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DOOM

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CHAPTER 9

A “Shot-By-Shot” Analysis of *DOOM*, Part 2

The Shores of Hell

A bunch of text appearing one character at a time over a tiled metal background is not pretty, even making allowances for it being 1993. But, then, it never really was about a glamorous final cutscene. There’s a whole new episode to get through, and we’re leaving behind Romero’s tightly packed, visually lean and relatively logical, sci-fi design for the sprawling, lurid, and occasionally downright insane worlds of Sandy Petersen. If anything, Episode 2 functions neatly as a transition into the full gothique, as many of the levels were based on original designs and early builds by Hall. On one hand, we have the initial concept of *DOOM* and the desire to replicate “real spaces” that are evident in Hall’s Bible. On the other, hitting it head-on with the meaty smack of fist into palm, are Peterson’s primary colors and heavy school-of-*Cthulhu* vibe. Given that the episode’s story, such as it is, is all about an industrial base sucked into Hell and warped and twisted in the process, that’d be a happy coincidence, at the very least.

Famously, Episode 2 is made up primarily of levels started by Hall and, to varying degrees, overhauled or reinvented by Petersen. This creates a unique flavor to the episode and neatly fits the concept of Hell invading the Martian bases. Petersen agrees with this idea.

I do think that the contrast between our styles in Level 2 [*sic*] really went a long way towards making it a mix of Hell and Science Fiction. Me providing the Hell, of course. (SP)¹

In terms of Hall's contribution, Petersen estimates that "50 percent or more" of the work was his own but credits his predecessor with "the bones" of most of it. Petersen is quick to give credit to Hall's work on "the excellent E2M2," saying that he didn't even retexture the map for the most part and that secrets and positioning were already done in the majority of cases. Petersen admits, though,

Most of his levels were in a very primitive state when I took them on. For instance, E3M3 was one of his, but the only texture he had everywhere on the map was the silver metal one. This wasn't his fault, of course—he did that map when that was the only texture available. But I had to add a ton of stuff to complete it. (SP)

It is important to reiterate that there is no criticism of Hall's ability as a designer being made here: he simply didn't have the tools to work with at the point when he left id. The more interesting point is that if Episode 2 feels like a slightly disjointed, messy affair in places, a sense that one world is literally invading the other, then this may well come down to not just Petersen's brief of "a space station infected with Hell" but the process of early designs being overwritten and mangled to fit a new vision. It's also perhaps intriguing to note that Petersen never read Hall's Bible, that, by this point, *DOOM*'s world and concept had achieved a kind of escape velocity from much of the material it contained. I do wonder what Hell would have looked like in an alternate universe, where Hall remained and Petersen never unleashed his vision onto Deimos.

The Shores of Hell opens up with a level that wastes no time in telling us to expect something quite different. It's staccato and disjointed—seven sections of map only connected by teleporters. Gone is the type of visual orientation that Romero's use of exterior spaces and windows provided, where we could literally see where we were headed much of the time. Instead, E2M1 Deimos Anomaly offers no clues as to where we are and where we are headed (fig. 12). We may have come across teleporters in Episode 1, if we were exploring all the secret areas, so we might have a clue what these red pulsing squares are all about. But if we hit the teleporters at a run, we'll find ourselves at the end of the level without the keycards we need to get into the exit. The first of those is beyond the teleporter, off around the corner, and the second is in a secret wall we need to activate by tripping three sequential switches. Then there's this massive, red, pulsing, inverted crucifix we have



Fig. 12. Disparate map areas only linked by teleporters in *DOOM*'s E2M1.
(From Ian Albert, www.ian-albert/doom_maps.)

to go through, only it hurts to do that, like a nukage floor. To begin with, it might be the normal run of gray lab walls, but two teleports later, we are in what looks like a rotting green castle. Out of the only window, we see a red sky over the mountains. Gone is the green acidic nukage; now it's rivers of blood. We get to what feels like a final room and see the switch that surely must take us forward, and then, from behind us, comes a seething, putrid

hissing, and we spin round to find a huge ball of red flesh bearing down on us, spewing blue and red balls of fire.

