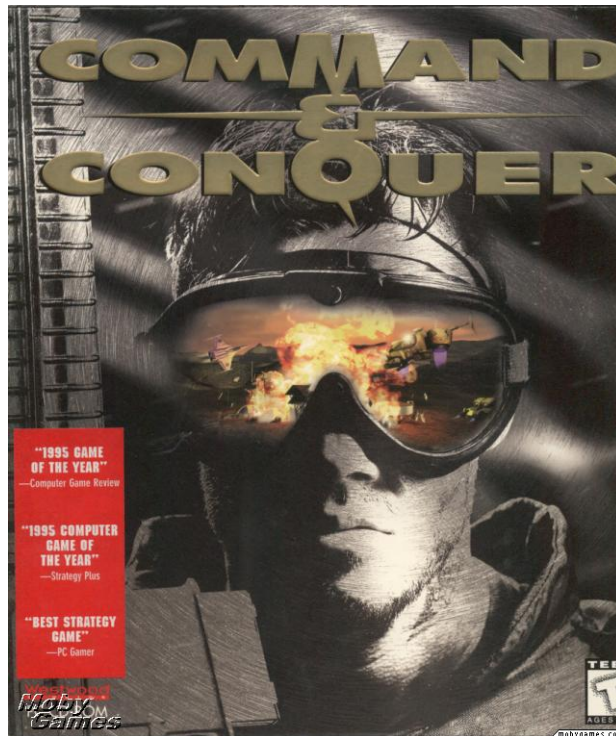


Command and Conquer in the Development of Real-Time Strategy



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Introduction

By all accounts, *Command & Conquer (C&C)* was an immediate and unmitigated success when it was released in late 1995. It spawned one of the most lucrative series in videogame history, and its title has become synonymous with real-time strategy (RTS). Yet, the basis of the game was not original. *Dune II*, from the same developer, had previously established the RTS genre, and *C&C* was almost identical in many respects. What made *C&C* such a sensation was its refinement of *Dune II*'s gameplay ideas with the addition of several key innovations, which set the standard for all games of the genre to come. Internet play and varied styles of play between the different armies in the game were some of the important advances that are now fundamental to RTS. Furthermore, *C&C*'s flaws clearly showed some areas in which improvement was possible. The AI was far from perfect, and the idea of devoting more resources to AI became a topic of discussion in the industry. In essence, by both its strengths and weaknesses, the game provided a roadmap for the further development of RTS.

History of Westwood

The history of Westwood Studios, the developer of *C&C*, is vital to the RTS genre; without *C&C*, RTS might be very different today, and without Westwood Studios, RTS might not even exist. It was the company's commitment to risk-taking and creative freedom that allowed *C&C* and RTS to bloom. In late 1983, Brett Sperry and Louis Castle met in Las Vegas, where they both frequented the local Apple store. Sperry had a background in architecture and psychology and was already working in the games

industry. Castle had recently graduated from UNLV with degrees in fine arts and computer science. Both were working as contract programmers, and thus could not pursue their own game ideas. The two became friends, and eventually decided that they would start a company together, Brelous Software, because they wanted some creative freedom. At the time, this was a brave decision because contract programming, while not giving complete job security, was a much safer alternative. Nonetheless, they quickly inked a deal with Epyx to develop *The Temple of Apshai Trilogy* (1985) under the new name Westwood Associates (Keighley).

The early years of the company were spent doing ports from 8-bit games to 16-bit for Epyx and later Strategic Simulations, Inc. (SSI). With each title, they slowly gained the trust of publishers to change the games and add their own features. Finally, Westwood was allowed to make an original game for Electronic Arts called *Mars Saga* (1988). The company continued to write more original games, and developed a solid reputation. Then came another pivotal decision. Sierra and Virgin Interactive both offered to buy Westwood, and Sierra offered more money. Despite the smaller offer, Sperry and Castle opted for Virgin because they were guaranteed more control (Keighley). Essentially, Westwood sacrificed financial concerns



Figure 1: Castle (left), Sperry (right) with Westwood titles (1988)

for creative freedom. It is impossible to know whether management at Sierra would have allowed the development of *Dune II* and subsequently *C&C*. Regardless, the fact that

Virgin imposed no restrictions on Westwood, other than financial goals, gave Sperry and Castle the ability to make unconventional games.

