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# TOTAL CINEMA, TOTAL THEATRE, TOTAL WORLD: FROM SET AS ARCHITECTURE TO SET AS VIRTUAL PERFORMER

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## **ABSTRACT**

*Sets are a construction within André Bazin's "recreation of the world in its own image." During the 1920s, advances in film stock (which improved image clarity) and better lenses (which expanded depth of field) meant that the visual fidelity of sets had to increase. Most critical was more sophisticated camera motion. Cranes could now take the camera into sets, which required more complete environments. Sets have mutated and spread ever since. Architects began working in the movie industry and movie people began working as architects. With the introduction of the first Disney theme park, this practice became codified and thematic placemaking has since proliferated globally. Sets later provided the blueprint for digital games, and as embodied in the game engine have reached virtual holism. Today, Industrial Light & Magic's StageCraft pairs LED display walls with game engine technology on a soundstage called the Volume. StageCraft replaces both CGI and the traditional set with mixed reality, photorealistic digital environments. Filmmakers can also make design changes in real time and move these virtual backgrounds around the players. This article posits a new history of the spatial philosophy of set design in which the experiential mode of themed spaces, video games, and virtual reality each become a unified recombination of Bazin's rigid theatre/cinema dichotomy.*

#André Bazin, #set design, #theme park, #game engine, #StageCraft

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**INTRODUCTION**

*“Realism in art can only be achieved in one way—through artifice.”*  
—André Bazin

Whatever else fascinated André Bazin about motion pictures, he did not mention their sets often. In his discussion of *Une fée pas comme les autres* (*The Secret of Magic Island*, 1956), Bazin does not mention its production design at all (1967).<sup>1</sup> This is puzzling because the miniature sets of the film not only complete the unreality of the story but are in fact its central conceit. Without presenting the small animals at human scale, all the tricks and sleight of hand Bazin considers—pouring cocktails, playing billiards—are for naught. Absolutely nothing in the film works. To show the animals in the actual built environment would shatter the entire exercise in anthropomorphism. Rather than a rabbit driving a car, the rabbit is now in danger of being run over by one.

This article applies Bazin to a spatial regime model as published by myself and Gregory Turner-Rahman (2021) in which we link “key historical moments when the cinematic imaginary and its entire contemporary offspring collide and collude” (110) across the twentieth century. In this model we have traced how film sets begat the contemporary theme park, then the interactive worlds of the video game, and finally, were reconstituted virtually within the holistic construct of game engine software. In this way, sets have spread well beyond the boundaries of cinema. Once you are familiar with their contours and contrivances, you will see sets everywhere. Much like Bazin insisted that “cinema is also a language” (1967, 16), sets have a visual grammar. The properties of set design were first dissected in the 1980s (Ramírez [1986] 2004; Affron and Affron 1995), but our spatial regime model takes that grammar and runs it through a classification system beyond the soundstage: the filmic, the thematic, the electronic, and the holistic (Gottwald and Turner-Rahman 2021). Our concept is adapted from the work of Arsenault and Côté (2013) who use the term “graphical regime” (61) to describe the relationship between play and imaging within a given gamespace. After them, our “spatial regime” denotes the relationship between experience and spatialisation. By considering Bazin’s theatre/cinema dichotomy, here I add roles as spectators,

<sup>1</sup>*This film by French director Jean Tourane, whose “naive ambition” was “to make Disney pictures with live animals” (Bazin 1967, 43), consists of the creatures appearing to behave like people using tricks “either with a hand offscreen guiding them, or an artificial paw like a marionette on a string” (44).*

<sup>2</sup> I have limited my discussion here to the essays which comprise the two volumes of *What is Cinema?* (Bazin 1967; 1971).

<sup>3</sup> Debray's *Vie et mort de l'image* (1992) is a key text which gives birth to this polemic. For a more recent discussion of Bazin in the context of CGI, digital animation, and digital imaging, see Hoberman (2013). For a broader view of digital film provocations, see Gaudreault and Marion (2015).

<sup>4</sup> "Now the digitisation of the image threatens to cut the umbilical cord between photograph and referent on which Bazin founded his entire theory" (Matthews 1999).

<sup>5</sup> "Because Bazin thought of the cinema camera as an unmediated instrument for capturing a 'pro-filmic reality,' and because he did not have a critique of its mediated illusionism, Bazinian 'realism' has been a debate in film studies for more than two decades" (Friedberg [1993] 1994, 130).

participants, and even designers within each experience.<sup>2</sup> Through this lens, our spatial regimes can be seen as an evolving, reconfigurable model of theatre and cinema as a single, coalesced experiential medium. I thus ask us to reconsider Bazin as a new media theorist, and with regard to the comparison of theatre and cinema, a kind of spatialist. He would have found common ground with Marshall McLuhan, who once warned that "patterns of environments elude easy perception" (McLuhan and Fiore [1967] 2001, 68).

Beginning in the 1990s, critics used computer generated imagery (CGI) to dismantle Bazin's notion of cinematic truth.<sup>3</sup> *The Matrix* series (1999–2003) and the *Star Wars* prequels (1999–2005) appeared to unravel Bazin's image object,<sup>4</sup> a critique which I feel misses his philosophical mainspring.<sup>5</sup> He was fine with illusion if it served the greater truth of the fiction. All of his image plastics and even montage (editing and all assembly, including the soundtrack) "can work either to the advantage or to the detriment of realism" (Bazin 1971, 27) as long as the illusions are immersive and the lie is credible. "We would define as 'realist' then, all narrative means tending to *bring an added measure of reality to the screen*" (ibid.; emphasis added). Accepting this, I apply Bazin's parsing of stage and soundstage to the experiential journey below which suggests that cinema, combined with performative theatricality, has come to subsume our spaces, and thus, our very lives (Gabler 2000; Klein 2004; Gottwald and Turner-Rahman 2019).

