEM capability)
Protection: Document check
Design: Incredible Simulations
Distributor: HPS Simulations
(408) 554-8381



The game starts at 3 p.m. on that fateful day in history, with each game turn representing five minutes of real time. Units are sections of 20 to 30 men, and the ground scale is 100 yards per hex. Losses are handled in increments of five men. The U.S. 7th Cavalry is organized into battalions—led by Lt. Col. George Armstrong Custer, Capt. Frederick Benteen, and Maj. Marcus Reno—while the Sioux-Cheyenne warriors are more loosely grouped into tribes and led by the enigmatic (and never photographed) Crazy Horse.

By about 4 p.m., the Indian village will get a clue that the "boys in blue" are drawing near. Until they are spotted, however, the cavalry is free to maneuver. Thus, there is a pre-game phase in which the U.S. Army player can arrange his forces *just so*, before letting the hammer fall.

Once spotted, the braves start to mobilize at the rate of 25 - 50% per turn. Initially, only those near the advancing blue coats will wake up and smell the gunpowder, but the word spreads at the rate of three hexes per turn. Within an hour, all of the braves are armed and looking for blood.

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In the meantime, "The Golden Cavalier" has to rack up every victory point he can manage. This means doing as much damage to the Indian campsites as possible (hopefully, taking them out before they fully mobilize a troop of braves), and, in particular, scattering the Indian's horse herds so that they can only mobilize foot units nearby. Another key target is picking off Sitting Bull and Crazy Horse. The trick for Custer, though, is to know when to get his horse's ass outta there (literally), and head for the high ground across the Little Big Horn river. Lingering one turn too many is the knife-edge difference between victory and defeat.

Whether or not the Indians pursue Custer across the Little Big Horn (as they did historically) is a variable determined by: how mad they are (i.e., how many campsites were destroyed); how much the Indians outnumber the cavalry; and the status of Sitting Bull and Crazy Horse. If the boys in blue are forced into a last stand, with luck they can still inflict enough casualties on the Indians to get them to call a halt for the day (thereby minimizing the Indian player's victory point opportunities).

BRING ON THE CAVALRY Custer's own cavalry unit wages a skirmish against some hapless Sioux and Cheyenne braves while the U.S. Army still holds the battle advantage.

Both sides have some interesting tactical goodies in their toolbox. Cavalry units have both considerable firepower when dismounted and the ability to conduct charges under certain circumstances in the open terrain near the Indian village. For their part, the Indians are partially armed with rifles, and can opt to use the ground cover for better protection.

> *Oh, they were sure of victory, the men of the 7th Cavalry as they rode on. And from the rear, a voice was heard; a brave young man with a trembling word rang loud and clear, "What am I doin' here!?"*
>
> *—Hey, Mr. Custer, I Don't Wanna Go*

The AI in CUSTER plays a very respectable game. When playing the cavalry, the computer tends to think and act with battalion sized groups of units. When a battalion reaches a 35% casualty rate, it starts looking to withdraw from a raid. For the forces of Sitting Bull, the AI seems to manage units individually, rather than collectively. In effect, they "act like a bunch of wild Indians." However, these braves know enough tactics to find the weakest bluecoat around and attack incessantly until they eliminate it. Dogged Indian wave assaults will gain the Indians more victory points than just about any blunder Custer can make.

WAITING FOR CUSTER

More annoying than an ill-timed cavalry charge is the game's copy protection. In the initial release of the game reviewed (V1.01), play stops right in the heat of battle as one must look up a word from the (albeit interesting and well written) historical profiles booklet. Incredible Simulations is considering reducing this copy overprotection in a V1.02 that was still being prepared at press time.

Speedy players will find it monotonous waiting at the beginning of each playing session to watch the initial screens roll by (they cannot be skipped). Even more disconcerting will be the delays as certain events take place on the battlefield. For instance, from start to finish, a fire or melee attack takes about five or six seconds—an ample pause for those who enjoy perusing the battle results, but less patient players will want to hurry on to their next attack.

At the end of the day, you have to wonder where the replay value is on a game covering such a one-sided event. Although CUSTER'S LAST COMMAND was designed around a high fun factor with history as the copilot, one can only take so many massacres, right? This is where the plethora of variations that can be selected before play comes in. The biggest factor is the size of the opposing forces. For the Indians, the village warrior contingent could be either 500, 1000, 1500, or the historical 2000 braves. For the U.S. Army, the situation could be: Custer divides the 7th (historical), the 7th united, the 2nd Cavalry rides with the 7th (if united), and/or adding a couple of Gatling guns to the mix. Other options can vary weaponry, ammunition starting levels, visibility, Indian readiness, and more.

Still, while CUSTER'S LAST COMMAND is not a one-trick pony, it's only *one* pony. Unlike SSI's THE AGE OF RIFLES, there are no myriad battles offered, no campaign game, no construction kit. Many gamers might feel that they aren't getting enough for their money. For those who would balk, consider this: CUSTER offers one heck of a wild charge into glory. The fun factor is high, the replay value is good, and the historical touches are there. You'll get your nickel's worth and a real opportunity to meet your destiny in battle.

THE EDITORS SPEAK

CUSTER'S LAST COMMAND

RATING 4 starbursts

PROS Strong AI and a variety of scenario options will hold players' interest. Gritty, pretty, and fast-playing, don't expect to have any fingernails left by the battle's end.

CONS The game only covers one battle, and the lack of a construction kit limits long-term replayability. A few historical liberties were taken to enhance gameplay. The copy protection stops play mid-battle.

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Harpoon 2 1/2

Multimedia Adds Little To HARPOON II DELUXE, But A Scenario Editor Brightens The Picture

by Tim Carter

THE MERITS OF HARPOON AND HARPOON II HAVE ALREADY BEEN THE SOURCE OF CONSIDERABLE DEBATE within the computer gaming community. Some players absolutely love the attention to detail and the ability to micro-manage fleets of modern warships, while others cite the relatively weak AI and slow gameplay as critical flaws. Into the middle of this controversy comes HARPOON II MULTIMEDIA, part of the recent trend to release a CD version with additional graphics and sound. As with many "enhanced" products, however, these effects add little to the original game engine.

Players can now watch their aircraft take off, listen to verbal reports and radio chatter, and see a new range of missile launch and missile impact graphics. Still, the video for each sequence is very short; and even with the additional library of sequences, the overall effect becomes repetitive quickly. Given that HARPOON II is a complex wargame which emphasizes careful management over action and speed, the value of a multimedia upgrade is rather low. Gameplay is not really enhanced by the additional bells and whistles; the focus on multimedia seems misplaced, particularly in the case of a product loaded with potential but suffering from many structural flaws.

WINDOW OF OPPORTUNITY The multi-windowed interface is little changed from the original HARPOON II, but does offer a more accessible database.

Harpoon II Deluxe Multimedia

Price: $69.95
System Requirements: IBM compatible 386 or better (486 highly recommended), 4MB RAM, 30 MB hard drive space, VESA-compatible SVGA graphics, CD-ROM drive (2x or better recommended), mouse; supports Sound Blaster compatible sound cards.
Protection: None
Developer: 360 Pacific
Publisher: IntraCorp Inc
Miami, FL
(800) 468-7226

The heart of the multimedia package remains HARPOON II. And if you are one of those who didn't like the original, you are not likely to favor the multimedia version. Game mechanics have not changed significantly, and any revisions are limited to trying to make the original features work properly. Some bugs have been fixed, although others seem to have been created in the process, and on the whole the differences between this and the earlier versions are minimal.

The game is still very slow, and players will experience frustration with the AI and the modeling of some weapons systems. The Russian ASW weapons in particular seem to have a glitch, as NATO submarines are sunk in many scenarios before they should even be detected. Aircraft still do very strange things. Mission planning and editing is as likely to generate bizarre pilot behavior as it is an effective attack.

Backing up your game frequently is still a good idea, as the multimedia version crashed on me about as often as the original—which is to say pretty often. **Intracorp** also forgot to include the quick reference command card with the first few thousand copies they shipped. The problem has now been corrected, and cards can be obtained by calling the company directly or by sending e-mail.

NEW PLAYROOMS

The real value in this package lies in the scenarios and the scenario editor. The scenario editor both ensures that aficionados have an endless supply of new and interesting situations to experiment with and capitalizes on the creative instincts of gamers eager to put their own ideas to use. Given the rather appalling artificial intelligence routines that come with HARPOON II, the scenario editor also allows players to add some much needed play-balance to their games. Winning regularly? Give the Soviets another squadron of Backfire bombers after each game until the required level of tension (not to mention carnage) is attained.

Scenario construction is fairly easy, and is assisted by an extensive tutorial. The tutorial could have explained some logis-

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MAKING WAVES Ships, planes and weaponry are beautifully portrayed, but even so, they add little to the game.

tical details better, especially in terms of constructing land facilities and supplying and outfitting aircraft. Some would-be scenario creators have also reported confusion when building larger air campaigns. On the whole, though, given the inherent complexity of the game the scenario editor does not represent a major increase in either complexity or difficulty.

Scenarios are constructed through a series of steps which give the builder an amazing amount of freedom. For instance, virtually the first step in creating a scenario is entering in the boundaries of the battlefield—in longitude and latitude. Any section of the earth may be used, and the battle can range over entire oceans or very small sectors. Consistent with the rest of the game, map creation is very slow, and a large or irregularly-shaped area took up to 20 minutes to generate on my 486-66.

Any platform in the database may be used, and players may outfit carriers and bases with the aircraft and supplies as they see fit. It definitely would have been nice to have standard outfits which could then be tinkered with, but I suspect that most HARPOON players have the necessary supporting documentation to perform their own modifications.

Task forces may be constructed, and initial paths pre-plotted. I particularly liked the ability to pre-program aircraft missions—by having them start the game in the air—thereby helping the AI out somewhat in managing its air assets. Since variable start points for units may also be plotted, it is possible to build in some nasty surprises for human opponents. Would-be designers also have considerable flexibility in creating victory conditions: final destinations may be set; amount of damage required to incapacitate or sink enemy units may be varied; or mission criteria for success may be altered.

HARPOON II DELUXE MULTIMEDIA is an important, albeit mislabeled, addition to the HARPOON line. While the basic game system has not changed, and little is gained by the extra animation and sound, the new scenarios and the scenario editor should give HARPOON II a considerable lifespan on the hard drives of the converted. For those who did not like the original or HARPOON II, however, this package is unlikely to change your mind.

THE EDITORS SPEAK

HARPOON II DELUXE MULTIMEDIA

RATING

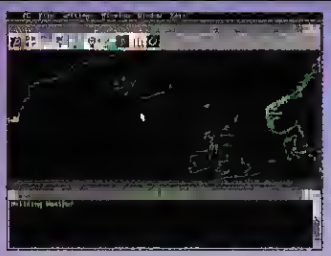
PROS There are lots of new scenarios, some even better than in the original HARPOON II. The scenario editor is fairly easy to use, and adds a lot to replayability.

CONS The weak AI hasn't really been improved, the game is slow and crashes often, and the multimedia add-ons are mere fluff.

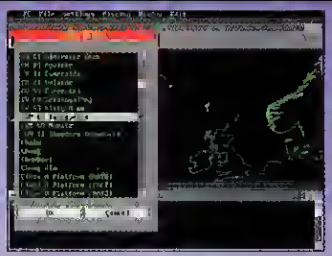
NAVAL HARDWARE 101

Using HARPOON II's New Scenario Editor

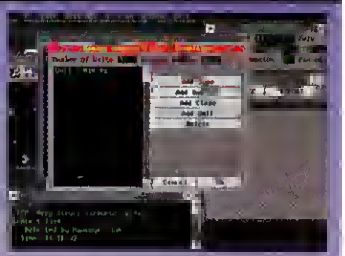
▲ The main reason to purchase HARPOON II DELUXE MULTIMEDIA is the powerful scenario editor, something HARPOON fans have always wanted. Scenario design is handled through a series of easy to use pull-down menus. Each menu handles a different component of design, allowing for easy revision of your work in progress. A bit of advice: save often—there are still crashes which can wipe out hours of brilliant ideas.



▲ Maps are created simply by entering latitude and longitude, as in this North Sea scenario. Since map generation can be quite slow, I'll go fix a sandwich while I wait for the editor to make the complex weather adjustments. Even with the delays, the flexibility of picking any area of the world as a combat zone, and then being able to adjust the size and scale of the map, is worth it for the unlimited number of battlefields it gives you.



▲ You may select any of the units from the vast HARPOON II database. While there are no limitations on mixing and matching nationalities, this can make it difficult to identify which platforms belong to which country. Since there are no default platforms for each country, obscure navies (especially those of the Third World) might require a quick trip to the library for a perusal of the latest *Jane's Fighting Ships* or other reference.



▲ Finally, you need to select your target—and how much it's worth. Victory conditions can be centered upon destroying specific enemy ships, patrolling waypoints, or capturing islands or ports. Of course, if you simply want to blow the enemy out of the water, more generic conditions, such as sink all enemy ships, or lose no friendly vessels, may also be selected. Now you can actually have balanced Harpoon II scenarios!

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While designed for all levels of wargamers, Panthers In The Shadows is not recommended for first-time gamers without some understanding of military forces and operations.

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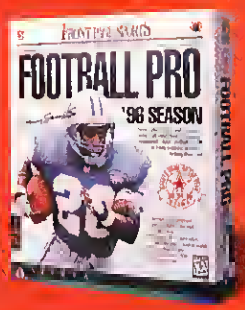

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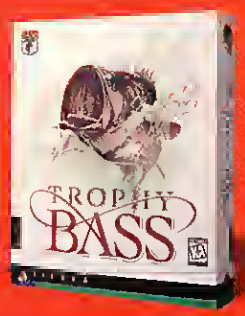

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Killin' For A Livin'

Though Ye Walk In The Jungle Of JAGGED ALLIANCE, Ye Shall Fear No Evil, Once Yer Bad To The Bone

by Jeff James

As addictive and playable as SIR-TECH's JAGGED ALLIANCE can be, frustration may lurk around the corner. Like many JAGGED ALLIANCE (JA) players, I'd been lulled into a false sense of security by the relative ease in which the first few sectors in the game were conquered. Unfortunately, this blitzkrieg of early victories soon turned into a series of disorganized routs, with my hapless mercs being gunned down by hordes of Lucas Santino's ruffians. After restarting the game several times and tinkering with a variety of tactics and strategies, I slowly began to make ground in my quest for fallow tree sap. After a few dozen more hours of play I managed to foil Santino's evil plans, and the tactics that I purchased with my mercenaries' blood should help you harvest more sap while taking less crap.

