

## Chapter 3

### ***Fallout 4: Digital Playground in the Ruins of Empire***

Science fiction role-playing narratives have long been one of the most popular branches of the videogame industry, ranging from cybernetic and nanotechnology-themed franchises such as *Metal Gear* and *Deus Ex* to space opera series such as *Star Wars*. For that reason, their digital open worlds exemplify some of the deepest social contradictions of the late 20th and early 21st centuries. These latter range from the daily battle between transnational corporations and the non-commercial practices of transnational audiences, to the post-2008 transition away from hegemonic US rule and towards a multipolar world-system.<sup>1</sup>

What marks Bethesda Softworks' *Fallout 4* (2015) as a significant advance in open world form is its recombination of three of the most important design principles of contemporary open worlds, namely craftability, walkability and interactive sound design. Walkability refers to the fact that exploration and character interaction takes place on foot and through face-to-face dialogues, craftability refers to the ability of players to gather resources in the open world in order to construct useful items, while interactive sound design requires balancing ambient sound tracks, auditory player cues and voice-acting.

*Fallout 4's* integration of these three principles on the level of form enables it to compensate for a number of weaknesses on the level of content, most notably problematic quest design and an unsatisfactory main story. The whole is greater than the sum of its parts, in much the same way that successful digital platforms compensate for the limitations of their underlying protocols. That said, this achievement comes at a hefty price. We will explore the precise nature of this price at the end of this chapter, but for now it is worth placing *Fallout 4* in the context of its franchise history.

The *Fallout* videogames depict a post-apocalyptic world ravaged by atomic warfare, wherein players scavenge the ruins of civilization and interact with bands of survivors. What made the franchise different from most of its science fiction peers, however, was its strategy of integrating historical representation into its open world design.

This strategy was the unique contribution of Tim Cain, the lead designer, producer and writer of the original *Fallout* (1997) and *Fallout 2* (1998).<sup>2</sup> Cain's narrative masterstroke was to depict an alternate future which diverges from real world history beginning in 1947.<sup>3</sup> Instead of the semiconductor revolution of our own timeline, Cain's fictional time-line experiences a revolution in portable atomic energy. The result is a profusion of the atomic-powered appliances, autos, airplanes and personal robots beloved of 1950s pulp science fiction. However, the insatiable demand for the raw materials required to produce these goods exacerbates the geopolitical conflicts of the Cold War, triggering a global nuclear holocaust in the year 2077.

This alternate future enables *Fallout* to draw on the historical legacies of the Cold War as well as the speculative toolkit of near-future science fiction. Both elements are at work in the iconic opening sequence of the original *Fallout*, wherein a black-and-white television set broadcasts a grainy admixture of militaristic propaganda and satirical advertisements for atomic-powered consumer goods to the sound track of the Ink Spot's classic rhythm-and-blues song "Maybe" (1940).<sup>4</sup> At one point, the camera pans back from the television screen to reveal a city

devastated by some future atomic war.<sup>5</sup> The voice of Ron Perlman delivers the following voice-over, linking the nuclear apocalypse to humanity's long and tragic history of imperial expansionism:

War. War never changes. The Romans waged war to gather slaves and wealth. Spain built an empire from its lust for gold and territory. Hitler shaped a battered Germany into an economic superpower. But war never changes. In the 21<sup>st</sup> century, war was still waged over the resources that could be acquired. Only this time, the spoils of war were also its weapons. Petroleum and uranium. For these resources, China would invade Alaska, the US would annex Canada, and the European Commonwealth would dissolve into quarreling, bickering nation-states bent on controlling the last remaining resources on Earth. In 2077, the storm of world war had come again. In two brief hours, most of the planet was reduced to cinders. And from the ashes of nuclear devastation, a new civilization would struggle to arise.<sup>6</sup>

What makes this opening narrative so compelling is that the Cold War hegemony of the US empire is depicted not as a nostalgic past, but as a destroyed future.<sup>7</sup> Cain made this destroyed future playable by means of a robust system of open world exploration, designed to give players wide-ranging tactical and strategic freedom. This latter ranged from the ability to explore the world in a non-linear fashion, to the customization of the player-character's abilities via the S.P.E.C.I.A.L. system, a satirical version of the character-building systems of paper-based fantasy role-playing games.<sup>8</sup> It also included dialogue systems allowing players to determine the fate of individual non-player characters, and in some cases the destiny of entire communities.

The twin themes of Cold War history and digital player freedom are more than just narrative keynotes of the franchise. They are also the taproot of its scorching satire, which parodies everything from stentorian Cold War propaganda to early 21st century digital consumerism. Here, too, *Fallout* diverges significantly from the mainstream post-apocalyptic narratives of the 1990s and early 2000s, which denounced Big Government conspiracies without any corresponding critique of Wall Street plutocrats. In an interview, Cain has noted that the primary target of this satire was not political despotism per se, but unchecked corporate power:

A big part of *Fallout* was, you don't trust your own government. We made it quite clear that the government was lying to you, that there needs to be a check and balance, that the military needs to answer to civilians, because the military in the *Fallout* world pretty much took over. Corporations were taking over. You saw that the vault you were living in was built by Vault-Tec, and all the products in there were built by Vault-Tec or a subsidiary of Vault-Tec, so your Pip-boy, your Stealth-boy... everything was related to this one overarching, massively invasive company. We even had, inside the *Fallout* manual, we had a page describing other manuals you could buy from Vault-Tec which made light of all the horrible things that are going to happen after a nuclear war, and basically this company was making all of its profit off of people's fear of the war. And if a war actually happened, they planned to profit off of that as well. And I think we were just trying to comment that, while this is all exaggerated, a lot of this is true in our own society.<sup>9</sup>

The Pip-boy is a portable computing device which serves as the player's main character

customization, equipment selection and communications interface. Yet the device is more than just a satirical version of the first transistorized radios and televisions. Its green screen, manual knobs and dials, and unwieldy sorting functionality are dead ringers for the earliest videogame consoles and personal computing devices of the early 1980s.<sup>10</sup>

Cain's combination of an open world which made past Cold War history meaningful to players, while allowing players to make meaningful choices about a post-atomic future, made the first two *Fallout* videogames popular as well as critical successes. After Cain departed from Interplay, the firm released two additional *Fallout*-themed games, *Fallout Tactics: Brotherhood of Steel* (2001) for Microsoft Windows and *Fallout: Brotherhood of Steel* (2004) for the Xbox and Playstation 2. These titles were less successful, and when Interplay almost went bankrupt in the early 2000s, the firm sold the rights to the *Fallout* franchise to Bethesda Softworks piecemeal between 2004 and 2007.<sup>11</sup>

Bethesda faced two significant challenges in rebooting the *Fallout* series. First, the studio had to construct an open world based on the narrative principles of science fiction rather than fantasy. The difficulty here is that science fiction narratives rely primarily on representations of the future, whereas fantasy narratives generally depict representations of the past.

