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DOOM

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Beefy Chunklets from Bible to Beta

At the beginning of *DOOM*'s development, Tom Hall created a document to collect his thoughts and inform the design process. The *DOOM Bible*¹ contains some basic design information such as endgame states, command-line prompts, lists of graphics and audio, and, at the end, press releases, a glossary of terms, information on extensions and utilities, and the phone numbers and addresses of local fast-food delivery outlets. The central section is taken up with what proved to be the flash point of Hall and id's split: the story.

In fact, both Hall and Romero agree that the final version of the game doesn't actually deviate that much from Hall's original vision. For Romero, this is because the Bible establishes the world of the game—a concept, some leads on environments, ideas for weapons, all generic world-building details. What didn't make it, he suggests are “some things that were just too one-offish and didn't add to the experience” (JR). The most notable of these casualties are the five characters of the original concept. What's important about this is that as far as the Bible seems to be concerned, *DOOM* was envisaged as a multiplayer co-op. Once again, this shows just how far ahead of the curve the members of the id team were thinking in terms of the FPS. During the first episode, designed to be released as shareware, the action returns to the room seen in the opening cutscenes, where a card game is interrupted by the invasion. The Bible states that it contains “four minus the number of players' bodies.”

After the emphasis on cooperative play, the second major deviation is in the complexity of the story and its episodic structure. Although the basic story of *DOOM* actually made it into the released game—albeit spread

across both *DOOM* and *DOOM II* (id Software 1995)—Hall’s original story involves multiple battles around multiple dimensional gates. The initial crisis remains the same, as does the player entering a gate at the end of Episode 1 and fighting through Hell to return. At this point, *DOOM* concludes, but the Bible story has much more to give. The player returns to find another base, also overrun, and beats off the demon threat there. Episode 3 ends with the entire moon being bombed, destroying the dimensional gate. The action then shifts to another moon; Episodes 4 and 5 describe an assault on this moon and the attempt to reclaim a stolen weapon (with a tour of Hell thrown in). Finally, Episode 6 introduces a third gate location and the need to destroy a demonic machine that is enlarging the small rift, before more forces can come through. At this point, the Bible shifts to “Commercial Game,” which sees the invasion of Earth by demonic forces. As Hall puts it, “My *DOOM* Bible detailed a progression from Earth to Hell to Earth-corrupted-by-Hell, which is the most disturbing. . . . And that’s funny since they did finish that arc in *DOOM II*” (THa).²

There is no doubt that the final version of *DOOM* simplified this structure considerably, reducing it to the attempted escape from Phobos, the assault on Deimos, and the battle through Hell, returning to an Earth already invaded in the final, postplay plot twist. The cutscenes, multiple characters, complex narrative, and action that spans multiple worlds are all gone. This ties in with Romero’s insistence that the Bible essentially acted as a world-prompting tool rather than a narrative structure, and the core aspect of it was the central idea of fusing science fiction with supernatural horror.

The Bible wasn’t too specific about design stuff. It was like here are locations, here’s the idea if this anomaly happens, and instead of aliens from somewhere in the universe coming through, it’s demons from hell, which is a total juxtaposition from what you expect to see in space. You’d never expect that in space, and that was our cool hook, that something you’d just never expect. (JR)

Famously, this now recurring theme in gaming came about through id’s off-duty role playing. John Carmack (as Dungeon Master, of course) had created a complex world containing a powerful magic book controlling the demonic realms. Romero, in return for personally gaining an equally powerful weapon, the Daikatana, gave it to the leader of the demons, allowing them to overrun and destroy the world. The second major influence

was James Cameron’s film *Aliens* (1986). Kushner reports that Jay Wilbur, then working as id’s business manager, investigated purchasing the rights for making a game of the movie but that the team decided against it: “They didn’t want some movie company telling them what they could and couldn’t put in their game” (2003, 122). But as Romero puts it, id loved not only the setting of *Aliens* but also “the fear and the speed of it” (JR). A third influence was Sam Raimi’s film *The Evil Dead* (1981), which brought black, gross-out humor and a chainsaw to the party. From this basic premise, this fusion of worlds and styles, Hall constructed his story, and although he agrees with Romero that the Bible saturates the game in terms of concepts and design ideas, he maintains that abandoning basically all characters and all but the most basic plot was unnecessary.