### **THE STAGE BECOMES THE SET, THE SET BECOMES ARCHITECTURE**

Cinema began wedded to still photography (Bazin 1967). Similarly, early film sets were bound up with the art of scenic design, an ancient tradition (Barsacq 1976). Technology moved both away from their antecedents. Early films resembled theatre, so that "if the scene were played on a stage and seen from a seat in the orchestra, it would have the same meaning" (Bazin 1967, 32). Painted backdrops and simple flats sufficed for this (Ramírez [1986] 2004). The first to employ more sophisticated sets was Frenchman Georges Méliès (Barsacq 1976; Ramírez [1986] 2004; Whitlock 2010). Méliès enjoyed creating illusion through editing and employed special effects, as in *Le Voyage dans la Lune* (*A Trip to the Moon*) (1902). So, it seems natural that he would realise the power of sets (Barsacq 1976). Soon appetite for spectacle led to larger productions. Italian director Enrico Guazzoni was the first to use large-scale, three-dimensional sets (Ramírez [1986] 2004). American D. W. Griffith followed with massive Babylonian sets for *Intolerance* (1916) (Affron and Affron 1995). Then beginning in Hollywood in the early 1920s, designers began working architecturally (Albrecht 1986; Esperdy 2007).

Three factors explain how more elaborate sets developed. The first was panchromatic film stock, which allowed for greater clarity (Bazin 1967). Costumes and props now required more detail; painted backgrounds would only fool the eye at a great distance (Esperdy 2007). Another was better lensing, capturing with “equal sharpness the whole field of vision contained simultaneously within the dramatic field” (Bazin 1971, 28). Deep focus meant structures would read dimensionally. Most revolutionary was camera motion. During the silent era, the camera was fixed, so the audience experience was static (Friedberg [2006] 2009). With rigs which allowed for movement towards and around actors, the audience’s connection to the camera’s point of view (POV) became dynamic (Affron and Affron 1995). Cranes now also took camera and audience into sets. By the late 1920s, what were once crude flats became environments which could be inhabited by actors (Gottwald and Turner-Rahman 2019). This was the shift from stage to set; from staging a drama to acting in a setting. It was a dynamic camera which cleaved sets away from the stage, delivering shots now empowered with “a god-like character that the Hollywood crane has bestowed” (Bazin 1971, 33).

Attributing Jean-Paul Sartre, Bazin observed that “in the theatre the drama proceeds from the actor, in the cinema it goes from the decor to man. This reversal of the dramatic flow is of decisive importance. It is bound up with the very essence of the *mise-en-scène*” (Bazin 1967, 102).<sup>6</sup> In theatre the performer sets the stage, and in cinema the set stages the performer. The architecture of the theatre functions as a container for drama; stage and backstage, wings and amphitheatre. It is a sealed box where performance takes place “in contrast to the rest of the world” because “play and reality are opposed” and “theatre of its very essence must not be confused with nature under penalty of being absorbed” (104). Bazin does not use the terms “set” or “scenic design” but instead refers to all manner of stage dressing as “decor” (103). And he does not distinguish between the soundstage and locations. To Bazin, a farmhouse and a hillside are both decor. Ontologically—as image objects—they are identical. Important to Bazin are two notions: that the set has been torn out of the stage and placed at will (thus ceasing to be architecture), and that *mise en scène* does not require performers at all. “On the screen man is no longer the focus of the drama [...] The decor that surrounds him is part of the solidity of the world. For this reason, the actor as such can be absent from it” (106). Decor is what distinguishes theatre from cinema.

There are six “distinctive qualities” (Ramírez [1986] 2004, 81) or properties which separate sets from true architecture, whether constructed within a soundstage or on location.<sup>7</sup> First, film sets are typically *fragmentary*. Only what is photographed is constructed. Second, *sets have altered size and proportion* to account for lens distortion and

<sup>6</sup> *Quite literally in English, “setting the stage,” mise en scène is a theatre arts term which became more widely used in film criticism during the 1950s by the writers of French film magazine Cahiers du Cinéma, including its co-founder Bazin. For him, mise en scène comprises all that you see on the screen, from set design to costumes and lighting, composition to camera motion. Bazin called these individual properties “image plastics” (Bazin 1967, 24).*

<sup>7</sup> *For this original discussion in English translation, see Ramírez ([1986] 2004, 81–89). For the later expansion, see Affron and Affron (1995, 31–50).*

accommodate where they are built. To create illusions, perspectives are altered. Third, further contorting, the interiors are *rarely orthogonal*, producing “strange deformities” (84). Rooms are trapezoidal, to control echoes and also to “force” perspective for an illusion of depth. Fourth, sets are *hyperbolic* “as much to simplify as to create greater complexity” (Ramírez [1986] 2004, 85). Such exaggerations can communicate instantly, establishing locale, period, and class (Macfarland 1920). Sets thus function as characters, conveying both atmosphere and exposition (Esperdy 2007). Fifth, sets must be *mobile and flexible*. They are frequently disassembled, so the camera can enter, making them “wild.” Finally, film sets are the very definition of ephemera, *built rapidly and abruptly demolished*.

Referencing Italian Marxist critics Baldo Bandini and Glauco Viazzi, Charles and Mirella Jona Affron (1995) posit that “as soon as the camera began to move, stage design was no longer suited to the film medium. Cinematic sets can, indeed must, conform to spatial and temporal rhythms; theatrical sets remain tied to the constraints of the stage” (33). The properties thus fracture the film set, breaking the fixed relationship between performer and spectator established by the theatre stage which “mark[s] out a privileged spot” (Bazin 1967, 104). “Because it is only part of the architecture of the stage, the decor of the theatre is thus an area materially enclosed, limited, circumscribed” (ibid.) and now it is free. For before the camera began to move, “the framing in [a] 1910 film [was] a substitute for the missing fourth wall of the theatrical stage” (Bazin 1967, 34).

