1. Baroque Immersion, Baroque Artifice

Moments of Wonder

1647:[1] Cyrano de Bergerac begins a slim novel entitled A Voyage to the Moon. His language clearly borrows from theatrical special effects, terms like chariot,[2] machine, and engine, as he ascends to the moon. The terms were commonly identified with the theater; Cyrano was also a playwright. However, he broadens them into entendres about technology, media, metaphysics, alchemy (which he attacks);[3] and of course, politics. While in his machine, Cyrano muses about Galileo's astronomy, Parisian foibles, scientific materialism, and sexual libertinage. He visits philosophical cities as artificial as theatrical machines on stage. He finds kingdoms in accelerating perspective, near planets dangling from cosmic ceilings, with the sun as a plate of gold. Birds metamorphose like automata.[4] And his seat within all this is a "gondola," essentially a theater box worthy of a philosopher.

The sky that he finds, like painted skies in theaters and palaces, stands in for political and metaphysical immersion. It is a canopy above the state, and closer to God. The canopy is an inverted bowl filled with every space that cannot be found, only theorized. This space is quite artificial, very much like perspective awry on a ceiling. It is scripted for a philosophical voyage, a journey of initiation.

En route, Cyrano becomes as wise as the philosophers who stand guard over the cosmic truth. He learns that each world contains—or encloses—another world. The first of these, the canopy sky runs according to Copernican laws. These laws safeguard the orbit of what lay inside -a microcosm. This microcosm, in turn, contains many kingdoms.

However, the most precious world imaginable is almost nothing at all. It is the space between the canopy and the microcosm. This space is so subtle that it does not even require an atmosphere. It contains a noosphere instead,

charged purely with meaning, like a burning phosphorus, or the stomach of a great magical whale. Once you travel through it, if you have built the right engine, as Cyrano has, you learn secrets preserved only for philosophers who are daring enough.

I like to imagine Cyrano taking a day off from writing his novel. He visits a theater fully loaded with the engine of special effects. There, he sees a painted chateau disappear onstage, into thin air, or thinks he does. A seaport has replaced it, in deep perspective, with a ship about to set sail, and a whale spouting silver dust at the harbor's edge. He is left startled and in wonder, ("*emerveillant*"[5]). How was this done? That week, Cyrano would find a new handbook on special effects (published in 1638). He looks through charts on how to build wings[6] on stage that fold and flex, along with machines that fly.

But for "disappearance"—to make worlds disappear—the author, Nicola Sabbatini, also recommends a bit of stealth: two members of the troupe should hide in the audience. At a signal, they argue loudly that the beams supporting the seats are breaking. Heads will turn, ignoring the stage. By the time the audience settles back, the seaport will have dropped in place under full cloud cover. Even the weather will have changed. The audience is "ready to admire with wonder and pleasure."[7]

Theatrical effects were often timed that precisely—to the second— particuIarly for what was called an intermezzo, essentially a fast edit. The lighting, the sound, the space itself had to be coordinated for speed. Sabbatini left instructions, detailed down to the carpentry, on "How to Make Mountains and Other Objects Rise From Under the Stage." Or "How to Transform a Man Into a Rock"; or "Make the Sea Rise, Swell, Get Tempestuous and Change Color."[8] We know that he borrowed these effects from outdoor events, like street floats, fireworks, carnivals, and fairs. But what else do these tell us about special effects today?

In 1645, the famous "machiniste" Giacomo Torelli, known as "the Great Sorcerer," was brought to Paris, where he staged Orfeo at the Palais Royal.[9] After that success, Torelli mounted the even grander Andromède, written by Corneille, who promised to write dialogue that could compete with special effects.[10] The machines alone cost at least 110,000 livres, a strange luxury in the midst of a civil war.[11]

Perhaps Cyrano joins the audience for *Orfeo*: The curtain opens … to reveal a mountain range set against clouds. A cleft inside the mountain leads to the ocean along the back wall. Along the sides, at the wings, there are very dense forests.

Then, "by a marvelous device, the craggy outline of the massive mountain range vanishes in a twinkling,"[12] replaced by a piazza inside a city. Just as suddenly, the piazza "disappears … making way for a delectable garden." At last, the garden "turns into so many white marble vases" with jets of water morphing into jasmine, myrtle, and leading out to orange groves.