Second, Bethesda had to transpose the core elements of the *Fallout* series – its gallows humor, its admixture of factual Cold War history with alternate-future speculative fiction, and its game-play design of maximum player freedom – into the setting of a three-dimensional open world (all previous *Fallout* games employed two-dimensional environments with an isometric player view). Bethesda's *Fallout 3* (2008) largely met these challenges, delivering a credible open world in the form of the Capital Wasteland, the post-nuclear version of Washington, DC and its immediate environs. Two years later, independent developer Obsidian delivered an above-average expansion, *Fallout 3: New Vegas* (2010). This latter featured a protagonist and storyline unrelated to *Fallout 3*, set in a post-nuclear Las Vegas and southern California.

While *Fallout 3* and its expansion had flaws ranging from limited crafting functionality to uneven character development, the response of audiences was overwhelmingly positive. The two iterations of *Fallout 3* sold a combined 14.37 million official copies between 2008 and 2015, transforming the series from a minor cult favorite into one of the biggest science fiction role-playing videogame franchises of the early 21<sup>st</sup> century.<sup>12</sup>

Yet nothing in the history of the franchise quite compares with the startling leap in quality from its third iteration to its fourth. *Fallout 4*'s open world is so well-constructed that it is easy to overlook the single greatest flaw of the videogame, namely the generic nature of its main story. This latter focuses on the player's quest to find their son, kidnapped by parties unknown from an underground fallout shelter while he was still an infant.<sup>13</sup>

Nowhere is this improvement more apparent than in the category of walkability. The *Fallout* franchise has always required players to access its open world on foot, both in order to make the post-apocalyptic setting credible as well to provide logistical challenges to players.<sup>14</sup> Players are rewarded for exploring new locations with experience points to upgrade their player-character, as well as a steady supply of new settlements to discover and non-player characters to interact with.

*Fallout 4* expanded the scope of walkability by adding three additional elements to Cain's basic adventure-survival formula. First, the player's location now correlates with the game's overall difficulty. After the interactive prologue, the player awakens inside an abandoned

underground vault in the northwestern corner of the world map. This region is where enemies and environmental conditions are the least threatening, and where supplies and potential allies are most plentiful. However, the further players walk to the east or to the south, the more dangerous opponents and environmental hazards become. Walkability thus correlates intuitively with difficulty.<sup>15</sup>

Second, the principle of walkability was linked directly to the rich architectural and linguistic heritage of Boston. Founded in 1630, Boston is one of North America's most historic and most walkable cities, and some of the most memorable areas of *Fallout 4* are post-apocalyptic versions of real world tourist attractions such as Faneuil Hall, Boston harbor and Fenway Park. This New England geography is also apparent in the authentic Boston accents of many of the non-player characters, as well as the name given to the open world by its residents, the Commonwealth.<sup>16</sup>

Third, walkability functions as the narrative backbone of *Fallout 4's* companion system. There are thirteen different companions who can accompany the player in the open world, if the player so chooses.<sup>17</sup> Only one companion stays with the player at any given time, and players are free to dismiss any companion at any time (they can be sent back to their home community, or to player settlements).

These companions sustain the credibility of the Commonwealth in a number of ways. To begin with, each companion is a fully-rounded character with a well-written back story and a number of individual quests. Each companion also provides a running commentary on the events of the storyline, on the four different factions vying for control of the open world, and on specific locations in the open world, transforming the single-player experience into something closer to a multiplayer experience. More pragmatically, each companion provides combat and logistical support to players during quests.

The companion system has the significant consequence of replacing the standard karma system typical of many role-playing videogames with what we will call an affinity system. Karma systems typically classify a player's actions via a simple binary scale (the most common is good actions versus evil actions) and then deliver bonuses and penalties for specializing in each behavior. This is problematic because it restricts the player's choice to a specific set of actions defined by the design team, not the player.

By contrast, *Fallout 4's* affinity system gives players bonuses or penalties on the basis of their behavior vis-a-vis their companions. Each companion judges the player's interactive dialogue choices and actions according to their own unique experiences and ethical outlook. It is possible for players to gradually earn a companion's trust through their actions, and it is equally possible for players to alienate companions to the point of permanent rupture. While the specific expectations of each companion varies, they share a common preference for solidarity. Generosity and tolerance towards others earn approval, while wanton violence and anti-social behavior earn disapproval. Once the player has earned enough companion approval through their words and deeds, a scripted dialogue is triggered wherein the companion reveals more of their personal background and history to the player. We will describe the ultimate narrative consequences of this affinity system in more detail somewhat later, but suffice to say that the system delivers a breakthrough in interactive story-telling as important as *Witcher 3's* invention of the narrative path.

There is an even more remarkable expansion of craftability from a secondary feature in

previous *Fallout* games into a core feature of *Fallout 4*. While most open worlds feature collectible resources or other items designed to reward players for exploring the world and interacting with its residents, *Fallout 4* links these resources to a sophisticated crafting system. By scavenging prewar goods from the ruins of the open world, players can produce useful equipment, armor and weapons at specialized workshops.

The crafting system is the rough equivalent of Mojang's enormously popular *Minecraft*, in the sense that the system is designed to produce structures and services as well as individual objects.<sup>18</sup> Players can employ crafting to plant food crops, build defensive fortifications, dig water wells, create cooking stations, generate electricity, and construct buildings. They can also populate their settlements by attracting settlers and building facilities to keep them productive and healthy. Conversely, if the morale of the settlers falls below a certain level due to lack of food, water or other resources, they will depart from the settlement.

The creation of this crafting system was not an accident, but was rooted in Bethesda's long-term policy since 2001 of supporting player mods, a.k.a. non-commercial downloadable digital content for videogames produced by fans.<sup>19</sup> While most mods are produced for the personal computer platform, Bethesda updated the PS4 and XboxOne versions of *Fallout 4* to provide modding support several months after the game's initial release.<sup>20</sup>

Craftability also had a significant effect on *Fallout 4*'s player customization mechanics. For example, if players choose to invest experience points in their player-character's charisma character ability, they can add a range of services to their settlements, ranging from health clinics and scavenger stations to weapon and armor stores. Craftability also co-regulates the difficulty of the game. While players can select a range of difficulty levels from *Fallout 4*'s opening menu, the open world contains a number of in-game economic restrictions designed to generate balanced game-play. For example, adhesives are a comparatively scarce item early in the game, which limits the player's ability to craft armor, weapons and other useful items.

The third and final design achievement of *Fallout 4* is its sound design. First and foremost, Inon Zur's ambient sound track deserves wider renown as one of the greatest achievements of early 21<sup>st</sup> century interactive music.<sup>21</sup> Zur's track consists of sixty-five separate pieces with a total running time of approximately three hours and thirty-eight minutes.<sup>22</sup> Each track is played while players explore specific regions of the open world, generating a musical atmosphere which is by turns haunting, mesmerizing, and occasionally enthralling.