In this environment, Westwood was able to create *Eye of the Beholder* (1991), a real-time role-playing game that was very important to defining the RTS genre (Keighley). Sperry noted: “Our game design and programming technologies evolved by quantum leaps thanks to *Eye*. Keep in mind this all led me to ponder how the real-time aspects could be applied to strategy games, which eventually led to *Dune II* and its brother *Command & Conquer*” (Mayer). Though *Herzog Zwei* is generally considered the first RTS game, “it was *Dune 2* that put Real-Time Strategy on the map” (Del Castillo), and *C&C* that created the benchmark. In reality, *C&C* was the culmination of all the RTS ideas. Thus, a brief history of RTS will shed light on how *C&C* took all that came before it, polished it, and created the standard on which current games like *Age of Mythology* (2002) and *Warcraft III* (2002) are based.

The Development of RTS

Traditionally, paper war games, such as *Kriegsspiel*, involved complex rules and mathematical calculations in order to realistically simulate battle. The game “fell short of its potential..., the reason was usually ‘purely on the technical side of leading the game,’ specifically the difficulty officers experienced with ‘the rules, the application of dice, and the loss tables’” (Lenoir and Lowood). Computers were perfect for consistently applying predetermined rules. More importantly, the game no longer needed to be turn-based since computers could perform the calculations almost instantaneously allowing real-time play (Lowood). Sperry saw that “with the computer, you had the potential to speed

things up and obliterate the turn-based drudgery” (Romaine). Still, the marriage of war games and computers needed time to develop. Nearly three years before *Dune II* hit shelves, RTS had its first real game in *Herzog Zwei* (1989) for the Sega Genesis. Although it contained a mere fraction of the complexity of some paper war games, it was pioneering in



Figure 2: Herzog Zwei (1989)

that the player gave units orders and let them go, while controlling a fighter at the same time. Additionally, the game had a form of resource management in that units cost money and the fighter had a limited amount of fuel. The object of the game was to destroy one’s opponent’s main base by building troops at your main base or auxiliary bases. Though Sperry claims that *Herzog Zwei* was not an influence on *Dune II*, “it showed that developers were toying with the idea of strategy in real-time gaming” (Geryk).

As for *Dune II*, Sperry recalls that it “started out as a challenge I made for myself. The challenge was that strategy games would be out-of-control fun if the real-time aspect of *Eye of the Beholder* could be combined with resource management and a dynamic, flat interface.” Based on the Dune novels by Frank Herbert, the game pits the three royal houses against each other in an attempt to control spice, the game’s resource. It implemented the now-common “gather resources, build base, destroy the enemy” theme. The player controlled units simply by clicking on them and using another click to give them an order. The game had many important advances that spilled over into *C&C* as

well as current RTS games. It extended the multiple base idea of *Herzog Zwei* so that there was not a single main base, but each base functioned on its own. *Dune II* also introduced structure dependencies. Basically, to build a certain unit, one needed a certain structure, and to build certain structures, one needed to have built certain prerequisite structures, etc. Also, there was a limit on the number of units one army could build. Both of these concepts remain an integral part of RTS. The last salient feature, that would be greatly refined in *C&C*, was that the different armies had slightly different weapons. But, *Dune II* only offered a special “house weapon” to each of the three factions (Geryk). Commercially, *Dune II* was far from a failure. In fact, the game sold quite well, but it did not even approach the popularity of *C&C*. In effect, the game laid down the foundation of concepts that *C&C* would bring to the forefront of the gaming community.

As a side note, between 1992’s release of *Dune II* and 1995’s release of *C&C*, the only RTS addition was Blizzard’s *Warcraft*. However, the game was not critical in the development of RTS because it did not present any novelties from Westwood’s approach with the exception of one notable feature. *Warcraft* allowed Internet play, a feature that *C&C* would take full advantage of and improve (Shrank). In short, as Westwood developed *C&C* it was able to use everything in the RTS genre, since at that time, *Dune II* encompassed, for all intents and purposes, every feature of RTS to date.