Sets were now truly spaces, and skilled labour was needed to design them. “For the purposes of the modern picture play the ordinary stage setting will no longer suffice [...] [sets now] are in three dimensions” (Ziegler 1921, 547) reminded *The American Architect*. During the 1920s, such journals called for men to work in motion pictures (Barnes 1923; Macfarland 1920). Especially later during the Great Depression, many architecture graduates could only find work at studios (Grey 1935). Nearly all art directors in the industry during the 1930s were trained this way (Erengis 1965). The pay was good and the work interesting. And a building in a movie would be seen by many more people than a real one (Grey 1935). Some likewise argued that the sociocultural impact of cinema exceeded that of architecture, and that images of environments would educate and make lasting impressions (Macfarland 1920; Wiley 1926; Ziegler 1921; Ramírez [1986] 2004). Only the wealthy travelled abroad at this time, yet millions went to the movies every week. If the American public had a chance to admire an Italian villa, a Greek temple, or a French cathedral, it would be via cinema (Macfarland 1920).

At the same time architects began designing sets, studio people designed architecture. This filmic regime brought three properties

of set design to the built environment: buildings were wildly hyperbolic and stylised, sometimes nonorthogonal in nature, and often employed forced perspective (Gottwald and Turner-Rahman 2021). Southern California was ready for this shift. The glamour of Hollywood sets felt right to Hollywood people, and the look of the region was already trafficking in similar illusions (Heimann 2018).<sup>8</sup> As greater Los Angeles was colonised by this “movie architecture”—the built environment as a kind of a grand production—we are reminded of Bazin’s praise for the Italian urban landscape, so “prodigiously photogenic” and “theatrical and decorative” (Bazin 1971, 28–29). He considered films shot on location there superior. “City life is a spectacle [...] that the Italians stage for their own pleasure [...] The courtyard is an Elizabethan set [...] the theatrical façades of the palazzi combine their operatic effects with the stage-like architecture of the houses” (29). The stages which Bazin describes evolved naturally of course, which prompts architects and critics to label all cities, as Bazin does Rome, authentic. The ultimate soundstage for total cinema. Conversely, Los Angeles in the early twentieth century was a blank slate, designed with intention and immediacy. L.A. is not “fake,” yet it is the kind of real untruth that Bazin was fascinated by, a nouveau Garden of Eden fed by all manner of illusion: an imagined water supply, romanticised Spanish glory, and a fantasy architecture born on the Hollywood studio lot.<sup>9</sup>

### **THEMED SPACES: INHABITABLE SETS**

Disneyland opened in Anaheim, California on July 17, 1955 and heralded the birth of the thematic regime. Considered the sui generis contemporary theme park (Adams 1991; Marling 1994; Mitrasinovic 2006; Lukas 2008), it arrived directly in the middle of the “cinematic century” (Friedberg [2006] 2009, 242). Until this moment the application of set design to the built environment was intermittent and varied. True to how critics describe the period today, the filmic regime was regarded as a novelty (Heimann 2018). Sets of course are designed and constructed to service the story of a film. There is no such narrative crutch for a Los Feliz mansion built in the Storybook Style, or a Las Vegas casino approximating the Wild West. Just aesthetics, impressions; mere motifs without context. What was truly needed for the set to exist outside the soundstage was a script.

It was at Disneyland where the properties of the film set were codified into an experiential language. This is the interdisciplinary development of themed spaces, the “praxis of thematic design” (Gottwald and Turner-Rahman 2019, 41).<sup>10</sup> During the filmic regime the language of sets was applied in architecture, with art directors taking on the real as architects took on the illusory. At Disneyland

<sup>8</sup> *This began with the Spanish Colonial Revival in the early 1900s. Similar architectural revival styles also took root in the Los Angeles area during this time, from English Tudor to Moorish (Gebhard [1980] 2018).*

<sup>9</sup> *For a discussion of Los Angeles and all its fantasies in those early decades, see Krist (2018).*

<sup>10</sup> *Thematic is used to connote this design process, as opposed to themed which refers to the end product (Gottwald and Turner-Rahman 2019; Lukas 2007).*



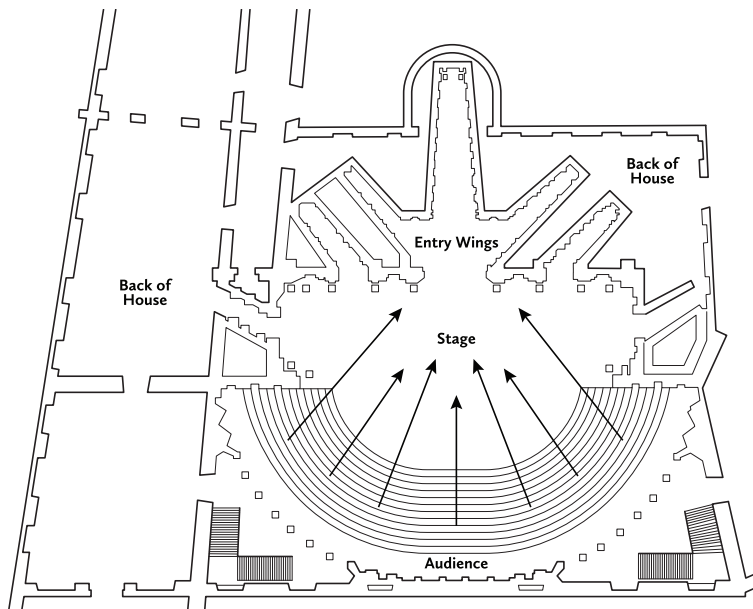
<sup>11</sup> By the 1990s Disney's terminology had transformed the entire hospitality industry. "Host" and "guest" are now used in most experiential contexts and even taught in business schools. See Clavé (2007). For an extended insider discussion on this language and how Disney cast members are trained to use it, see France (1991).

<sup>12</sup> Bazin used the Olympic Theatre of Vicenza as his example of how the architecture of the stage functions as an internal world to keep it isolated from reality outside. See Bazin (1967, 105).