First among the innovations of this level, teleporters fundamentally change the way in which level design can operate from this point on in *DOOM*. They immediately make clear that logical transitions in terms of moving from one sector to another are no longer necessarily the order of the day. This also frees up the design space, as the positioning of sectors is no longer quite as critical (in terms of laying spaces around one another to fake vertical stacking). Teleporters offer an easy way of faking distance, travel, and colocation and, in weaker clones to follow *DOOM*, a get-out clause for lazy or less talented designers to basically do what they want, where they want, when they want. Second, we start to see the signature fusion of sci-fi and gothic that characterizes Episode 2 and to get a real sense of the more traditional demonic stylings that Petersen was going to bring to the proceedings. Third and finally, we have not just a new monster but a new class of monster. The Cacodemon is as tall as a Baron but equally wide, a floating globe of death that dwarfs the Imps, Troopers, and Pinkys. Most important, it can fly, which offers a whole new bag of opportunities in terms of creature placement. Imps and Troopers may have been able to cross nukage spills without any problems, but they are limited in pathfinding to walkways and ledges, and drops were previously used to keep them away from the player and vice versa. Suddenly, with Cacodemons, enemies can cross chasms and drop or rise unexpectedly from gaps in the ceilings or floors. They are tough too, boasting 400 hit points and covering 93 MUS, with a lethal projectile moving at 350 MUS and inflicting 5–40 damage and with a bite dealing 10–60 damage. Yet they are vulnerable to high-rate-of-fire weapons like the chaingun and can even be pushed backward until they are unable to get a shot back.²

To counterbalance the Cacodemons, tucked away in a secret room in the Deimos Anomaly is a new addition to our arsenal, the Plasma Gun. This is an interesting case study of the superb weapon balancing in the game. Superficially, it's a beefed-up chaingun, firing a massive 700 shots per minute, with each shot causing 5–40 damage (that's potentially 35 extra damage per shot over the chaingun). However, balancing this is the fact that the plasma gun is a projectile (rather than hitscan) weapon, so even though the shots are fast, covering 875 MUS (in comparison, rockets travel at 700 MUS), the weapon becomes quite inaccurate at range, as target movement must be factored in. This makes the plasma gun a firm favorite in close quarters,

as the rapid fire is much more likely to trigger a pain reflex in the target, reducing its ability to fight back, but the gun is compromised by limited resources and potentially severe drawbacks at range. It's this combination of factors in the weapon balance that is most critically combined with level design. In other words, inclusion of the plasma gun within a level requires reduced ammo (which can be profoundly disappointing for a player all excited about their new toy) or inclusion of areas where, like the shotgun, the weapon's capabilities are reduced. Equally, placing a rocket launcher is likely to mean any other weapon is bumped off the top spot, but it's going straight back into the holster if we suddenly hit a section of small, winding tunnels. Since *DOOM*, weapons with splash effect and projectiles like the plasma gun have become like old friends, and we all know that a shotgun is the best thing in a tight squeeze. Yet understanding how to balance shifting the player from weapon to weapon—not just providing the chance for favoritism to shine, but rewarding a dynamic, balanced, and considered approach to deploying one's arsenal—is surprisingly difficult, judging by the evidence. This is significantly more complex than *Wolfenstein 3D*, which had only one ammo counter, so the only strategy to be considered was the potential waste of bullets when sweeping an area with the chaingun.

E2M2 Containment Area is generally remembered for the large warehouse section it opens with, although that's actually only one facet of a large and complex level—even if it does take up nearly half of the actual floor plan. While, in some respects, it's not a million miles away from the claustrophobic tunnel crawls of earlier levels (in terms of fast reactions being required to cope with Imps popping up around tight bends and reduced lines of sight), the high ceiling and light, airy feel creates a quite different tone (fig. 13). Also, for the first time in the game, it is possible to climb boxes if the correct sizes are near to each other, a more sophisticated and player-friendly version of pseudoplatforming than we found in the Military Base. Give it a year or two and the addition of a jump function, and crate hopping in a beast-filled warehouse would be standard FPS fare. Once out of the warehouse, however—and it doesn't take long to get out of it—the rest of the level is a mix of gothic green castle and high-concept sci-fi, complete with blue pulsing energy tunnels, rising and falling pistons, a lava pit with a secret rising walkway, a series of five crushing ceilings, a nukage river, a sort of industrial warehouse room with a chaingun on a plinth, and a pillared area that almost resembles a high-tech jail, with incarcerated hellspawn. Containment Area also introduces two new features to the game: another