In the midst of all these, Perseus cuts off the head of the Medusa. Afterward, everything around him undergoes "a frightful transformation." The greenery transfigures into "masses of frightful rocks." Waves crash against the rocks—the gods' warning, until the "sea appears so vast that one could swear vessels were floating…more than six leagues away." Finally, the waves sink beneath the stage, along with the crags, and "give way … to a magnificent palace."

In 1996, I was taken behind the scenes to a theater influenced by Torelli's system—the Drottningholm Court Theater (1766), in Stockholm.[13] So much has become standard since. But the speed of this "engine" surprised me. The rollers had been upgraded so that a tiny crew could manage many effects at once.[14] I turned a crank; suddenly the curved logs on stage roiled like the sea. Then I pulled a chain: a box of stones brought thunder. Up in the attic, wings with painted cityscapes could be rolled quickly along slots. Two sets of clouds were on hinges, ready to bring stormy weather. Modified cranes (chariots) escalated performers from floor to ceiling.

The wings and chariots resembled the machines on a sailing ship.[15] The rigging, the understage trap below, the fly aloft, the ropes and wood, the blocking, even the knots responded like tackling at sea. They also resembled machines on land, for public works: the hoist for scaffolding at building sites; the crane for sieges. They were machines as the emblems of power—by land and sea—but stored at the harbor's edge. They hoisted and groaned like an imaginary ship of state, awaiting the appearance of the imaginary prince, perhaps by chariot—deus ex machina, to solve the conflict in the final act; to bring order.

The court meanwhile would be perched like officers on deck, practically inside the play. Their seats hovered very close to the stage itself. The wall trim at the entrance matched the trim onstage, as part of the same scripted space. The whole of it might be needed for masques of one kind or another, where the audience joined the actors for a dance. Even the proscenium operated often as special effect more than a fourth wall[16]—a masking and unmasking.[17] Beyond the curtain, false arches and blocked corners made the perspective elusive, even intimate—what I call *occluded*. The scale was smaller, more intimate than the grand opera house of 1870, small enough to allow each spectator a role

of sorts; the theater at the Tuileries (1660) "had machines so powerful that … a hundred people were lifted at once."[18]

In a Torelli theater, these machines were designed to make the spectator feel complicit in two places at once—both as audience and as stage manager. Both were possible at once, because the "engine" (the effect of all these) revealed how lavishly artificial the materials were. They were *Artifice*: lavish, immersive fakery. The Artifice "pretended" to empower the audience, while it trapped them inside a fully equipped shipwreck.[19]

The Artifice Invades the Natural

> These false perspectives, these facades, these arbors have another side which is cloth and nails and woods.[20]
> –André Bazin

For many film theorists like Bazin, special effects are the hoax that makes cinema feel artificial. The audience can all but smell the effects machinery just outside the frame. In Baroque theater however, sensing the fake was considered a glory. Special effects were designed to suggest hoax; that enhanced their art. They were sculptural and painterly artifice invading the stage.

They illustrated stories about magic taking over the real world, epic metaphysical adventure more than dramatic tales.[21] Thus, the machinery that brought this deception was supposed to be heard groaning beneath the floorboards. It was supposed to intrude. For the story to "work," the audience had to sense machinery offstage, what André Bazin called "erosion."[22]

Of course, we could twist this argument in yet another direction. With quotes from Mikhail Bakhtin, Walter Benjamin, even Bazin, I could dress up Baroque "magic" as modernist.[23] Many filmmakers could be labeled as Baroque, notably Jan Svankmejer, Peter Greenaway, the Brothers Quay. However, this "electronic Baroque" and the Baroque of 1647 do not equate all that easily. Better to say that Baroque "magic" as of 1647—the occult laboratory, the tools of theatrical illusion—was never modernist, definitively not. And by that I mean Baroque ceilings, churches, and palaces as well.

In fact, after 1780, most lavish Baroque effects no longer were produced. The gaudiest of them were displaced by modernist special effects, by panoramas, vertiginous towers, industrial rides. Then after 1955, something of that occluded Baroque immersion reemerges—at theme parks, casinos, malls. But

the look and intent are still quite different. This is merely an instructive parallel.