**Table 1.** Location-based music design in *Fallout 4*.

Location or Faction	Designation on Original Sound Track (OST)
Prologue and mission completions	OST 1 Main Theme
Outdoor areas	OST 2 The Commonwealth, OST 3 Of Green and Grey OST 08 Wandering, the Blasted Forest Part 1 OST 09 Wandering, the Blasted Forest Part 2 OST 10 Brightness Calling OST 28 Lonely Walls

	<p>OST 31 Wandering, The Foothills Part 1  OST 32 Wandering, The Foothills Part 2  OST 33 Wandering, The Foothills Part 3  OST 34 Darkness Falls  OST 44 Explore and Discover  OST 47 The Stars My Solace  OST 49 Lone Wandering</p>
Goodneighbor settlement	OST 11 Of the People, For the People
Diamond City settlement	<p>OST 20 Rebuild, Renew  OST 62 In This Together</p>
Sanctuary Hills and The Castle settlements (Minutemen theme)	OST 39 Liberty Lives
Theme of Supermutants	OST 42 We Are Unstoppable
The Railroad headquarters and mission themes	<p>OST 35 War of Wills  OST 59 Covert Action</p>
Interiors of buildings and underground locations	<p>OST 7 Deeper and Darker  OST 16 Uninvited  OST 22 Tread Carefully  OST 38 Dust and Danger  OST 51 Echoes of the Dead  OST 58 No Voices, No Cries</p>
Coastal outdoor areas	<p>OST 50 The Last Mariner  OST 53 Wandering, The Coast Part 1  OST 54 Wandering, The Coast Part 2  OST 55 Wandering, The Coast Part 3  OST 57 Endless Ocean, Endless Dreams  OST 61 No More Sails</p>
Brotherhood of Steel themes	<p>OST 25 The Vigilant  OST 41 Honor and Steel</p>
Outdoor areas, city ruins	<p>OST 17 Wandering, The City Part 1  OST 18 Wandering, The City Part 2  OST 19 Wandering, The City Part 3  OST 21 Concrete Mysteries  OST 27 Red Brick, Broken  OST 40 Lost Boston</p>
Institute themes	<p>OST 48 Imagine Utopia  OST 56 Humanity's Hope  OST 64 Science and Secrecy</p>
Glowing Sea theme	<p>OST 45 Wandering, the Glowing Sea Part 1  OST 46 Wandering, the Glowing Sea Part 2</p>

Battle themes played during combat (rhythmic only)	OST 5 Standoff OST 6 Combat Ready OST 13 Predator and Prey OST 14 War in the Wastes OST 15 Time to Die OST 24 No Quarter OST 26 The Warlord OST 29, Regrouped, Reloaded
Battle themes during combat (orchestral themes)	OST 30 VATS or Die OST 37 A Critical Change OST 43 Dominant Species OST 52 Enough is Enough OST 60 Rise and Prevail

For example, sorrowful and unnerving tracks such as “Green and Grey” complement the first outside environments the player encounters after emerging from the vault. It is only after spending considerable time in the open world that the player encounters the bittersweet harpsichord and piano of “Rebuild, Renew” in Diamond City, which evokes both past loss as well as the faint hope of future reconstruction. Somewhat further afield, the haunting melody and ethereal chimes of “Brightness Calling” often appear during conditions of heavy fog.

While most of the sixty-five tracks signify place, six signify the identities of the four major factions seeking to control the Commonwealth, namely the Minutemen, the Brotherhood of Steel, the Underground Railroad, and the Institute. These tracks include the spy-thriller horn themes of “War of Wills” and “Covert Action” which play in the Railroad's secret underground base, the surging brass and big band themes of “The Vigilant” and “Honor and Steel” in areas controlled by the Brotherhood of Steel, the track “Liberty Lives” which plays in the Minutemen-controlled Castle and Sanctuary Hills, and “Science and Secrecy” which plays in the underground base of the Institute. Finally, there are a number of non-melodic and purely rhythmic tracks which serve as acoustic backgrounds during combat sequences.

One of the reasons for the sound track's immense power is that Zur draws extensively on the musical innovations of Charles Ives, the greatest twelve-tone composer of the United States of the early 20th century. In particular, Ives' *Robert Browning Overture* (1914), *Trio for Violin, Cello and Piano* (1915), *A Symphony: New England Holidays* (1919), and *Three Places in New England* (1919) furnish the basic acoustic palette for Zur's sound track. This palette is a uniquely American variant of the twelve-tone musical revolution of the Second Viennese School which orchestrates the plebian sonic materials of early 20th century industrial America -- military marches, music-hall tunes, penny whistles and clanging streetcars -- into large-scale rhythmic blocks.<sup>23</sup> It is no accident that these rhythmic blocks parallel the musical innovations of early jazz artists Jelly Roll Morton, King Oliver and Louis Armstrong. From a musicological perspective, Ives is the missing evolutionary link between twelve-tone and jazz modernism.<sup>24</sup>

Zur retrofits Ives' rhythmic blocks with electronic chimes, a glockenspiel, and various reverberation effects modeled on the most significant musical compositions of 1966-1968, namely the studio albums of Jimi Hendrix and Velvet Underground.<sup>25</sup> The resulting tracks

transform mundane piles of rubble into shimmering wonderlands of loss and mystery, radiating the illimitable promise – or is it the radioactive menace? – of Ives' famously unanswerable question.<sup>26</sup>

Where Zur's work diverges from its forerunner, however, is the function of the melodic fragment. Whereas every melodic fragment in Ives broadcasts the possibility of imperial construction, its musical analogue in Zur radiates the pathos of imperial disintegration. This transformation is most evident in the comparative framework of the single most influential science fiction sound track of 1950s and 1960s, the work which fulfilled Ives' famously unrealized musical ambitions. This sound track was Bebe and Louis Barron's all-electronic score in Fred Wilcox' *Forbidden Planet* (1954), of live performances of analog electronic sounds which celebrated the ingenuity of US consumerism at its imperial zenith.<sup>27</sup>

By contrast, Zur's sound track employs digital effects to split Ives' rhythmic blocks apart. The result is the greatest musical elegy of the US empire of the early 21st century. This elegiac function is most evident in *Fallout 4*'s main theme, an updated version of Zur's opening theme for *Fallout 3*, which plays in the background of *Fallout 4*'s main menu screen. The new version retains the signature *Fallout* melody, while extending its emotional range with complex layers of ambivalence and irony.<sup>28</sup> The result is both incomparably tragic and yet infinitesimally hopeful -- albeit with the proviso, to paraphrase Walter Benjamin, that this hope is not for us. Zur has described the collaborative process behind the creation of the new theme:

“I have a very nice grand piano at home, and I recorded myself playing the main theme,” [composer] Zur says. Todd's [Howard] first reaction was mixed: He liked the idea of the piano, but he found the actual sound to be too bright, bordering on harsh. Todd and Mark [Lempert] wanted something warmer. “So I created a combination between a real piano and an electric piano sound,” Zur says. “A sound that is really round and not bright at all but very lush.” When Zur played this for Todd and Mark, both of them immediately knew this was what they wanted. “So following that lead on, there are multiple times that I use this,” Zur says. “You also hear it first in the main theme. This is not a mistake or just a random choice. The piano will stay with us throughout the whole score.”<sup>29</sup>

Fragments of the opening theme's melody recur at key turning-points in the game, and are also occasionally replayed after quest completions and other player achievements. This creates the effect of a musical ruin which is constantly being overheard, much as the urban ruins of the open world are constantly being rediscovered.