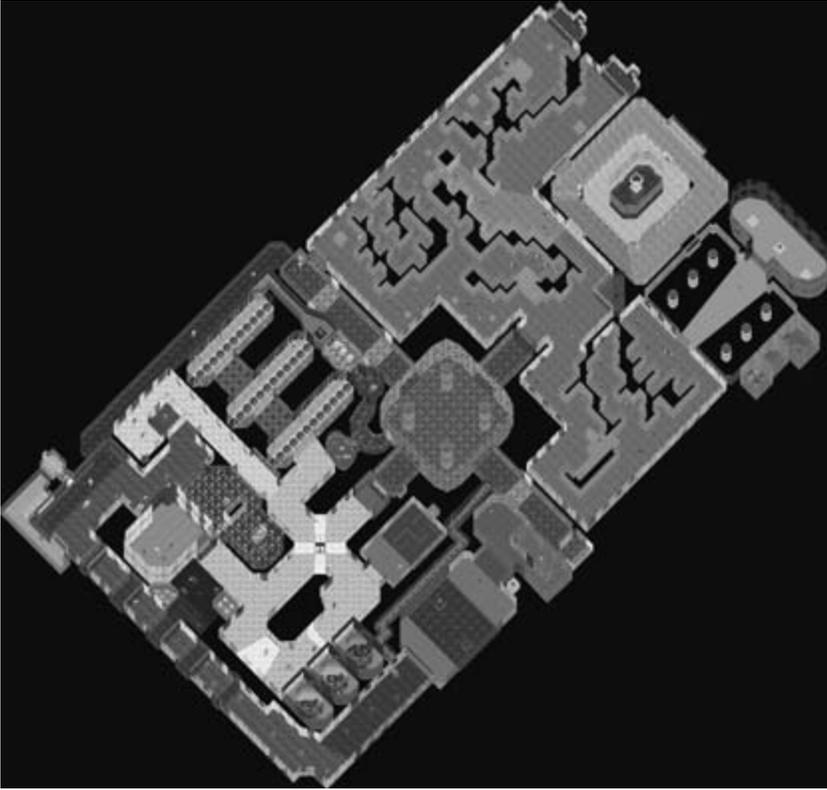


Fig. 13. *DOOM*'s E2M2 Containment Area. The box maze is the upper half of the map. (From Ian Albert, www.ian-albert.com/doom_maps.)

enemy, in the Lost Soul, and a new power-up melee weapon, Berserk. The latter fills the screen with red haze, gives an instant health boost, and increases fist damage by a factor of ten, meaning each punch now delivers a massive 20–200 damage for the remainder of the level. We still have to get up close and personal to use it, and the rate of shots per minute isn't massive, so, more than anything else, Berserk really shines as a perk for more skilled players, encouraging a more high-risk approach to combat, rather than shooting and strafing from a distance. Unlike the chainsaw, Berserk is powerful with each hit, so we don't need to stand there taking damage to do damage. In the hands of a top player, Berserk is like a cross between bare-knuckle boxing and ballet.

Lost Souls are another flying menace that subtly changes combat, as their new features mean a reconsideration of approach, particularly if they are in a mixed group (they are rarely encountered alone but are especially troublesome if it's not just Lost Souls the player is up against). Originally, way back in the press beta, the Lost Souls appeared in map 2 (which ended up as E3M5 Unholy Cathedral), still as flying skulls, but minus the flames and a hitscan attack for distance damage. By the time Episode 2 hit the streets, this was gone, replaced with a melee only attack doing 3–24 damage. Normally, the Lost Souls move at a sedate 47 MUS but are capable of a sudden charging attack, shooting toward the player at 175 MUS. On a miss, the charge carries them straight on into walls, other monsters, whatever gets in the way. They can be stopped dead with a single shot, but when a player is faced with a pack of the things, each with 100 hit points (requiring several shots to take down), the situation could very easily get out of hand. This would be amplified dramatically if the situation really called for the heavy guns, like a rocket launcher, where a premature bit of splash damage could take out even the most experienced player. In enclosed spaces, being crowded by five or six Lost Souls, all jostling for a bite, is usually an uncomfortable experience. In fact, I'd even go so far as to suggest that this is one of the very few places where *DOOM* gets it wrong. It's not a deal breaker, for sure, but while dancing around Pinkys trying to get a shot off could be tricky when they had you boxed into a corner, Lost Souls were rarely as rewarding to take on and tended more toward the irritating, forcing jerky, clumsy extrications from combat rather than enhancing the joy of the battle. Berserk was usually pretty effective against them, however, so perhaps there's no need to guess at why this weapon and enemy made their appearance in the same level.