CHOOSING A TEAM

Your first task in JA is to hire an effective team of mercenaries. Putting together a diverse, skilled team of mercs is essential for success throughout the game. If your team consists of poorly skilled misfits, Santino's forces will make quick work of you. Conversely, if you opt for expensive, high-priced talent at the outset you'll be plagued by financial problems and other worries. The key to a good team is balance, especially at the start of the game. There are dozens of good choices for your first team, but several mercenaries stand out as superior choices. When choosing mercs, carefully read the short description of each before making a hiring decision; those little paragraphs often tell you more about an individual merc than ability scores or salary figures. With that in mind, here are a few recommended starters:

Starting Out: Good Grunts For Cheap

Merc	Notes	Salary
Beth	Jack of all trades, good medical skills, honest	$330
Grunty	Good marksman	$490
Hector	Good marksman, resistant to jungle heat	$410
Hurl	Jack of all trades, good medical skills, honest	$400
Ice	Excellent marksman	$1300
Speck	Excellent mechanic, poor shot	$365
Vinny	Good mechanic, decent firing accuracy	$385

As you progress into the game and can start affording more expensive talent, the following mercenaries are good mid-game additions:

Mid-Game: The Best Mercs For The Money

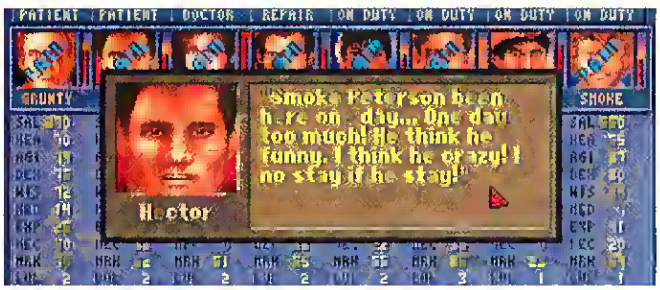
Merc	Notes	Salary
Fidel	Superb with explosives	$1,550
Ivan	Excellent marksman	$1,500
Needle	Excellent medic, good marksman	$1,900
Smoke	Good with explosives—hated by Hector	$560

As you begin approaching Santino's fortress in the northeast corner of Metavira, you may need to enlist some big guns. Here are a few recommended heavy-hitters:

End-game: The Dream Team

Merc	Notes	Salary
Magic	Excellent jack of all trades	$5,600
Mike	The ultimate hired gun	$12,000
Lynx	Excellent in almost all areas	$3,300
Scully	Next to Mike, he's the best	$7,500

Most mercenaries can improve their ability scores through use. When hiring, keep in mind that younger mercenaries with high wisdom scores will have a greater chance to improve their ability scores over the course of play. On a related note, avoid hiring very old mercs like Pops and Bernie. These characters are too old to benefit from any ability score increases during the game, while some may even *lose* points from ability scores during play.



CAN'T WE ALL JUST GET ALONG? Interpersonal relationships should be a factor in your hiring decisions. Hector hates Smoke, and he'll let you hear about it.

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After you've assembled a team, try to keep at least 6-7 mercs active at all times. Any less and you run the risk of not having enough men for the job. Maxing out your squad at eight mercs may seem like a good idea, but it will prevent you from utilizing one of the best deals in the game: native guides.

If you have less than eight mercs in your squad, Jack may offer the services of a native guide for free. There are four native guides available, and they'll be offered in this order: Elio, Hamous, Juan and Wahan. You'll only be offered one guide at a time, and once the last guide (Wahan) is killed, no other native guides will be offered. None of these natives are particularly skilled, but they do offer a number of important advantages. They are free, for one, easing the strain on your bottom line. They also know the island very well, and will give you hints, tips and advice on nearly every sector. They're all lousy shots (except for Hamous), so you can best utilize them in combat by having them use grenades. They're also good at lugging around the extra equipment and weapons you come across during play.

Tip! **Only give money to trustworthy individuals like Beth or Hurl, or native guides like Hamous and Elio. If you give too much money to a dishonest lout (like Vinny or Jimmy, for example), he may leave your squad and walk off with the cash.**

SAFE CORNER Sector 60 (in the bottom right corner) is safe from attack. Enemy soldiers (and your own!) can't attack on a diagonal.

COMBAT TACTICS

Once you've put together a mercenary dream team that would make even the most jaded third-world dictator turn green with envy, it's time to send your hired guns out into the jungles of Metavira to do battle with Santino and his goons. Before you enter the first enemy sector, you should develop a cohesive strategy dealing with how you should advance across Metavira. Here are some strategic level-tips that should help.

Be Aggressive—In order to do well in JAGGED ALLIANCE (especially at the "Hard" difficulty setting) you should strive to capture 2-3 sectors per day. If you can't secure this many, try to capture at least one per day. Any less than this and you run the risk of letting the game get away from you.

On a related note, try to always put one mercenary in the field each day. If you don't send anyone out, the native workers will become unhappy. After all, why should they be getting killed while Jack's big-shot hired guns are snoozing back at camp? This dissatisfaction will translate into guards walking off the job, making you pay them more to rehire them.

Remember, at the beginning of the game you only have a limited number of native workers, resulting in a small payroll budget. As the game develops, you'll need more guards and tappers. If you're forced to pay dozens of workers $60 a day for their services, your bottom line will soon be drowning in a sea of red ink. This quickly becomes a deadly downward spiral as you're forced to use fewer mercenaries to take more sectors to make ends meet.

SING FOR ME A snitch will let you know what the other mercs are thinking.

Plan Your Attack—When attacking an enemy sector, carefully analyze the strategic map to determine the best route of attack. Entering a sector in the middle of a

Tip! **Although you can't normally save a game during combat, there is a way around this. In combat mode, hit ALT-X to go to DOS, then select OK when the program asks if you want to "save the day in progress." Exit out to DOS, start the game again, and you'll be able to reload the game from the point you just saved.**

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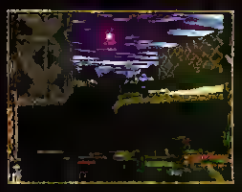

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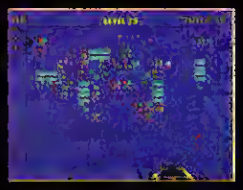

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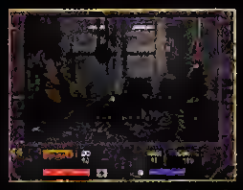

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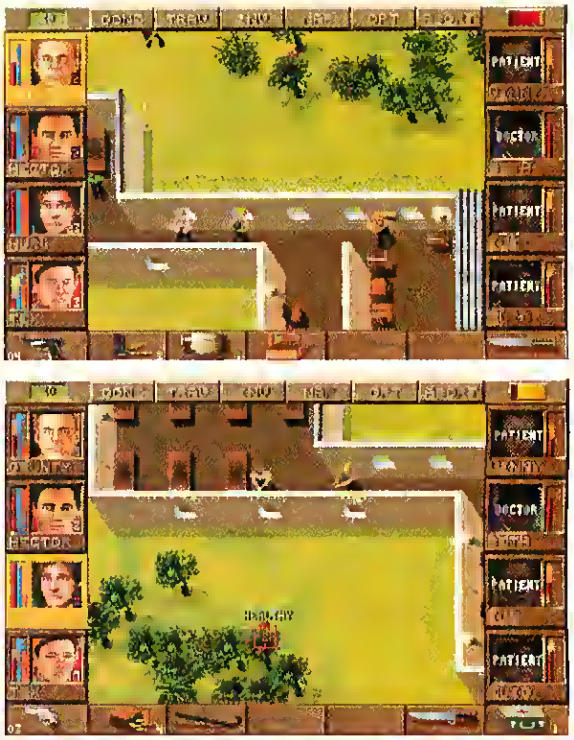
map edge is usually a bad idea, as it exposes your troops to fire from the front and both sides. Instead, enter a new sector as close to a corner as possible, which will restrict the areas from which your team can be fired upon. Effective use of terrain is also vitally important. Walking into a sector without any shrubs, tree or other cover nearby is a sure-fire recipe for disaster. Likewise, avoid entering a sector from a direction that would force your squad to pass through water or across a bridge. At times this is unavoidable, but limit this behavior as much as possible.

Managing Guards—Native guards can't hold a candle to the skilled mercenaries at your disposal, but they are an effective barrier defense against Santino's forces. Try to keep a full complement of eight guards in every sector which Santino's men could possibly attack, keeping surplus guards in sectors behind the front lines. A sector can only be attacked from a sector with which it shares a common border. In other words, only sectors to the East, West, North and South can be attacked—attacking diagonally is prohibited. You can use this to your advantage by placing guards only in sectors which Santino can attack directly.

As soon as your band of mercenaries has captured an enemy territory, you should immediately move native guards forward to defend that territory. When moving guards into territories, keep in mind that they have to physically travel from one sector to the other. If a large body of water separates the guards from their destination, many may drown or be killed by poisonous snakes while crossing. Stay in the territory until the guards arrive to ensure that it is defended at all times.

Tactical Combat—Whenever you enter a sector occupied by the enemy, you'll immediately be placed in combat mode. When moving through the sector, try to keep all your mercs hidden behind bushes and other cover as much as possible. It's also a good idea to keep your soldiers a fair distance apart, minimizing the chance that they'll all he wounded by a single grenade attack. If at all possible, avoid crossing open terrain, bridges or rivers. The latter can be especially dangerous, especially if your mercs can't swim or have poor agility.



REMEMBER THE ALAMO! Here's a good way to keep mercs behind cover while defending a territory (*top*). Buildings also make ideal ambush sites where you can lead Santino's goons right into the crosshairs of your waiting mercenaries.

In addition to the risk of drowning, mercs can be attacked and killed by poisonous water snakes. To help defend against this, make sure every merc carries a knife of some sort.

SNAKE FOOD Another merc falls victim to a poisonous water snake.

Instead of searching for the enemy, it may be advantageous to make them come looking for you. Using a building or a thick copse of trees as a hiding place for your soldiers, have one merc run out into the open and start firing at the nearest enemy. As soon as that merc is fired upon, have him retreat back into the ambush area.

The enemy will almost certainly follow, allowing your hidden soldiers to open fire when the enemy gets close enough. The enemy reacts strongly to sounds of all types, so use gunshots, thrown rocks and other distractions to get their attention.

EQUIPMENT AND WEAPONS

Unlike their real-world equivalents, your mercenaries will have an extremely difficult time obtaining the weapons and equipment they need. Instead of taking a shopping cart through the aisles of a local gun shop, your mercs must go out into the field and fight for equipment. As they make their way across Metavira, they'll come across a wide variety of equipment, ranging from rusty crowbars to M16 Rifles. It helps to make the most of the equipment you have, so a few hints and tips may apply.

Most of the equipment you recover from the field will be damaged. In order to repair the item to full effectiveness, you must have a mercenary with a toolbox and a high mechanic skill spend a day repairing the item. Having a "stay-at-home" mechanic who concentrates solely on repairing damaged equipment can be

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a godsend. Speck is the obvious choice for this role, with a high mechanic skill (99), outstanding wisdom (86) and a meager salary ($365).

In addition to repairing damaged equipment, you can use a mechanic like Speck to combine items to make new, more useful objects. For example, combining a chunk of steel with a Colt .45 will create a modified CoIt .45 with longer range and greater damage potential.

USEFUL ITEM COMBINATIONS

Colt .45 + Chunk of steel* =	Modified Colt .45
9mm Beretta + Chunk of steel* =	Modified 9mm Beretta
.357 Magnum + Chunk of steel* =	Modified .357 Magnum
M14 Rifle + Chunk of steel* =	Modified M14 Rifle
M16 Rifle + Chunk of steel* =	Modified M16 Rifle
Glass jar + rag+ gasoline + oil =	Molotov cocktail
Compound 17 + Defensive gear =	Treated defensive gear (e.g., Treated kevlar vest, etc.)

* = Chunks of steel can usually be found in sectors 46 and 49.

In addition to combining items together, you can also use items together without combining them. For example, a sniper scope can easily be attached to most weapons and handguns simply by dropping it into the gray attachment box under a merc's primary weapon. Silencers—which are essential to some of the quest missions, particularly the rescue of Brenda Richards—are fitted on weapons in a similar fashion.

MAKE MY DAY Combining a chunk of steel with a .357 Magnum yields a hand cannon that would do Dirty Harry proud.

Tip! If you can't seem to open a door with a key, lockpick or crowbar, you can usually use guns and explosives to batter your way in. On flimsy wooden doors (like those found in most of the early sectors), a few shots from a .38 at close range should do the trick. On tougher doors, throw a grenade directly at the door to pop it open. On metal doors, you may have to resort to using TNT and plastic explosives to get the job done.

QUEST MISSIONS

Some JAGGED ALLIANCE players have been having trouble with a number of the quest missions, most notably the first quest for the micro-purifier and the mission involving the kidnapping of Brenda Richards. In nearly all quest missions, speed is paramount to success. Jack will often give you a substantial bonus for finishing a quest mission quickly.

Micro-purifier—The micro-purifier will always be either in sector 50 or 59, so killing all the guards in both of those sectors should be your first priority.

Kidnapping of Brenda Richards—When Brenda Richards is kidnapped, time is of the essence. Santino's men will usually take her to sector 24 and hold her there. When rescuing Brenda, it's imperative that your mercs be as quiet as possible. I usually rely on a small team of fast and deadly mercs, like Ice and Ivan, for this mission. To keep them stealthy I usually equip each merc with a silenced firearm (usually a 9mm Beretta or a modified .357 Magnum) and a combat knife.

MADNESS IN METAVIRA!

If you've defeated Santino and are on the lookout for more Metavirian madness, look for JAGGED ALLIANCE HEAD-TO-HEAD, a new multiplayer add-on pack from Sir-Tech that features new sectors, new mercenaries and modem, serial and network play.

FUN WITH HIRED GUNS Two mercs go mano-a-mano with handguns at close range.

Just for grins, try doing some of these: with one merc active, hold down the CTRL key until the mouse pointer turns into a white hand. Move the hand over to another merc and left-click. Goose! Or, when in normal move mode, select one merc and have him shoot another. The other merc should immediately turn and return fire.

If you'd like to swap Metavirian war stories with the author of this strategy article, contact Jeff James at 74774.1635@compuserve.com.