All I wanted for *DOOM* is that little bit of start story to give meaning to what you are doing. For example, *Aliens* would have been a good movie if they landed and aliens jumped out and were scary. But there were two bits of story—worry about the missing child Newt and seeing all the alien transponders in one place. So you were pulled forward by one and afraid of facing the other but knew Ripley had to go there. So that deepens the tension and emotion, and you are invested in it. And that for *DOOM* could’ve been easy and simple. Of course, it’s brilliant as it is though. (THa)

The Bible only goes into detail about Episode 1. There are fifteen environments described, each including subareas, special features, and Easter eggs. Without doubt, Hall was aiming for a more “realistic” pathway through the base, and this was evident in his early level designs. Along with the complex story, this push for realism was abandoned in favor of high-impact, more comic-book stylings. After Petersen was drafted in, he rebuilt several of Hall’s levels, adding the more lurid, gothic elements for which his levels are notable. In fact, Romero sees much of the final design, the final feel of the game, as a product of the process of actually building it, reaffirming the Bible’s status as conceptual primer, rather than design document. As will be discussed in the next chapter, as *DOOM* was developing as a game, so Carmack and Romero were breaking new ground technologically, and these advances created the design space as much as they were solutions to design problems. According to Romero, the early work on *DOOM* did little more than clone *Wolfenstein 3D*, as can be seen in the earliest tech preview,

released on February 4, 1993. While the members of the id team were committed to a new vision, a new game that leapt forward from *Wolfenstein 3D*, they were still working on the older tool set, creating new applications as they needed them. The Bible describes several of these: Lumpy, WadLink, and the Fuzzy Pumper Palette Shop.³ But it also lists the new features being worked toward: Carmack's texture mapping, nonorthogonal walls, variable heights, new light sourcing and illumination drop-offs, and palette transitions for increased color use, as well as making much of the multiplayer dimension and environment morphing, which perhaps didn't really come into its own until *Quake*. The Bible also includes the immortal line "In 1993, we fully expect to be the number one cause of decreased productivity in businesses around the world." I will return to this in chapter 7. Of course, not all of these tools and functions were available at the outset (far from it), and id's heady ambitions for both game design and game technology pour out of the Bible like Imps from a dimensional portal.

Given the height of the bar the members of the id team had very publicly set themselves, it's no surprise that early design was a challenge. Romero sees this as a mental, conceptual challenge as much as anything else, a need to "break out of that design space we were in from *Wolfenstein 3D*." There is little doubt that his ethos of designing from the player's perspective, a natural sense of what he would want to see in the game, provided momentum to the breaking out of *Wolfenstein 3D* and into *DOOM*. He recalls,

So I told the artist that I'm going to go and figure this out right now; I'm not going to wait for anybody to define what *DOOM* is going to look like, I'm doing it now. So I went in my office, taking a break from programming DoomEd, . . . spent a while coming up with an interesting little flow area, you know, a pathway, going up some stairs. And the pathway was kind of claustrophobic, with varying light levels and stairs, and then it opens up into this giant room, and then there were raised areas on the sides of this, with monsters, and that was actually a room that ended up being in E1M2,⁴ the second level of the game—it's still in there. But that one room was something I thought looked really cool, and when I got the artist to look at it, I just said, "OK, here you are," and I walked through it, and when we got to that room and it opened up, they were like "Yeah, that's awesome" and I thought, "This is it, this is how we're doing our levels." So that really defined how we were going

to build our levels, and the whole game reflected that, that level design breakthrough. (JR)