We find ourselves in another Refinery in E2M3, which adds a few new decals and textures but provides a similar mix of environments, with a broad theme of an exterior, more vegetation-soaked base. There are a few strange additions, however, which continue to deepen the sense of Hell's grip on Deimos. For instance, in one room, we find a pink, skin-covered floor pistoning up and down, neither serving a particular gameplay purpose nor even logically fitting its surroundings. Metal walls give way to stone to creepers to wood, without any particular sense of transition. This appears to be a real example of the design tension created by Petersen working over Hall's designs. Gameplay in Refinery is also simpler than later levels such as E2M4 Deimos Lab and certainly E2M6 Halls of the Damned. There are

no real traps as such; tellingly, the large room off to the left as play starts contains none of the triggered closets of, say, E1M6; it's just a big room with lots of monsters already in it. A window opposite this leads to the exit room, but its right next door, just used the once, and doesn't really have the impact of E1M7. That's not to say that Petersen/Hall are incapable of delivering complex or clever design (E2M4 Deimos Lab and E2M7 Spawning Vats are testament to that). Overall, however, this is a level stripped back to pure run-and-gun action, without much scope for exploration or the occasional simplistic puzzle.

The following level, Deimos Lab, is another thing altogether. For starters, it delivers vertical scale and distance in a way that has been absent in Episode 2 up until now. Initially, this is shown through a large chamber with a lift up to a smaller, caged area, where a secret trigger in a floor panel removes the bars and delivers a bunch of items and monsters to the player. The really key part of the first section of the level is a huge open area, comprised of a large donut-shaped central structure in a nukage lake, leading off to a series of boxlike tunnel sections. These stretch away into the distance and are open sound sectors, so we are presented with distant Imps trudging over the nukage to get to the player. To one side of this, a raised walkway can be found by taking a smaller passage, but it is not accessible at this point (though the Cacodemon perched on top of it is happy to chew the fat). We move into the box sections and, to the right, a trap room, whose entire floor lowers down, blocking a quick exit before throwing monsters at us; a crushing ceiling hides in its center. Beyond these dim walls, suddenly the level turns bright blue, like the inside of a neon-lit motherboard, and the hunt for a blue keycard to get into the second half of the level delivers both another Cacodemon and a Baron (which I strongly remember as a particularly nasty shock the first time I played *DOOM*, in the dark at around 4 a.m.) Then it's into the second half of the level, which centers around a large circular split-level set piece, accessed via a series of bright red chambers where the player is forced to run the gauntlet of another crushing ceiling to retrieve the yellow keycard and progress.

The circular chamber is introduced by a ring of passageways, almost joining around the far side but split by a window. A tiny crack in the floor of this passageway, which almost feels like a bug (my first reaction on finding it was disbelief that a game put together as well as *DOOM* could have an error as basic as a map hole) drops the player into a secret chamber with a plasma gun. Just before this, a tunnel leads down to a fiendish network of secret pas-