<sup>13</sup> More recent scholarship in performance studies has brought the focus back to experience, agency, immersion, and the "tourist as actor" (Kokai and Robson 2019). Architectural critique has also come around to approach the theme park experientially. See Klingmann (2007); Lonsway (2009).

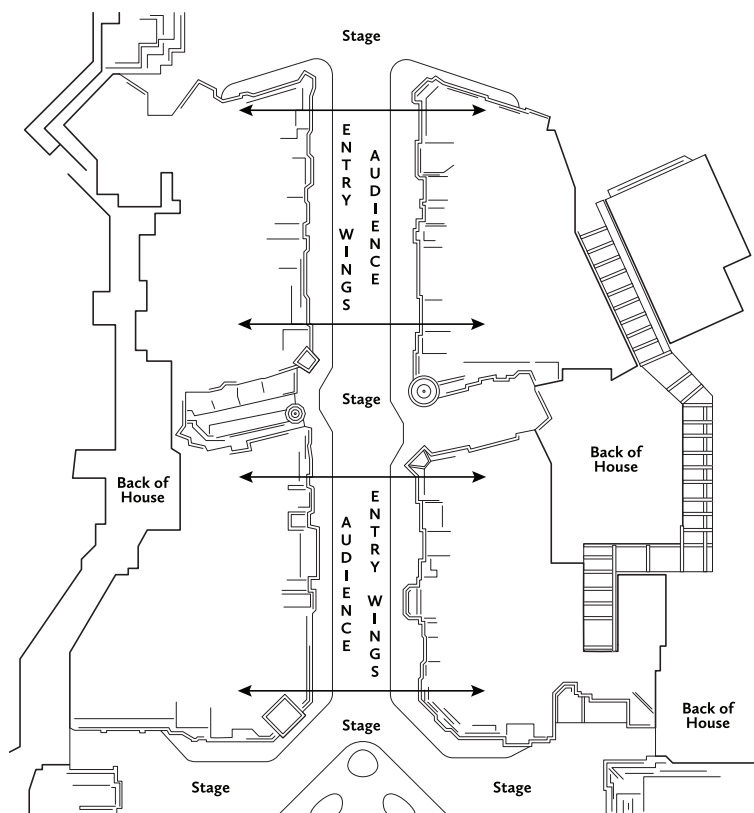
the intermix would produce a fantasy Potemkin village like no other; the film set as a replacement for architecture. After consulting with architect Welton Becket, Walt Disney decided to form his own company staffed with Hollywood people (Marling 1997). Though many had architectural training, there was not one licensed practitioner among them except Ruth Shellhorn who was belatedly hired to save the landscape design (Comras 2016; Pierce 2016). The rest planned out the park as an interrelated sequence of images, which they storyboarded just like one of Disney's animated films (Bright 1987; Hench and Van Pelt 2003). At Disneyland, the original 1955 narrative is one of the television viewing experiences mapped onto the built environment, fusing Disney's televisuals with an improved version of the amusement park (Marling 1994). Thus, the theme park resembles a soundstage (Adams 1991); it is like walking into a movie (Freitag 2017). In the thematic regime, the language of set design had now been contained, contextualised, and given a screenplay in the form of its storyboards (Gottwald 2021). The themed environment is thus a kind of scripted space (Klein 2004).

Theme parks are permanent, vary in scale and rigor, and are exaggerated and fanciful. Yet also fragmentary like film sets, for only what is seen by the public is built. The rest is an extensive back of house. Turner-Rahman and I have previously noted its transmediated aspects, and with Bazin we see the thematic regime is as theatrical as it is cinematic. Consider the novel service vernacular Walt Disney and his staff devised: park employees are known as "cast members," and when in public areas of the park, are "onstage." Areas not visible to the public are "backstage." (Bright 1987; Mittermeier 2021). Operators are called "hosts" and there are no rides but rather "attractions," "adventures," and "shows" (France 1991).<sup>11</sup> Remarkably, within the themed environment Bazin's spatial construct of the theatre folds in on itself. Tourists are called "guests" by Disney because we have been invited by the cast onto a collapsed, common stage. Postmodern architect and critic Charles W. Moore once described the Disneyland experience as one of "inhabitation [...] where we are protected, even engaged, in a space ennobled by our own presence [...] merely celebrants at a real affair but also the objects of celebration" (Moore, Becker, and Campbell 1984, 38). This complicates Bazin's insistence that live performance remain sundered from reality, sequestered within the "locus dramaticus" (Bazin 1967, 104) of the stage as embedded within the architecture of the theatre (fig. 1). Reality has not "absorbed" (ibid.) theatre as he feared; instead, precisely the opposite. The entry wings of the Teatro Olimpico di Vicenza<sup>12</sup> have become the city streets themselves, the backstage has surrounded all common areas, and the spectator is now also performer, inhabiting the same space (Kokai and Robson 2019) (fig. 2).<sup>13</sup>



**FIGURE 1.** Teatro Olimpico di Vicenza. Source: the author.

DISEGNO\_VII/01\_TOTAL CINEMA: FILM AND DESIGN



**FIGURE 2.** Disneyland's collapsed, common stage. Source: the author.



<sup>14</sup> “Disney is not attempting to recreate actual structures or to simulate authentic experiences [...] It is not a poor copy of reality, because there is no attempt to recreate reality” (Kokai and Robson 2019, 7).

This collapsed, common stage did not remain inside the gates of Disneyland for long. Over the past 60 years, thematic design has spread throughout the global experience economy (Pine and Gilmore [1999] 2019) encompassing not just hospitality and entertainment, but where we dine, shop, live, and even receive medical treatment (Gottdiener [1997] 2001; Hannigan 1998; Lonsway 2009). The grammar of sets is the vector by which the cinematic experience had escaped the screen, and not just within the private sphere. Beginning in the 1970s in the United States, smaller towns revitalised their own main streets in the guise of Disney’s example (Francaviglia 1996). They were redesigned and collapsed into their own common stages. “When we stroll down Disney’s Main Street, we become participants in a much larger drama that is redefining how we perceive place [...], because the streetscape itself was designed as a set of sorts [...] Disney’s Main Street (and, by definition, historic restorations of Main Streets in real towns) puts the observer in a unique position (183; emphasis added).