To complicate matters even further, some very fancy Baroque effects survive after 1780, but hidden (and much diminished) at the circus or the fair (merry-go-rounds, carnies). These also reappear—on a grander scale—after 1955, at Disneyland, etc. But by that time, after many industrial cycles, they have merged with industrial methods. The Baroque comes out of hiding, but from unlikely places, with a very different message about power and the audience.

Still, we can get considerable mileage out of the parallels between the Baroque and the Modern. For example, Baroque illusions were indeed apparatus, as Baudry and Metz defined the term. They were intrusive deception. They groaned and screamed like squeaky wheels. Of course, the machine itself was often considered a magical process in 1647 (automatons, electricity). For "moments of wonder," there was a Baroque metaphysics.[24] The sound of machines were presumably transcendental and hallucinatory—a special effect.

Perhaps the glow of cinema and computers are metaphysical today, but hardly for the same political purpose. Baroque special effects reenacted feudal ritual. But by 1640, feudal arrangements were in decay, after centuries of plague, continuous warfare, and shifts in economic power. Special effects were like boosterism in a town struggling to hold its own. They glorified hierarchy and fealty to the prince ferociously, because—theories of absolutism aside—this divine right was profoundly weakened (again, by religious and civil wars, economic downturns).

The modern state came out of an unsteady alliance. As part of this shaky deal, the merchant class delivered special effects on behalf of the prince. The older feudal system (circa 1200) had long since collapsed. This was an updated feudal/early-modern state. No surprise then that the special effects look dazzlingly cockeyed. The world they sponsored was awry, like the theater space turned awry in 1647. Angels drop from the ceiling; the back and side walls keep moving. What emerged was something like Surrealist sculptural spaces. But were they Surrealist? They were more like corrupt pilgrimages, before you stuffed your face at an exhaustive dinner. The service, even the elaborate sculpture on the pastries was ridiculously impeccable, like the life at Louis XIV's court by 1680.

Special effects were theatricalized parodies of feudalism, because obviously the new state was hardly feudal any longer. It was a strange hybrid: filled with grandiose furnishings, with a (feudal) theatricality, but guided by

mathematical systems (solid geometry, perspective). It was sculpture set in motion by shipbuilders' mechanics.

Most of all, this "engine"—the composite effect—only seems more "democratic." That is our historical prejudice—to look for clues to the French Revolution—not theirs. Spectators did enjoy more "mobility" than in Gothic cathedrals. But was the message more egalitarian? Decidedly and absolutely not: democracy did not float inside these special effects. There was much more promenading and posing than class conflict, an audience at war with story, with charm and fancy effects, like those machines.

The social message was unambiguous, even if the production methods were bourgeois. From the decors at the theater to the grounds around it, even down to the silk and gold insignia woven into people's waistcoats, the message was overelaborate. And this plumage—from costumes to special effects, to posing arms akimbo, proud of your station—suggested an audience at war with story itself. It amounted to a feigned aristocratic attention deficit, like an aristocratic lisp or a wan, bored look. There was virtually nothing egalitarian in poses like these, nor in scripted spaces like these. In fact, they intentionally reflected as little as possible about social change. It was a theater about adamantly not changing. The audience was supposed to look restless, because looking restless was a privilege—the joys of a rigid code, an interactive ritual about never moving socially.

Thus, Baroque artifice had to generate much more than a glimpse of the exposed nails and a corner dressing room (of what Bazin meant by "erosion"). Certainly, this artifice vaguely resembles twentieth-century installation art, especially since Duchamp, its chief pioneer, who was fascinated by Baroque special effects (by anamorphosis, geometric illusion, Baroque occult science). However, as ideology, Torelli's machines did not "speak" like Duchamp's installations. They spoke for a hierarchy and anxiety different than Duchamp's. The difference will prove crucial, as we move later on into the Electronic Baroque after 1955.

The Book as a Special Effect

I have to clarify another parallel between Baroque in 1647 and Electronic Baroque today. This book is designed, even historically, as a Renaissance or Baroque computer. Of course, Duchamp, Lissitzky, Ernst, and hundreds of other modernists of the twenties understood the book in that way. It was a bio-

scopic indexing of data to the human voice. It was also a pictus orbitusa, map of the unfindable, a picaresque, as in scripted space. The Baroque book does manage to survive into modernism, as the repository of sixteenth-century software.