In addition to its ambient sound track, the other signal achievement of *Fallout 4*'s sound design is its voice acting. *Fallout 4* was the first in the franchise to have voice acting for its playable protagonist. Like many other role-playing videogames, *Fallout 4* allows players to customize their gender as well as their overall appearance. However, Bethesda's designers avoided the trap of writing a single gender-neutral script for both male and female player-characters. Instead, players must choose to role-play as either a husband or a wife living in a Boston suburb with their infant son in an alternate future 2077.

The husband is voiced by Brian Delaney, while the wife is voiced by Courtenay Taylor. Both deliver spectacular performances, delivering over one hundred thousand separate lines apiece and constructing memorable and credible characters. These lines run the gamut from

harrowing to heroic, and morbid to whimsical. While many of their lines are comparable in meaning, some are unique to each voice actor, and all are given unique delivery and inflection.

These performances are backed by the superb scriptwriting of Bethesda writer Emil Pagliarulo and by the equally extraordinary work of independent voice director Kal-El Bogdanove and Bethesda staffer Mark Lampert. The voice acting is universally excellent throughout the game, from the two lead protagonists to the smallest bit character.

While the voice actors for the player companions are all top notch, two performances deserve special mention. Stephen Russell is outstanding as Codsworth, Nick and Nora's faithful robot butler,<sup>30</sup> and also as the voice of private eye Nick Valentine, whose body is a robotic machine but whose core humanity far outshines most of the human inhabitants of the open world. Kudos are also due to Courtney Ford, who delivers the performance of a lifetime as roving post-apocalyptic citizen journalist Piper Wright.

While the work of the voice actors and scriptwriters is beyond reproach, *Fallout 4's* interactive mechanics lag behind, most notably the dialogue choice system. During conversations with non-player characters, the player will be asked to choose one of four onscreen responses. These four choices are generally affirmative-positive, negative-sarcastic, neutral-objective, and informative-questioning, with a few exceptions. These dialogue choices determine whether certain quests open up or close down, influence the outcome of certain plot strands, and determine whether certain alliances and friendships with non-player characters occur. The problem with this rigid four-part structure is that not every line of dialogue requires four responses. Nor do the capsule summaries of the four choices adequately summarize the ensuing dialogue, a source of frustration for players.<sup>31</sup>

Leaving aside these flaws, *Fallout 4's* voice acting was crucial to one of its most significant innovations. This is the possibility of building romances with seven of the thirteen player companions. The depiction of romantic relationships is a challenging task in any artistic medium, but it is especially fraught with danger in open worlds for the simple reason that these relationships potentially conflict with the principle of maximum player choice as well as with the thematic coherence of the open world.

Bethesda's designers met this challenge by an ingenious combination of decreased player access and increased player responsibility. *Fallout 4* has no restrictions on the number of romances a player-character can initiate, or on the genders of the partners involved, i.e. same-sex romances have full narrative equality with opposite-sex romances.<sup>32</sup> In addition, no relationship has any negative repercussions on any other relationship. This fulfills the mandate of maximum player freedom, while also lending credibility to a post-apocalyptic setting in which there is no organized society to police relationships anymore.

At the same time, a successful romance requires players to expend significant amounts of in-game time by traveling with their companion around the Commonwealth, and behaving in ways which meet that companion's approval. After three scripted dialogues triggered by increasing companion approval, the player can attempt to romance the companion (occasional flirtations are allowed at lower levels of approval, but have no consequences on companion approval or the success of the eventual romance).<sup>33</sup>

The scriptwriters and voice actors deserve special kudos for presenting the same-sex romances with the same dignity and respect as the opposite-sex ones, and for crafting and delivering dialogue which honors the core humanity of every single romanceable character. At

their best, these romances seamlessly integrate character development and quest progression in much the same way that each main quest and side quest story path functioned in *Witcher 3*.

Given this extraordinary achievement, what needs to be explained is why *Fallout 4*'s main story not only failed to integrate character development with quest progression, but suffered a near-total loss of credibility in the final third of the game. To begin to understand why this is so, consider the romance with Piper Wright, owner of independent newspaper *Publick Occurrences*.<sup>34</sup> Piper is the quintessential 21<sup>st</sup> century citizen journalist of Diamond City, a bomb-blasted Fenway Park turned into an improvised settlement. After earning Piper's first rank of approval, the following conversation ensues:

Piper: "Always on good behavior, aren't you?"

*Player action: select any option. After choice-specific response, Piper continues:*

Piper: "I appreciate it. Too few folks can be bothered. Of course, if you want to do some real good, playing nice only gets you so far. I mean, look at Diamond City, a place I've been trying to warn of real danger. But every issue I publish, all I hear is, ohhh Piper, why don't you publish anything happy – Piper, why can't you write something nice for a change? It's enough to make me want to hang up my hat some days."

*Player action: select any option. After choice-specific response, Piper continues:*

Piper: "I've been firsthand what the truth can do. My sister and I, we grew up way out in the Commonwealth. Tiny little settlement. Our dad, he was part of the local militia. 'Keeping the raiders off our backs and the mirelurks out of our latrines', as he'd describe it. Well, ah... one day, our dad turns up dead. His captain... asshole... named Mayburn claims raiders must have gotten him on watch. Well I didn't buy it. I start making inquiries. Turns out, the captain, he'd sold out. Thought he wasn't getting paid enough to babysit the town. He was going to leave the gates open one night, let a group of raiders sack the place and take a cut of the profits. My Dad found out and was going to turn Mayburn in, but Mayburn got to him first. And I wasn't about to let that bastard get away with murder. I tried talking to the mayor but he wouldn't listen. So I papered the entire town in posters. 'Wanted for gross dereliction of duty: Captain Mayburn.' Mayor sure wanted to talk after that. The town threw Mayburn out on his ass and were dug in when a very surprised group of raiders finally showed."

Courtney Ford's performance is spectacular, and the story could have been a compelling quest in its own right. The problem is that none of the main story quests showcase a political mobilization comparable to the one Piper has described. In fact, the only two moments in *Fallout 4* which depict mass political participation are two public speeches which have no significant consequences on the main story, one delivered by Hancock -- a romanceable character -- to the residents of Goodneighbor, and the other delivered by McDonough, an unscrupulous politician, to the residents of Diamond City.<sup>35</sup>

This basic lack of political collectivity vitiates one of the core elements of *Fallout 4*'s open world, namely the credibility of the hostile factions the player must battle against in the Commonwealth. After the player achieves the second rank of approval in the romance with Piper, the player can initiate the following dialogue, where Piper recounts a memorable encounter with the Children of Atom, a shadowy cult which worships radiation:

Player: “Seems that execution didn't quite take, huh?”