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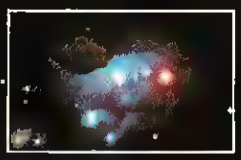

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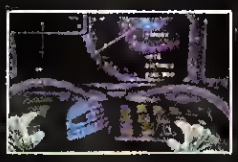

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TAKE 2 INTERACTIVE SOFTWARE

Circle Reader Service #192

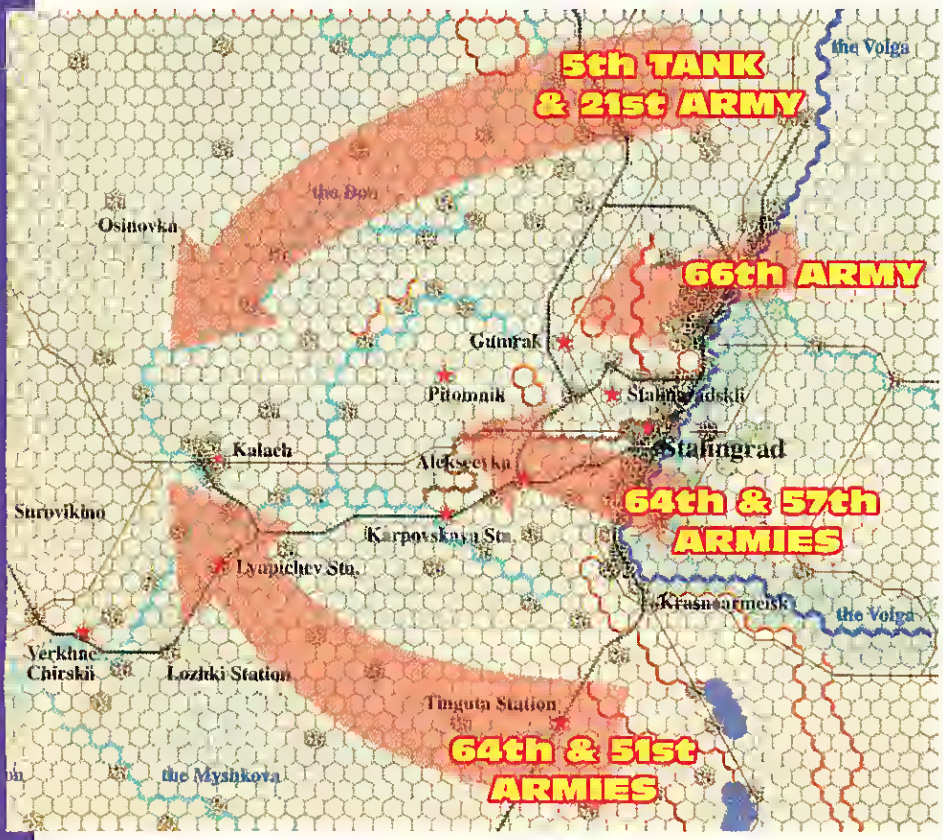
Vaulting O'er The Volga

Ensnaring The German 6th Army In Avalon Hill's STALINGRAD

by Robert Mayer

Greetings, Comrade Colonel. You are tired of running from the Germans, no? Yes, I agree that we have given ground for long enough. But this time, our enemy has over-reached himself. Our valiant defense of Stalingrad has led Paulus into a trap from which we will not let him escape. The fate of the war rests now in our hands...

IN AVALON HILL/ATOMIC GAMES' STALINGRAD, THE GAME CAN SOMETIMES SEEM AS LONG AND BRUTAL AS the real-life affair, especially the campaign game, which comprises some 188 turns. Just trying to figure out what to do next can be difficult, not to mention remembering where everyone is and what they are supposed to be doing on a game map of over 9,800 three-kilometer hexes! Hopeful generals should take heart, however; there are ways to tame this monster and bring home the victor's laurels.



The Soviets have the burden of the offensive in the campaign scenario, and have to encircle and destroy the German forces on the Volga while fending off determined counterattacks. One third of the 188 turns come at night, when operations are severely restricted by the weather and fatigue rules. Once heavy snow sets in during the winter, daylight turns can make for slow going as well. Therefore, the Russians must move fast to establish a viable encirclement before the weather and the Germans begin to make it too difficult.

STAGE ONE: BREAKTHROUGH

Initially, Soviet forces should pierce the Axis lines and destroy as many units as possible to open up a hole for the second echelon mobile forces. If the Russians are to make Kalach in less than a week, they will have to push ruthlessly through the Romanian forces arrayed opposite of the 5th Tank and 21st Armies. Likewise, to the south of Stalingrad, the forces of the 64th and 51st Armies will have to exert themselves

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Circle Reader Service #34

strenuously to make headway against the German and Romanian troops guarding the German *6th Armee*'s flanks.

The most critical sector is that controlled by the Southwestern Front. In particular, the 5th Tank and 21st Armies have the responsibility of blasting through the 3rd Romanian Army holding the southwestern bank of the Don all the way to Kletskaya. The Southwest Front's other army, the 3rd Guards, should hold the western shoulder of the line, screening the 35th Italian Corps and its German contingent while shifting its left flank south to screen the 5th Tank as it exploits the initial breakthrough.

The 5th Tank Army is stacked: six infantry divisions, a tank corps, and a cavalry corps plus supporting units. Its job should be to punch a hole in the Romanian lines and head south and east across the Kumiak and towards Kalach as fast as treads and horseshoes will allow. Unfortunately, the infantry formations allotted to 5th Tank will probably be insufficient to open up a substantial breach in the Axis lines. You will have to commit the 1st Tank Corps to the breakout battle to force a wide enough gap through which the 8th Cavalry Corps can advance.

Employ overwhelming force to crush the Romanian defenders, who will often be dug in. Use your powerful rocket artillery units to pound selected hexes, and make the infantry assaults with at least two regiments from each attacking division. While tanks can support these assaults directly, sequence your armor in overrun attacks instead. Try positioning the 1st Tank Corps with one of the Guards divisions so that the three tank brigades each has an accompanying infantry regiment. Then, plot each stack to overrun the hexes you just attacked with infantry, or to sweep behind those stacks in the hope of chopping up the retreating survivors of your assaults. By and large, reserve your cavalry for exploitation, as they lack the strength to fight set piece battles.

Tip! **Remember, a stack can overrun even if only one unit in the stack is actually armor. A tank brigade paired with a Guards infantry regiment makes a slow but powerful overrun force.**

Tip! **Don't try to attack everywhere. Concentrate on key positions which, if destroyed, will open up a gap during the execution phase. Send mobile forces to overrun and exploit potential gaps—take chances!**

STAGE TWO: EXPLOITATION

After breakthroughs have been achieved, Russian armor and cavalry should race towards the Don and Chir Rivers from the north and south to pocket the Germans in the Stalingrad area. A key here is the 21st Army, a powerful force with the 3rd Guards Cavalry and 4th Tank Corps. While the IVth Romanian Corps holding south of Kletskaya is well entrenched, they can easily be flanked by the Russian mobile forces gathered just northwest of the city. Furthermore, there are several good tank brigades attached to the Don Front, that you can reattach to either the 21st Army or one of its subordinates to help in the fighting.

HEROES OF MOTHER RUSSIA The Soviet 5th Tank Army is your most important weapon, and it must plow through the Romanians if you entertain thoughts of ultimate victory.

In any case, before you is the road leading straight to Kalach—use it or lose it. Here is where those odd cavalry actually help; the horses move fairly quickly on the road, and there is little to obstruct you on your way south. Unlike the 5th Tank, which runs smack into the 48th Panzer Corps, 21st Army has a pretty clear run at the Don. Use the plentiful but short-ranged artillery to the east to help clear the Axis entrenchments, and

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Tip! **Always use artillery in large doses early in the game. There is no sense saving its firepower for later because its limited mobility may become a liability as you advance.**

try pairing the 4th Tank with the cavalry for good overrun power on your sweep to the southeast.

As in the case of the 5th Tank, after your infantry clears a breach use them to hold it open. Keep pushing your infantry forward in contact with the enemy so they cannot get away and regroup. Try to keep a regiment from each division in reserve, but don't worry unduly about your foot-sloggers. The Romanians have little counterattacking punch if you get on top of them and refuse to let up.

Once the 5th Tank and 21st Army

have blown holes through the German lines, push your mobile forces forward and use your infantry to hold the flanks. Move your Headquarters down protected corridors between infantry divisions, so as to keep your forward elements within reasonable supply distance. Don't sweat the occasional isolated Romanian or German unit; chances are they're just HQs or artillery—easy pickings.

When you find more substantial stacks of enemies, surround them with slow infantry and pound them with artillery. They will eventually give up. Your infantry is too slow to keep up with the tanks and horses, anyhow. If the German player has optional troops, particularly the November reinforcements, you will probably have to delegate the 8th Cavalry to help out in screening your right flank, and you might have to commit your own reinforcements to fend them off.

As you drive southeast, remember

The Streets Of Stalingrad

While the big right hook is crucial to Soviet success, don't forget the forces closer to Stalingrad. While the Southwestern Front sweeps down, you should be trying to pocket the Germans in Stalingrad. Your forces on the Don Front must cut off the Germans entrenched in the northern bend of the Don, using the 65th Army troops northwest and southeast of the enemy.

Simultaneously, the 24th Army, just east of the bend of the Don, should pour through the seam between the German 8th and 51st Korps. The 24th has some good units—nine infantry divisions backed up by the 16th Tank Corps and supporting armor and artillery—and should be capable of driving down the Don towards Ptomnik airfield and points southwest. Constant pressure on the 60th Motorized Division to your front can also pay off. As the Germans try to withdraw you can often make good headway towards the airfield at Gumrak.

The 66th Army, holding the north edge of Stalingrad itself, should hold tight and wait for movement to its front. When the 14th and 16th Panzer divisions begin to move out, you can usually begin a successful drive into the enemy held areas of the city. Make sure the enemy mobile forces do not get a free ride out of Stalingrad. Hound their heels even if it means losing units, because you can afford the losses and they cannot.

While the Stalingrad Front has fewer mobile formations than the other Soviet fronts, it is by no means helpless. Chuikov's 62nd Army has to stay more or less in place, keeping a foothold in Stalingrad, until it can push outward and try to trap the panzers in the northern part of the city. Once the Germans begin to leave, however, don't be afraid to push troops over the Volga and slowly retake the city. Constant pressure from the 62nd Army will make it more difficult for the Germans to make a clean break and set up defenses to the west.

To the south of Stalingrad, the 64th and 57th Armies have the responsibility of making a short left hook to cut off the German *6th Armee*. Karpovskaya Station and Alekseevka should be your goal, and you have the troops to do the job if you are careful. Hook west and north, and try to cut the lines between Kalach and the city. Link up with the 24th Army coming down from the northeast, and the Germans will be in a world of hurt even before 5th Tank and 21st Army show up.

RISE FROM THE RUBBLE Chuikov's forces must tie down Paulus' *6th Armee*. Desperate fighting often ensues around the ferries as the Germans try to extricate themselves from the city's confines.

Leaders of the Revolution

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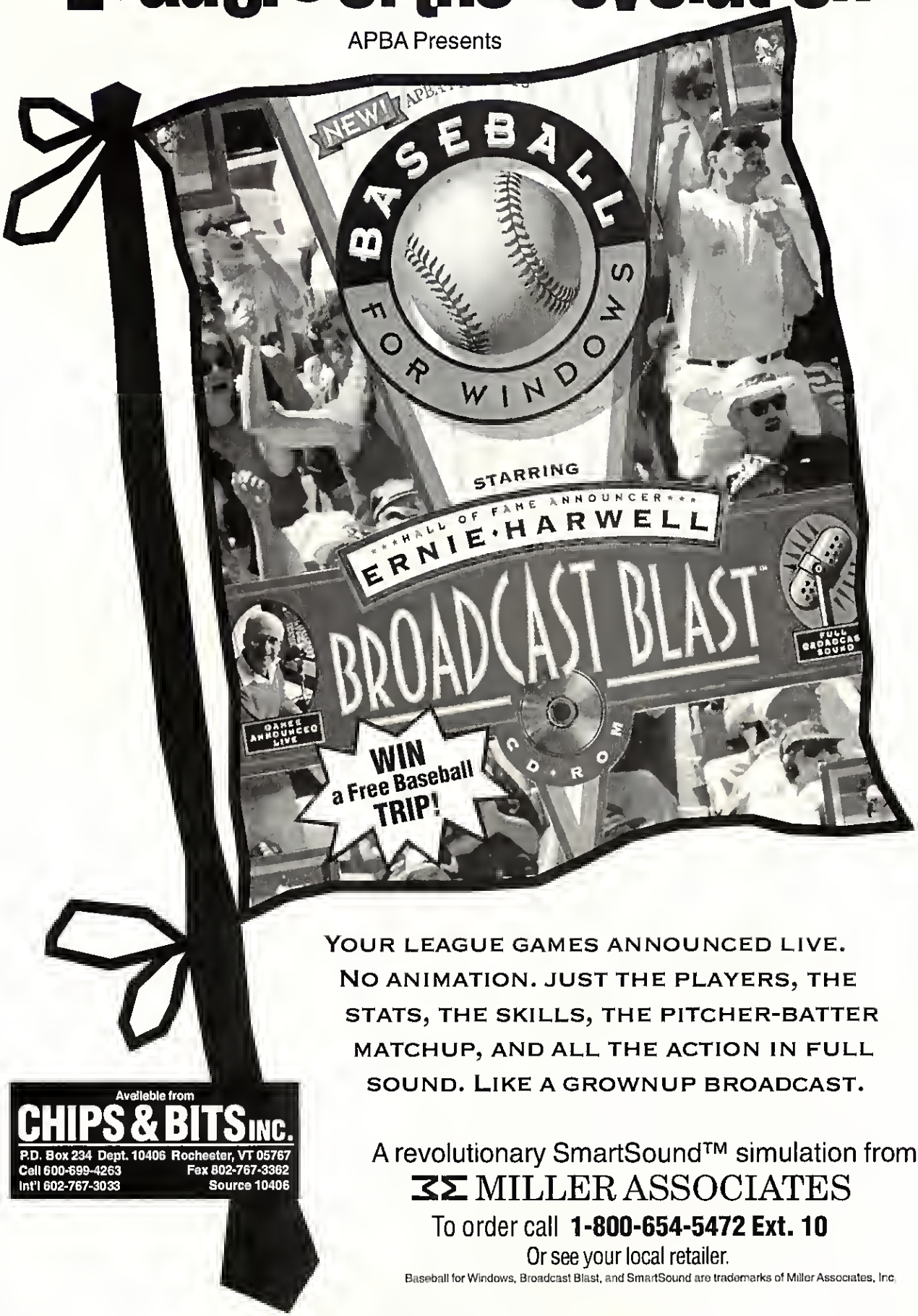

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Tip! Maximize your combat advantages. Engineers, armor, divisional integrity and superior troop quality all shift the odds in your favor when attacking, and can also help you defend against a German counterattack.

that a broad penetration gives you a better chance at taking control over huge swaths of territory, cutting off Axis units to the east. Try to advance on a fairly broad front while keeping your spearheads moving as fast as fatigue and supply will allow.

South of the city, the 51st and 28th Armies have to push the Axis forces away from the Volga and back on the railroad leading from Stalingrad to Kotelnikovo. The two northernmost armies can help with the encirclement, but their first priority is to destroy the German mobile forces and Romanian troops on the German right flank. Success here can derail an eventual counterattack from the south. The 28th Army in the south has a few tank units that it can use for assaults and overruns, but it is generally weak and slow. Proceed on line and gradually push the Axis back, using troops from another army to swing around the rear of your foe. Eventually, you will have to setup defenses along one of the east-west rivers to block forces moving up from the Kotelnikovo area, if you haven't taken that objective.

