14 Everting the Holodeck

Games and Storytelling in Physical Space

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1. VIRTUAL REALITY INSIDE OUT

Janet Murray's proposal of the Holodeck as an immersive environment for interactive digital storytelling (Murray, 1997) has served as a guiding metaphor for researchers in interactive digital narrative since it was proposed. At present, a sizeable portion of the entertainment industry is in agreement with the vision of highly immersive virtual environments as a powerful medium for storytelling, and recent AAA titles such as *Heavy Rain* (2010), *L. A. Noire* (2011) and *The Last of Us* (2013) can be seen as serious experiments in this vein. In terms of platform support, Virtual Reality (VR) ideas developed in the 1990s are making a comeback in the form of new head-mounted displays, such as Oculus Rift and Project Morpheus, only this time with support of large industry players like Sony and Facebook. These interfaces, if adopted at the mass scale that their backers are hoping for, are likely to further enhance the use of virtual environments for digital storytelling.

VR may be happening for real this time, made possible by powerful miniaturised graphics processing units, lightweight high-resolution displays and small responsive motion sensors, none of which existed (or were prohibitively expensive if they did) in the 1990s, but which have been developed for the growing smartphone market. Interestingly, the same technologies are also being adopted for a type of storytelling more aligned with the mobile platform for which they were primarily developed: location-based, or locative, storytelling. Where the predominant vision of the immersive interactive digital storytelling environment situates the audience 'inside' a simulation, there is also work going on in which the narrative elements are being placed 'in the physical space' that the audience happens to inhabit. This work is highly aligned with Mark Weiser's famous vision of *ubiquitous computing*, which he characterised as the opposite of VR because the technology is brought out into the real world through device sentience and mobility rather than the user being brought into the virtual world (Weiser, 1991).

In this chapter, we explore the current state of interactive digital narrative practice that relates to physical space. We think of such works as everted holodecks, a series of Weiser-esque attempts to turn VR not on its head but inside out. Rather than inserting the audience into an interactive

story simulation, such works construct a story that relates in one way or another to the physical world inhabited by the audience, typically by superimposing or mixing narrative elements on top of or into a real-world environment. Determining location is of course of great importance for such works—indeed so important that the term first proposed to describe them and related works was *locative media*. While locative media projects are not necessarily concerned with narrative, the canon that was established in the early and mid 2000s has been influential for later projects. The term *locative media* was first used by Karlis Kalnins (Albert, 2004) to describe a test-category of work that originated in the now-defunct Locative Media Lab. Albert also offers the following description:

> Locative media art at its best enhances locative literacy. The ability to read, write, communicate is vital for any person needing to act, take power, to have agency. An awareness of how flows and layers of information intersect with and augment a person's locality, and the ability to intervene on this level is a further extension of this literacy, and of their agency.
>
> (Albert, 2004)

Seminal works from the early and mid 2000s were primarily art projects and research projects; they were experimental systems that drew attention to and helped express spatial relationships. Many were performance-driven and some also intended to be hackable, i.e., allowing modification by the participants. Some developed their story through player engagement with high-activity game mechanics, while others were concerned with a slower story-driven development. In the former category, Blast Theory's *Uncle Roy All Around You* (2003) used a fictional character and the players' quest to find him to explore how game mechanics (e.g., puzzle-solving, time-constrained navigation) could be used to link a virtual gameworld with a real, urban environment. In the latter category, history-focused projects, such as *Media Portrait of the Liberties* (Nisi et al., 2008) and *Riot! 1831* (Reid, 2008) explored how media fragments could be situated in locations that were of historical relevance to the story material, while *REXplorer* (Ballagas et al., 2008) and *Viking Ghost Hunt* (Carrigy et al., 2010; Paterson et al., 2010) did the same for game activities.