Westwood had defined a new genre, and it was ready to pour all its knowledge into *C&C*. Sperry recalls: "The ideas for *Command & Conquer* were developing even as we were finishing *Dune II*. We learned a lot while we were making *Dune II*, just as it is with every game. You always get to the end of a project and think, 'Next time, we'd love to do this and this and this.' *Command & Conquer* was the net result of the *Dune II* wish

list" (Geryk). Thus, the games were extremely similar. Sperry even went on to say, “the mechanic of *C&C* was really an extension of *Dune II* - making it more accessible”

(Keighley). The interface and method for controlling units were all the same. Westwood Studios had to explicitly answer that *C&C* was not *Dune III* and that the game was not built on the exact same engine as *Dune II* (Westwood Official FAQ).

The sheer number of similarities between the games begs the question: what made *C&C* such a phenomenon that it was able to cause “the great sleep deprivation of 1995” (Bottorff), as one reporter put it, and skyrocket to number two in the unofficial Internet

Top 100 game chart within two weeks of release (Chown). An examination of what *C&C* brought to RTS may provide insights.



Figure 3: Similarities of *Dune II* (above) and *C&C* (below)



C&C's Contribution to RTS

Virtually every review of the game highlighted the professional look and feel of the game and its attention to detail. Every aspect of the game was well presented from the install screen to the introductory video to the cut scenes. Particularly, the digitized



Figure 4: Digitized actor in cut scene

actors in full-motion video with the cut scenes between scenarios were very well received. “Between each mission is a superbly rendered cut sequence, featuring digitised actors and computer graphics the like of which I’ve not seen before on a game of this ilk. Simply breathtaking” (Chown). Furthermore, the cut scenes added to the overall experience by providing an otherwise impossible view into the game. “The cinematics in these games let players look at the world from other perspectives, offering images and information that these players can hold in their minds as they play the game. As we watch a unit’s health go into the red in *C&C*, we remember the opening scenes of missiles and bullets ripping through flesh and steel”



Figure 5: Cut scene

(Waggoner and York). As well, the music, by Frank Klepacki (Moby Games), was heralded as a valuable addition to the game.

In regard to the way *C&C* was able to immerse the player in its world, the storyline also garnered a great deal of attention. The *C&C* reality is founded on the notion that Einstein traveled back in time to 1924 and killed Hitler. At that point, the Red Alert universe (*Red Alert* is the name of *C&C*'s sequel) splits from our own history. *C&C* is set in the near future as the Global Defense Initiative (GDI) battles the Brotherhood of NOD (NOD) for global domination (Spelt). Sperry collaborated with Eydie Laramore and Joe Bostic to write the story, which he declared was about “simplifying the geopolitical situation of today's world and projecting, you know, a little bit into the future” (Keighley). In any case, the story was engaging to gamers and was a

selling point. “The plot is interesting enough that I would buy *C&C2* just to see where thing are going to end up” (Cirulis). Principally, *C&C* brought professionalism to a genre that had previously just been an experiment.

Arguably the largest development that the game made to RTS was its ability to balance the GDI and NOD forces while giving them different units and weapons. Players benefited from using completely different styles depending on the strengths and weaknesses of the faction they were playing with. “I loved all the different units each side had and all the unique abilities available at the player's disposal. I switched from one side to the other several times, trying to decide which one I liked better. Westwood did a good job at balancing the sides so one was not overpowering the other all the time” (Shrank). NOD forces were suited for quick, sneaky attacks, whereas GDI forces were more traditional, slow-moving yet powerful units for overwhelming an opponent. The disparate forces add a whole new dimension to the game by requiring the player to adapt to their own, as well as their opponent's, strengths and weaknesses. The most popular RTS games today, such as *Age of Mythology*, are centered on balancing several very different races, demonstrating the long-lasting success of that characteristic.