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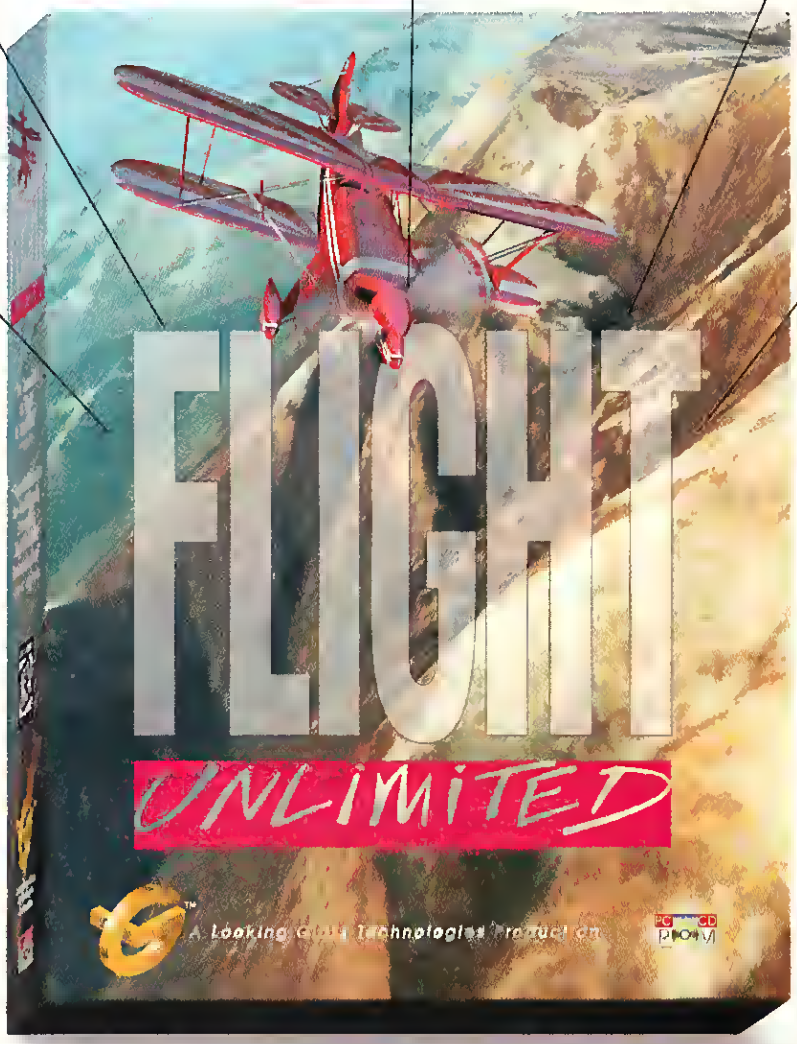

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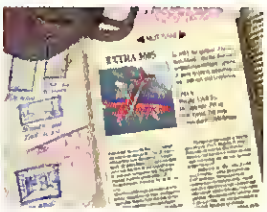

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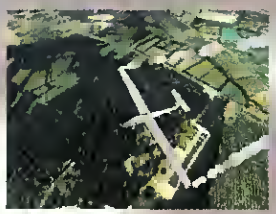

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NIGHT STALKER Don't be afraid to throw caution to the wind after dark. In the confused fighting, the Russians can afford far more losses than the Germans.

southern forces, and push gradually westward. If you have destroyed enough units and taken your objective hexes, you should earn enough victory points to enable you to hold on and win handily.

When the inevitable counterattacks come, roll with the punches and envelop the invaders with your numerous infantry formations; then crush them with your armor or simply let them starve. As for your own reinforcements, just feed them in where needed, and don't be afraid to reattach units to clean up your supply lines.

STAGE THREE: CONSOLIDATION

Once you have the Germans pocketed, pound them with infantry and artillery as supply allows, and wait for them to surrender. You can accelerate the process with armor if you really feel pressed, but eventually the Germans will die on the vine if you keep them surrounded. The computer likes to gather its forces into huge stacks which will eventually succumb due to poor supply and fatigue, so don't be afraid to assault them with your own fresh troops. To the south and west, clean up your lines after linking northern and

Now, Comrade, was that not a most glorious victory? A few more victories such as these, and it will not be long before all of Mother Russia is liberated from the bootheel of our enemy! Come, Tovarich, and let us celebrate with some vodka I have been saving for just such an occasion...

LAND BETWEEN THE LAKES When the Romanians are thrust from the narrow isthmus here, they will be quickly surrounded. Victory is near!

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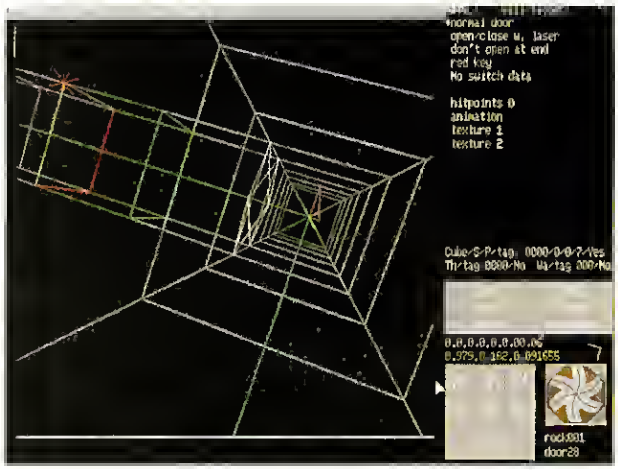
Menus For HOGS And PIGS

Dish Up Your Own DESCENT Levels With These Downloadable Game Editors

by Jeff James

AS ONE OF THE HOTTEST 3-D ACTION GAMES YET RELEASED, INTERPLAY'S DESCENT HAS been laying waste to worker productivity with extreme prejudice. With its addictive 3-D game engine and point-and-shoot multiplayer options, DESCENT has propelled developer **Parallax Software** into a well-deserved spot in the upper echelons of 3-D gaming.

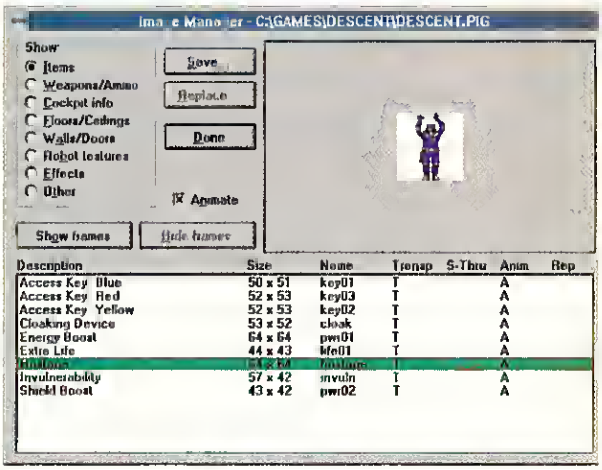
Yet while fans of DOOM have been the happy recipients of dozens of shareware level editors, game utilities and other support programs, DESCENT has had—until recently—a comparatively meager allotment of the same. That unfortunate situation is beginning to be rectified, with a host of new DESCENT game utilities available or nearing release. Thanks to these utilities, gamers will be able to create their own game levels and distribute them in the form of custom DESCENT HOG and PIG files, a convention very similar to the ubiquitous DOOM WAD. Two of the most promising new utilities are DTX and DEVIL, which offer a treasure trove of tools to get you even deeper into DESCENT than you ever thought possible.



DEVILISHLY CLEVER Once you overcome the complex 3-D tools of Achim Stremplat's DEVIL, you can design your own DESCENT levels from scratch.

DTX v1.0
by Stefan Nilsson

DTX 1.0 is a slick, Windows-based DESCENT utility programmed by Stefan Nilsson. Using it with the registered version of DESCENT, you can fiddle with all sorts of game resources, such as sounds, images, animations and game soundtracks. For example, you can use the DTX image manager to load in the DESCENT animation depicting a hostage waving his arms. Using the tools provided, you can break down the animation into individual frames, save the single frames out as BMP graphic files and then alter them in your favorite Windows paint program. After your edits are complete, DTX will replace the original animation frames with your edited versions, allowing you to create entirely new DESCENT game animations. You can also manipulate sound effects, MIDI music and static images in the same fashion, giving you an amazing amount of creative freedom.



HACK THAT PIG Stefan Nilsson's slick Windows interface makes it easy to change the objects, animations and sound effects in DESCENT.

Using the included HOG and PIG file managers, you can create custom patch files containing new game levels, graphics, sounds and animation, much like the thousands of custom WAD files available for DOOM and DOOM II. Unfortunately, while DTX lets you edit DESCENT sounds, graphics and animations to your heart's content, it *does not* let you create or edit DESCENT level maps—you'll need a DESCENT level editor (like DEVIL, described below) to do that.

You'll find DTX 1.0 in the CompuServe ACTION game forum, filename DTX.ZIP.

DEVIL v1.02
by Achim Stremplat

If you want to create levels for DESCENT, you'll eventually have to face the devil. To be more precise, you'll have to stare-down and master Achim Stremplat's ambitious DESCENT level editor, DEVIL 1.02. Like DTX, DEVIL will only work with the *registered* version of DESCENT. Unlike the Windows-based DTX, which sports a clean, polished interface, DEVIL is a DOS-based program saddled with a crowded interface. Everything is mouse-driven and loaded with menus, but the sheer number of buttons, menus, arrows and other screen elements may cause even the most jaded DOS expert to take a deep breath before touching the mouse.

The complex interface is understandable, given that DESCENT maps are truly

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Cheat of the Month Club

MechWarrior 2

You don't really want to cheat, do you? Here are just a few of the little Easter Eggs hidden in MECHWARRIOR 2. To use these cheats, hold down the Ctrl-Alt-Shift keys and type in the appropriate code.

BLORB	Offers complete invulnerability
CIA	The ubiquitous "unlimited ammo"
MIGHTYMOUSE	Unlimited jump jet fuel
COLDMISER	Toggles the heat tracking on or off
FRONT	Lower right MFD shows front instead of rear view
XRAY	X-Ray vision gives a wireframe view of the world, and allows you to see the damage inflicted (this cheat does not toggle off).
HANGAROUND	Allows you to hang around and explore after you complete a mission's goals.
ENOLAGAY	A massive tactical nuke strike; once you target an enemy, this cheat will destroy everything destroyable—you might want to make yourself invulnerable first.
OORCS	Displays a picture of the programmers and presents bio information.

three dimensional—passageways are literally able to go anywhere: up, down, across, under other passageways, and so on. Because of the inherent complexity of DESCENT maps, DEVIL looks more like a CAD program or a 3-D modeler than a game editing utility. Once you've managed to get past the cumbersome interface, DEVIL allows you to do some truly amazing things. In addition to the creation of passageways and corridors, you have an unbelievable amount of control over just about every aspect of gameplay. You can change wall textures, add special squares (fueling centers, reactors, etc.), edit robot behavior, tinker with game objects, and perform dozens of other nitty-gritty custom edits.

To help you make heads or tails out of all this, DEVIL is accompanied by a veritable bookstore of text files, including a reference manual, user's guide and several other support documents. Make no bones about it: DEVIL a monster of a program, and novice users squeamish about mucking around in the byzantine depths may be better off passing this one by. However, if you're looking for the ultimate DESCENT level editor—and have the time to learn how to use it—DEVIL is the utility to get.

You can find both of these DESCENT utilities on most commercial on-line services, including America On-line and CompuServe (in the CompuServe ACTION game forum, look for filename: DEVIL102.ZIP). You can also download them from the Interplay web site at HTTP://WWW.INTERPLAY.COM. If you don't have access to the Internet, call Interplay's BBS at (714) 252-2822.

Jeff James, CGW columnist and Associate Editor of The Electronic Roadhouse, is available on CompuServe at 74774,1635 and through the Internet at 74774.1635@compuserve.com.

ZDNet To locate these files on-line, tune in to the *CGW* headquarters on ZiffNet. Files featured here can be downloaded from ZiffNet on CompuServe. On CompuServe, go to Computer Gaming World's own forum (GO GAMEWORLD), and search in the Gamer's Edge library.

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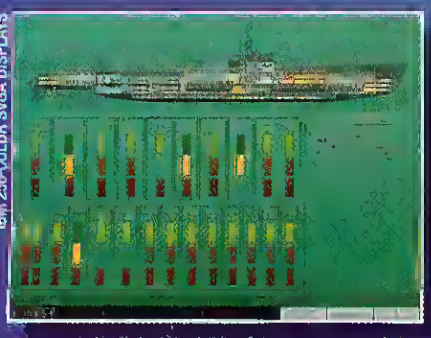

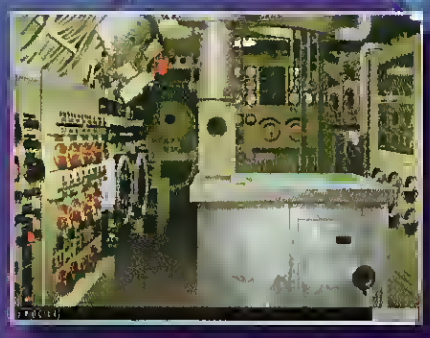

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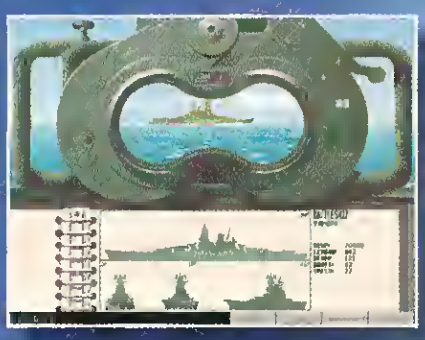

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In addition to advising the designers, Mr. Gruner provides narration of technical and tactical matters as well as multimedia presentations of his real-life anecdotes.

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So You Want Your Own Game Company?

Here's What It Takes To Put Your Money Where Your Mouse Is

by Paul C. Schuytema

Tired of your day job? Longing for the excitement and romance of the computer game industry? A few months ago, we looked at what it takes, skill-wise, to break into game programming. But what if you want more than that? What if you want to go for broke and start your own development house, creating your own games for fun and profit?

Well, the good news is that starting your own game company requires no slick résumé, no previous experience, only a bushel full of cash and a vision. Of course, to actually survive more than a few months, you'll need a flock of talented game magicians and a killer design.

To create your own game dynasty, you need three key ingredients: hardware, software and wetware. The hardware are all the toys you need to create your games, such as screaming Pentium PCs, scanners, video capture boards, etc. For software, you need a complete setup for programming, graphics, music and documentation. The wetware is comprised of the warm bodies who will slave to create your masterpiece, from programmers to artists to designers. Add these ingredients in proper amounts, shake well and set in a cool, dark place. If you're lucky, maybe you'll be in the gravy in 13 months or so.

"You have to go out there in your best suit and go shopping where the money is available. You'll have to sell a bit of your soul to get it."
—Mark Hirsch, 47 Tek

LET'S GO SHOPPING!

Let's get the ball rolling by going shopping. Your hardware needs should be determined by the kind of game you want to make, but I'll assume you're going to make an action or strategy game with simple 2-D sprite graphics. Farther down we'll take a look at a more ambitious scenario, but right now we'll start out small. And, if you're starting out on a shoestring, you should probably keep your meat-and-potatoes job—restricting your game-god persona to part-time, for the moment, anyway.