Piper: “Thank god. I'd been working on this story about irradiated drinking water in Bunker Hill. I traced the water back to its source, through these old sewer tunnels, and what do I find? The Children of Atom, setting up like they own the place. Unfortunately, they found me just as quick. Turns out they were not fond of reporters. So to atone for my trespassing they decided to make a sacrifice to Atom – me. I'm kneeling there, about to get the boot into this huge sewer pipe when suddenly I blurt out: 'Atom! He reveals Himself!' And they buy it! They pulled me back from the ledge, and then gave me their induction ceremony. You are looking at an official acolyte of Atom. Took me a couple more days before I managed to sneak away, get Bunker Hill security to finally clean the place up.”

After this promising start, there is no further exposition of the Children of Atom in *Fallout 4*. This missed opportunity is exacerbated by the fact that whereas the Children of Atom attack the player on sight in most locations of the open world, they are inexplicably neutral towards the player in the main story quest “The Glowing Sea” -- never mind the fact that the player is trespassing on one of their most sacred sites of worship.<sup>36</sup>

While this lack of political collectivity vitiates the player's experience of the opponent factions, its most damaging effect is on the game's multiple endings. These latter require the player to choose which of the four factions will rule over post-atomic Boston and which of the remaining factions will be destroyed. This choice is not credible because none of the four factions have a coherent political vision for the future. All four are top-down hierarchies ruled by a charismatic leader, who pursues an incomprehensible or inexplicable agenda.

For example, the scientists of the Institute are led by a character called Father (whose true identity we will reveal in just a moment) on a bizarre quest to replace human beings with programmable cyborgs called synths. Conversely, Desdemona leads the Underground Railroad on a mission to capture these synths and free them from their programming. This may sound like the science fiction version of the 18th and 19th century abolitionist movement, except for the fact that the removal of this programming requires erasing the past memories of the synths, destroying the very personhood which the Railroad claims to protect. Somewhat further afield, Brother Maxwell leads the Brotherhood of Steel on a quest to exterminate all mutant life-forms on the planet. This would mean the genocidal killing of the ghouls, a group of radiation-scarred but otherwise normal human beings (a few ghouls become feral due to radiation poisoning, but most do not), not to mention the destruction of the bulk of a highly irradiated but nonetheless functional eco-system. The final faction, the citizen militia of the Minutemen, is controlled by the player but has no political agenda aside from patrolling the territories under its control.

This lack of credible factions triggers an open crisis of narrative legitimacy the moment the player's personal quest to find their son becomes political. This is the revelation in the main story quest “Institutionalized” that the leader of the Institute, Father, is none other than the player-character's grown-up son (his name is a reference to the fact that he was the original genetic model for the Institute's synths). The revelation falls flat because neither Father nor the Institute are given credible back stories.

This is in striking contrast to the two most compelling main story quests of *Fallout 4*, “Reunions” and “Dangerous Minds”. Both succeed precisely because they shed an empathic light on the personal history of the nominal villain, Kellogg, a mercenary working for the Institute. The second of these quests even highlights the power of interactive media in the form

of the memory loungers of Goodneighbor's Memory Den, devices which enable users to interactively relive past memories.

That said, it would be inaccurate to blame *Fallout 4*'s flaws solely on flawed scriptwriting. There is a deeper contradiction at work here, namely the increasing structural tension between transnational audiences located primarily in the industrializing nations, and a videogame industry located primarily in the fully industrialized nations. What makes *Fallout 4* an exemplary case study of this tension is the fact that its greatest strength -- its capacity to depict the Cold War consumer culture of the United States with incomparable historical precision -- is also the site of its greatest weakness.

This weakness is the inability of *Fallout 4* to critique that consumer culture from the standpoint of the historical counterforces against US hegemony. Inside the US, these counterforces included the trade unions fighting for wage increases and an expanded welfare state, the various post-WW II civil rights mobilizations over race, sexuality and gender, mass environmental activism, and independent media artists struggling against McCarthyism and Hollywood monopolies. Outside of the US, these counterforces included the anti-colonial national revolutionaries fighting against colonial empires, radical artists critical of Hollywood as well as their own indigenous culture-industries, and the mass movements battling US and Soviet proxy states as well as postcolonial despotisms.<sup>37</sup>

One of the most successful examples of such a critique is William S. Burroughs' science fiction novel *Nova Express* (1964), one of the few texts to forecast the worldwide uprisings of 1968. Where such critiques are lacking, however, and this is the case with most post-apocalyptic narratives, the aesthetic work regresses back to reenactments of imperial conquest or settler-colonial expansionism.<sup>38</sup>

Predictably, *Fallout 4*'s lack of such a critique fatally undermines the credibility of its faction-based endings. What is more surprising is the degree to which it also damages *Fallout 4*'s greatest achievement, namely its companion friendships and romances. This is because all of the companions rely on long-standing archetypes of US imperial hegemony for their narrative form. While most of these companions satirize aspects of their respective archetypes, none of them manage to transcend these latter, either.

Out of *Fallout 4*'s six friendships, the smooth British accent and unctuous servility of the robot butler, Codsworth, symbolizes Britain's status as the junior partner of the US. Deacon, an agent of the Railroad, is the standard secret agent of the espionage thriller, whose propensity to fib is a nod to the embellishment-prone hero of Alfred Bester's classic science fiction tale, *The Demolished Man* (1959[????]). The friendly canine, Dogmeat, refers to Harlan Ellison's novella *A Boy And His Dog* (1969)<sup>39</sup> as well as to Max's nameless dog in George Miller's *The Road Warrior* (1981). Meanwhile, the Institute synth X6-88 refers to Arnold Schwarzenegger's iconic role as the cyborg anti-hero of James Cameron's *The Terminator* (1981).

The friendships with Strong and Valentine are clear missed opportunities. Strong is a supermutant, a race of predatory giants who are *Fallout*'s satirical homage to Marvel superhero the Incredible Hulk, first created by Stan Lee and Jack Kirby in 1962. This makes Strong a fundamentally comic character, who should have been endowed with a suitably tongue-in-cheek degree of cultural sophistication.<sup>40</sup> Conversely, Valentine, the synth detective, alludes to Hollywood film noir as well as Philip K. Dick's 1968 novella "Do Androids Dream of Electric Sheep?" and its cinematic spin-off, the *Bladerunner* film franchise. While Valentine has some of

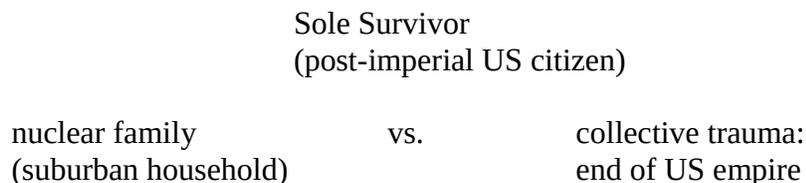
the best dialogue of any of the characters, his personal quest to solve the case of Eddie Winter, a pre-war criminal turned postwar fugitive, never transcends the bounds of the white, heteronormative masculinity of Hollywood film noir.