Perhaps the most important feature in terms of *C&C*'s popularity was the Internet and network capability. The game could accommodate up to 4 players at a time over a network. Above all, the multiplayer aspect of the game meant that players could still enjoy *C&C* for countless hours even after beating the single player campaigns. Many reviewers asserted that the multiplayer aspect was the best part of the game. Network play is “a rather awesome experience, and probably the most fun part of *C&C*... While *C&C* is still a challenging and enjoyable game playing through the missions, the

immense satisfaction of hearing the guy sat opposite squealing as you nuke his construction centre is second to none” (Chown). Westwood encouraged players to go online by making it possible for two separate players to play each other with only one purchase. Each could use one of the two CDs included in the standard game to play simultaneously at different locations (Westwood Official FAQ). And as Peder Larson argued, creating a vibrant community of players is vital to a successful online game. The community aspect is what keeps gamers playing (Larson).

Many online services allowed communities of players to come together, such as Westwood Chat (later called Westwood Online), TEN, and Kali. A major part of the success of *C&C* online may be attributed to the Internet boom at the time. In late 1995 when the game was released, 16 million users were online, but in under three years, nearly 150 million were online (Gromov). Plus, modems were becoming more common, and *C&C* only required a 14.4 kbps modem to play smoothly (Shrank). Without doubt, *C&C* was the first extremely popular online RTS game; now, an overwhelming majority of time spent playing RTS games is online.

***C&C*'s Drawbacks**

For all the strong points of *C&C*, there were a significant number of faults in the game as well. But, these flaws were actually beneficial for RTS in that they aimed the industry toward advancement. A topic that was actually discussed in a roundtable conference of developers in 1997 was the AI in *C&C*. Steven Woodcock recounts: “real-time games took a heavy tool on AI, since the user was far more likely to be tolerant of

waiting for a computer AI to finish its turn than to see a real-time game AI act stupidly. Command & Conquer (of which almost all attendees were fans) was often used as an example of a game desperately seeking a better AI, and was often used as the example across several of the AI techniques discussed. The topic of the impact of real-time games on game AI design was a hot one” (Woodcock). Some of the major AI problems were harvesters (resource collectors) putting themselves in dangerous positions, and computer-controlled units being easily lured into strong defenses or allowing themselves to remain trapped in easily solvable situations, such as surrounded by sandbags. The conclusions that were drawn dealt with allocating more programmers and CPU time in future RTS games to AI.

The other complaint that was repeatedly raised by reviewers was that the game used only 320x200 VGA, instead of the much better SVGA. Certainly, the rapid

improvement of home computer

technology over time has allowed RTS game makers to utilize more impressive video resolutions. As such, C&C’s fault was quickly remedied in the RTS genre.

Concerning game play, players became frustrated with the “fog of war”. In C&C,



Figure 6: Low resolution video

once an area has been seen by any unit, it is forever revealed (Chown). The problem was that scouting out an enemy’s base allowed one side to have a constant view of what their opponent was doing for the rest of the game. In order to create a better simulation, and ultimately more fun game, the next major RTS game, *Warcraft II*, presented the solution.

Once an area was scouted but no longer within view of a unit, it had an intermediate sort of fog that allowed a player to see the terrain, but not if there were enemy units there. Today, this is way the fog of war operates in such games as *Age of Mythology* and *Warcraft III* (Lowood). Again, identification of a C&C problem led to an RTS breakthrough.

Conclusion

The subtle yet important differences of *C&C* from its brother *Dune II* garnered the game numerous awards, including “Game of the Year” by Computer Games – Strategy Plus and “Editor’s Choice” by PC Gamer. The game had perfected the RTS concepts so much so that sales reached \$450 million by 1999 (Romaine). Equally important, *C&C*’s widespread appeal also allowed a large part of the industry to use the game as a subject for evaluation – evaluation that would lead to improvement in RTS. All things considered, Westwood Studios plotted the future of RTS through its originality and refusal to give up artistic liberty. *C&C* contained the nucleus of all the prominent features that are still used today. Consequently, *C&C* remains the yardstick by which *Starcraft*, *Age of Mythology*, *Warcraft III*, and even the recently released *Command & Conquer: Generals* are measured.

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