LOSTGARDEN

Game Post Mortem: Hard Vacuum

March 27, 2005 by Daniel Cook / comments 37

Mining a 12-year old game design for innovative game mechanics.
(Plus the complete set of 8-bit graphics available for download.)

In 1993, I worked on an unreleased RTS game design called Hard Vacuum. Dune 2, the father of the modern RTS had just come out in 1992, revolutionizing the the gaming community's perception of the possibilities of the strategy game genre. We believed that RTS games were the future and that we were the inspired game developers who were going to popularize this hitherto ignored genre.

Some historical perspective is in order. Warcraft wouldn't come out until late 1994. Command and Conquer wouldn't arrive until 1995. What many PC gamers today consider to be one of the most burnt out genres was at that time new, fresh and completely unknown to most gamers. The term 'RTS' hadn't even been invented as far as I know.

As I write this in 2005, I'm bemused by the path the RTS game genre has taken from stunning innovation to stagnant maturity. The latest Age of Empires is certainly a gorgeous game, but the core mechanics of the genre have changed little since it's peak in the late 1990s.

From this perspective, I revisit a 12-year old game design conceived near the very birth of a genre. In particular I'm interested in the unexpected solutions to common problems. What sort of bizarre innovation occurs when a game designer can't steal from the latest best seller?

Hard Vacuum: The Basics

Hard Vacuum was set in a science fiction world run by large corporations. You were a mercenary battle team, out for hire to the highest bidder and ready to kick ass. Admittedly, a rather generic plot, but then again entries into a new genre are rarely concerned with plot. Hard Vacuum also had most of the basics of your typical real-time strategy game.

- **Resource Gathering**: There were mineral deposits that you could build mining towers on to gather resources.
- **Base Building**: You could build a variety of building for generating units, new buildings, and additional resource gatherers.
- **Fighting**: There were a variety of units that could be deployed to attack enemies, destroy bases, etc. You could select them with a rubber band and send them towards the enemy.

Hard Vacuum: Innovations

There were several interesting systems in Hard Vacuum. Some made it into future RTS games and some did not.

- **Supply Lines**: When you built a mining tower on a resource deposit, there was no need to manually build and manage drones to carry the minerals back and forth. Instead, a road was built from your base to the mine. Drones were automatically created when the mine had a full load and sent along the road to your base. Enemies could blast your supply line and interrupt your flow of resources. So protecting fixed supply lines became a bit part of the strategy.
- **Variable Height Terrain**: This was a 2D tile-based game intended to run on 386 and 486 machines. We had a full system of variable height terrain. Units on higher ground would have targeting advantages over units on lower grow
- **Deformable terrain with flowing water and lava**: You could blow huge holes in terrain with artillery in order to divert streams and lava. Drop a water bomb on a city and watch it wash away an entire troop. Drop a dirt bomb to create a mountain.
- **Walls**: Walls played a huge part in the game to give large defensive barriers to attack. These existed in Dune2, but were extended in HV

game where players built intricate maps during game play. We couldn't afford to spend lots of money building maps so instead we had to create fun systems that let players create unique and interesting combat situations.

What We Lost as Game Players

Of all the mechanics in HV, the one I fail to see in new games is the focus on player-created environments. With our bloated budgets, we can afford to spend a two dozen man years creating intricate content that players use once and then throw away. Oh, you spent and hour playing map 3b in the single player campaign? Blizzard spent 5 months designing that. Now you are never going to play it ever again. What a waste.

There is a big lesson here. Without a successful game to promote the concept of player-focused creativity in the RTS genre, this intriguing game mechanic was stillborn. The concept certainly has some validity since we can see that it blossomed in the sim genre in the aftermath of SimCity's success. But without clear examples of successful application in the RTS genre, designer never really had a chance to steal it, implement in their 'next generation' games, and evolve it into something more polished.

I believe strongly that genres evolve in simple steps based on modifications to previously successful games. Games like C&C and Warcraft solidified the major conventions of RTS games. Unfortunately, in the game industry, massive success breeds design stagnation. Once a successful formula for creating a RTS was discovered, gamer designer copy the basics and then focus on polishing the basic formula. Better cut scenes, improved graphics, tweaked unit control for expert users, etc. As game designers, we only look back as far as the last successful title.
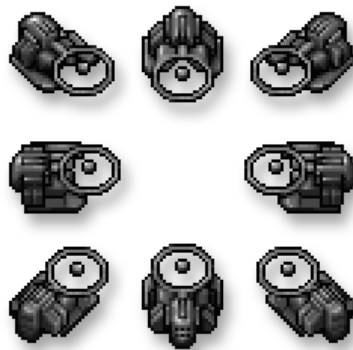
Let's play "What If"

Imagine for a moment, if a game like Hard Vacuum had achieved popularity. The ripples of a successful early title have a profound effect on future titles. Would it be obvious the most casual game player that terrain modification is a fundamental part of the basic RTS formula? Would things like supply lines and dynamic player created environments be the standard?

An even crazier thought branches off from here. If these design mechanics had become standard, what would a modern RTS game complete with physics, 3D graphics, and king-of-the-genre polish look like today?

When we look at the evolution of genres, these are intriguing questions. Game designers are too complacent in their acceptance of genre norms. It is up to us to shake things up a bit.

An Exercise for the Reader

Pick up and play an ancient copy of a game that fathered a genre. The further back you can go, the better. Clear your mind of all expectations and knowledge of what the genre evolved into. That cool thing that Half Life did with conversations. Forget it.

player experiences? You have the opportunity to reinvent an entire decade of evolutionary game design in your head. Chances are you will spawn a few original ideas.

If you can get the final project through the miserable distribution system that plagues our industry, you might even have a new genre buster on your hands.

The Hard Vacuum Team
The team that made Hard Vacuum was typical of many groups in the early 90s. We were small, self funded, still in school and willing to work crazy hours. A team like this today can not even hope to create a major block buster game.

Yet, in that time period, this seemed to be the standard. Id took the world by storm with it's first person shooter Doom in 1993. Tim Sweeney and James Schmalz were busy starting up Epic with a titles like Epic Pinball. Most teams were still below 10 people and a large number of successful games where released with core teams of 4 or 5.

I've only been able to keep track a few of the folks involved.

- **Daniel Cook**: I did the artwork and a bit of the HV design. I went to work with Epic and created a game called Tyrian that paid my bills for a long while. After that I designed a program called Anark Studio, which is used to create thousands of interactive 3D project. We even started selling it to the game developers this past year.
- **Ryan Geithman**: Ryan was our rocking lead programmer. He went on to do some amazing work on Baldur's Gate: Dark Alliance and the new Bard's Tale game. An industry man.
- **Patch**: Patch was another programmer. I have no idea what happened to him. He would call me up on pay phones to talk about game design. Every few minutes he would have to play a series of tones from his little blue box to get another few free minutes of talk time. Conference calls through phone phreaking. Those were the days. 🙂

Free Artwork
I don't have the design documents any longer, but I do have a large number of the game tiles. These were done primarily in DPaint and Brilliance using an Amiga 1000. We didn't have no stinking Wacom tablets so these were all drawn with a mouse. Pixel art at its finest.

- ~60 vehicles
- ~120 terrain tile sets
- ~30 misc graphic (bullets, blood, clouds, etc)
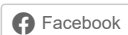- ~30 buildings
- Interface screens

Use them, abuse them. If you make anything interesting, let me know.

- [Download the Hard Vacuum Tile set (2.57megs)](#)

take care
Danc.

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37 Comments