But what features have been salvaged from the Renaissance or Baroque book? The index in back is a search engine circa 1700. The notes are hyperlinks, as are the running heads. The contents are interface, again as of 1700. The book as Baroque machine works as "marvelously" as Torelli's did, and is even more flexible.

The book is also a Baroque ruin, eroded by our perverse readings of the past. As a machine, it shows us how collective amnesia works, how codes become blind ritual, and then simply blindness. Or in the case of this book, how four hundred years of expensive illusion traversed from the Baroque to the Modern to the Electronic Baroque. That leaves a much simpler question than Baroque ruins then and now: does the style of this book match each stage from 1550 to 2003?

Like a special-effects machine, I will move my space from Baroque machines to special effects just before the twentieth century. Simply put, I will devote many chapters to these transitions, from 1610 to 1850 (or 1890), sections on the masque, fireworks, the misremembered Baroque in 1820, early science fiction in 1835. At the same time, I will design the text, chapter heads, and index to match the change in tone from one era to the next.

In the final sections, I shift more toward the political essay; toward cultural criticism, another shift in tone. But to provide an initial sense of what these changes in tone might say, let me jump for a few pages to a later, or a late Baroque scripted space. By the mid-eighteenth century, Baroque effects had transformed into a narrative as complete as twentieth-century cinema.

Baroque Fatalism as Special Effect

We enter a festival in 1740, for the king of Bavaria. The famous *quadraturista*[25] painter Giuseppe Galli-Babiena has designed a theater set radiating with layers of occlusion, hidden arches, columns. It was as if "the drama were all but perishing, trying to find its way out from among the mazelike pillars and recesses, trying to keep in sight despite the blanket of ornateness."[26] These mazes and recesses had been standardized into an alternative story. In this story, the theatrical machines were a character-animated sculpture. The force of Artifice

(the social order) invaded nature. The Bibienas (from Bologna) also had their own guild of sorts, for quadratura painting in lavish scripted spaces. Even a chiaroscuro could be added, for revenge dramas, for suspense.

A more poignant example would be the final scene of Mozart's Don Giovanni (1787): The statue of the Commendatore arrives for dinner. He shares a portentous duet with Don Giovanni. Afterward, the statue drags an unrepentant Don Juan into the flames of hell. It was quite a design challenge: the statue made of stone remains an immaterial ghost. It became Mozart's emblematic finale to two hundred years of Baroque special effects. After all, dragging Don Juan into hell was a familiar play; it had appeared in numerous forms before.[27] It was sculptural trompe l'oeil, the solid turned ghostly, not unlike the ghost of Hamlet's father actually returning in Goethe's *Wilhelm Meister's Apprenticeship* (1796). Finally in Mozart's version, it leaves the Baroque and enters the Gothic.

Animator Tomasz Wilitsky considers this moment in *Don Giovanni* a model for all animated cinema.[28] To generate that single shock, one medium has to convert into another. You must break the spell in order to cast the spell. Traditionally, in the famous production by the National Marionette Theater of Prague, a human puppeteer steps out of the shadows, grabs Giovanni's wooden hand, and takes the writhing puppet down to hell. Thus, the human comes to life by turning to stone, while the artificial marionette becomes the last refuge of nature. There lies a key to the Baroque as animated sculpture; it inverts media. It makes this inversion seem occult, on behalf of neo-feudal authority.

The Thrill of Nearly Dying

Baroque special effects also became a laboratory on how to defend—while still presenting, with fire and brimstone—the instability of the state. We see a spectrum of ways—in masque, on church ceilings, in palaces, piazzas, and at the city gates. On the one hand, the spaces were scripted, indoors and out, to glorify the state by way of inversion, as in trompe l'oeil. But these inversions also borrowed, quite intentionally, from the military-industrial complex of 1600, from siege designs or the newest artillery,[29] to water pageants *(naumachia)* reenacting sea battles on flooded piazzas.

Baroque effects converted wartime paranoia into reassuring spectacle, by showing how glorious the merchant's war machines could be. They highlighted the merchant's role in the state, along with the prince. And they still do. Special

effects still borrow from the military-industrial complex, still show off, even adapt or help invent, the new machines of war.