Romero's words are a clear illustration of the mind that took the technological advances and the concept document, chewed them over, and spat back out the essential design vision of *DOOM*. Hall has different recollections of the early phases of design, particularly on the subject of the "one big world" described in the Bible. According to Romero and Hall,⁵ this was driven by Carmack and eventually foundered on the technical constraints of the time. Hall recalls,

In *DOOM*, I was flat out against one big world. I thought the players liked the level-to-level nature of *Wolfenstein 3D* and that was wrong to change. But it was decided to do one big world. So I designed that for weeks. Then it was back to level-to-level, overnight, and I'd just wasted tons of work that I disagreed with in the first place. (THa)⁶

Regardless of the extent to which *DOOM* may have been conceptualized as a linear or arena shooter (there are tantalizing hints here of sandboxing, but that may be reading a little too far into things), one thing that the Bible, tech demos, Romero, and Hall all agree on is the need for immersion, realized by carefully crafting a corridor of action, emotional affect, spectacle, and fidelity and then shoving a player down it as fast as ludically and technologically possible. *Immersion* may be a highly problematic word in academic circles, but that hasn't stopped it from being a holy grail for game designers, operating on a populist, fuzzy definition that doesn't appear to give anyone in the industry much cause for concern.⁷ A huge amount of *DOOM*'s design is geared toward dragging players into the world and not letting them out again, usually through the easier-said-than-done trick of having them not even consider stopping play. Kevin Cloud talks of the need to engage the player on a level that is more emotional than cognitive.

You actually *feel* fear where a demon is shooting at you. You play *DOOM* today and it's kind of silly compared to what players are now used to, which is more sophisticated. But back then, with a fireball coming at you, people would physically dodge in their chair, and that was something new to games. (KC)⁸

For both Cloud and Carmack, FPS games were routed as much in the rhetoric of virtual reality as in the history of the arcades. For them, *DOOM* was about challenging the assumptions of virtual reality as proposed by the likes of Jaron Lanier or Howard Rheingold. Interestingly, Cloud argues that the expected future of first-person perspective in games was not necessarily the direction *DOOM* took and that the roots in RPG exerted a great deal of influence.

From a gameplay perspective, you've got to keep in mind that back then, there were a lot of different directions a first-person game could go. Of course, the first thing that people think about with first-person games is being in a virtual reality, that natural extension: where do I go—what's the eventual extension of a first-person game? It's a holodeck or something. So there was a lot of thinking, OK, this first-person environment would make a great RPG world, kind of dripped in reality, a lot things, very real and detailed. . . . And, of course, with *Wolfenstein 3D* and *DOOM*, we took the idea of just emphasizing combat and having a very fast-paced and visceral and in-your-face action. And that's where the design focus was. (KC)

In *DOOM*, small, tight, cramped, dark corridors suddenly opened into huge expansive spaces; sectors leaked sound into one another, so not only could you hear demons off out there in the dark somewhere, but you could hear them hearing you; and split levels meant that there were places visible but out of reach, begging you to just find the right way. Before you add in the dynamic elements of agents, weapons, and puzzles, the environments of *DOOM* suddenly shifted from *Wolfenstein 3D*'s flat corridors to a world to explore and, critically, one that visually rewarded exploration.

Romero's statement that the game's environments constructed in early 1993 owed more to *Wolfenstein 3D* than to the vision of *DOOM* isn't necessarily true. Without doubt, the February 1993 pre-alpha is fairly basic. It takes the form of a small map with irregular walls in place (i.e., ninety-degree corners have already gone), complete with sprites of three of the demons from the finished game: Hell Knights, Imps, and Pinkys. The fact that these sprites are not only present but remain unchanged right through to the release version suggests, perhaps, that, despite Romero's protestations, there was—at least in part—a singular vision of *DOOM* right there

from the start. In a way, the sprites had already evolved way beyond their contemporaries, setting a high bar for the rest of the game to aspire to. The pre-alpha announces itself as “2 months work,” but it is already beginning to accelerate away from *Wolfenstein 3D*. It gives the user the option to cycle through a few examples of texture-mapped ceilings, walls, and floors, and although the resolution is low by today’s standards, the cartoon flavor of *Wolfenstein 3D* is conspicuously absent. It is clearly apparent that regardless of *DOOM*’s arcade gameplay, the visual identity of the game draws deeply from the first-person RPGs that preceded it, like *Ultima Underworld*.