*In the process of consumption and commodification on the one hand, [we are] a consumer of the landscape and, on the other, actually [become] one of the elements or objects consumed by others; the process, like filmmaking itself, forever confuses consumption with object, and commerce with art.” (ibid.)*

When Umberto Eco visited in the early 1970s, he found Disneyland to be “a fantasy world more real than reality, breaking down the wall of the second dimension, creating not a movie, which is illusion, but *total theatre*” (Eco 1986, 45; emphasis added). This harmonises well with Bazin’s total cinema, yet tellingly Eco also called film “illusion.” If cinema’s “fundamental contradiction [...] at once unacceptable and necessary” (Bazin 1971, 26) is that it can never reach the state that it was designed for, that it so desires to be (reality itself), then themed spaces overcome the dilemma by declaring themselves “real” without any fidelity to reality.<sup>14</sup> This assaults Bazin’s myth with a different one entirely, for “Disneyland is presented as imaginary in order to make us believe that the rest is real, whereas all of Los Angeles and the America that surrounds it are no longer real” (Baudrillard 1994, 13). Disneyland functions as a counterpoint to a built environment which claims authenticity but has already been Disneyised (Bryman [2004] 2006). And yet Eco’s assessment that Disney “tells us that technology can give us more reality than nature can” (Eco 1986, 44) lets us substitute the theme park for cinema and still retain an essence of Bazin, that verisimilitude is tied up with technological representation. The audience of a film observes. The audience of a themed space observes and simultaneously acts (Lukas 2007). Yet both are consuming an art form whose purpose is “the creation of an ideal world in the likeness of the real” (Bazin 1967, 10). The themed space is a manifestation of Bazin’s quest for ideal realism in cinema, a kind of credible illusion, constructed on a stage: total theatre.

**VIDEO GAMES: PLAYABLE SETS**

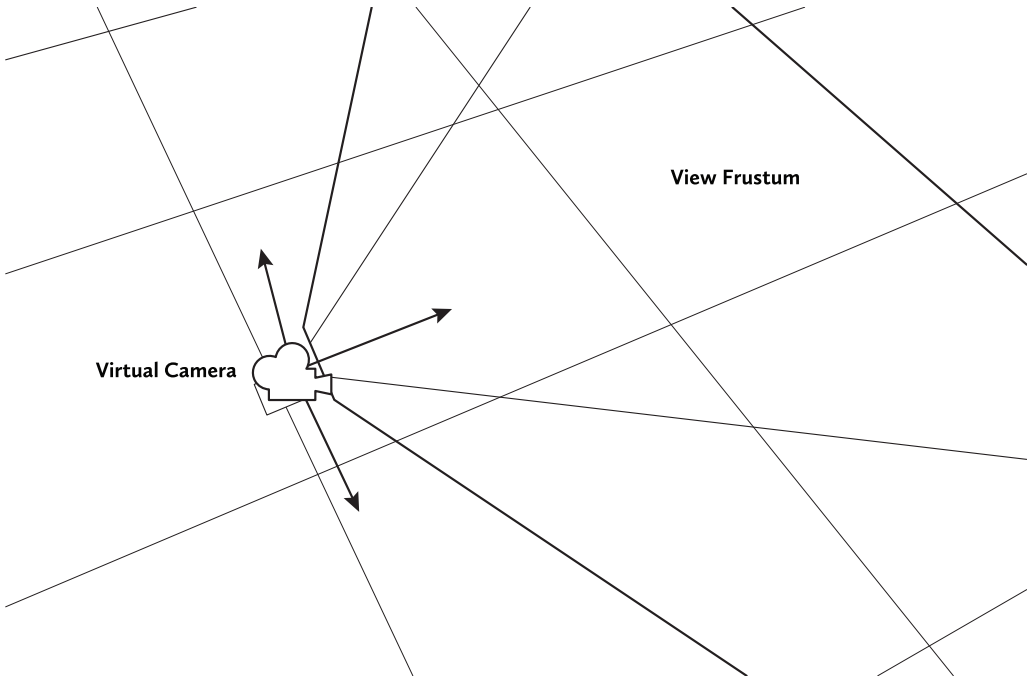
Video games evolved from primitive constructs presented in third-person perspective to richer environments (Nitsche 2008). With *Wolfenstein 3D* (1992) and then *Doom* (1993) came the advent of the first-person shooter (FPS) genre. The FPS made gameplay more cinematic and immersive. In *Doom* one plays through the virtual camera's POV and interacts from the perspective of an avatar, the character being played (ibid.). Once again, the camera drove the spatial evolution of sets forward. As Bazin notes of cinema, "the screen is not a frame like that of a picture but *a mask which allows only a part of the action to be seen*. When a character moves off screen, we accept the fact that he is out of sight, but he continues to exist in his own capacity *at some other place in the decor which is hidden from us*" (Bazin 1967, 105; emphasis added). The world of the video game is also one of hidden decor, revealed to the player over time. And the spatial construct of gameplay is Bazin's "mask" of the camera which only permits a part of the gameworld to be experienced.

Like sets, video games are hyperbolic and vary in proportions; like themed spaces, they often contain transmediated narratives, and are fragmentary, as spaces are rendered only when needed for play.<sup>15</sup> Yet the electronic regime also exhibits two additional properties due to its virtuality (Gottwald and Turner-Rahman 2021). Game environments are flexible and mobile in "that they span a multidimensional array of levels to facilitate whatever play requires" (117). And of course, being electronic, they are also singularly ephemeral; close the software and the world vanishes.