The widespread adoption of GPS-enabled smartphones that began in the late 2000s allowed locative media to transition from short-lived art and media experiments or pure performance pieces to become a mass medium. Hence, while locative media have existed for well over a decade, it is only within the last few years that they have become available to general audiences. A number of works have been put forward, some of which are concerned with storytelling and some of which have received respectable participant numbers.[1] The analysis presented here focuses on four influential projects that feature an approach to interactive storytelling in which

geolocation mechanics play a crucial role: *Parallel Kingdom* (2008), *Shadow Cities* (2010), our own platform *Haunted Planet* (2012) and finally *Ingress* (2013). The titles are deconstructed to show how game mechanics and storyworld, and to a lesser extent aesthetics, are used in the service of narrative. The chapter concludes with a perspective on the types of narratives that can be expressed in location-based games and their general characteristics compared to other digital media.

2. PARALLEL KINGDOM (2008–PRESENT)

Parallel Kingdom by Wisconsin-based game studio PerBlue is a location-based smartphone massively multi-player online role-playing game (MMORPG) in which the gameworld is overlaid on top of the real world. The gameworld is fantasy-themed and features a range of game characters and opponents typical of classic role-playing game (RPG) titles. *Parallel Kingdom* uses GPS to detect the player's real-world location; and when the game starts, their avatar is placed in the corresponding location in the gameworld. The game contains three core movement mechanics, one of which is hard, requiring physical movement in the real world, and two of which are soft, allowing movement in the gameworld without real-world movement.[2]

When a *Parallel Kingdom* player has had their location sampled using GPS, the game positions their avatars within a circle of mobility (around 400m radius, see Figure 14.1) from the sampling point. The game allows them to move their avatar around this area simply by tapping on their screen, i.e., without having to move physically. We call this the *soft micromovement* mechanic. The player can relocate their circle of mobility in a number of different ways, for example by physically moving to a new real-world location and taking a new GPS reading. We call this the *hard macromovement* mechanic. Other options also exist for relocating the circle of mobility without physical movement, such as *walking the dog*, in which the game relocates the circle of mobility to a random unexplored area, or by being invited by another player to travel virtually to their location. We call such movement mechanics *soft macromovement* mechanics. One of the first tasks that a new player encounters is that of mastering these nonspatial modes of transport.

In addition to these movement mechanics, *Parallel Kingdom* contains a series of typical MMORPG mechanics, such as monster combat, levelling up, resource gathering, and crafting of game objects, as well as competitive and cooperative multiplayer interaction. There is a strong territorial aspect to *Parallel Kingdom*, and many of the game objects constructed by players (e.g., flags and houses) serve a territorial purpose. The player chooses where in the world to place such game objects (and most of them remain in these locations afterwards), and while they serve a territorial function (e.g., are worth conquering), they are not strongly linked with the real

(*a*) (*b*)

Figure 14.1 *Parallel Kingdom*'s Circle of Mobility and a Region-Specific Game Object (Screenshots by Mads Haahr).

world. Their virtual location is not linked in any intrinsic/extrinsic way to the actual location—other than the player's choice in positioning—and the real-world location's atmospheric and historical qualities are of no consequence to the game, except through direct player knowledge—and perhaps, for players with a shared context, also a shared meaning.

Parallel Kingdom adopts a typical MMORPG narrative structure, with the notable difference that it does not propose a main storyline and leaves players the freedom to construct their own narratives (narratives of their characters and those of friends and enemies of their characters) through RPG game mechanics. Characters can be developed using a customisation system and their abilities advanced through the game's levelling mechanic. The main game activities include resource gathering, combat and other territorial mechanics: Players may embark on adventures with friends, conquer nearby lands, tame the wilderness and establish new cities. The absence of a series of quests forming a main storyline—an otherwise common trait for MMORPGs—highlights the freeform nature of *Parallel Kingdom*. Rather than a grand structured narrative arc, it offers a narrative sandbox

environment in which players can shape their characters' stories through play. The game's locative aspect remains at the level of game mechanics (movement and territory) and never directly transcends into the narrative domain. Despite the fact that the gameworld's foundation happens to be the real world, the two worlds are not guaranteed to meet in any narratively cohesive manner—unless players decide to do so by creating game objects of their own that are tied to the physical world.