First, you'll need at least two PCs, so you can work with someone else and so you can let one computer do intensive crunching while you crank more code on the second system. Since we're being cost-conscious, we won't go for the brawniest of Pentiums, but for ones that you can pick up at most local computer stores.

2 Pentium 100 MHz PCs	$4,400
(1 GB hard drive, 16 MB RAM, 15" monitor, 1 MB graphics card, 4x CD-ROM drive)	
1 decent 600 dpi laser printer	$1,000
1 CD-ROM recorder	$1,800

For software, we'll also go "off the shelf," and we'll stick with the basics for simple sprite graphics or DOOM-like texture-mapping (no need for the pricey 3-D software yet).

Compiler	$370
(such as Visual C++ for Windows)	
2-D graphics program	$495
(such as Adobe Photoshop)	

For wetware, we'll assume that the brains will come from you and perhaps a talented friend or sidekick, and you're both willing to work gratis, just for the thrill and the possibility of making something *tres* cool. You might want to pick up a few good books just to brush up on things such as mode x graphics programming, etc. We'll also assume that you're serving up your basement or maybe even your dining room table as your office, so we don't need to worry about rent, leases or any of those other logistical nasties.

Books to learn the goods	$160

That brings our "small start" grand total up to a little over $8,000. Let's round that up to say $10,000 of your savings (a

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COMING THIS FALL TO PC-CDROM

Circle Reader Service #137

CONJURING A GAME COMPANY That's Brian Raffel (*left*) of Raven Software back in 1991 when Raven was two dudes with an Amiga 500, a dot matrix printer and a big dream. Today, four years later, he's the VP of a flourishing game company (*center of photo at right*) with 22 employees, the innovative SHADOWCASTER, and the hit action game HERETIC under his belt. Can it still be done? Yup, but you'd better have a cool idea and all your digital ducks in a row.

lifetime for some of us who still eat macaroni and cheese on Wednesdays) and you can get yourself on the road to developing some small games. These will probably initially be shareware, but if you can do the dance, and have a little luck, greater things might grow.

BRING OUT THE BIG BOYS

Okay, so you've got a touch more cash burning a hole in your butt-pack, and you want to go whole-hog. Today, a corporate zombie, but on Monday, a game developer. Well, to start even a small, yet serious operation, you'll need some significant cash. Let's start by updating our hardware a little bit. We still won't start a huge company, but let's say that we'll have three programmers (one of them is you), two artists and a logistics manager (read: gopher). To keep things simple, I'll assume that one of the team will do the music for the game, or you'll hire the services of a musician as an independent contractor.

You'll all wear several hats in the production, design, scripting, documentation and management areas, but you want to be complete enough that you can craft a professional game ready for a publisher to playtest, package and distribute (hopefully in that order).

MY KINGDOM FOR A PENTIUM

To craft great games, you need great tools. You can go in one of two paths: you can opt for the Swiss Army knife approach, and pick up a few general-purpose systems, or you can be far more surgical and set up some specialized systems.

There are three primary areas for which you'll need computing power: programming, art and music. The needs of each area differ widely, with music needing the least beefy computer system but the most external gadgetry. A graphics system, depending on what you're doing, can be a beast of a system, as far as cost and specifications. If you plan on just doing 2-D artwork, then a simple 486-66 will work, but if you're going to leap into the world of 3-D cut-scenes, then you'll need a hot-rod system which can render very quickly (as an example, if you're putting together a 10 minute animation, that's about 18,000 frames—the "time to render" difference between a "generic" Pentium and an optimized Pentium can be up to a full week—close to 170 hours—of rendering time). For programming, you'll want a beefy system, but it doesn't really need the steroids that a graphics system needs.

4 Pentium 133 MHz PCs	$20,000
(4 gig hard drive, 17-21" monitor, 4 meg graphics card, 6x CD-ROM drive, etc.)	
Networking gobbledygook	$3,000
1 Silicon Graphics Indy	$8,500
(This is a lowball figure—a good SGI workstation can reach 5-6 figures)	
Digitizing tablet	$1,500
CD-ROM recorder	$2,000
Video capture goodies	$4,000
Flatbed scanner	$1,000
MIDI keyboard, card and killer speakers	$2,500

WHAT ABOUT SOFTWARE?

For software, you'll want a robust development environment. You will also need a compiler, some office software, graphics software and music software. Remember, since you're going to be a legitimate business, you'll have to buy multiple copies of your software (also, if you're networked together, you generally can't run pirated copies of the same piece of software at the same time).

Mark Hirsch, president of **47 Tek**, recommends that anyone starting out should use Windows NT with Microsoft's Visual C++ and the Game SDK for the programming. Windows NT still has an edge over Windows 95 for a development environment due to a nice suite of applets

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which will write a lot of the repetitious code for you. Also, NT is still a more robust operating system (read: crash-resistant, and if you're coding in C, you'll crash your system—a lot).

Windows NT licenses	$2,000
Windows 95 Game SDK licenses	$495

(Remember, we're developing for Windows 95 now. In addition to the above charge for the SDK, we'll need to pay out another $495 every year to remain a member of the Microsoft Development Network.)

C++ compiler licenses	$1,500
SGI rendering software	$7,000
(This is another conservative estimate—a good 3-D package can run well over $20K)	
PC rendering software	$3,000
MIDI sequencing and digital sound software	$1,000
Office-suite software	$500

I'D LIKE TO BUY SOME CHEAP BRAINS...

Now we're getting into the pricey stuff: the wetware. If you want to put together a truly viable game company, you'll want to find some experienced folks who have at least one published game under their belts. Keep in mind that you may need to recruit outside your area, which involves questions like relocation expenses. But since this is your company, I'm not going to tell you how to track down your talent, or what kind of benefits to offer them. Here is a ballpark range for some yearly salaries that your employees might be expecting:

Programmer:	$40K-$70K
Artist:	$25K-$45K
Assistant:	$20-$35K

DETAILS, DETAILS

And last, but certainly not least, you will need a place for your company to call home. Office space in the PC game hotbed of San Francisco runs between 85 cents to $1.05 per square foot per month. That's roughly $2,000 each month for a 2,000 square-foot office.

Of course, we can't forget things like furniture, basketball hoops, a killer stereo system, the lawyer's fees if you're incorporating, accountant's fees, insurance, phones, utilities and a whole range of other expenses to get you rolling in style.

"Make sure you have a good lawyer and an accountant—you can't save too much money that way," advises Brian Raffel of **Raven Software** (the folks who brought us HERETIC). "Though a lot of it, I've gotta tell you, is luck."

So, in very rough terms, we have a startup fee of around $60-70,000. We also have a rough monthly operating cost of over $20,000 each and every month. Right now, the average high-quality game comes in with a budget of between a quarter to a half million dollars. Yipes!

GOING FOR THE GOLD

You can always start small. Raffel started out working nights and weekends on an Amiga 500 with a friend to put together a working demo. It took two years of hard work (including a short separation from his wife due to the stress of trying to keep a nine-to-five job as a teacher, a family and a game company all running simultaneously) before they had their first nibble from a publisher.

"We covered all the expenses ourselves—you know, buying compilers and all that," says Raffel. "Once we did get hooked up with a publisher, we got some advances to upgrade our equipment.

"It was a slow process to get going after we had our publisher—my brother quit his job, but I had a kid and a house so I worked part-time—I slowly weaned over until I could do it full-time, which was in '93 (five years after beginning their journey). It was a long, hard road."

"The most frightening aspect of starting up a company is wondering if you will ever sell a product," says 47 Tek's Mark Hirsch. Large game companies like **Interplay**, **Sierra** and **Electronic Arts** sift through literally hundreds of proposals each month. Some are nothing more than idea sketches while others are complete products, almost ready to ship.

Steve Barcia of **SimTex**, for example, sold MASTER OF ORION to **MicroProse** as a nearly complete product. MicroProse bought the game and worked with Barcia to put together the final art and interface screens.

"You've gotta at least have a demo," cautions Hirsch, "before you can go shopping around for a publisher." He also recommends putting out several shareware titles to gain exposure and experience.

IS THE SHIP SINKING YET?

As you're probably thinking right now, "Wow, that's great, but all that will take some serious bucks." You're right. Filling your initial shopping list is one thing, but keeping your fledgling software house afloat while you creak and groan through the arduous process of "cutting your teeth" will take far more capital.

The solution is to find some seed money. That means finding some venture capital (or VC, for all of you pin-stripers out there). "You have to go out there in your best suit," Hirsch says, "and go shopping where the money is available. You'll have to sell a bit of your soul to get it. We were lucky, though. We still hold 60 percent of our company, and our VC partner plans to be with us for the long haul."

While I won't tell you where to go hunting for capital (since VC lurks in many, many different-colored tidepools around this great land), I will tell you that you need to be very polished before you go out asking for some high-risk seed money. That's when spending a few months in your basement first can come in handy, putting together a demo to showcase your abilities. You also need a rock-solid business plan and several well-thought-out game designs. That, armed with some true ability and creativity, should be the ammunition you need, provided you have the drive to go out there and play Dr. Faustus with your soul.

THE ONLY DANCE THERE IS

This isn't a business for suit and ties, it's a business for favorite tee-shirts, worn-to-the-cork Birkenstocks and that killer blend of the mind of a child with the genius of a madman. If you can put the pieces together and play the game, then go for it. After all, while the Great American Novel has been written at least twice (*The Great Gatsby* and *Moby Dick* come to mind), the Great American Computer Game has yet to surface (though SID MEIER'S CIVILIZATION might be a contender). So, what are you waiting for?

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ORIGIN™

Circle Reader Service #110

(continued from page 56)

THE BIG BANG

"The joke about REBEL 1," admitted Richard Green, lead artist, "is that we used the same explosion throughout the entire game—when a ship blows up and when the Death Star blows up—it's the same explosion."

Green was able to make that single explosion look different by scaling it, applying different colors, rotating it or having two or more explosions occur at the same moment.

For REBEL ASSAULT 2, though, they are working with considerably more firepower. The Industrial Light and Magic effects studio, another Lucas company, sits next to LucasArts, and ILM has an entire library of stock explosions, each filmed at incredibly high speeds. Green sat down one afternoon and watched films of literally hundred of explosions.

The explosions he selected were transformed, through a long and painful process, into single frame Targa images which LucasArts artists can use in such programs as 3-D STUDIO.

ABOUT TO COME UN-TIED How to cook a realistic 3-D explosion: Take one part Industrial Light and Magic filmed explosion, digitize thoroughly, and mix with a pinch of 3-D STUDIO. Render until convincing.

"You'd be surprised how much you can get away with just one explosion," said Green, "most of these were four or five hundred frames long—when you let it run for 100 frames, it looks like a really huge explosion, but when you compress it down to 40 frames, it's just like this little pop."

To use an explosion in a program such as 3-D STUDIO, Green creates a transparent disk and uses a 3-D STUDIO feature to project the animated explosion image onto its surface, just like applying a texture. In one scene in REBEL ASSAULT 2, an X-Wing is trying to escape out of a tunnel as an explosion is racing up behind. To do that, Green simply had the disk (with the explosion movie playing across its surface) race up the tunnel after the frantic starfighter.

CYBERROM TAKES A DIFFERENT APPROACH TO ART

Picture a huge old house in the thriving arts community of Ashland, Oregon (where, seven months out of twelve, a Shakespearean festival paints the town with the wit of the Bard of Avon). Add a sauna, a pool, a huge kitchen and rooms full of the hottest graphics PCs, and you have CyberRDM, one of the cyber-age's first digital artists' guild.

Verin Lewis and Will Shepard share a common vision: Creating a collective of digital artists "working towards a common goal without the constraints of a bureaucratic hierarchy." CyberRDM is the place for young 3-D STUDIO wannabes to come and cut their teeth, learning beside the masters (who did many of the models for Trilobyte's SEVENTH GUEST and 11TH HOUR), until they are, like the young Cain in *Kung Fu*, ready to venture beyond the sanctuary and take their place in the world.

For Verin Lewis, it has been a long strange trip from the land of computer consulting, to being "the man with the Hi-8 camera" (Verin shot all of the video for the opening sequences for the SEVENTH GUEST) to being a 3-D STUDIO guru. "Trilobyte was a major influence for us," says Lewis. "It was like working with Walt Disney when he was just starting to do animation, and learning animation from him but at the same time being able to set up your own shop."

1-1, SIX GUYS You might not think to check Ashland, Oregon for 3-D whizzes, but that's where you'll find CyberROM's Micheal Barth, Verin Lewis, Chris Mac, Jonathan Ogilvy, Will Shepard, and Rory O'Boyle.

"We work with people who come to us and want to set up their own companies," Lewis says. "We can show them what we know, teach them things like marketing and how to be a legal subcontractor under Oregon's laws. Basically, I take Mao's principles of guerrilla warfare and I apply them to capitalism."

"We kind of nurture people along," adds Shepard, "and turn them on to things like all the rules and regulations they have to deal with. Right now, I have three apprentices who work with me on projects we're doing and when we get a break, we're filling our plate with work we're doing on our own title."

"Once we get them to fly the nest and they go home and set up their own system," says Shepard, "they may begin doing some work for us, but we try to help them get other clients, since there are simply enormous amounts of things that can be done with 3-D graphics and 3-D STUDIO."

"We're simply trying to create a collective of equal and creative people who provide all of the pieces to create a CD-RDM," says Shepard.

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Circle Reader Service #85

DOS Tricks For Windows 95

How To Boot Up In DOS By Configuring Windows 95 Startup Options

by Loyd Case

THE FIRST THING MANY GAMERS WILL SAY WHEN THEY UPGRADE TO WINDOWS 95 IS, "WHERE'S the DOS prompt?" There are a lot of things Microsoft's new, hyper-hyped operating system will handle smoothly, including games once they are written for the new OS. But one of the things it *doesn't* do well is let you start up in DOS. For those of us with a closet full of MS-DOS software, that isn't very comforting. Until we see the new breed of AutoPlay-enabled CD-ROMs sometime next year, we DOS-based gamers need to know how to start Win 95 in a few different ways, at least until the last DOS game bites the dust.

There are three ways to run a game under Windows 95. If the game will work as a Windows application (for instance, if you make an icon for the game, click it, and the game runs okay), then you can stop right here. If not, you need to reconfigure it to run in MS-DOS mode (a special mode that actually reboots the computer into a spartan DOS-like environment, runs the game, and then reboots back to Win 95 when you're done). MS-DOS mode gives the game complete access to your hardware and can even take advantage of custom CONFIG.SYS and AUTOEXEC.BAT files, but it's still running under your new operating system. What if you have a game that won't run even in this mode? If you need your computer to run in DOS, there's a simple way to do it, but it requires arcane knowledge of a small secret hidden away in Win 95. Armed with this knowledge, you can start your computer and choose which operating system you want to use in a configuration referred to as the "dual boot."