As with all architecture, a video game consists of structure and presentation. The code provides parameters, and the world is presented to us via graphics. Yet there is also functionality, which makes gamespaces distinct from other spaces (Juul 2005). The rules embedded in the game are enmeshed within its environments (Nitsche 2008). Now within a gameworld, we are spectators, performers, and players. The combination of structure, presentation, and functionality within a virtual construct is *mise en image*, which defines how interaction is embedded within the graphical environment (Arsenault and Côté 2013). The result is a common, collapsed, actionable world; a myth of simulated lived experience (Wolf 2015). Spectator, performer, player, character, environment, and camera are amalgamated into a single *experiential regime*. Bazin's theatre/cinema has been reconfigured once again. The stage has merged with the mask. With cinema, "drama is freed by the camera from all contingencies of time and space," yet "the theatre in contrast uses a complex machinery to give a feeling of ubiquity" (Bazin 1967, 103). The gameworld is a virtual stage without the backstage which, for Bazin, defines the stage.<sup>16</sup>

<sup>15</sup> Both practitioners and scholars have noted the environmental language and experiential objectives which theme parks and video games share. See Carson (2000); Pearce (2007).

<sup>16</sup> "[The stage] exists by virtue of its reverse side and its absence from anything beyond, as the painting exists by virtue of its frame" (Bazin 1967, 105).



**FIGURE 3.** Typical game engine design space.  
Source: the author.

All this shifted paradigmatically with the introduction of game engine software (Gregory 2018). Imagine a house being built. Now picture a team of architects who live inside while it is being designed and constructed. They can make any change they want. Iterate and test endlessly. While they still live in the house. This interior holism is the game engine, which is also *explicitly* cinematic: the operational metaphor is a virtual “camera.” Bazin’s mask is here called the *view frustum*, which represents the camera’s field of vision—the region of the virtual world which will appear on screen (Sung, Shirley, and Baer 2008) (fig. 3). Thus—for a third time—the camera’s ability to move and penetrate space advances the overall environment. We call this final phase the holistic regime, for virtual space is the tool “and the resultant environment itself [...] in essence both the dreamer and the dream” (Gottwald and Turner-Rahman 2021, 120). Today there are two leading engines which are open to all, Unreal (1998) and Unity (2005). Within these, developers inhabit and iterate simultaneously. Environmental changes affect gameplay, so designers must play as they refine (Gregory 2018). The game engine is a culmination of all the prior spatial regimes (Gottwald and Turner-Rahman 2021). Here the filmic and thematic are embedded within the electronic, virtualised, and framed by Bazin’s mask. In the holistic regime we are now also writers, directors, and editors. Not only have the boundaries between theatre and cinema collapsed, but so have production and consumption, design and designer.

### STAGECRAFT: VIRTUAL SETS

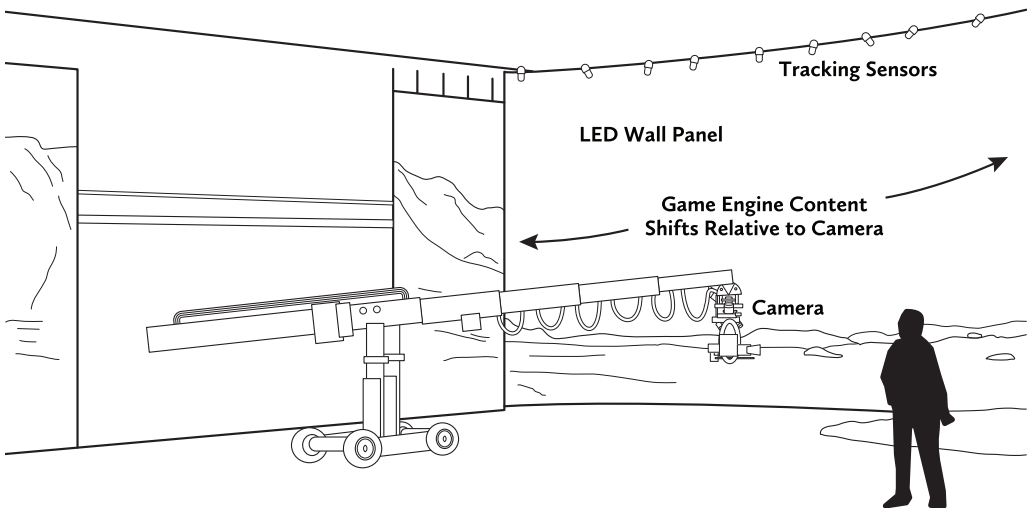
While shooting *Rogue One: A Star Wars Story* (2016), director of photography Greig Fraser experimented with a large format LED screen depicting a starfield (Bishop 2017).<sup>17</sup> The spaceship set was mounted on a gimbal, and the digital backgrounds were displayed in real-time synchronisation with its motion (ibid.). Despite poor quality, director Gareth Edwards saw potential. “You really feel like you’re in the place [...] it’s really convincing, and I think there will be studios [...] one day that are just wall-to-wall LEDs” (Bishop 2017). Director Jon Favreau next experimented with virtual technology on *The Jungle Book* (2016) and *The Lion King* (2019) but those two Disney films still relied heavily on CGI (Thompson 2017; Faughnder 2019; Holben 2020). For Favreau’s new project, he wanted to solve problems he had with green screens, a technology in use since the 1990s.<sup>18</sup> His Disney+ streaming series *The Mandalorian* debuted in the fall of 2019 with the answer: StageCraft (Holben 2020).

StageCraft is a partnership between Epic Games and Industrial Light & Magic (ILM), the effects house founded by George Lucas to make *Star Wars* (1977) (Industrial Light & Magic 2019). Partnered with other companies, ILM built a small prototype soundstage in June of 2018 which they call “the Volume” (Martin 2020). StageCraft is the combination of a Volume set covered in LED panels with live Unreal game engine content (fig. 4). The stage is circular, and the backgrounds fill peripheral vision (Failes 2020). The larger Volume set built for *The Mandalorian* is approximately 23 meters in diameter, and approximately 6.5 meters high, providing digital imagery on

<sup>17</sup> As the technology is nascent, here I rely on quotes from practitioners in the press and online industry publications.