3. SHADOW CITIES (2010–2013)

Like *Parallel Kingdom, Shadow Cities* by Helsinki-based game studio Grey Area Labs is a location-based MMORPG that uses the real world as its gameworld, and similarly, it is a territorial game where players are shown in real-time and battle for control over different geographical areas. Differently from *Parallel Kingdom*, *Shadow Cities* divides its player community into two opposing factions, the Architects and the Animators, and territorial battles take place between those two. While the gameworld in *Shadow Cities* contains spells and magic, its gameworld and aesthetics are distinctly modern, almost futuristic in style. Even the way the spells are cast, through gestures (called runes) drawn with a finger on the touch screen, are modern and sleek compared to *Parallel Kingdom's* more traditional button-based User Interface (UI).

On the game mechanics in *Shadow Cities*, the game's lead designer Markus Montola states: "The basic game mechanics are about casting spells, killing enemies, gathering [Experience Points] XP, completing missions, fighting other players, so forth, but what makes it special is that everything is done on a map" (Montola, 2012). The company's CEO, Ville Vesterinen, adds: "Shadow Cities is rather literal when it comes to location. Every game object maps to one exact location in the real world. Every player is in one exact location" (Vesterinen, 2012). *Shadow Cities* includes a hard as well as a soft movement mechanic. Using the hard movement mechanic, the player can change their avatar's location in the gameworld through physical travel in the real world. The soft movement mechanic is implemented through the existence of game objects called *beacons*, which allow players to travel to other parts of the gameworld without moving physically.

Shadow Cities is essentially social, as it is intended to be played with friends exploring and conquering nearby (algorithmically generated) neighbourhoods. To facilitate this, the game contains social features, such as chat and friending. Like in *Parallel Kingdom,* these functions enable the soft movement mechanic, but the strong social aspects of *Shadow Cities* are also in good accord with the territorial game mechanics. Ville Vesterinen observes, "cities and neighbourhoods evoke strong emotions" (Vesterinen, 2012), meaning that emotional investment that players have in their home locality helps amplify the emotional investment in the territorial mechanic. The result is a sociolocative game mechanic.

In terms of story, the conflict between the Architects and the Animators is cast as being a battle of mythic proportions, an eternal struggle that neither side will win. "Hundreds of years ago, an ancient now long-forgotten force pulls through our world. This alternative reality has now returned, using technology as the gateway" (Montola, 2012). Game creatures are inspired by Norse mythology and carry names like Fenrir and Valkyries. This mythological backstory functions as a framing device within which players' individual stories can be constructed. In addition, it is *location* that plays an important role as a catalyst for people's imagination about their game actions. If a player's actions take place in an area that is of particular significance to them (even if they are not there physically), then the actions will take on special significance for them too, be more memorable and hence serve as more important components of emergent stories. Figure 14.2 shows screenshots of play in culturally significant places in Paris and New York. The designers of *Shadow Cities* also observed a considerable amount of emergent play (Juul, 2005), such as the kind described by Markus Montola at GDC in 2012:

> We don't need to put stuff on the map in order for [the players] to find it, for instance here the players are in the Forbidden City in Beijing, they organised these treasure hunts—here they are in the Arc de Triomphe in Paris [Figure 14.2], or Pearl Harbor, or Area 51. Players go into these places, they organise their own competitions, they organise scavenger hunts or whatever, they write fanfic [Fan Fiction] based on what we do, they write fanfic about gathering in Area 51 and going there and doing stuff. The powerful resource we have here is that we have a coherent world, everything in the game is supporting the same fiction because this is not a game, it is your magic device where you draw runes and you cast spells, so everything you have in the real world, you can appropriate into the game. If you have a cool piece of local folklore, you can enter it into the fiction, if you have a mage meet-up cruise you can make that a game event.
>
> (Montola, 2012)

The emergent behaviours observed are evidence of player creativity and evidence of the game's success as a platform for player's to construct their own events and narratives. Anecdotes recounted by Vesterinen (2012) include a protest outside Grey Area Labs when an unpopular change had been made during a game update, and a no-war zone (i.e., no fighting between the two factions) at Ground Zero in New York during a 9/11 anniversary (see Figure 14.2b) in which players constructed skyward beams of light similar to those used in a real-world memorial installation. In this fashion, *Shadow Cities* retains the grassroots feel of the first locative media projects in that it supports emergent play, even if it is not directly hackable.