SHORT CIRCUITS

Ever tried to link two computers together via the serial ports for a killer gaming session? The cable is always too short (argh!), or you don't have the right connectors or a null modem adapter (Doh!). The best prescription is the HEAD-2-HEAD GAME KIT from FormGen. You get a gigantor 30-foot serial cable (each end has both a 25 pin and 9 pin connector), and a CD containing the shareware versions of DOOM, RISE OF THE TRIAD, WARCRAFT, and LAPLINK XL (which runs under both DOS or Windows). Hey, it's a 30 foot gaming umbilical—even if it shipped in a baggie without any games, it's money well spent. $39.95. Call (602) 443-4109 for more information.

SECRET FILES

MS-DOS had two files that it needed to start up. These files, located in the root directory, were named IO.SYS and MSDOS.SYS. If you're not inclined to poke around your hard disk unnecessarily, you probably never noticed these files, because they are hidden; in other words, the normal DIR command won't show a listing for either IO.SYS or MSDOS.SYS. Furthermore, these files were read-only system files. Just as the phrase implies, read-only means that the file can't be altered or deleted.

When the operating system gurus at Microsoft redesigned Windows and DOS, they decided to combine MSDOS.SYS and IO.SYS into a single file. But they couldn't just throw MSDOS.SYS away—a lot of DOS applications check for its presence before they run. So they decided they might as well use it and turned it into a secret configuration file that tells Windows 95 how to start up. Let's take a look at some of the options that might be very useful to gamers.

First, a word of advice: don't even *think* of tackling the MSDOS.SYS file unless you have booted into and are up and running in Windows 95. You definitely do not want to trash the older MSDOS.SYS file.

TIME TO PUT ON THE MINING HELMETS

Before we can get into all this cool stuff, we have to be able to edit the file. But wait, it's hidden and its read-only—how can we edit that? The easiest way we found was to use Explorer, the funky Windows 95 replacement for File Manager. First, to see the hidden file, click on the View menu item and select Options. Then click on the button labeled "Show All Files." Assuming we're in the root directory of the boot drive, we can now see MSDOS.SYS. To change the settings, pull down File, then select Properties. The property sheet for the file lists all the file attributes at the bottom of the dialog box. Click off the hidden and read-only attributes. Now we can start to make some changes!

Open MSDOS.SYS in a text editor like NotePad—you will find that it looks a bit like a Windows 3.1 SYSTEM.INI file. It's divided into two sections. The section we're interested in is the one labeled

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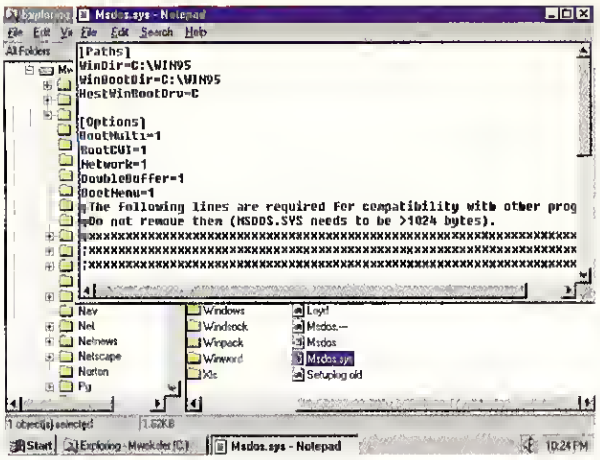

THE HEART OF THE BEAST A look inside the secret MSDOS.SYS file reveals the commands you need to configure Windows 95 for a variety of startup options.

"Options." Consider this the first step to Windows 95 enlightenment.

WHICH BOOT DO I PUT ON FIRST?

There will be times when you'll want to use your previous version of good old MS-DOS. There are two ways to accomplish this (short of removing Windows 95 and tossing the CD from the roof). The first is to add the line BootMulti=1 immediately under the "Options" heading. This enables dual-boot capability, which is a fancy way of saying you can boot to either Windows 95 or MS-DOS. You can now start up DOS by pressing the F4 key when you see the message "Starting Windows 95." You can also bring up a menu of startup options by pressing the F8 key; one of the choices will be to start your old version of DOS. However, timing is critical. You want to hit the appropriate key right as the "Starting Windows 95" message displays on the screen when your computer boots. Wait too long and you'll be stuck on the road to Win 95.

If you wish there was an easier way, we've found one. Add the line BootMenu=1 under the "Options" heading. This setting brings up the boot menu automatically (that's the menu that pops up when you press F8.) You can even set up any of the boot menu entries to be the default one by adding another parameter: BootMenuDefault=# (where "#" is the number of the menu entry you want to start automatically). If you do this, you might want to also add BootMenuDelay=20, which will give you 20 seconds to change the default menu choice before it executes. You can change 20 to any number you like. If you set BootMenuDelay=0, then the menu will stay up until you make a choice.

Avoid using memory optimization programs without first changing the BootMenu parameter or you're likely to run into problems.

HOW TO SPECIFY DOS AS THE DEFAULT

What if you like having Windows 95 around, but want to boot to your old version of DOS most of the time? There's an entry for that as well: BootWin=0. Setting BootWin to 0 makes MS-DOS the default operating system. This only works if you are using MS-DOS version 5 or later.

WINDOWS 95 IS OK, BUT I LIKE MY OAMN C: PROMPT

A lot of us have become comfortable with the good old DOS prompt. If you're one of those folks, then you can set up Windows 95 to boot to that familiar "C:>". Under the "Options" heading, you should see the following: BootGUI=1. Change the number so it reads BootGUI=0. This tells Windows 95 NOT to start with the Windows 95 GUI enabled. Note that this prompt is not your old version of DOS and many games still may not run in this mode.

YOU'RE IN CONTROL

Remember that first and foremost rule of computing: an operating system is just the tool that manages the resources of your computer system. Ultimately, you're the one in control of your operating system's destiny. Take the time to read the manuals. If you're interested, go out and pick up a copy of the Microsoft Windows 95 Resource Kit, which documents a lot of stuff in great, gory technical detail. Master your computer, instead of letting it master you.

Secrets Of The Win 95 Configuration Pros

BootMulti=1	Enables dual boot
BootMenu=1	Calls up boot upon system start-up
BootWin=0	Boots Computer to DOS
Logo=0	Eliminates Animated Win 95 graphic

THE PARTS DEPT.

PLUG 'N PLAY DISPLAY

by Loyd Case

If there is one thing that really increases the immersion factor of a good game, it's a big, crisp display. Fortunately, although the heavy-duty 21-inch guns are way out of reach in the $2,000 range, there are several 17-inch displays that are great for gaming and don't cost an arm and a leg. We've found that the **ViewSonic** 17GA PERFECTSOUND MULTIMEDIA MONITOR makes a great addition to any game machine. What sets this monitor apart is its built-in speakers, microphone and simple-tuning controls (which display settings on-screen, no matter what program you're running).

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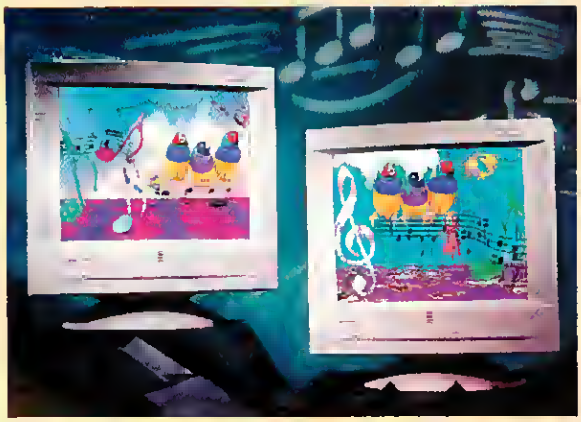

SONGBIROS The Viewsonic 15GA and 17GA Multimedia monitors have built-in speakers and are Windows 95 Plug and Play compatible.

handling a refresh rate up to 160HZ! The 0.27mm dot pitch provides a crisp, sharp image, the better to discern your targets with (also providing fewer headaches). And although the speakers are a bit lacking in bass response, they do add value to the package. And for those of you who like a little more bass-kicking you in the seat, you can always plug in your own separate subwoofer. The PERFECT-SOUND MULTIMEDIA MONITOR also comes in a 15-inch size (the 15GA). Both monitors are Windows 95 Plug and Play-compliant.

Price: 17GA $995, 15GA $595. For more information, call ViewSonic at (909) 869-7976.

SAVING THOSE PRICELESS MOMENTS

Have you ever wished you could have recorded a particular game moment for posterity? Let's say you've been playing MECHWARRIOR 2, and want to *prove* to your buddies that you can take out that troublesome Dire Wolf with your Fire Moth while playing at the highest difficulty level. How do you do that? If you've got **Creative Lab**'s TV CODER EXTERNAL, it can be a snap. But then again, it might not.

The TV CODER is a little black box (literally) that you plug your graphics card and your monitor into. You can then attach a cable (either an RCA cable or Super VHS cable, both of which are supplied) into your VCR. If you want to capture sound, you can run audio output from your sound card into the VCR as well. You then load the supplied VGA2NTSC driver and run your game. If everything goes smoothly, whatever you do on the screen can be recorded to the VCR.

The catch is that some Super VGA cards don't work all that well. The documentation and Readme file list a number of compatible cards, but none of the newer 64-bit graphics cards are listed. After many botched attempts, we were finally able to capture part of a game session, but it was a rather frustrating experience. If the idea of capturing your gameplay to tape (or projecting it on your big screen TV) appeals to you, check it out. But you should call Creative Labs first to see if your graphics adapter is supported.

Price: $178. For more information, call Creative Labs at (408) 428-6600.

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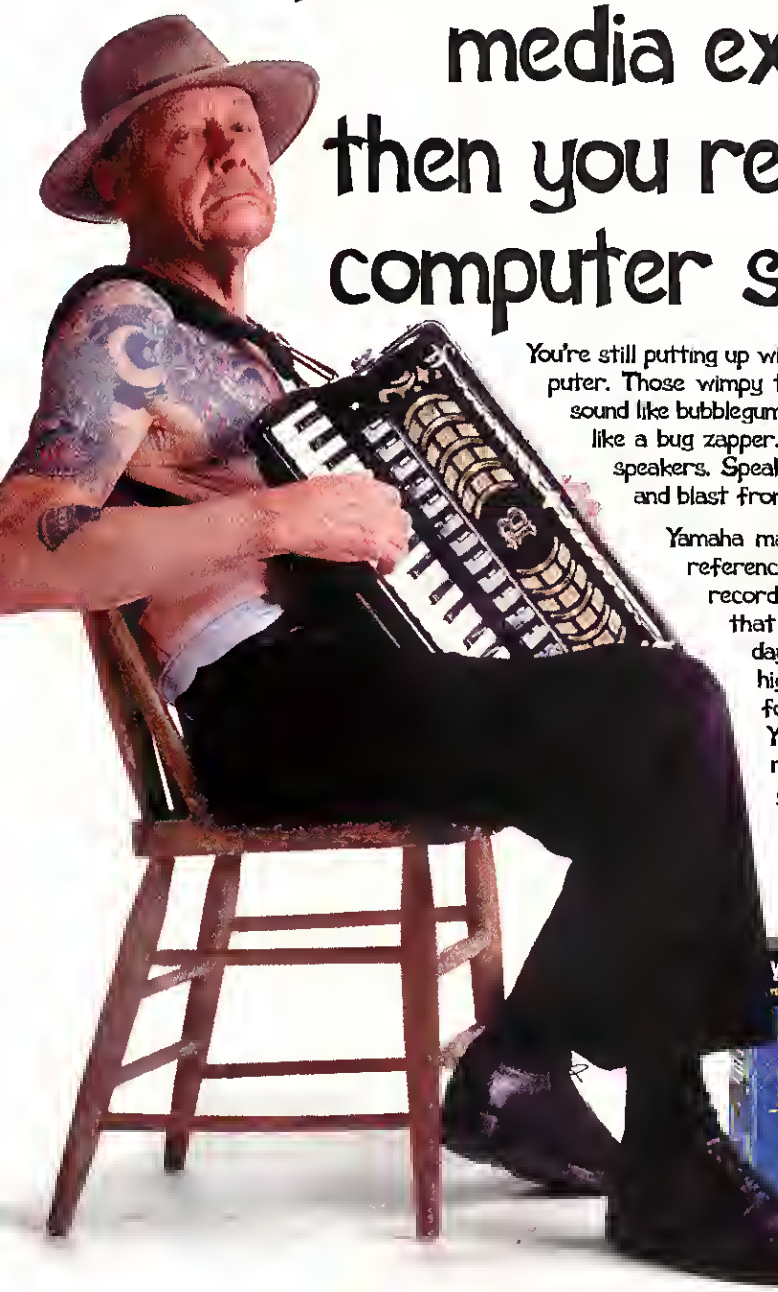

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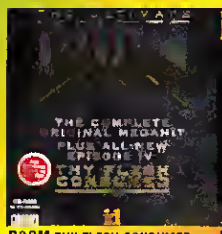

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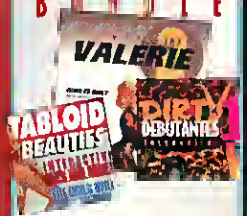

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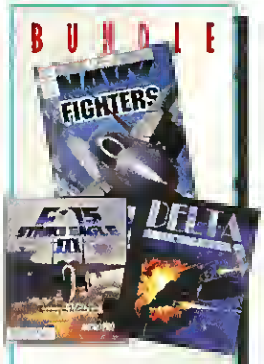

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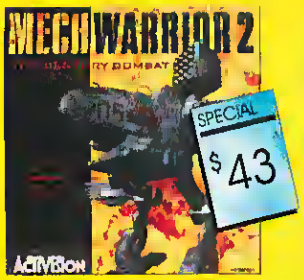

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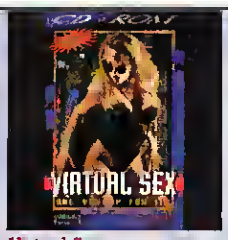

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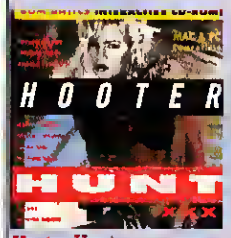

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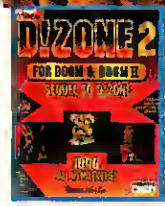

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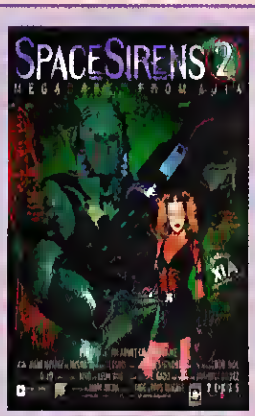

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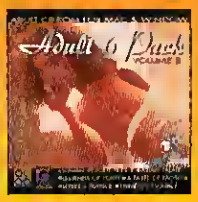