<sup>18</sup> Matting performers onto backgrounds in post-production is also called “blue screen” because the color was used for the earlier, optical process. A bright green is typically used for digital matting.

**FIGURE 4.** StageCraft Volume set. Source: the author.



<sup>19</sup> Film reviews noted this at the time. “There is a certain lifelessness in some of the acting, perhaps because the actors were often filmed in front of blue screens so their environments could be added later by computer” (Ebert 2002).

every surface except the floor (Industrial Light & Magic 2020). Because partial physical sets, furniture, and props are also on the stage, StageCraft is a mixed reality (MR) environment, and it represents a new kind of immersion. Films which used green screen sets almost exclusively, like the *Star Wars* prequels, were criticised for listless performances.<sup>19</sup> Thus Richard Bluff, visual effects supervisor on *The Mandalorian* celebrates that “Jon Favreau found the breakthrough that George [Lucas] was always looking for” (Baver 2020). *The Mandalorian* was the first major production to use LED walls at a time when blockbuster Marvel films like *Avengers: Endgame* (2019) were still shot within green screen environments (Insider 2020).

StageCraft advances filmmaking in several key ways. The LEDs not only display content, they also provide realistic lighting with adjustable colour. As Kim Libreri at Epic Games notes, “the problem with the green screen is it basically puts a lot of green light on you. We call that ‘spill.’” StageCraft completely eliminates this. “If you wrap an actor with a big 360 LED wall, you can light in a way [...] so you can really make it feel like the characters are embedded in the environments” (Insider 2020). This was important on *The Mandalorian* because the eponymous character wears a shiny costume. Every single bit of LED light reflected off that metal is true to life. For this reason alone, traditional CGI is becoming extinct. “Eventually, of course, we hope to never use green screens,” says Bluff, though they are still useful within StageCraft itself for matting purposes in close-up. A block of digital green matte can be inserted anywhere within the Volume, limited to just behind a character—without any spill—because the matte is virtual (ibid.).

StageCraft is dynamic, responsive, and endlessly mutable. Because Unreal is serving real-time content, it can be linked to camera positions. As the camera moves around the set, the background moves in response, preserving parallax and depth (Martin 2020). A green screen is simply a matte painting, delayed. StageCraft is instead truly virtual *mise en scène*. When describing the relationship, Kris Murray at Lux Machina chose to characterise it as *deception*, because “we can track a camera’s position in space in real time and render its perspective so that *we can compellingly convince a camera* that something else is happening in front of it that isn’t really there” (Unreal Engine 2019; emphasis added). This is what makes StageCraft fundamentally different from rear screen projection and green screens: the camera views the virtual via the same physics as reality. Also, not unlike a set of Matryoshka dolls, there are nested layers of imagery. Cinema is now being produced in a factory that is itself composed of cinema, shot on a set which is constructed of other movies. Image production and consumption have folded back on themselves and collapsed, just how spectatorship and performance collapsed within themed spaces. The image object is also an image product, and what is captured exists to be

photographed yet does not really exist either—a stunning perversion of the image object which also furthers Bazin's ontology. The image object/product is saved and stored, and all footage can be recalled at any time for later use or manipulation (Industrial Light & Magic 2021).

The Volume set is also a virtual performer. When “you want to turn around an actor, you're not physically moving the cameras, you're actually just moving the background, and all the lights change” (Industrial Light & Magic 2021). Director of photography Barry Baz Idoine observes that it's remarkably easy to “shoot any sequence where you say, ‘oh, this world's not quite right. Let's just move it a little bit’” (Industrial Light & Magic 2020). However, StageCraft's most stunning aspect is its reconfigurability. “We now have the capability to grab hold of any tree in a forest,” says Bluff, “and move them around independently. To re-set dress on the day, based upon what we were seeing through the camera” (Industrial Light & Magic 2021). Dedicated technicians can adjust the environment, lighting, vantage, and focus. Known as the “Brain Bar” (Failes 2020), this team literally moves mountains and turns night into day right in front of the actors. A director can now perpetually remake the entire world of a film while it is being shot.

For the second season of *The Mandalorian* (2021), ILM continued to use Unreal for previsualisation. Yet the company also developed their own proprietary engine called Helios. Because it was designed from scratch, StageCraft 2.0 has improved complexity and colour fidelity (ibid.). The new Volume sets are larger and are being used in conjunction with traditionally lit tracking shots that begin outside a Volume and conclude within it seamlessly (Seymour 2021). Like stage sets before them, virtual sets are becoming contiguous and more architectonic, a mixed reality world with potential to evolve into an extensible system.<sup>20</sup>

If the theme park was for Eco total theatre, then StageCraft is a *total world*. The Volume set provides design, lighting, and even a sense of performance—all of Bazin's plastics at once. To the camera, it looks no different than a location shoot. If you ask StageCraft to move around the performers, it moves (as with blocking). Ask it to change and it changes (as with costume and makeup). And most importantly, because it was preassembled in the game engine and even edited in situ, StageCraft is montage in the round. The technology is aptly named. It reconciles Bazin's distinction between the “stage” of the theatre and the “craft” of filmmaking. Like Teatro Olimpico di Vicenza, a Volume set is “outwardly [...] a purely utilitarian piece of architecture [...] secretly oriented inward [...] conceived according to the laws of an aesthetic and artificial space” (Bazin 1967, 105). Yet StageCraft also honours Bazin's holism and aligns with his declaration that “essential cinema [...] is to be found in straightforward photographic respect for the unity of space” (ibid., 46).

<sup>20</sup> “ILM is [...] opening the door to multiple connected volumes, multiple vertical volumes. One can [imagine] new and vast shots that travel from different rooms or spaces, with dynamic LED volumes via connected practical corridors, trenches or openings” (Seymour 2021).