Thus, there is a more melancholic meaning hidden inside Baroque play (fêtes de joie). They also showcased the tools of war. They reflected Benjamin's sense of allegory as ruin—but ruin with a happy ending. The groans from machines offstage were arms keeping watch, like siege machines that never slept, or water pumps draining a marsh. They were what Johann Christian Hallmann called "fatal stage property" (1682),[30] for laments about the missing and the lost, in Trauerspiel, revenge dramas, historical epics, and allegorical sexual masques. But these laments could be farces as well. Demons and gods slide from Olympus to the underworld. They were a darkly ironic joke about one's place in the social hierarchy, internally and externally, because they turned shipwreck into a pleasure. You were immersed, but never drowned, particularly in special-effects events during civil wars, famines, religious wars, literally in the midst of political madness.

It thus became typical of Baroque special effects to stage political unease, to reflect changing alliances. Torelli knew that he was essentially a house servant to the king. He knew how to alter the occlusions and displacements—the visual tricks, the erosions—to fit new alliances that came or went. Cardinal Mazarin, like his mentor Richelieu, demonized Protestant merchants. At the same time, being cynical to the core about any alliance built strictly on religious faith, Mazarin invited any merchants with enough cash, whatever their background, to become tax gatherers and local prefects that he could trust. Then he massaged Parisian merchants to ally with him against the aristocrats during the civil war (the Fronde, 1648–1652); and to help revive the divine right of kings, because it was better for business. Torelli, already too familiar with similar courtly intrigues in Italy, protected himself. He made certain that his special effects served Mazarin's pleasure, but did not anger the locals who despised Mazarin. Most of all, a gaudy, silly disaster on stage was a relief to locals caught in the middle. It deflated the terrorism sponsored by the state, as it heaved and twisted.

Where to Sit at a Disaster

Even the design of the seats and boxes had to fit this irony about disasters looking cheerful, about uneasy alliances. For example, we enter a theater in eighteenth century Venice, where many of the new theatrical ef-fects were per-

fected. It is owned by the Grimani family, a leading production company. Handel had worked with its librettist. Farinelli had sung there. Casanova was in the audience (his family had worked there).

We wait for the curtain. The stage looks like a fancy layer cake. Toward the wings are seven storeys of boxes or balcos, showing off Venetian worthies. Watching them is an intermezzo in itself. Many great ladies arrive in masqued costume, then reveal themselves. The boxes, practically on the stage itself, are theatrically lit from below. They generate their own audience. Some look at the worthies and sneer, or grouse out loud. However, today "the noblemen were indifferently silent; those in the boxes do not spit into the pit (the cheap seats), as they do at some plays."[31] Even the audience reenacted this unease; that was part of the pleasure of the theater.

To adjust to this unease, special effects tended to move along quickly, and immersively. And Torelli clearly set the standard here, particularly after 1630, in service to Venice and Parma, even before coming to France. He relied on highly visible machines for extremely ornate and frequent scene changes, as many as thirteen in a single show.[32] The curtain served as his editing device, often announced by trumpets and violins.

At the opera L'Idropica, at Parma in 1638, he showed off—for the audience to see—three hundred stagehands. On cue, with great finesse, they ran "the huge engine, the windlass, the stout cables, the ropes and cords."[33] Machines whirled by counterweight, on improved revolving drums, like indoor cable cars moving heaven and earth. The wings changed scenes so quickly, "the artifice … was miraculous … creating great amazement among the spectators," particularly to see a boy of only fifteen turn the ratchet.

As one English observer said about Torelli's productions in Venice, the natural played well against the artificial. Sets "were stately and seemed natural. The settings, above which clouds seemed to move, ex-actly represented houses, gardens, etc." However, up close, another message was delivered, very clearly, about the Artifice. "These pictured scenes are very lively at a good distance by candlelight, but near at hand the work is very great and coarse."[34] Note that he considers *coarse* as a kind of virtue here. In the same spirit, for the opera *Rosilena*, scene changes are "neat and artificial."

We may have returned to something like Baroque Artifice in our theme parks and ride movies today, even in urban rehabbing. Now we have only to develop a grammar to clarify what we do. Our special-effects theory still looks a bit thin compared to manuals from 1550 and 1780, or the writings of Descartes and Leibniz on Artifice and Optics; or the masque; or "récréations d'artifices" in

Baroque science, theater, and literature. At its core, though, their grammar was simple enough: In a Baroque scripted space, the natural is invaded by the artificial. But the Artifice has its own morbid irony: memento mori, vanitas, intimations of mortality. It resembles a still-life painting (nature morte), the bloom about to fade, but artificially ripe. The flesh is overdressed, ritually overdone to celebrate the precise moment when youth begins to die. This was a grammar with a dark sense of humor, about mortality as well as political insecurity. For one moment, the Artifice defies mortality. It even defies the blinding light of God.