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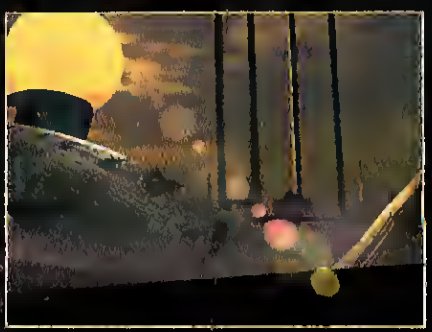

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1 What is the highest level of education that you completed? (Check one only)
01 ☐ Some high school or less
02 ☐ Graduated High School
03 ☐ Some College or Technical school
04 ☐ Graduated College
05 ☐ Post Graduate school

2 Computer currently owned is (Check all that apply)
01 ☐ IBM compatible (Intel standard)
02 ☐ Macintosh
03 ☐ Amiga
04 ☐ Dedicated game machine
05 ☐ None

3 If Intel, what level? (Check one only)
01 ☐ Power PC
02 ☐ Pentium (586)
03 ☐ 486
04 ☐ 386
05 ☐ 286

4 Do you own (or plan to buy in next 6 months) a CD ROM? (Check one only)
01 ☐ Own
02 ☐ Plan to buy (6 months)

5 How often do you usually buy computer games? (Check one only)
01 ☐ Once a week
02 ☐ Once every two to three weeks
03 ☐ Once a month
04 ☐ Once every two to three months
05 ☐ Once every four to six months
06 ☐ Once a year

6 Where are you most likely to purchase games? (Check all that apply)
01 ☐ Independent computer store
02 ☐ Consumer electronic store
03 ☐ Mass merchandising store
04 ☐ Computer store chain
05 ☐ Direct from vendor
06 ☐ Mail order

7 What is your (and others in household) favorite type of game? (Check one in each column)

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03 Role Playing			
04 Brain Teasers			
05 Card			
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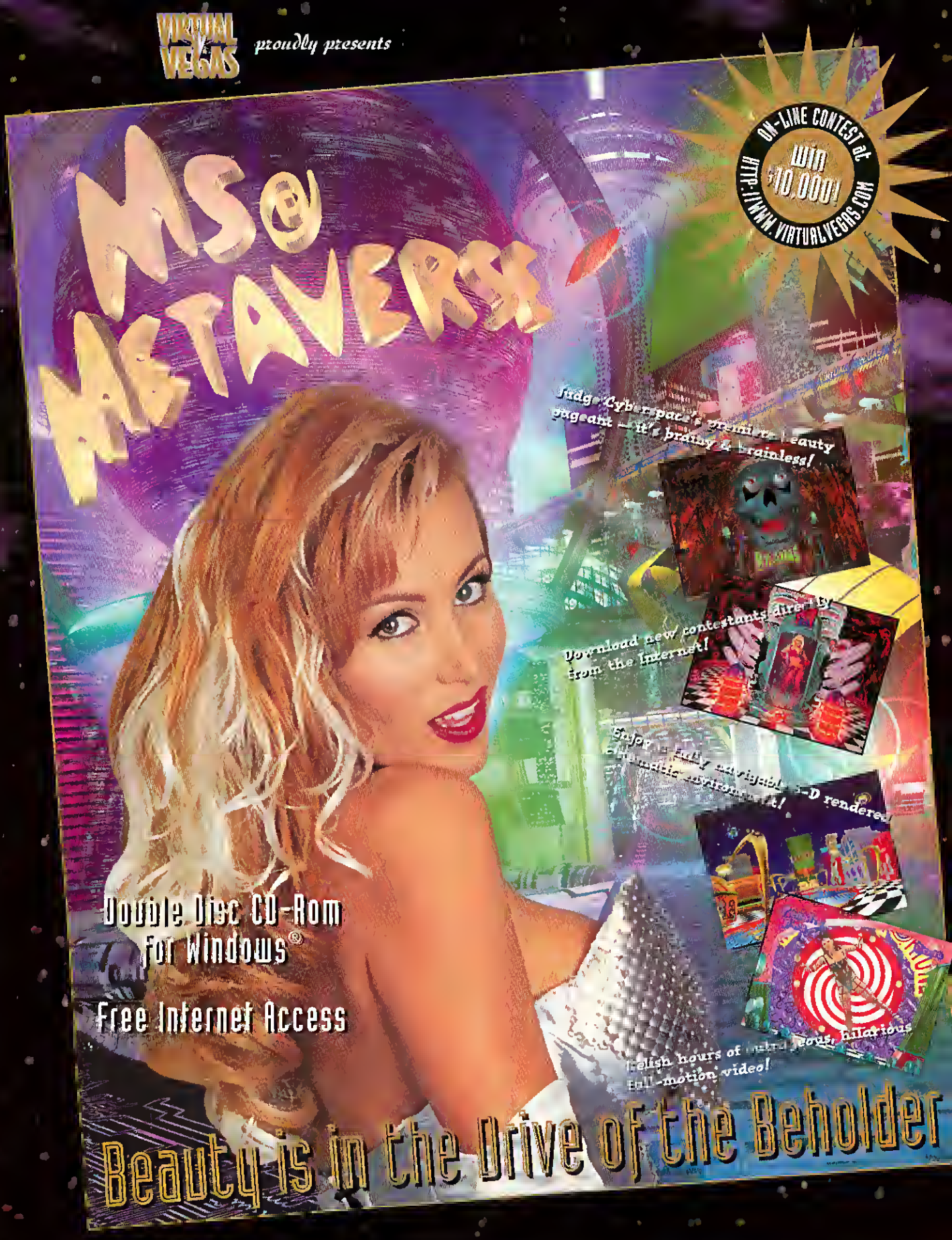

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SCORE Hall Of Fame

Welcome to the Cooperstown of Computer Games.
Here, raised upon pedestals, you'll find the games that broke the records, established the benchmarks, and held gamers in delighted trances for hours untold.

Highlights

THE SECRET OF MONKEY ISLAND
LUCASARTS, 1990

THE SECRET OF MONKEY ISLAND is a milestone in the long, successful line of **LucasArts** graphic adventures. Its secret is humor. There is humor in the text, humor in the animation, humor in the music and humor in the plot. Drop the "s" from swordplay and you have the essence of the delightful swordfighting sequences—parrying words and insults rather than using your reflexes. Also, who could ever forget the controversial instruction to insert Disk Number 256 (too many people believed that there really was such a disk), and the hilarious animation for the grog machine sequence? Perhaps, more importantly, the game's story and conclusion made its anti-sexist points without diluting the tongue-in-cheek nature of the game. Finally, the play balance in the game is perfect. Designer Ron Gilbert has a marvelous way of letting the player know what has to be accomplished in order to move to the next story segment and prodding the player along with clues that function as cues. In a very real sense, the Monkey Island series marked the coming of age of LucasArts' SCUMM system (the company's software tools for graphic adventures).

SID MEIER'S CIVILIZATION
MICROPROSE, 1991

In capturing the flow of human innovation and cultural expansion for the purposes of a game, Sid Meier accomplished what few designers would dare to attempt. SID MEIER'S CIVILIZATION is a fascinating opportunity to observe the interrelationships of technology, governmental philosophies and economic exigencies. It is also a game at the apex of reward, play balance and satisfaction—one that gamers must force themselves to abandon after playing "just one more turn" or find that their evenings have dissipated into rosy dawns once again. Economics, exploration, long-range planning (for both scientific and military strategies) and diplomacy are all elegantly bound together in this *magnum opus* of world conquest games. The original game was intricately balanced for optimal solitaire play, but we predict that the upcoming multi-player version, CIVNET, will create a sizable resurgence in the game's popularity.

FALCON 3.0 (Spectrum HoloByte, 1991)
GUNSHIP (MicroProse, 1989)
HARPOON (Three-Sixty Pacific, 1989)
KING'S QUEST V (Sierra On-Line, 1990)
LEMMINGS (Psygnosis, 1991)
LINKS 386 PRO (Access Software, 1992)
M-1 TANK PLATOON (MicroProse, 1989)
RAILROAD TYCOON (MicroProse, 1990)
RED BARON (Dynamix, 1990)
SID MEIER'S CIVILIZATION (MicroProse, 1991)
THEIR FINEST HOUR (LucasArts, 1989)
THE SECRET OF MONKEY ISLAND (LucasArts, 1990)
ULTIMA VI (Origin Systems, 1990)
ULTIMA UNDERWORLD (Origin Systems, 1992)
WING COMMANDER I & II (Origin Systems, 1990-91)
WOLFENSTEIN 3-D (id Software, 1992)

Inductees Prior to 1989

BATTLE CHESS (Interplay Productions, 1988)
CHESSMASTER (The Software Toolworks, 1986)
DUNGEON MASTER (FTL Software, 1987)
EARL WEAVER BASEBALL (Electronic Arts, 1986)
EMPIRE (Interstel, 1978)
F-19 STEALTH FIGHTER (MicroProse, 1988)
GETTYSBURG: THE TURNING POINT (SSI, 1986)
KAMPFGRUPPE (Strategic Simulations, 1985)
MECH BRIGADE (Strategic Simulations, 1985)
MIGHT & MAGIC (New World Computing, 1986)
M.U.L.E. (Electronic Arts, 1983)
PIRATES (MicroProse, 1987)
SIMCITY (Maxis, 1987)
STARFLIGHT (Electronic Arts, 1986)
THE BARD'S TALE (Electronic Arts, 1985)
ULTIMA III (Origin Systems, 1983)
ULTIMA IV (Origin Systems, 1985)
WAR IN RUSSIA (Strategic Simulations, 1984)
WASTELAND (Interplay Productions, 1986)
WIZARDRY (Sir-Tech Software, 1981)
ZORK (Infocom, 1981)

THE SCORE

TOP ADVENTURE GAMES

	GAME	COMPANY	SCORE
1	Day of the Tentacle	LucasArts	9.87
2	Full Throttle	LucasArts	9.64
3	Gabriel Knight	Sierra	9.42
4	Sam & Max Hit The Road	LucasArts	9.30
5	The Seventh Guest	Virgin	9.25
6	Relentless	Electronic Arts	9.12
7	Ecstatica	Psygnosis	9.09
8	Under A Killing Moon	Access	9.04
9	Freddy Pharkas Frontier Pharmacist	Sierra	8.96
10	Alone in the Dark	I-Motion	8.95

TOP ROLE PLAYING GAMES

	GAME	COMPANY	SCORE
1	Betrayal at Krondor	Dynamix	9.44
2	Might & Magic: Darkside of Xeen	New World Computing	9.37
3	Lands of Lore	Virgin	9.25
4	Might & Magic: Clouds of Xeen	New World Computing	9.11
5	Ultima VII: Part Two Serpent Isle	Origin	9.08
6	Ravenloft: Stone Prophet	SSI	8.89
7	Arena: The Elder Scrolls	Bethesda	8.83
8	Veil of Darkness	SSI	8.74
9	Wolf	Sanctuary Woods	8.64
10	Menzoberranzan	SSI	8.26

TOP SIMULATION GAMES

	GAME	COMPANY	SCORE
1	NASCAR Racing	Papyrus	10.01
2	Flight Unlimited	Looking Glass	9.80
3	US Navy Fighters	Electronic Arts	9.60
4	Wings of Glory	Origin	9.59
5	Indy Car Racing	Papyrus	9.43
6	Aces of the Deep	Dynamix	9.38
7	Fleet Defender	MicroProse	9.25
8	Hornet	Spectrum Holo8yte	8.96
9	Aces Over Europe	Dynamix	8.66
10	MiG-29	Spectrum HoloByte	8.64

TOP STRATEGY GAMES

	GAME	COMPANY	SCORE
1	X-COM	MicroProse	10.37
2	Master of Orion	MicroProse	10.20
3	Warlords II	SSG	9.95
4	Jagged Alliance	Sir-Tech	9.81
5	Warcraft	Blizzard	9.66
6	Master of Magic	MicroProse	9.66
7	Sim City 2000	Maxis	9.51
8	X-COM: Terror from the Deep	MicroProse	9.38
9	1830	Avalon Hill	9.11
10	Merchant Prince	OOP	9.08

READER POLL #133

TOP 100 GAMES

	GAME	COMPANY	TYPE	SCORE
*1	Wing Commander 3	Origin	AC	10.57
*2	Panzer General	SSI	WG	10.51
*3	X-COM	MicroProse	ST	10.37
4	TIE Fighter	LucasArts	AC	10.26
5	DOOM	id Software	AC	10.24
6	Master of Orion	MicroProse	ST	10.20
*7	NASCAR Racing	Papyrus	SI	10.01
*8	NBA Live '95	Electronic Arts	SP	9.96
9	Warlords II	SSG	ST	9.95
*10	Day of the Tentacle	LucasArts	AD	9.87
11	Jagged Alliance	Sir-Tech	ST	9.81
12	Flight Unlimited	Looking Glass	SI	9.80
13	DOOM II	id Software	AC	9.77
	Dark Forces	LucasArts	AC	9.77
15	Master of Magic	MicroProse	ST	9.66
	Warcraft	Blizzard	ST	9.66
17	Front Page Sports Football Pro	Dynamix	SP	9.64
	Full Throttle	LucasArts	AD	9.64
19	Front Page Sports Football 95	Sierra	SP	9.63
20	X-Wing	LucasArts	AC	9.60
	US Navy Fighters	Electronic Arts	SI	9.60
22	Wings of Glory	Origin	SI	9.59
23	V for Victory: Market Garden	Three-Sixty Pacific	WG	9.58
24	Virtual Pool	Interplay	AC	9.53
25	Stalingrad	Avalon Hill	WG	9.52
26	Sim City 2000	Maxis	ST	9.51
27	NHL Hockey	Electronic Arts	SP	9.49
28	Magic Carpet	Electronic Arts	AC	9.48
*29	Betrayal at Krondor	Dynamix	RP	9.44
	War in Russia	SSI	WG	9.44
31	Indy Car Racing	Papyrus	SI	9.43
32	Gabriel Knight	Sierra	AD	9.42
33	X-COM: Terror from the Deep	MicroProse	ST	9.38
	Aces of the Deep	Dynamix	SI	9.38
35	Might & Magic: Darkside of Xeen	New World Computing	RP	9.37
36	Operation Crusader	Avalon Hill	WG	9.36
37	Carriers at War Construction Kit	SSG	WG	9.35
	Flight Commander 2	Avalon Hill	WG	9.35
39	Sam & Max Hit The Road	LucasArts	AD	9.30
40	Lands of Lore	Virgin	RP	9.25
	The Seventh Guest	Virgin	AD	9.25
	Fleet Defender	MicroProse	SI	9.25
43	System Shock	Origin	AC	9.19
44	V for Victory: Gold Juno Sword	Three-Sixty Pacific	WG	9.18
45	Perfect General II	QQP	WG	9.17
46	Privateer	Origin	AC	9.16
47	Relentless	Electronic Arts	AO	9.12
48	1830	Avalon Hill	ST	9.11
	Might & Magic: Clouds of Xeen	New World Computing	RP	9.11
50	PGA Tour Golf 486	Electronic Arts	SP	9.09

TOP WARGAMES

	GAME	COMPANY	SCORE
1	Panzer General	SSI	10.51
2	V for Victory: Market Garden	Three-Sixty Pacific	9.58
3	Stalingrad	Avalon Hill	9.52
4	War in Russia	SSI	9.44
5	Operation Crusader	Avalon Hill	9.36
6	Flight Commander 2	Avalon Hill	9.35
7	Carriers at War Construction Kit	SSG	9.35
8	V for Victory: Gold Juno Sword	Three-Sixty Pacific	9.18
9	Perfect General II	QQP	9.17
10	Tanks	SSI	9.00

TOP ACTION GAMES

	GAME	COMPANY	SCORE
1	Wing Commander 3	Origin	10.57
2	TIE Fighter	LucasArts	10.26
3	DOOM	id Software	10.24
4	Dark Forces	LucasArts	9.77
5	DOOM II	id Software	9.77
6	X-Wing	LucasArts	9.60
7	Virtual Pool	Interplay	9.53
8	Magic Carpet	Electronic Arts	9.48
9	System Shock	Origin	9.19
10	Privateer	Origin	9.16

TOP SPORTS GAMES

	GAME	COMPANY	SCORE
1	NBA Live '95	Electronic Arts	9.96
2	Front Page Sports Football Pro	Dynamix	9.64
3	Front Page Sports Football 95	Sierra	9.63
4	NHL Hockey	Electronic Arts	9.49
5	PGA Tour Golf 486	Electronic Arts	9.09
6	Tony La Russa Baseball II	SSI	8.78
7	Front Page Sports Baseball	Dynamix	8.76
8	Hardball IV	Accolade	8.70
9	Tony LaRussa 3	SSI	8.44
10	Jordan In Flight	Electronic Arts	7.85

Vote!