The other major point of interest in the pre-alpha is the HUD: alongside the weapon indicator, a map is continuously present. The bottom right shows item pickups: a Sandwich, the Heart of Lothian, and the Captain’s Hand. At bottom left is a text/speech box. The unique items would be replaced with colored keycards as the progress toward release was made, and this is perhaps one of the most indicative ways in which *DOOM*’s world was streamlined. In fact, the spinning title of the first alpha (April 2, 1993) includes not just credits but high scores, which is about as arcade as it gets and suggests a return to *Wolfenstein 3D*’s treasure chests. Some of the items dotted around as collectables in the alphas—not just ammo and health kits but blood-filled goblets and skull boxes—exist alongside functional items (keycards are also present now) as further evidence that id was toying with a score system. In fact, this is confirmed by the beta press release, which includes an item count in the HUD, alongside counts for health, armor, keycards, and ammo.

The 0_4 alpha version allows the player to explore nine levels, and the distinction between these is telling. It is also the first glimpse of *DOOM* as we know it, particularly levels 1, 4, and 5. Each level starts with the player joined by three other marines; at this point, co-operative multiplayer is still very much in the mix. In fact, level 1 actually starts with the card game described in the Bible. A significant proportion of the alpha is at a very early stage: levels are blankly lit and basically textured (fig. 2). Having said that, many of the areas are recycled into the final game, and some parts are instantly recognizable. Nathan Lineback includes on his fan site a full list of which alpha levels ended up integrated into which release levels,⁹ and the most obviously recognizable is the fourth alpha level, which became E1M7 Computer Station in the final release. Even in the more detailed levels, the dark mood of *DOOM* is mostly absent (this is taking on board the part-built nature of the environments, the lack of combat, and the lack of audio, of course).



Fig 2. E1M1 from the 0_4 alpha version of *DOOM*, showing light, science-fiction stylings



Fig 3. E1M1 from the 0_4 alpha version of *DOOM*, showing an early split-level set piece featuring adjoining sector design

The three core ingredients of *DOOM*'s design—or, certainly, the springboards from which it leapt away from *Wolfenstein 3D*—are already in place in the first alpha: these are variable and dynamic environments, dynamic lighting, and cut-through sectors. According to the notes accompanying the release, moving sectors (raising and lowering platforms) are already designed into the levels but nonoperational. In fact, it's probably fair to say that these core features were still being explored at this point. Level 1 contains an extended set of spiraling, tunnel-like staircases leading out onto a ledge overlooking another room full of Imps, an early variation on the sector joining that was to be such a signature design piece (fig. 3). It ended up in E2M7, although it was really refined to maximize the impact of interior/exterior scales for the opening of E1M1 Hangar.

If the first level is a tantalizing glimpse at what these new techniques might be able to achieve, level 4 is a genuine portal into the future. It's certainly the most assured, polished level in the first alpha and contains the first real moment where split sectors and variable heights create a real wow factor. Turning right from the starting point, the player emerges from a corridor onto a ledge projecting over a lake of nukage (fig. 4). The room is vast and enclosed, with other wings of the complex forming the boundaries of the lake. In the walls of these other structures are windows, not just texture windows, but genuine windows you can see through. Although there aren't any moving dangerous agents to fight at this point, the implications are right there: holes in walls allow line of sight, sound, and, perhaps most important, bullets—in both directions. In *Wolfenstein 3D*, there really wasn't much scope for strategy, apart from the odd instance of perhaps choosing not to enter a room full of machine-gun-toting SS officers with only twenty-three health units and six bullets in the pistol or leading a Hitler ghost away from a pack of others to more safely dispatch him. *DOOM* changed things significantly. Suddenly, the multilevel split sectors enabled a more intelligent approach to be considered. But it didn't slow things down particularly, and it certainly wasn't an indication that the action was going to be less fast paced or desperate. If anything, it ramped up the tension by letting the player know that, sooner or later, they were going to have to hit that room and all it contained. Sure, the odd bit of long-range sniping became possible, but it also meant you could be picked off at a distance by an Imp's fireball. The split sectors meant sound leaked, so it was a pretty safe bet that if you could hear the demons, they could hear you.