Caravaggio's Blinded Saint: Dualism

It is late afternoon. We visit the church of Santa Maria del Popolo[35] in Rome, and gravitate toward the Cerasi Chapel, with two Caravaggios (1601)—both dark, impacted. On one, Saint Peter is pushed into a corner as he prepares to be crucified. On the other, Saint Paul has been blinded by divine light;[36] he lies in a heap below his massive horse. Light from the windows streams across the face of Saint Paul, matching precisely the light that Caravaggio painted. We literally sense a chill of excitement as the false and the real meet on point. Painted light mixes with natural sunlight, but so gracefully that we are awestruck.

For centuries, that kind of dualism (the false invading the natural) reappeared in theaters, sculpture, criticism, in special-effects painting. But if his "conflicted" space were a story, what is the plot? Certainly, in Caravaggio's *The Conversion of Saint Paul*, the effect of light delivers a very specific hermeneutic story indeed. Through chiaroscuro (tenebrism), vision is inverted. Flashes of light turn into blindness.[37] Even saints learn humility. Of course, in Caravaggio, saints lie supine like frightened stable boys, in gritty humiliation. The Artifice of God invades the natural world of the saint—as revelation. It was a very simple grammar (and hermeneutics), about the power of divine right. Even bêtes noires like Caravaggio enjoyed playing with it. Messages could be safely buried inside; it was not subversive. Masters of special effects were rarely called up before the Inquisition. More often they were hired to defend it.

In written descriptions at the time, almost never are these effects discussed as a mode of subversion, or intervention, as in Brecht or even Benjamin on allegory. Nor were they an early form of abstraction. (I compare these effects to the half-completed, blurred hand in a Frans Hals painting, not modernist, simply

Baroque Artifice). They were structured plot points inside a scripted space—a contrapuntal form of story (or phenomenological, allegorical story): The audience senses, as if by miracle, how the natural and the artificial merge and divide. Special effects were understood as a dialogical[38] grammar, not simply as isolated moments of wonder.

Underneath Domes: Scripted and Immersive Space

By 1700, the painted dome had become a well-established grammar, a story code about personal navigation. At Baroque theaters—and even Baroque chapels—little was done to isolate the audience from the stage or chapel. Through direct address, like our televisual world, it built atmospheres for the audience to navigate personally, but in the service of the civic authority. The atmospheres were provided by a hybrid power—the prince *almost* in business, the pope *almost* in business. It was a contradiction announcing itself as an eloquent Artifice—freedom without freedom, revelation by accepting the new mercantile version of divine right.

One architectural model for this contradiction was the painted or illusionistic dome. The space underneath this dome generated walk-through stories. The various plots add up to the following: Power radiates hierarchically—and magically—from the center of the ceiling. From this center, it points toward contingent stories at the base. These jump between whimsy and majesty, with special effects along the way, where walls or sculpture seemed to melt or float as you walked along—to join, then separate. To add even more mystery, your view was often occluded by chapels and hallways, by webs of stairways and arches. These special effects often shifted as you walked, to suggest unease that is simultaneously under control. The "engine" (techniques of illusion) "proved" that despite imbalance and terrors, those in charge were calmly steering a course:

1. Directly at the center of the dome was the oculus. Like a geometric vanishing eye: the eyes of the state or of God. It was surveillance in a setting where one's identity was defined by social class above all. Changing your station in life was infinitely beyond your reach. Finally, the Artifice in charge of this order was powered by divine light. It can strike you blind to make you see.
2. Around the oculus was a thick painted ribbon, the pantocrator.[39] It embraced the oculus like an aureole or an eye socket; or even the balcos at the theater. Its outline closed off a higher world, where only angels and the great could ascend. It helped the oculus watch you. Like Vincent's face

in Van Gogh's self-portraits, or the eyes of the woman in the billboard, it watched you as you passed.