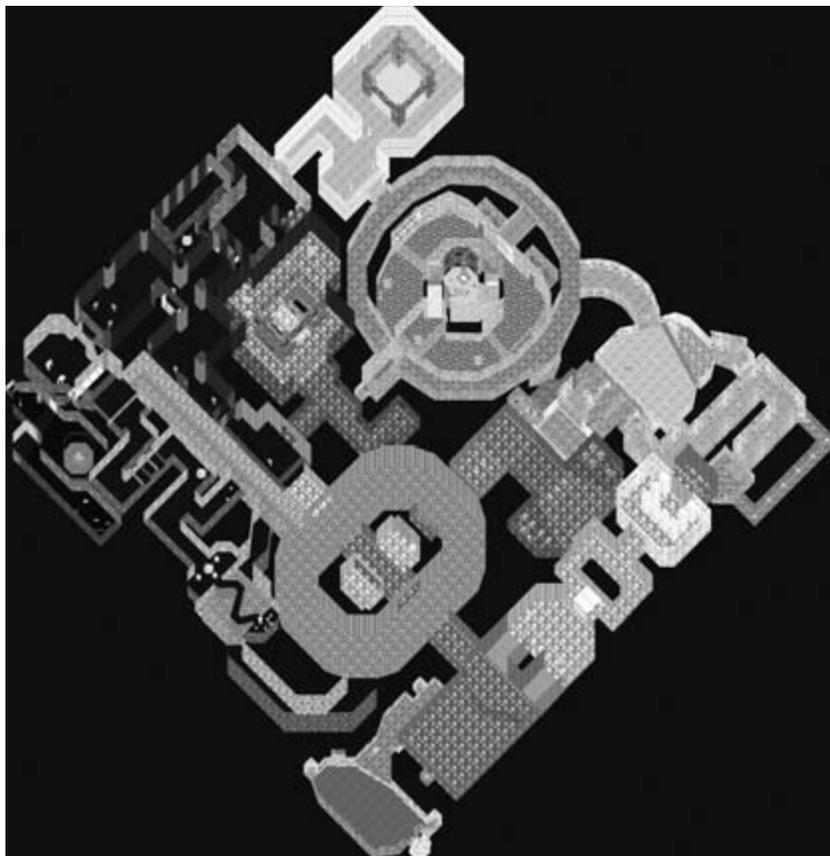


Fig. 14. *DOOM*'s E2M4, showing the false vertical stack (within the large circular room at the top of the map). (From Ian Albert, www.ian-albert.com/doom_maps.)

sages, where the rewards are tempered by a couple of doors you just know are going to unload some bad Hell on you—and they duly deliver. But a skin-covered lift, complete with spinal column, delivers us way down to the floor level of the central structure, where Imps in pits are ready to usher us further on. Once this area is cleared, a pillar in the center of the room has a tunnel cut into it, with a series of switches that raise a spiral staircase back to the top (fig. 14). Given that *DOOM*'s engine cannot actually stack one sector on top of another, successfully giving the sense of climbing to a higher-level room is quite impressive, and the creeper-covered stone, fleshy lifts, and subsumed computer systems effectively carry off the feeling of a weird and

corrupted industrial sector. The level ends with a double-teleporter chamber and a high-level exit door, access to which requires triggering from a switch tucked away around a corner. On the way to this is a long scrolling wall of screaming faces, another step along the line of disturbing and much more gothic, supernatural, satanic, evil representations on display.

An easy mistake to fall into when looking at *DOOM*'s levels in detail is to consider their design as developed sequentially along with play, something that Petersen states emphatically was not the case (and that we've already been able to discount about Episode 1). After all, it's really tempting to see a process of refinement going on in the levels of Episode 2. E2M5 Command Center doesn't add anything particularly new to proceedings, but it's fusion of exterior and interior spaces, where players move between large open rooms and corridors to small cramped tunnels, cut-through windows, hidden rooms, and deviations to just enjoy the exploration and battling of it all, works particularly well—better (for me at least) than, say, E2M3, which equally doesn't really have any particularly outstanding features. It is important, therefore, not to get sucked into the illusion of sequential development: we know, for example, that the penultimate level of Episode 2 was actually one of the first *DOOM* levels ever designed,³ so perhaps appreciating the design of the later levels is more about saluting Petersen's ability to sculpt experiences that are the bread-and-butter of *DOOM* (after all, not every level can be a concept level, and the subtleties of design that make a level great were only radical in Episode 1 because it was the first time we were seeing them in action). Command Center's rooms and corridors loop back onto themselves, and the way forward is often the least obvious door. The final run through large open corridors packed with Cacodemons is visible from a room across a by-now-familiar nukage river; elsewhere, a not dissimilar river leads around a room we've just been in, separated by a partially see-through wall of creepers, and off to a completely separate area. Hell apparently favors wood paneling too, as there's a lot of it in this level, and the sights of disemboweled, crucified, and amputated marine corpses is getting as familiar as the skull piles, sigils, and goat-headed decals.