The missed opportunities are even more apparent in the case of the seven romanceable characters. This is because their more extensive character development enables us to identify the corresponding counterforces which were either underdeveloped, or omitted from the romance altogether. For example, the romanceable character Danse, an exemplary soldier loyal to the Brotherhood of Steel, is not developed beyond the trope of the disaffected or wounded veteran typical of the Hollywood war film. The eventual revelation that he is actually a synth triggers his expulsion from the Brotherhood of Steel, but there is no further exploration of the implied politics of xenophobia or homophobia. Similarly, the character of Preston Garvey may allude to the famous 1920s African American radical Marcus Garvey, but his character plays only a nominal role in organizing the Minutemen and has no other connection to the centuries-old political archives of the African American civil rights struggle. Meanwhile, the character of MacCready is a standard cowboy who serves primarily as interactive fan service, in the sense that he is the grown-up version of a child character in *Fallout 3*.

The other four romanceable characters have greater depth, but suffer from similar problems. We have already noted the limits of the romance with Piper, i.e. the fact that her avowed vocation of citizen journalist is never put into the context of an actual political process or social movement. The romance with Cait, a female gladiator in an arena called the Combat Zone, draws on the history of the working-class Irish diaspora in Boston as well as to the local history of a notorious Boston neighborhood.<sup>41</sup> Yet her back story makes only one brief reference to the obvious parallel of the 20th century neo-slave narrative, and concludes not with a battle against slavers, but her own personal battle with drug addiction.<sup>42</sup> Similarly, the medical robot Curie is a reference to the famous French scientist as well as to Bernard Shaw's *Pygmalion* (through a series of events, Curie becomes a female synth and thus available for a subsequent romance). However, she remains the standard non-governmental healthcare volunteer without any discernible connection to France's internal anti-colonial resistance movements or to the anti-colonial revolutions and vibrant social movements of the Francophone region.

Perhaps the most egregious missed opportunity is Hancock, a mutated ghoul who has suffered from racial discrimination from non-mutated humans. He is also the mayor of Goodneighbor, a settlement for ghouls and outsiders of all kinds. However, the romance with Hancock concludes with the personal revelation that he is the estranged brother of Diamond City's mayor, McDonough. There is no further exploration of anti-ghoul racism or of the potential mobilizations against such.

The fundamental limits of *Fallout 4*'s interactive story-telling can thus be mapped out in terms of the following semiotic rectangle:



fan media:  
player crafting

hostile factions:  
Children of Atom, Gunners,  
Raiders, Scavengers,  
Supermutants

non-ending:  
player settlements

non-family:  
synthetic bodies,  
a.k.a. transnational  
speculation

Minutemen, Brotherhood of Steel, Railroad, Institute:  
state-level, military, intelligence and scientific  
bureaucracies of the US empire

The lack of anti-imperial political mobilizations in *Fallout 4* does more than just limit the scope of its companion friendships and romances. It triggers the near-total collapse of the credibility of the factions and their respective endings at the end of the game.<sup>43</sup> Put bluntly, *Fallout 4*'s imaginary depiction of the end of the world cannot imagine the end of US cultural or political hegemony. This is not to argue that such representations are unthinkable, but merely to emphasize that two decades after its foundation, the *Fallout* franchise is still waiting for its first truly post-imperial iteration.

1. The four major powers of the contemporary world-system are the United States, the European Union, China and India.
2. At the time, Cain was an employee at California-based studio Interplay Productions. Interplay was a leading producer of role-playing videogames for the personal computer platform in the 1980s and 1990s. One of the happy coincidences which enabled Cain to create *Fallout* was the fact that a team at Interplay had already developed the post-nuclear open world videogame *Wasteland* in 1988 (EA published the game on the Apple II computer platform), the title widely acknowledged to be the spiritual predecessor of the *Fallout* franchise. While Cain did not work on *Wasteland* personally, the director of *Wasteland*, Brian Fargo, later served as Interplay's CEO in the early 1990s. Cain notes that late in its production cycle, *Fallout* was threatened with cancellation, and Fargo personally made the decision to approve the completion of the game. In addition to *Fallout*, Interplay was also the publisher of Michael Cranford's classic role-playing videogame *The Bard's Tale* (1985), as well as noteworthy franchises such as Bioware's *Baldur's Gate* and Parallax's *Descent*.
3. Cain credits Chris Taylor with introducing the idea of perks (specialized player-character abilities), Leonard Boyarsky for the art direction, and Mark Morgan for the sound track of the original game. For further details of the 1993-1997 production history of the original *Fallout*, see Cain's talk at the 2012 US-based Game Developer Conference: <https://www.youtube.com/watch?v=Xa5IzHhAdi4>.
4. For an insightful analysis of the role of popular music from the 1930s, 1940s and 1950s in the construction of *Fallout 3*'s narrative, see: William Cheng. *Sound Play: Video Games and the Musical Imagination*. Oxford: Oxford University Press, 2014 (19-56).
5. Allan Flynn and Frank Madden. "Maybe" (1940). The Ink Spots. Decca. <https://www.youtube.com/watch?v=wp2Hwi9qM48>.
6. The sequence can be viewed online at GamingClassicsHD (Youtube channel). "Fallout 1 (1997, Interplay) Opening Intro [HD]." October 7, 2012. <https://www.youtube.com/watch?v=9SJS2nUE44M>.
7. While Cain's strategy has not been widely copied in the field of science fiction role-playing videogames, two of the best shooter franchises of recent history have employed the theme of alternate futures to good effect, namely Insomniac's *Resistance* and MachineGames' *Wolfenstein: The New Order*.
8. The acronym stands for the numerical ratings of the player-character's strength, perception, endurance, charisma, intelligence, agility and luck. When players earn enough experience through in-game actions, they can improve their attributes and thus acquire new skills or upgrade existing ones. The system allows players to develop the attributes they find most rewarding or which fit most closely to their particular play-style. Interplay originally intended to license Steve Jackson's GURPS (Generic Universal Role-Playing System) for use in *Fallout*. However, the negotiations over the license proved unsuccessful, prompting Tim Cain to create the S.P.E.C.I.A.L. system as satiric homage to the role-playing system of Gary Gygax's mid-1970s *Dungeons & Dragons* franchise (this latter featured the categories of strength, dexterity, constitution, intelligence, wisdom and charisma).
9. Matt Barton. [Matt Chat 67 Fallout with Tim Cain](#). (Video Interview). July 4, 2010. The transcript runs from 5:48 to 7:20, and has been lightly edited for clarity.

10. While the most obvious reference is to Nintendo's Gameboy line of portable consoles, the Pip-boy's start-up screen lists the device memory as 64K. This is a reference to the top-of-the-line personal computers of the early 1980s such as the Apple II+, which had 64 kilobytes of random access memory.