(*a*) (*b*)

Figure 14.2 *Shadow Cities* at Champs-Élysées in Paris and Ground Zero in New York (Copyright Grey Area Labs).

4. HAUNTED PLANET (2012–PRESENT)

The Haunted Planet games are a series of smartphone-based location-based games by Dublin-based game developer Haunted Planet Studios for which the author serves as CEO and Creative Director. In the Haunted Planet games, the player takes on the role of paranormal investigator, exploring a real-world area for paranormal activity, encountering ghosts and other supernatural entities, documenting their existence with photos and audio recordings and ultimately solving a mystery. In terms of genre, they fall within the categories of "locally staged treasure hunts" (Montola et al., 2009, pp. 32–34) and "urban adventure games" (Montola et al., 2009, pp. 42–44). We think of the games as an attempt to reinvent traditional Gothic storytelling using modern technology and draw upon many Gothic narrative techniques, such as "pretension to veracity," "fragmented narratives," "heavy historical trappings" and the "disturbing return of pasts upon presents" (Botting, 2001). Our analysis will focus on two games, *Bram Stoker's Vampires* (2012), which is a heavily Gothic game based on the novel *Dracula,* and *The Amazing Transfabulator* (2013), which is a lighter, more whimsical time travel adventure loosely inspired by the works of Jules Verne.

Each game has a site-specific mode and a random mode. In the site-specific mode, the game is played in a particular location where the

encounter locations are chosen by the game designers to resonate with the story and through site atmosphere and/or history. In site-specific mode, *Bram Stoker's Vampires* is set in Trinity College, Dublin in Ireland where Bram Stoker (the author of *Dracula*) was a student (1864–1870). Founded by Queen Elizabeth in 1592, the College is rich in history and its old buildings provide a powerful backdrop to the game experience, in particular its augmented reality view of the gameworld. In this mode, the player searches the College grounds for characters related to the famous novel *Dracula,* which have mysteriously appeared in the author's old stomping grounds. In site-specific mode, *The Amazing Transfabulator* is set in the Victorian precinct of Oamaru, New Zealand, the historical buildings of which form a similarly powerful backdrop in terms of its aesthetics and history. In this game, the player searches for members of a Victorian time-travel expedition whose time machine (the transfabulator) has malfunctioned, leaving them stranded in interdimensional limbo. In the random mode, each game can stage itself to where the player happens to be, and in this configuration it is suitable for playing in a park or another open area anywhere in the world.

While the two games have different subject matter, they employ identical game mechanics. Each game turns the player's smartphone into a paranormal detection device, through which she/he interacts with the gameworld and the physical environment. The game has four different gameplay modes (Adams, 2009) that enable the game mechanics. The map (Figure 14.3) shows the general area in which the game takes place but does not show the individual encounter locations. The paranormal radar (Figure 14.4) works like a ship's radar, showing the player in the centre and showing relative distance to nearby encounters. Together, these two modes facilitate a search/navigation mechanic in which the player explores his/her physical environment in order to get close to an encounter. The search/navigation mechanic is a hard movement mechanic; there is no in-game travel that does not involve the player traversing the physical space in which the game is staged. When the player gets close to an encounter, layers of audio build up (Paterson et al., 2013) and the ghost view (camera) mode can be activated, allowing the player to engage with the scan/capture mechanic in order to see and photograph the game entity (Figure 14.5). A successful capture enters the photo into the game's casebook where additional visual detail is revealed (a good photo results in more visual detail) and also unlocks a snippet of character backstory (Figure 14.6). The Haunted Planet games do not contain territorial of competitive mechanics; instead they are heavily focused on solving the mystery.