In fact, as we've seen, the reality of the order of level construction had more to do with the developing technology of the game than anything else. Peterson explains,

Sometimes what would happen was that John Carmack would have recently put in some new feature like teleportation, and then we'd go nuts on that theme for a while. In general I was always trying to go too far,

and they would try to rein me in. Then they’d improve the engine, and what I’d done would become acceptable. . . . I would often be working on 3–4 levels at a time or would go back to previous levels to polish or to install new monsters, treasures, textures, or special tricks that had just been made available by the programming and art teams. (SP)

This explanation is slightly different from Romero’s take on things (that world functions were his responsibility, not Carmack’s), and it’s important to get the timeline on the game’s development. Petersen joined id, initially on a month’s probation in August 1993, only a couple of months before the press demo was launched, which gives an idea of the speed of production of his levels. It also perhaps doesn’t give enough credit to the process of placing the levels in the final game, which fell to Romero and was followed by a process of adjusting them to make sure the game’s arc was optimized. Petersen notes,

Level placement was all about the ramp: increasing complexity and size was dictating the order of the levels—simple to complex, small to big. After figuring out the level placement, tweaking the difficulty in the levels was part of the polish phase. The proper ramping of the player through the game will directly affect the game’s success. (SP)

It’s important to remember that the scale of the development team was comparatively small, only twelve people, which fits neatly into the more contemporary notion of a microstudio. So there was not much in the sense of a tidy development pipeline, as levels were obsessively played and played over and over again in the process of refinement. Petersen describes the process as “very informal and freewheeling.”

I’d do a level and the other guys would play it and make comments. We never discarded a level, but sometimes they underwent major changes. I was responsible for naming all the monsters, for instance. I suppose there was an “approval process” in that I told the other guys about my plans, and if they didn’t like something they’d tell me. . . .

I worked inside the office, and anyone was welcome to walk by and see my levels at any time. We all relentlessly played the levels and felt free to criticize even the tiniest texture choice. (SP)

Along with the sequential fallacy, the other issue Episode 2 perhaps suffers from is being the least immediately standout episode of the trilogy, and

it would be a mistake to draw any conclusions about design quality from this. Everyone knowing *DOOM* knows Knee Deep in the Dead forward and backward, if for no other reason than it was the shareware episode, so most of us around in the midnineties played it to death, even if we couldn't afford the full game (I was an undergraduate at the time, so like millions of others, the shareware release got me hook, line, and sinker). Inferno contains more in the way of concept levels than either of the other two episodes, which makes many of its environments and challenges particularly memorable, from the claw-shaped map of E3E2 Slough of Despair to the striking open-air expanse of E3M6 Mount Erebus. So if there's less to say about some of these levels, that shouldn't be taken as any comment on the quality of their design. E2M6 Halls of the Damned, the very first level Petersen completed, is a good example of how wrong this would be. It's actually a fiend, deceptively complicated, and contains two of the standout moments of the episode, one of which is possibly one of my favorites of the game overall. But before we talk about that, we need to quickly mention E2M9.

The Fortress of Mystery is Episode 2's secret level, reached via a secret door in E2M5, and is basically two big rooms. One contains Barons of Hell (four of them), and the other contains Cacodemons (ten of them). As Petersen notes,

Everyone thought it was impossible when they first played it, before they realized that monsters can be tricked into fighting other monsters. It would probably never work today, of course. (SP)

Trying to take out this armful of evil by ourselves would be absurdly challenging, but goading a big interhellspawn scrap, taking advantage of an AI blood frenzy, suddenly made the level a hugely fun experience. It's almost like a break from the action, despite the fact that we're still expected to let rip with some serious circle-strafting skills to stay in one piece. It's also quite a different feel, a self-consciously high concept built around a single set piece and requiring no exploration whatsoever. It's no accident that it arrives halfway through the episode and that the exit portal leading to it is a relatively easy secret to find. Petersen says it's his favorite level.