11. This was a sound choice, given Bethesda's proven track record of producing commercially popular and critically acclaimed open world videogame franchises, e.g. Bethesda's *The Elder Scrolls* series garnered sales of 33.25 million between 2002 and 2015. Data compiled by VGChartz.com. <http://www.vgchartz.com/gamedb/?name=elder+scrolls>. The secret of Bethesda's success is its combination of internal workplace egalitarianism and cross-disciplinary innovation, and respectful external engagement with fan communities. For more background on the practical effects of Bethesda's egalitarian workplace culture, see *Fallout 3* and *Fallout 4* director Todd Howard's 2009 address. Chris Weissenberger. "Todd Howard at George Mason University". (Video). <https://www.youtube.com/watch?v=CrfdNJDVpR4>. December 12, 2012. Also see senior Bethesda designer Joel Burgess' 2014 address on the studio's iterative design process. Joel Burgess. "How We Used Iterative Level Design to Ship Skyrim and Fallout 3." GDC 2014. Uploaded January 22, 2016. <https://www.youtube.com/watch?v=PhW8CY8XkFg>.

12. Data from VGChartz.com. <http://www.vgchartz.com/gamedb/?name=fallout>.

13. The generic nature of this story is all the more disappointing considering the extraordinary quality of the prologue, the single greatest introduction to a post-apocalyptic world ever created in any interactive media. After choosing to play as either Nick or Nora during the prologue of the game and experiencing a brief moment of domestic tranquility, an emergency television broadcast announces the outbreak of the 2077 war, forcing the player and their family to rush to their designated fallout shelter. They reach the shelter literally seconds before the first blast wave hits, but once underground, they are subjected to cryogenic freezing without their consent -- in *Fallout's* alternate future, the underground vaults built by Vault-Tec seemingly for protection against nuclear conflict are in reality a series of horrifying human experiments on the vault-dwellers, designed to maximize Vault-Tec's post-reconstruction profits.

14. *Fallout 4* continues this tradition by ensuring that the only moving vehicles are semi-autonomous robots which move at near-human speeds, and futuristic helicopters called vertibirds, which were limited in number and efficacy by the designers for purposes of game balance.

15. To avoid the tedium of backtracking, there is a fast travel option on the menu allowing players to revisit areas they previously discovered. The hardest player difficulty setting, called "survival", disables this option in order to provide a logistical challenge for experienced players.

16. The Massachusetts constitution ratified by voters in 1780 referred to the state as the Commonwealth of Massachusetts. [https://en.wikipedia.com/wiki/Constitution\\_of\\_Massachusetts](https://en.wikipedia.com/wiki/Constitution_of_Massachusetts).

17. The six potential companions include Codsworth, Deacon, Dogmeat, Strong, Valentine and X6-88. The seven potentially romanceable companions include Cait, Curie, Danse, Hancock, MacCready, Preston Garvey and Piper Wright.

18. For a more comprehensive discussion of *Minecraft's* contribution to videogame design, see: Dennis Redmond. "Minecraft: The Videogame Commons Remakes The Transnational Studio." In: *Understanding Minecraft: Essays on Play, Community and Possibilities*. Edited by Nate Garrelts. Jefferson: McFarland, 2014.

19. In a video presentation, senior Bethesda designer Joel Burgess has described the economic functionality of non-commercial fan media as follows: "The other thing that mods can do to extend the lifetime of sales in your game is keeping your game in the public eye. Particularly weird, ambitious, creative mods have a way of getting stories run on news sites. Marketing people would love to pay money for this. They can't. You can't buy this kind of thing. You can only have this thing by empowering a mod community of interesting, weird, creative people who can actually go and do these inspired things, and create new stories that people want to read and write about." Joel Burgess. "How Modding Made Bethesda Better." GDC 2014. Uploaded July 9, 2015. (Video). <https://www.youtube.com/watch?v=GxthbWfSak8>. Clip runs from 21:45-22:24 and is lightly edited for clarity.

20. The single largest resource for *Fallout*-related mod content is the independent site Nexus (<https://www.nexusmods.com/fallout4/>). This site also offers a useful metric of the exponential increase of the popularity of modding in the early 21st century. As of September 17, 2017, there were 14,494 mods for *Fallout 3* on the PC platform, 18,452 mods for *Fallout 3: New Vegas* and 20,666 mods for *Fallout 4*. Given their respective release dates, the average number of mods produced per year for each videogame rose from 1,610 to 2,636 to 10,333.

21. Ambient sound tracks operate under two overriding design constraints, due to the interactive nature of videogames as a form. First, ambient tracks must be clearly distinguishable from all other sounds in the open world, e.g. the sounds of enemies, footsteps, weapons, and other player cues. Second, these tracks must also be accessible enough for players to recognize their general location in the open world, but sophisticated enough to avoid player boredom due to excessive repetition.

22. *Fallout 4's* complete ambient sound track is available here: <https://www.youtube.com/watch?v=fIOKKJfXRQM>. The in-game Diamond City radio sound track is available here: [https://www.youtube.com/watch?v=44tCHxmzr\\_w](https://www.youtube.com/watch?v=44tCHxmzr_w).

23. Ives carried out the twelve-tone musical revolution from without precisely where Alban Berg, Arnold Schoenberg and Anton Webern carried out their revolution from within -- strategies overdetermined by their respective geopolitical locations inside an American empire on the cusp of world hegemony, and within an Austrian empire doomed to disintegrate in the conflicts of 1914-1945. Interestingly, this is most apparent in the single work of the Second Viennese School which assembled a series of large-scale rhythmic blocks in a manner almost identical to that of Ives, namely the military marches, folk melodies and music-hall tunes of Berg's *Three Pieces for Orchestra, Opus 6* (1914). To paraphrase Adorno, whereas Berg was the master of the smallest link, Ives was the master of the largest frame.

24. In particular, there are significant parallels between the four decade trajectory from Debussy's *The Sea* (1905) to Webern's *Cantata II, Opus 31* (1943) and the roughly five decade trajectory from the formation of King Oliver's band in 1918 to John Coltrane's *Ascension* (1966). Both twelve-tone and jazz modernism responded to the commercialism of the music industry by means of a comparable

autonomization of musical form: the emancipation of melody from all harmonic constraints and free chromaticism in the former were the equivalent of the emancipation of the soloist and the rise of free rhythm in the latter. This autonomization was additionally mediated by the transformation of early 20th century acoustic recording technology, something documented Michael Denning in his extraordinary study of the world recording industry between the 1920s and 1930s. Denning makes a convincing case that this recording revolution was inextricably linked to the larger wave of cultural and political anti-colonial movements of the time, raising intriguing questions about how twelve-tone and jazz modernism might relate to the anti-colonial struggles of Ukraine and India. Michael Denning. *Noise Uprising: The Audiopolitics of A World Musical Revolution*. New Delhi: LeftWord Books, 2016.

25. Jimi Hendrix's three canonic albums include *The Jimi Hendrix Experience* (1967), *Axis: Bold as Love* (1967), and *Electric Ladyland* (1968), while the Velvet Underground's two canonic albums include *The Velvet Underground & Nico* (1967) and *White Heat/White Light* (1968).