In turn, as in Cyrano's journey to the moon, the painted dome was also the sky itself—the canopy that held many microcosms. These were punctuated by a variety of optical effects, but one most of all. What looked solid dissolved into air,[40] a Neoplatonic illusion with seemingly infinite variety.

3. Along structures beneath the painted dome, this hierarchy continues, down to the floor, to your spot on Jacob's ladder, where you find your place. But the scripted space also invites you to move in many directions. It offers choices, but each tethered in some way to the same hierarchy, guided through Artifice (special effects) as divine right.

Thus, painted *quadratura* may falsify a flat ceiling, give it fake domes and cupolas. Then trompe l' oeil and anamorphosis may distort these even further. But the sum effect was proof of divine right, ontology by way of special effects. The term used the most often to defend this proof was Neoplatonic. According to Neoplatonic ideology, no matter how lustful these hoaxes appeared to be, they were not sinful, or excessive. They were, in fact, the scar left by the blinding light of God. They were chaste and hierarchical. After all, if revelation as a visual trick can feel this eloquent, what would the true immersion with God feel like? How ecstatic the final becoming, the final blindness.

It is easy to see why Lutheran and Calvinist churches avoided the full effect of Catholic immersion. Its visual message was fundamentally papal, thus seen as an aesthetics of indulgence. To many devout Protestants, these tricks reinforced a twisted logic: indulgences were suddenly chaste; rigid hierarchy was liberating. Sensual pleasure led to salvation.

Of course, Protestant austerity aside, Baroque excess has more than made a comeback recently. And so has fundamentalist disgust with it. The two seem to echo each other, like stories about 9/11 bombers doing a weekend at Las Vegas before heading out to jihad. As a moral philosophy, special effects preaches imaginary violence or imaginary excess. For example, I understand that there is a special-effects film in production about millions of people collectively faking an orgasm. It is a hollower sequel to Stanley Kubrick's intentionally hollow *Eyes Wide Shut* (1999). Kubrick spent thirty years adapting Schnitzler's 1926 novella set at carnival in Vienna 1900. Key scenes recircuit 400 years of bourgeois carnivalesque foreplay. At what should be a finale, the hero can only witness a Baroque orgy in 1999 New York. Sadeian libertines moisten each other

underneath a "floating" Baroque ceiling. And yet, not much happens, because every crime is an act of collusion, not a crime at all.

Pozzo's Marble Disk

In Rome, we enter the famous Church of San Ignazio, whose ceilings were painted by the Jesuit Fra Andrea Pozzo (in 1685–97). These were glory years for the Jesuit order and the Counter-Reformation. The Turks had failed to take Vienna (1683), then lost Hungary. At the same time, the Habsburgs reconquered southern Germany and Austria. In France, Protestants were suppressed, practically forced underground (1685). Meanwhile, the Jesuit presence increased throughout the courts of Europe and England, and especially in the Spanish Americas, even in China and Vietnam. The martyrdom of Jesuits in the 1630s, during the wars of the upper Rhine, had been answered.

Thus, in the major Jesuit church in Rome, Pozzo paints a "glorification," a ceiling where the power from the heavens raised bodies and stone toward infinity. In practical terms, it looked like a vacuum effect. Paintings by Correggio a century earlier had initiated the technique: assumptions of the Virgin, of archangels, ecstatic flights. By using this technique, the altarpiece often was converted into an immersive environment, as in paintings by Cortona, or at churches by Assam in eighteenth-century Germany.

We stand under the nave painted by Pozzo: the effect is dizzying. Missionaries led by Saint Ignatius Loyola are escaping the earth. Here is what we see: first, a visual compression—foreshortened height—then evaporation. Layers of stone bring forth an enclosure twenty storeys high. It is difficult to remind yourself that these massive transepts are only painted ceiling. Beyond the imaginary stone, false clouds take the eye seemingly miles upward, toward a spin of angels, at last disappearing.