E2M6 starts simply enough, with the player entering into a reasonably sized room with a single doorway leading off it. So far, so ordinary. Opening the door, however, unleashes a hissing Cacodemon in a burning red room, all hellfire and brimstone. Dispatched, it leaves a switch that opens up a pas-

sage to the large exterior area that seems to sit at the center of the level. I’m always wary about reading too much into things, particularly games, but there is a lovely undertone to this, that beneath the architectural normality that makes up the undisclosed location, something more infernal is actually pulling all the strings. When the only place to go from the courtyard has two doors, one of which is the exit but requires a keycard, we may start to get the idea that this level is going to be playing with us all the way. It starts with a fairly innocuous grab of the first, blue key, opening up the inevitable shocking monster closet, but following that we hit another of those dark, strobing mazes to get the second keycard, only this maze is actually large enough to get lost in and includes the odd Pinky-infested closet. It’s fairly hair-raising stuff, as there’s not a great deal of room to maneuver, and we’re dealing with beasts that take a few shots to put down. The final section of the level, where, presumably, we’ll find the last keycard, accessed through a long tunnel, is a hub with four small, trap-filled rooms leading off it. One contains a crushing ceiling; another, four switches, each behind pumping pistons. The third seems innocuous enough, but when its door slams shut behind you, it’s a yellow door, meaning there is no way out without finding the card. This is a really simple but very effective means of instantly raising tension, as it’s highly unlikely we’re getting out of the room without a serious fight. Sure enough, a Cacodemon later and the keycard held in a bloody, triumphant fist, it’s time for the last door, which, weirdly enough, is a second exit. Assuming that we didn’t find the secret door behind the wall of fire in E2M5, we could be forgiven in thinking that this was the way to go. Touch the exit switch, however, and the entire floor drops away, plunging us into a room full of shotgun-wielding Troopers. It’s a fantastic moment, the kind of trick you can only pull once, and it’s to *DOOM*’s credit that, given the impact of the trap, its tucked away in the corner of the map, way off the beaten path.

Because of the relatively small sizes of the maps, “out of the way” in *DOOM* is never actually that out of the way, meaning that great little set pieces of design could be moved off the central spine of the level without compromising their chances of being found too badly. Perhaps there’s a lesson in there for other FPS games. My favorite contemporary shooter, the Ukrainian misery fest *S.T.A.L.K.E.R.: Shadow of Chernobyl*, springs to mind as containing large quantities of superfluous but immensely rewarding environments and set pieces, and in the first game of the franchise at least, the levels are small enough to make the exploration really reward-

ing. Everything in *DOOM* is only a short sprint away, and it does raise the question of whether bigger is always better in level design. Despite how wonderful sandbox shooters like *Far Cry 2* or *S.T.A.L.K.E.R.: Call of Pripjat* (GSC Game World 2010) are, there's nothing like the thrill of a well-crafted on-rails experience, which *DOOM* isn't actually so far from, in many ways. The other thing is that *DOOM* has great set pieces falling out of its pockets; it simply doesn't need every neat trick or "Oh wow!" or even "Oh no!" moment to be along the central spine. Whether it's deliberate or simply a by-product, this layout has a similar effect to using lots of white blank space in 2D visual design. It communicates a huge confidence in the product, and training the player to accept the designer's vision is an important part of gameplay. We can all think of examples where an early screwup leaves us doubting the quality of what's to come or when something has such flair and vision that you're much happier to overlook the flaws (*S.T.A.L.K.E.R.* being a prime example of that). Besides, if Petersen *et al.* were throwing away fantastic things like the fake exit, floor drop, or death room on non-essential parts of the map halfway through the three episodes, then what the Hell (literally) did they have up their gore-soaked sleeves in the levels to come?

The very first level of *DOOM* ever, that's what. Well, OK, that's not to say that it was actually the first one Romero or Hall ever bolted together, but it certainly was E1M1 of the original *DOOM* as envisaged in Hall's Bible, just arranged a slightly different way and with a handful of Petersen's magic dust sprinkled liberally into the mix. E2M7 Spawning Vats is a huge, sprawling level, an amalgamation of bits and pieces we've seen before. There's a warehouse section, only with Pinkys this time, not Imps; there's exterior nukage flows; there's a gothic castle with inverted crucifixes next door to sci-fi. But it's in the sci-fi that the level looks really quite different. It's shiny, for starters. We recognize (from the 0_4 alpha) the glossy metal walls and canisters, high-level lights, and bright blue floors. Tucked away in the middle of the map is that small, rambling staircase that comes out overlooking a metal room full of Imps, which we talked about before. And just around the corner is the Rec Room, the place it all originally started, where Lorelei Chen, John "Petro" Pietrovich, Dimitri Paramo, Thi Barrat, and, just maybe, Buddy Dacote had their card game so rudely interrupted. It's enough to make you feel all nostalgic.