## CONCLUSION

<sup>21</sup> “The quality of the interior shots will in fact increasingly depend on a complex, delicate and cumbersome apparatus. Some measure of reality must always be sacrificed in the effort of achieving it” (Bazin 1971, 30).

<sup>22</sup> “Dramatic effects for which we had formally relied on montage were created out of the movements of the actors within a fixed framework” (Bazin 1967, 33).

<sup>23</sup> “Cinema is dedicated entirely to the representation if not of natural reality at least of a plausible reality” (Bazin 1967, 108; emphasis added).

*Not only does some marvel or some fantastic thing on the screen not undermine the reality of the image, on the contrary it is its most valid justification.*

—André Bazin

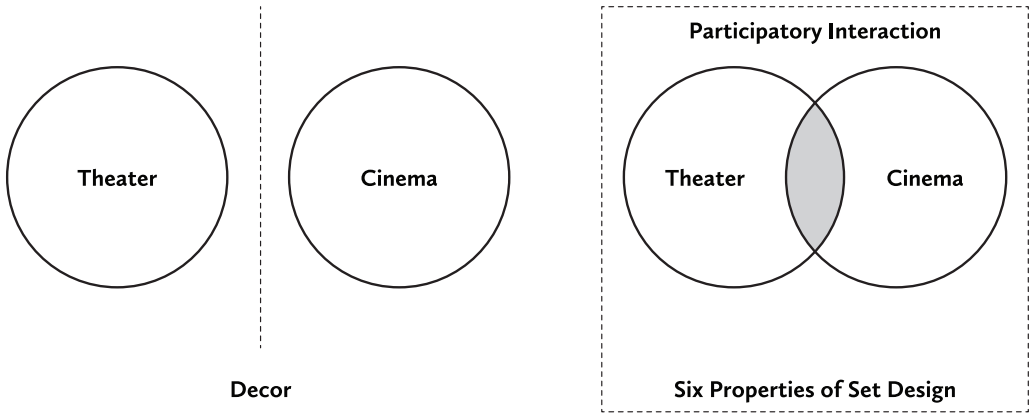
StageCraft seems like something Bazin certainly anticipated, and probably would have embraced.<sup>21</sup> Its dynamic imagery is illusory yet still ontologically “photorealistic.” Let us again be clear about what Bazin means by truth. When he complained that “the German school did every kind of violence to the plastics of the image by way of sets and lighting” (Bazin 1967, 26) he was not saying the production design of *The Cabinet of Dr. Caligari* (1920) was poor. Bazin was decrying the abstractions of the film and was indeed pleased when “the expressionist heresy came to an end” (Bazin 1971, 26). Bazin was not so much a realist as he was an anti-abstractionist. He asked for verisimilitude, not literal truth.

Bazin was a great admirer of Orson Welles. His *Citizen Kane* (1941) is expressed completely by set design, mattes, and practical effects. Apart from stock footage, there are practically no locations in the entire film. Much like the shattered snow globe from its opening moments, *Kane* exists only within an artificial interior world. Bazin praised Welles for his dedication to continuity and skill with deep focus.<sup>22</sup> For most key scenes the camera does not move at all. Bazin concluded that it was reasonable to forgo locations in order to exert artistic control. “In ruling out [...] all recourse to nature in the raw, natural settings, exteriors, sunlight [...], Welles rejects those qualities of the authentic document for which there is no substitute and which, being likewise a part of reality, *in themselves establish a form of realism*” (Bazin 1967, 28–29; emphasis added). Thus, a film can be an entirely virtual event and that makes it no less credible. “There can be no cinema without the setting up of an open space *in place of the universe* rather than as part of it [...], it is less a question of set construction or of architecture or of immensity than of *isolating the aesthetic catalyst*” (ibid., 110–11). Bazin asks the filmmaker, what is your motive? If your motive is “truth” (by which he means *credibility*),<sup>23</sup> then yes, Bazin could be considered a proponent of virtual reality. Like themed and gamified spaces, StageCraft is “the creation of an ideal world in the likeness of the real” (ibid., 10). In fact, Bazin described it perfectly as one of the “future technical improvements [...] [which] will permit the *conquest of the properties of the real*” (Bazin 1971, 30).

Bazin’s inexorable segregation of film and stage was two-fold: the spatial characteristics of each, and how those aspects formulate and facilitate the relationship between audience and performer. While drama is performed within the theatre, framed abstractly in

self-aware presentation, cinema is captured as life re-enacted. What Bazin could not foresee is how media would shift from passive to active; how theatre and cinema would become a new unified medium of participatory interaction. The catalyst for this, as well as the binding concept, was spatial too—the properties of set design (fig 5.). All of our contemporary spatial regimes have their genesis in the filmic grammar of sets. As such, when we inhabit these spaces, we are acting by default. Bazin’s distinction no longer matters. We watch the performance as we ourselves give it.

**FIGURE 5.** From Bazin’s segregation to unified experiential medium. Source: the author.



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In his 1967 introduction, editor and translator Hugh Gray praised Bazin for helping advance film studies in the United States, writing that “the more we see the screen as a mirror rather than an escape hatch, the more we will be prepared for what is to come” (Bazin 1967, 7). As we have seen, the screen is not just a mirror. It is also a *projector*. Bazin’s ontology of the photograph has been reversed. Rather than the image object as a document of the world which exists (having been captured *from* it), the human-created image brings the world into existence itself (having been released *upon* it). A world of screens, a world of mirrors, a world of projectors. The virtual filmmaker’s total world of unreality will in the future, I suspect, become wholly merged with daily life. A world in which we desire the cinematic, perpetuate the cinematic, consume the cinematic, and produce the cinematic. All while performing and spectating on a physical stage of its enactment. The unanticipated fusion of Bazin’s theatre and cinema becomes the totality of our built environment; a single *camera obscura massa*. Once considered more holistically, its relevance transcends the photochemical artefact Bazin so revered to reveal the environments in which we live—a world which is increasingly realised as a grand “hallucination that is also a fact” (ibid., 16).

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