The two games differ slightly in their approach to narrative structure. *Bram Stoker's Vampires* uses a parallel inclusive structure for the first three encounters (the three vampire sisters from Stoker's novel) followed by five sequential encounters (four with Count Dracula and one with the ghost of Bram Stoker). *The Amazing Transfabulator* uses a purely parallel inclusive structure for the

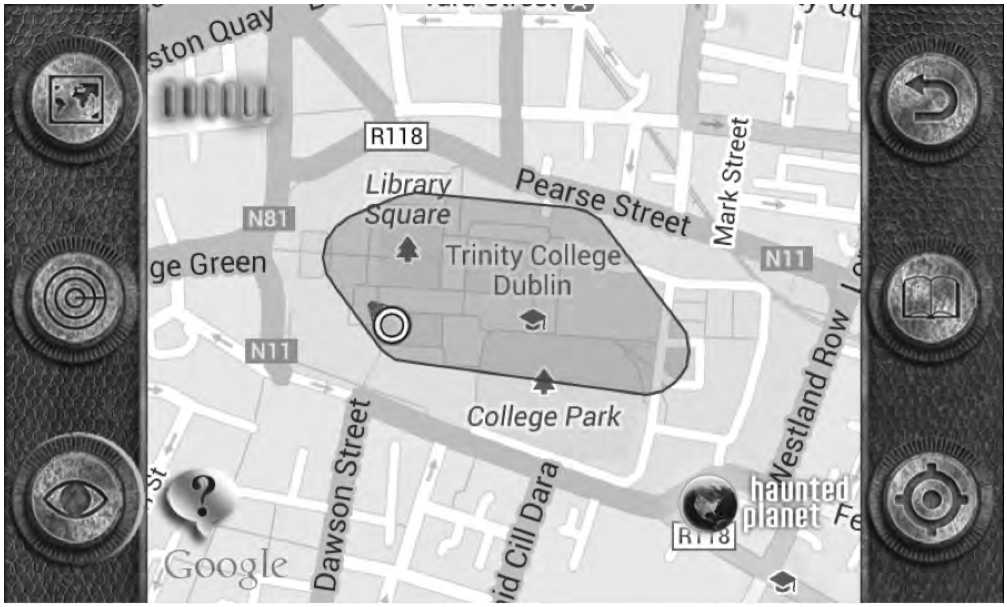

Figure 14.3 *Bram Stoker's Vampires* (2012) Map Mode (Copyright Haunted Planet Studios).

Figure 14.4 *Bram Stoker's Vampires* (2012) Radar Mode (Copyright Haunted Planet Studios).

first six time travellers followed by a final encounter with the eccentric professor who has created the time machine. Through exploring the environment and unlocking the characters' visuals and backstory, the player constructs the narrative in her/his mind. In comparison to *Parallel Kingdom* and *Shadow Cities*, the Haunted Planet games are discrete story experiences, strongly curated and allowing for little story development by the players themselves.

Figure 14.5 *Bram Stoker's Vampires* (2012) Ghost View Mode (Copyright Haunted Planet Studios).

Figure 14.6 *Bram Stoker's Vampires* (2012) Casebook Mode (Copyright Haunted Planet Studios).

5. INGRESS (2013–PRESENT)

Ingress is developed by Google game studio Niantic Labs and shares many similarities with *Shadow Cities*. Similarly, *Ingress* is a location-based MMORPG in which players take part in a grand struggle between two factions. *Ingress*' backstory states that Earth has been seeded with Exotic Matter (XM) by an

alien race called the Shapers. Little is known about the Shapers, but they serve to divide the player base in two based on human beliefs about them: Players belonging to the Enlightened faction believe the Shapers are benevolent, while players belonging to the Resistance believe they are malevolent. Players choose their faction when they begin, but other than providing allegiance to a faction, the choice has little consequence for the gameplay. It is mainly a social decision.

Ingress employs conventional RPG mechanics, such as resource gathering and levelling. The gameplay is centred on the conquest and maintenance of portals (Figure 14.7a), gameworld representations of real-world landmarks of historical or architectural value, such as a public art or historical buildings. The main game resource is XM, which is gathered by walking and can be expended to hack the portals in order to obtain game items (Figure 14.7a), which in turn are used to capture and protect portals from the opposing faction. Game actions, such as hacking enemy portals, is rewarded with Action Points (APs), which trigger the player's level progression. The game contains a clever balancing mechanic in that APs are rewarded for hacking enemy portals, but not friendly ones, meaning that players who find themselves in a region in which their faction is in the minority are likely to level up faster than players from the opposing faction in the same region.