Anyway, E2M7 is a sprawling level, with a less linear feel than its predecessors, and Hall's striving to create more realistic environments is almost

palpable through the design. It's certainly less focused, with rooms that don't really feel like they have a great deal of purpose in terms of gameplay. They are not set pieces, leading anywhere or hosting tricks and traps or items, but that's not to say they don't work. In many ways, E2M7 is, ironically, possibly one of the most contemporary of *DOOM*'s levels, foreshadowing the age of sandboxes and more high-detail environments, when players' expect to be able to head off the beaten track and when environments are visually detailed enough to be their own goal and reward. Spawning Vats is a fun place to revisit, and I'll own up to having a real soft spot for it. It's also the last time we are going to be primarily surrounded by military-industrial sci-fi rooms and corridors, because the aesthetic of the jagged, off-kilter last room, with its switches and rising walkway over a fiery bloodbath, becomes dominant as we leave Deimos behind and head for Hell itself. First, there's the minor matter of contending with what remains one of the most infamous bosses in gaming history: the Cyberdemon of E2M8.

You're standing in a room. It's small, and there's a square plinth in the middle with a switch on each side. On each wall is the body of a chained-up, dismembered Baron of Hell. Deep breath. Hitting a switch slides open the corresponding wall, into an antechamber packed full of rockets and perhaps a couple of Lost Souls. Somewhere out there is a pounding, slamming sound: it's got to be the footsteps of something. Something big. You've made it; you are at the building that's slowly been getting bigger at the bottom of the interlevel loading screen as you've made your way through the Deimos Base. It's the Tower of Babel, and it's showdown time. E2M8 is essentially a large open space with a large structure in the center that breaks it into four sections, with three additional, smaller structures per quarter to provide cover. Once you are outside, each of the four rooms opened by the central switches is available for ammo stockpiles. Otherwise, it's just kill or be killed, a game of cat and mouse among the pillars.

Now, I'm a firm believer that it's possible to deliver material about games (and other things) in a manner that reaches all the suitable levels of scholarly robustness and factual accuracy and analytical depth and so on, without having to resort to the kind of dense, impenetrable, and jargonistic language that often plagues academic writings about media. I've been guilty of some reprehensibly convoluted theorizing in the past, and I've done my best to avoid it here, aiming instead to keep things very much in the spirit of the game and to convey a sense of what it's like to play, love, and study *DOOM*. It's in that spirit that I'd argue, with all due scholarly consideration



Fig. 15. The Cyberdemon

and objectivity, that the normal reaction to the first glimpse of the Cyberdemon guarding the Tower of Babel was a kind of keening, high-pitched moan.

DOOM II's manual describes the Cyberdemon (fig. 15) as a “missile launching skyscraper with goat legs,” and he does, indeed, scrape the very skybox, coming in at a massive 110 units high (twice the height of an Imp or Trooper). He’s fast, at 186 MUS (faster than a Lost Soul’s charge); has a huge 4,000 hit points, making him four times tougher than a Baron; and is immune to splash damage, so only direct rocket strikes will hurt him, and these yield only 20–160 damage with a direct hit, which, roughly speaking, means he’ll soak up somewhere in the region of fifty rockets before we can relax. He fires bursts of three rockets at a time, which share the characteristics of our own launcher: a 700 MUS speed, 20–160 damage with a direct hit, and a 0–128 blast radius. And unlike the Cyberdemon, we *are* subject to secondary blast damage. All in all, this makes him a tough proposition, tougher even than the end-of-game boss (I’ll talk more about her later on). The mix of how gameplay-tough and visually impressive the Cyberdemon

was cemented its place in gaming legend. Bosses weren't anything new, of course, and they'd always had scale. The end-of-level monsters in *R-Type* (Irem 1987) didn't leave much screen to maneuver in, and it wasn't like *Wolfenstein 3D* didn't have some fairly memorable bosses itself (Dr. Schwab hurling giant hypodermics was always fun, and we are talking about the game with Hitler's robot exoskeleton). But there was something about the mix of a giant demon that was just so fast and so tough and so dangerous. Twenty years on, the Cyberdemon is still the blueprint for FPS boss battles, the unholy granddaddy of them all.