You've read our take on the latest games, now here's a chance to see what your fellow gamers think. The *CGW* Top 100 is a monthly tally of game ratings provided by our readers via the *CGW* Poll ballot found in each issue. Approximately 50 games are rated each month, and the results are added to the aggregate results from past months. This historical database serves as a terrific reference for what you, the gamers, feel are the best plays in gaming.

	Ecstatica	Psygnosis	AD	9.09
52	Merchant Prince	DOP	ST	9.08
	Ultima VII: Part Two Serpent Isle	Origin	RP	9.08
	Heretic	id Software	AC	9.08
55	Syndicate	Electronic Arts	ST,AC	9.07
56	Under A Killing Moon	Access	AD	9.04
57	Tanks	SSI	WG	9.00
	VGA Planets	Tim Wisseman	ST	9.00
59	Tigers on the Prowl	HPS Simulations	WG	8.97
60	The Grandest Fleet	DOP	ST	8.96
	Hornet	Spectrum HoloByte	SI	8.96
	Clash of Steel	SSI	WG	8.96
	Freddy Pharkas Frontier Pharmacist	Sierra	AD	8.96
64	Alone in the Dark	I-Motion	AD	8.95
65	Legend of Hyrandia 3	Virgin	AD	8.94
	Transport Tycoon	MicroProse	ST	8.94
67	Ravenloft: Stone Prophet	SSI	RP	8.89
68	Descent	Interplay	AC	8.86
	Incredible Toons	Dynamix	ST	8.86
70	Incredible Machine 2	Sierra	ST	8.85
71	Arena: The Elder Scrolls	Bethesda	RP	8.83
72	Carriers at War II	SSG	WG	8.82
73	Serf City	SSI	ST	8.80
74	Harpoon II	Three-Sixty Pacific	WG	8.78
	Tony La Russa Baseball II	SSI	SP	8.78
76	Front Page Sports Baseball	Dynamix	SP	8.76
	Myst	Broderbund	AD	8.76
78	Genghis Khan II	Koei	WG	8.74
	Veil of Darkness	SSI	RP	8.74
	Dracula Unleashed	Viacom	AD	8.74
81	Hardball IV	Accolade	SP	8.70
82	Empire Deluxe	New World Computing	ST	8.69
83	Aces Over Europe	Dynamix	SI	8.66
84	MiG-29	Spectrum HoloByte	SI	8.64
	Wolf	Sanctuary Woods	RP	8.64
	King's Quest VII	Sierra	AD	8.64
87	Superheros of Hobakan	Legend	AD	8.62
88	Space Quest V: Mutation	Sierra	AD	8.60
89	Hand Of Fate	Westwood Studios	AD	8.56
90	Kasparov's Gambit	Electronic Arts	ST	8.54
91	Rules of Engagement 2	Impressions	ST	8.52
92	The Horde	Crystal Dynamics	AC,ST	8.50
	Death Gate	Legend	AD	8.50
94	Star Trek: Judgment Rites	Interplay	AD	8.49
	Prince of Persia 2	Broderbund	AC	8.49
96	The Lost Vikings	Interplay	AC	8.46
97	Sid n' Al's Incredible Toons	Dynamix	ST	8.45
98	1942 Pacific Air War	MicroProse	SI	8.44
	Tony LaRussa 3	SSI	SP	8.44
100	Dark Legions	SSI	AC	8.43

Games on unnumbered lines have scores equal to the line above ✱ = Top game of type Dark Teal = New Game, AD = Adventure, RP = Role Playing, SI = Simulation, ST = Strategy, WG = Wargame, AC = Action, SP = Sports

The Computer Gaming World Poll

A MONTHLY SURVEY OF THE READERS OF COMPUTER GAMING WORLD

PATCHES

Computer game programs have grown so massive and the number of hardware configurations has become so huge that incompatibilities and glitches are frustratingly common. Software fixes, or "patches," for buggy programs have become a necessary evil until we reach the golden age of standardized platforms and bug-free programs.

ZDNet These patches can usually be downloaded from the major on-line networks (CompuServe, GEnie, ZiffNet) and Computer Gaming World's Web Site (http://www.ziff.com/~gaming), but can also be obtained from individual software publisher's BBSes or direct from the publisher with proof of purchase. Red indicates new files.

1830 July Upgrade: Fixes a minor bug with the C & SL (only encountered on 1st turn). Also upgrades to V & G hot keys, which will now turn on and off the city Values and hex Grids. 8/1/95

Blood Bowl Modem Patch V1.1: Adds modem play and fixes a number of known quirks. 6/7/95

Colonization for Windows Updata: Corrects some problems with the Win95 beta as well as other fixes for the original Windows version. 7/5/95

Confirmed Kill Beta Update: Brings versions 0.8.1 and 0.8.2 up to "0.3" status—the flickering view and other known problems are fixed. 6/3/95

Cyberia Save Game Patch: Corrects problems with the game not saving milestones after the conference room. 6/6/95

Daedalus Encounter V1.2: This patch solves all the known bugs in the game. Works with all previous versions. 6/10/95

Descent Registered Version 1.4a Update: Fixes reported bugs. 6/23/95

Dungeon Master 2 Sound Fix: Patches both the demo and the retail version. 7/29/95

Hardball 4 Gameplay Patch: Introduces ten levels of difficulty as well as providing other repairs and fixes. 7/26/95

Harpoon Classic V1.55b for Windows: Fixes a scenario-loading bug introduced in V1.55a as well as two more user-reported GPF errors. 6/14/95

Klik'N'Play V1.1y Update: Works only with the U.S. version, fixes several reported bugs. 7/7/95

Machiavelli The Prince V1.1 Update: Fixes several bugs. 6/23/95

NASCAR V1.2 Modem Patch: Corrects problems in playing NASCAR Racing via modem or null modem cable. This patch does not affect any other issues. 7/21/95

Omar Sharil Bridge Update: Corrects the "speech driver not found" error message, and allows Sound Blaster support at IRQ 5. 6/30/95

Operation Crusader V2.35 Update (Mac): Fixes several errors and updates version 1.0 to 2.35. 6/14/95

Renegade V1.1 Update: Works only with the 60 MB install, fixes reported bugs as well as enhancing some aspects of the game. 6/16/95

Road from Sumter to Appomattox Update: Improves the AI and fixes some combat results in e-mail mode, primarily making sure there is always counter artillery fire when artillery is available. Also units on a city unable to retreat will retreat into the city garrison. 7/15/95

Shadows of CAIRN Update: Adds easier mode and ability to cheat, fixes audio playback problems, adds sound effects and dungeon art. 6/12/95

Slipstream 5000 Updata: Fixes some problems with modem users not being able to properly connect. 8/2/95

Stalingrad Update V1.85: Fixes reported problems. 6/9/95

Super Street Fighter 2 V1.5 Updata: Corrects music and sound problems, movement bugs and gamepad calibration problems. Also includes a FAQ with information, tips, hints and codes. 6/9/95

Tank Commander V1.2 Update: Contains several fixes including removing the sharing violation error and fixing the partial install routine. 8/1/95

The Perfect General 2 Update: Updates some scenarios and includes a resign feature, as well as fixing some other small bugs. 6/9/95

USS Ticonderoga Update: Adds the following enhancements: support for the GUS, PAS and Ensoniq sound cards. Additionally, weapons on board now display in a number format. 6/21/95

Virtual Pool Video Drivers Updata: The latest batch of video drivers for the full or demo version. 6/23/95

Warlords II V1.0.6 Update for Power PC: Fixes multiple problems. 6/15/95

Wing Commander 3 Thrustmaster Hat Patch: Fixes problems associated with the Thrustmaster controller. 6/27/95

World of Xeen for Macintosh V1.1 Updata: Fixes many user-reported problems and adds a Power PC native mode. 6/2/95

X-COM: Terror From the Deep V2.0 Update: Numerous tweaks and fixes to X-COM 2. 6/3/95

Zephyr V1.1 Upgrade: Adds modem and network play as well as fixing a couple of video and headset problems. 6/20/95

Publisher BBS Numbers

Many of these patches are available direct from the publishers' bulletin board systems. Call with your modem parity settings at N-8-1.

Accolade (408) 296-8800

Apogee (508) 368-7036

Bethesda (301) 990-7552

Blizzard (714) 556-4602

Broderbund (415) 883-5889

Capstone (305) 374-6872

Creative Labs (405) 742-6660

id Software (508) 368-4137

Impressions (617) 225-2042

InterPlay (714) 252-2822

LucasArts (415) 257-3070

Maxis (510) 254-3869

MicroProse (410) 785-1841

Microsoft (206) 936-6735

NovaLogic (818) 774-9528

Origin (512) 328-8402

Papyrus (617) 576-7472

Sierra Online (206) 644-0112

Spectrum HoloByte (510) 522-8909

SSI (408) 739-6137 or (408) 739 6623

Virgin Interactive (714) 833-3305

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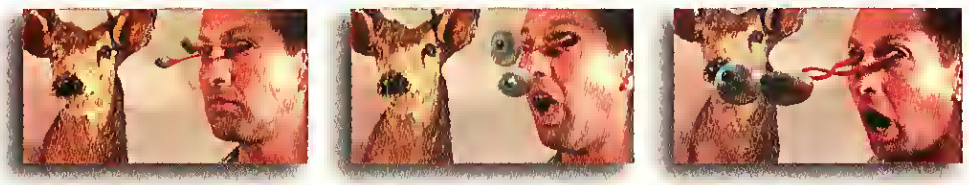

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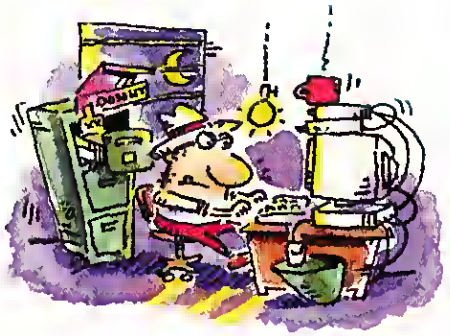

by Martin E. Cirulis

With the massive influx of money into the computer gaming industry, caused by every media company and their dog tossing a couple million at any guy in a suit who can use the words "multimedia" and "startup company" in the same sentence, there are going to be some changes in our formerly overlooked little hobby (don't forget the usual extreme predictions, like "Bill Gates will buy every game company and run everything," and, conversely, "There'll be enough money to program ANYTHING!"—try to say this last one in your best Doug Henning voice). I think one area to watch with a suspicious eye will be the kind of camp-followers who travel behind all that money—namely Lawyers and Advertising Agencies, and the unsavory changes they bring.

Witness the disturbing new type of quotes on game ads: along with the usual erudite quotations from reviewers working for this and other computer magazines, there are now such classic lines as "This game rules!" or the inevitable "I divorced my family so I could play Fill-in-the-blank!" with somebody's name and Internet address underneath. While I am all in favor of the gaming public in general making their opinions known, I am annoyed that the media-magic of an Internet address makes the comment seem somehow more valid than if it were: "Game X ROCKS!"—*Guy with baseball cap standing around in an Egghead store.* Net quotes are ridiculous, because there are more than enough people on the Net to let you find somebody spewing hyperbole about anything, if you look hard enough. Now, unfortunately, there are so many gaming mags out there—some more dubious than others—that you can do the same thing about the more traditional quotes, but at least there is some small margin of accountability there. A magazine can be held responsible, eventually... but what the heck can you do about somebody on the Internet? It could be the reincarnation of Ghandi, or the game-designer's little brother. Who knows?

Speaking of dubious marketing practices, what is the deal with these annoying "This game makes DOOM look like doggy-doo!!!" ads? I mean, I loved Magic Carpet and think the world of Bullfrog, but I thought the two-page spread they ran a while back, promoting their game at the expense of somebody else's work, was a bit tacky. Gamers want to hear about the new product, not about what the product is supposed to be better than. It used to be that game companies remembered that; programmers have always liked to proclaim they have outdone their peers, but it didn't usually make it into ad copy.

And just for the record, I'd like to point out there are more bloody games out there than DOOM anyway! How about we stop hiring publicity people whose total knowledge of the industry is the top five highest-grossing pieces of software from the previous year? What, have all the weasels from the Coke vs. Pepsi/AT&T vs. MCI wars gotten fired and started slumming on our side of town? Will we soon have to suffer through endless testimonials from barely literate sports figures, telling us that playing Falcon 4.0 made them great, and that anybody who plays US Navy Fighters is a loser?

Just on the outside chance that there are any high-salaried camp-followers out there who are actually bothering to read about computer gaming, I offer this observation, derived from too much time spent goofing off: gamers are an addictive sort, and if we like a concept we usually end up buying two or three versions of it over the course of a couple of years. Most people who loved World Circuit probably went out and bought NASCAR Racing, and the same goes for Warlords II and Master of Magic. Being in the same category does not necessarily mean you are in direct competition. It's not like the "real" world, where if we buy a Camero it means we won't be buying a 300-ZX next month. Just relax, and show us what you've got.

So, while I love to see our little industry grow, I'd hate to see it become just another happy hunting ground for those who care about nothing except making a buck off other people's business and other people's work. The greatest strength of this industry has been its sense of community, creativity and the constructive, if not always friendly, competition—and I'd hate to see it all washed away in a tide of money.

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