Romero describes this “sound flooding” as an entirely new way of ac-

tivating enemies, a subtly unique feature that maximized the atmosphere (and the artificial intelligence) of the system, creating the impression that, unlike *Wolfenstein 3D*, this wasn't just a hostile, heavily defended environment for players to force their way through but a more balanced, less comfortable situation. While *DOOM* was to be essentially a badass, shotgun-toting demon hunt, it was pretty clear that you were being hunted right back. According to Romero, sound flooding was hardwired into sector design for most levels.

We used sound zones in *Wolfenstein 3D* as another way to alert enemies to your presence. In *DOOM*, we did the same thing but used sectors as the conduits of audio travel. This was a really important part of making the game scary, as sound could leak all over the place and alert demons. You might see lots of little sector pipes that connect sectors together just to alert monsters—sectors that you'd never see because we put them way up high in the corner of a room. So, we paid a lot of attention to the sound flooding. (JR)

Jump forward a month to the second alpha release, 0_5 (May 22, 1993). This time, we are presented with six levels, even though we've got no monsters moving around (they are in the levels, but just as static sprites). The HUD has changed again. Now we have placeholders for four ammo types (bullets, shells, missiles, and cells) and, over on the right, some intriguingly arcade-like placeholders for time, lives, and score. Of the last three counters, only the one for time made it into the final version of the game, and I will return to the cult of the speedrun in due course. Carmack sees the process of these aspects being removed as indicative of id understanding that they were beginning to move into distinctly new territory.

In many ways, we were still in the arcade design experience. It's funny if you look back on it—*DOOM* was the first major game that did away with lives. *Wolfenstein 3D* still had lives and 1-ups, and we only realized in there—we're not taking quarters from people, they should be able to keep playing the game, we don't want to send them back to the beginning, we've got save games. . . . *DOOM* is more of exploring the world. Although there are things like getting the 100 percent counts, and the par times [target times for completing each level] still had a reasonably important role in *DOOM*. And it is interesting in recent years to see the resurgence of achievements. (JC)



Fig 4. E1M4 from the 0_4 alpha version of *DOOM*, showing the large enclosed acid lake and windowed structures visible from the player's location

Eventually, scoring would be reduced to a percentage for kills and secrets, but not just yet. Once the game opens, we have a new function, the automap (created by *DOOM*'s other coder, Dave Taylor). We also have animated and functional acid (causing damage to the player), more dynamic lighting, and working switches. Transition between levels shows us an embryonic level map (fig. 5), which would serve as the background for announcing level names, kills, secrets, and timings against par (I'll go into more detail on that later).

Level 2 gives us floor trip switches, secret doors, item pickups, and moving environments. The third part of the design triumvirate is now in place: floors rise and fall, enabling access to split-level environments, drops into new areas, and hidden locations to be suddenly revealed. At this point, many of the levels are recognizable versions of those found in the final release (level 2 is E1M2 Containment Area more or less as is). The movement forward is perhaps less marked—it was released only a month later than 0_4, after all—but the design is starting to come together. The use of split levels, dynamic lighting, moving environments, and split sectors can be seen as informing a design style that has now moved fully away from *Wolfenstein 3D* and is as obsessed with the vertical axis as with the horizon-