(*a*) (*b*)

Figure 14.7 *Ingress* (2013) Resource Gathering and Portal View (Screenshot by Mads Haahr).

The visuals in *Ingress* (see Figure 14.7a) are similar to those of *Shadow Cities,* showing the gameworld as a 3D stylised map view of the player's vicinity. Portals appear as glowing bonfire-shaped game objects that are colour-coded to indicate ownership (grey is neutral, blue is resistance, green is enlightened). XM is shown as small glowing dots scattered across the map.

Similarly to the beacons in *Shadow Cities,* control of portals in a particular area is of territorial significance. While portals do not allow virtual travel in the gameworld, players can use friendly portals to create *control fields* by linking three portals to form a triangular shape across the gameworld. The larger the control field, the greater its effect on the total score for the faction that created it. Figure 14.8 shows a control field created over Ireland by the Resistance on 26 January 2014.

Figure 14.8 *Ingress* (2013) Resistance Control Field over Ireland (Screenshot by Mads Haahr).

Similarly to *Parallel Kingdom, Ingress* overlays the gameworld on top of the real world and creates a circular area around the player's game location within which they can affect the game state. (See Figure 14.7a.) In contrast, however, *Ingress* contains no soft movement mechanics and always requires the player to travel physically in order to move this circle of influence. In fact, *Ingress* does not allow any game actions to be performed if it is not able to acquire the player's precise location. Travelling is also encouraged since it is required to gather XM.

In contrast with most MMORPGs, *Ingress* contains little in terms of crafting/creation mechanics. The developers chose public art to represent portals because it was safe and accessible (Badger, 2013), and they allow players to suggest landmarks as potential new portals by taking photos of

candidate landmarks and submitting them through the game. While Badger states that "the player community helps build out the game board" (Badger, 2013) in this fashion, the players have no influence over whether their portal proposals are eventually adopted, and even the submission of photos has the feel of an extra-game activity rather than an in-game action.

Ingress has a highly engaged player community with events in which players gather to hack portals and exchange knowledge and game objects, and like *Shadow Cities,* the community has also produced fan fiction. The social experience of play was an important design consideration for the developers. Like the other MMORPGs that were discussed in this chapter, *Ingress* contains an in-app geo chat to help members of each faction coordinate their efforts; and to create the highest-level portal, a total of eight high-level players must collaborate, resulting in social coordination of game activity as well as social play. Badger explains:

> If you interview players, it's those social connections that add the most fun to the game. So it's not just about shooting your weapons …, it's really about your friends, it's about that walk you take with your friends.
>
> (Badger, 2013)

The developers also arrange agent meetups, local events in which players from the two factions compete to control a number of specific portals at specified points in time.

While *Shadow Cities* contained a complex mythical backstory, *Ingress* adopts a complex science fiction universe. The backstory is developed through multiple channels, which in addition to the game app includes an online intel map that gives a global view of the game state and an investigation board containing redacted CIA documents and other material. In addition, weekly five-minute news broadcast called *Ingress Report* is transmitted to players as game objects. The report contains material authored by the game developers as well as material sourced from the player community in the form of stories about player exploits and feats. This shows players what other groups are doing and helps motivate them to one-up it.

6. STORYTELLING IN PHYSICAL SPACE

Our analysis of the four titles has revealed some of the different aspects in which location-based mobile games allow the players' physical environments to help tell stories, and it discusses the game mechanics involved. The particular mechanics associated with locative-narrative gaming vary significantly between works. While they always involve a hard movement mechanic, a soft movement mechanic is also sometimes offered. Additional game mechanics

can involve exploration, capture, chase, collection and territorial conquest, and there is often (but not always) a social aspect to their use.