26. Charles Ives' classic piece "The Unanswered Question" (1908) is available here: <https://www.youtube.com/watch?v=tbArUJBRRJ0>.

27. *Forbidden Planet*'s other signal contribution was its anticipation of the videogame console, in the scene where Dr. Morbius employs a Krell device to create an animated hologram of his daughter which moves and reacts in real time.

28. The *Fallout* theme employs a tune which shuttles between a major C and a dissonant E flat, and background chords which oscillate between C major and B flat, generating a mood of intense foreboding. The *Fallout 3* theme is available here: <https://www.youtube.com/watch?v=Hl5xbFXrFU4>. The *Fallout 4* theme is available here: <https://www.youtube.com/watch?v=khTwu14CXcA>. *Fallout* fans have created sheet music and a notated piano score of the theme here: [https://www.reddit.com/r/Fallout/comments/3y1w1o/sheet\\_music\\_for\\_the\\_fallout\\_4\\_main\\_theme\\_for\\_piano/](https://www.reddit.com/r/Fallout/comments/3y1w1o/sheet_music_for_the_fallout_4_main_theme_for_piano/). Marioverehrer. (Youtube channel). "Main Theme - Fallout 4 [Piano Tutorial] (Synthesia)." (Video). <https://www.youtube.com/watch?v=NfCj8d6pl-E>. Uploaded November 21, 2015.

29. Gary Steinman. "Fallout 4 – Behind the Score with Inon Zur." Bethesda Softworks. September 22, 2015. <https://bethesda.net/#en/events/game/fallout-4-behind-the-score-with-inon-zur/2015/09/22/30>.

30. One of the early highlights is the interaction with Codsworth, the robot butler who has somehow survived the holocaust. The resulting dialogue is *Fallout*'s trademark gallows humor at its finest:

*Player action: ask "You okay?" instead of the other three options.*

Player: "Codsworth... you're acting.. a little bit weird. What's wrong?"

Codsworth: *voice breaking*: "I... I... oh mum ["sir" if speaking to male survivor], it's been just horrible. Two centuries with noone to talk to, noone to serve. I spent the first ten years trying to keep the floors waxed, but nothing gets out nuclear fallout from vinyl wood, nothing! And don't get me about the futility of dusting a collapsed house. And the car! The car! How do you polish rust?!"

31. One of the most glaring absences is the lack of differentiation between dialogue choices which trigger decisions and those which serve a merely informational purpose. *Witcher 3* solved this problem by printing decision-making dialogue choices in yellow text and information-seeking inquiries in white

text.

32. While videogames emerged as a mass media in the late 1970s, the first blockbuster titles to depict equality of sexual orientation did not arrive until the late 1990s, e.g. Timothy Cain's *Fallout 2* (1998) featured same-sex marriages, although these had a limited effect on game-play. Bioware's *Knights of the Old Republic* (2003) was the first blockbuster title to feature an openly lesbian character, namely party member Juhani, while Bioware's *Mass Effect* (2007) and *Dragon Age* (2009) franchises have featured fully-developed same-sex romances. Bethesda and Obsidian are to be commended for creating some of the first openly lesbian, gay and bisexual characters in *Fallout 3: New Vegas*, the 2010 expansion to the original *Fallout 3*, in the form of players companions Arcade Gannon, Cass and Veronica. While these companions fight at the player's side, there are no romance options involving companions in the game.

33. This attempt depends on the player-character's charisma level, and is thus not always successful. However, players are allowed to keep earning companion approval and eventually to try again.

34. The name is a clever reference to the very first newspaper of the American colonies recorded in the historical archives. Published on September 25, 1690, it was banned four days later by the colonial authorities. [https://en.wikipedia.org/wiki/Publick\\_Occurrences\\_Both\\_Forreign\\_and\\_Domestick](https://en.wikipedia.org/wiki/Publick_Occurrences_Both_Forreign_and_Domestick). A scan of the original publication is available here: <http://nationalhumanitiescenter.org/pds/amerbegin/power/text5/PublickOccurrences.pdf>.

35. Bethesda designer Emil Pagliarulo noted in a December 15, 2015 Twitter post that McDonough was modeled on James Michael Curley, the four-term Mayor of Boston from 1913 until 1950, and one of the most colorful and corrupt politicians of the epoch of US machine politics. <https://twitter.com/Dezinuh/status/677132963474206721>.

36. There are similar hints of a more complex story in the eerie flashbacks which play during the player's initial exploration of the lower depths of the Dunwich Borers mine, which suggest the Children of Atom are the descendants of a pre-war cult of radiation worshipers. In fairness to Bethesda, the designers probably constructed a number of quests involving the Children of Atom, but did not have the time to properly polish them in time for the game's release in 2015. This shelved material may have recycled into Bethesda's downloadable expansion for *Fallout 4*, "Far Harbor", which portrays the Children of Atom as a fully-realized faction in its own right.

37. The only moments which refer to these resistances are the occasional denunciation of anti-Chinese racism and xenophobia in *Fallout 4*'s alternate future America, as well as side quests such as "Here Be Monsters", wherein the player discovers a disabled Chinese submarine left over from the war and interacts with a humane Chinese officer turned into a ghoul by radiation.

38. This contradiction is not exclusive to the field of US science fiction, but is also visible in the various science fiction traditions most strongly marked by the weight of imperial history, e.g. the British science fiction of H.G. Wells, the French science fiction of Jules Verne, and the Russian science fiction of Arkady and Boris Strugatsky.

39. Ellison's text was the basis for L.Q. Jones' 1975 cult science fiction film by the same name.

40. The character of Max Haas in Machine Games' *Wolfenstein: The New Order* franchise provided precisely such a role.

41. The Combat Zone was the nickname of a blighted neighborhood which was the city's adult entertainment district during the 1960s and 1970s. Salvatore M. Giorlandino. "The Origin, Development and Decline of Boston's Adult Entertainment District: The Combat Zone." Cambridge, MA: MIT, 1986. <https://dspace.mit.edu/bitstream/handle/1721.1/14980/15038233-MIT.pdf?sequence=2>. WBUR News (2010). "A Visual History of Boston's Combat Zone". <https://web.archive.org/web/20150218004344/http://www.wbur.org/2010/02/19/combat-zone>.

42. In her interactive dialogue with the player, she describes how her parents sold her into slavery when she was thirteen years old -- the political displacement of the horror of Atlantic slavery onto horrible individuals.

43. Since the Minutemen cannot be destroyed as a faction, the four possible endings are as follows. If the player sides with the Brotherhood, then the Institute and Railroad must be destroyed. If the player sides with the Institute, then the Brotherhood and Railroad must be destroyed. If the player sides with the Railroad, then the Brotherhood and Institute must be destroyed. The fourth and most difficult ending is to destroy the Institute, while preserving a truce between the Railroad and the Brotherhood through careful quest choices. A fan has illustrated the fourth ending here: The Triple S League. "Fallout 4 Best 'Good Ending' Possible: Peace between Railroad, Brotherhood and Minutemen." <https://www.youtube.com/watch?v=OUFEeYdQnVc>.