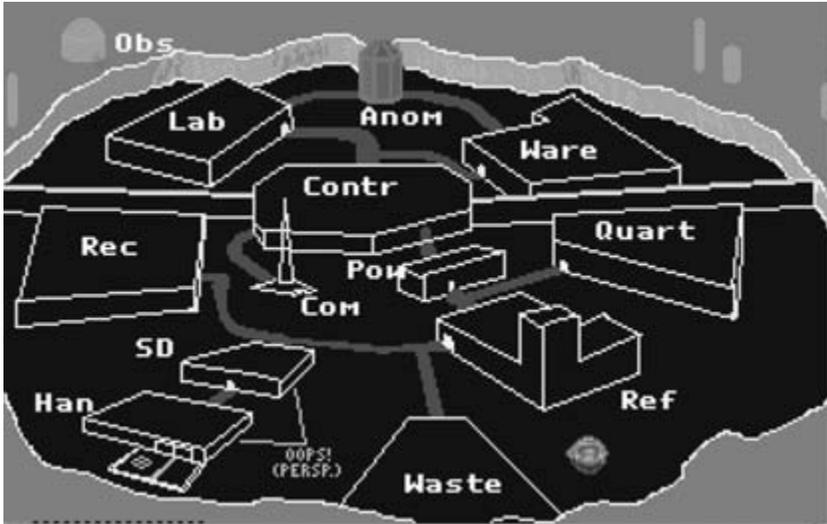


Fig 5. The interlevel map screen from the 0_5 alpha version of DOOM

tal (fig. 6). Gone are the linked series of independent rooms and corridors. Instead, there is a more organic, integrated network of sectors that spill into one another, lie over and around each other, and operate together to create environments with distinct flavors and feels. Whereas *Wolfenstein 3D*'s world was largely interchangeable (a backdrop to the action and little else), *DOOM*'s world had its own identity, a part to play in the experience. Even if the members of the id team were ditching most of the complexities of Hall's original vision in terms of plot and character, they had leapt seismically forward in their understanding of the importance of set design.

Five months pass before the next outing of the game, and it's the final prelaunch press demo, password protected and time-locked to no later than October 31, 1993. It has three levels, one from each episode (E1M2, E2M2, and E3M5), in their more or less finished forms. We still have more Hell-styled artifacts kicking around the joint; we have a different fire mode for the Big Fucking Gun (BFG); we have working monsters, with Zombies, Hell Barons, Lost Souls, and Cacodemons joining the party; and we still have a score counter, displayed in the automap function (with scores ranging from Zombies at 200 points to Hell Barons at 10,000). An items counter also remains in the HUD bar, but apart from that, it's the final version (the items



Fig 6. The 0.5 alpha version of *DOOM*, showing increased complexity in environment design

and score features are entirely separate as well). On finishing each level, a working version of the interlevel map is presented, with scores for kills, items, and secrets. A bonus and score are also featured, as well as time and par time. The level is linked to a feature on the map with the words “You were here.”

In terms of features and functions, the pre-beta stands more or less alongside the final game. Not every monster is implemented, lifts and doors move at about half speed, the BFG is more of a souped-up plasma gun than a room-clearing one-shot weapon, and we’re still seeing score and item counters being kicked around, but this is essentially *DOOM* as we now know it. Even without audio, the mood is there: dark, fast, tense. The design ethos is all in place: twisting corridors open up into large split-level rooms, and exterior and interior sections allow for radically different senses of scale to exist within a single level. Switches trigger doors at remote locations, making the automap a genuinely useful feature and allowing for the monster closets to make their first appearances. Suddenly, the game is about looking up to find an Imp fireballing you from a high ledge, looking down as a lift drops you into a dark pit you can’t shoot into but know is full of Pinkys, feel-

ing your way around in half light until strobing lights suddenly announce the presence of a Cacodemon (although it was that seething wet hiss that really made them the stuff of nightmares), and a well-placed rocket turning a room full of Zombies into a rain of beefy chunklets.

There was one addition to the list of casualties for anyone who had battled and blasted their way through the press demo. In the credits for the game, Sandy Petersen was now on the list as designer, but the creative director wasn't. Tom Hall had gone.