In terms of structure, the way the narrative experience is constructed by the games can be classified using a dichotomy. The majority of games (all except the Haunted Planet games) took a sandbox approach to narrative, offering a context absent of any inherent plot progression, and in several instances cast as a never-ending struggle. In these games, the narrative is best characterised as a frame within which players can develop their own stories as a way to remember certain events. Markus Montola, Jaakko Stenros and Annika Waern characterise this as a first person story (Montola et al., 2009, pp. 151–152). The other category contains the Haunted Planet games, which took an *auteur* approach, offering a highly structured (albeit nonlinear) narrative progression that the players explore through the game mechanics. While the players create their own photos through the game experience, it is more akin to following a story trail than creating stories of one's own. The unstructured-structured dichotomy can be compared to the narrative difference between sandbox games like *The Sims* and quest-based RPGs like *Neverwinter Nights*.

A second consideration is the way in which the different experiences map the gameworld and the real world to each other. The approach taken by *Ingress* is perhaps the clearest example of this: The gameworld is attached to the real world through notable features in the urban environment. Farman defines such urban mark-up as follows:

> The various ways that narrative gets attached to specific places in a city. Urban mark-up can be done through durable inscriptions (like words carved into the stone façade of a building or statue) or through ephemeral inscriptions (ranging from banners and billboards to graffiti and stickers).
>
> (Farman, 2013, p. 3)

While *Ingress* allows players to submit their local urban mark-up for possible inclusion as a portal, the decision relies with the game developer and is essentially curated. Even more curated are, of course, the Haunted Planet games in site-specific mode, since the urban mark-up to which they are attached is fixed and no new mark-up is added to the game once it has been published. In comparison, *Parallel Kingdom* and *Shadow Cities* essentially offer uncurated mapping between the gameworld and the real world. In these titles, it is up to the players to decide which structures to place on the game map to represent the features of the real world that they feel are significant. Regardless, whether we are concerned with a curated or uncurated mapping, the act of performing the mapping is of course in service of the story—and vice versa. As Farman writes, "[t]he meaning of a story is affected by the place in which the story is told and, similarly, the meaning of a place tends to be told through stories" (Farman, 2013, p. 8).

The two considerations—general narrative approach (structured/unstructured) vs. gameworld/real-world mapping (curated/uncurated)—are shown in Table 14.1. In addition to the prior discussion, we have placed the Haunted Planet games in random mode in the uncurated section, because the encounter locations in this mode are chosen neither by the game developer nor the players (other than by virtue of their choosing the general location of play).

Table 14.1 Narrative approach (columns) and gameworld/real-world mapping (rows)

	Unstructured/Sandbox	*Structured/Auteur*
Curated mapping	Ingress	Haunted Planet Games in Site-Specific Mode
Uncurated mapping	Parallel Kingdom Shadow Cities	Haunted Planet Games in Random Mode

We have analysed four significant works in the area of location-based mobile gaming and found that the majority employ unstructured, sandbox-style narrative environments. As the analyses of *Shadow Cities* and *Ingress* have shown, it is clear that considerable audience engagement can be obtained by staging an experience in a neighbourhood that people feel invested in, and there also exists a small body of fanfic constructed on the basis of such play—a clear, if tentative, sign of the games being deployed as story platforms. The Haunted Planet games are in the minority with their auteur-driven, curated approach and serve as a counterpoint to the main trend. Both narrative approaches can be found in earlier (nonlocative) interactive media, but the linking of the gameworld and the real world is unique to the locative medium. As pioneers in locative media observed, this linking is ultimately about control—for us, the curative control of the real/virtual mapping. Fortunately, many simultaneous mappings are possible. As Farman writes:

> What mobile media storytelling projects demonstrate … is that someone can be staring at a mobile device and be more deeply connected to the space and to others in that space than other people might perceive. Storytelling with mobile media takes the stories of a place and attaches them to that place, offering an almost infinite number of stories that can be layered onto a single site.
>
> (Farman, 2013, p. 6)

Where the holodeck (even as an abstraction) promises to create a perfect, brilliant canvas to carry your story, the everted holodeck promises to create (or let you create) a perfect, brilliant story to attach to your canvas. While the realisation of the holodeck might be about to take a big step forward, there is still important work to do in turning it inside out.

NOTES

1. *Ingress* is reported to have had at least 500,000 players (Dalenbert, 2013).
2. The term *hard* in relation to physical location is borrowed from Vesterinen (2012) who discusses *hard location* in the context of *Shadow Cities*.

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