The foreshortening and distortions keep shifting as you walk. Pozzo even implies that part of the building might fall down, then seem to rebuild itself (not unlike a cinematic special effect, like buildings morphing up from nowhere in *Dark City*).[41] At any rate, after a few minutes, you find a spot that stops the confusion. This must be the vanishing point. You look at your feet to get your bearings. There below your shoes is a marble disk.[42] You are momentarily amazed. What an act of bravado: Pozzo left a marker for you. It reveals a moment of wonder basic to the political message. While you stand on that circle, the turmoil overhead is stilled. The vastness stops swimming. Instead, its disorder embraces you. The disk is a place of safety, crucial to

the immersion, to walk through scripted spaces. It reminds you of the power of the program, in this case by way of the Jesuit order. You are within the Jesuitical eye of peace. The foreground has disappeared. Whichever way you turn, the chaos (only a step away) seems to embrace you.

To manage that much precision, Pozzo applied centuries of painterly technology[43] based on perspective and the curved *ceiling—immersive systems*—to justify the imperialism of the Catholic Church. That is the genius of the scripted space; it is an epic narrative, where the tangible is a membrane standing in for the powerful. It is a catholicity, a hint of the immutable—but also a warning that power is out of reach.

Cellini: Filling the Colosseum with the Devil

Immersion as vertigo also speaks to the crisis of faith, to urban legends about Lucifer trying to replace God Himself. For example, during the Renaissance, immersive tricks were often called the devil's interventions. Or treated as Christian-cabala mysticism:[44] Guilio Camillo designed immersion in his Memory Theater as a path where you become God, a gnostic mystery.[45] Often, the eloquent hoax, especially the immersive ones, fed the public's fascination—even passionate belief—in white and black magic.

In 1546, the artist Cellini meets a necromancer, a master of the dark arts. Cellini decides to assist in the witchcraft. He listens to the chanting, sets fire to devilish, rank herbs. Then the necromancer floods the Colosseum with demons, and claims that this was nothing much. For the full effect, Cellini had to return tomorrow with a young virgin. So, the next day, he drags along an unwitting twelve-year-old shop boy. But the boy's innocence does the trick. Like bait, it attracts thousands of demons, who swarm everywhere. Cellini, glorious braggart that he was, writes that he stayed calm throughout, "though I nearly dropped dead when I saw how frightened the necromancer was."

Meanwhile, "the boy had struck his head between his knees and was crying: 'I will die like this—we're all going to die!'"

"But I said to him: 'These demons are only our slaves. Consider: all you can actually see is *smoke and shadow.*'"[46]

"Smoke and shadow" brings to mind the simulation of war itself during the Renaissance, the siege by demons. Foreign artillery blasts a city wall. The dust makes shadows, like storm clouds. Then a necromancer copies this effect, very likely through mirrors. Demons could be projected against thick, ambient (immersive) smoke, particularly from wet shrubs that Cellini was told to keep

burning. And the shrubs made a stink that must have been inspiring. Out of fright, one of Cellini's friends 'beshits' himself; however, the smell attracts even more demons. By 1650, immersive tricks like these had become standard: projections of ghosts—smoke and mirrors, séances, particularly when fireworks displays as well as optical mechanics became more complex. Indeed Cellini had probably guessed right.

Cellini may have believed in these demons, even though he called himself a fierce agnostic. His surprising gullibility—Cellini the agnostic—tells us something about public superstitions and special effects, particularly immersion, during the age of religious wars. In 1555, an exhausted emperor, Charles V, gave up his crown for fear of his immortal soul, and holed up in prayer against the demons.

Demons were a psychogenic special effect, a collective terror in smoke. It was an immersive smoke, as in the auto-da-fé, the Inquisition, witch trials, and gruesome sieges against an Antichrist. In Spain, most of all, immersive smoke and shadows took on a pathological brutality. On December 22, 1504, in Cordoba, 107 victims were burned at the stake in an auto-da-fé.[47] They burned as part of a larger spectacle, with theatrical flourishes.

In 1565, at the time that Cellini was writing his *Autobiography,* the inquisitor general in Madrid (Fernando de Valdes) installed an elaborate "Theater of Heresy." He ordered inspirational plays to go with the burnings, as well as "sacred interludes on movable carts."[48] Later, inns at courtyards, like theaters, were built to normalize the burnings at the stake—even with playbills. In the Spanish New World, trials against demons often led to burnings in effigy as well.[49] The puppets, full-scale, would writhe in the smoke like living things, a pre-cinematic apocalypse if ever there was one. Some "Theaters of Heresy" even added fireworks, perhaps to help distance the viewer from the screams of the victims.

Jacob's Ladder

At the same time, immersive techniques brought fear under control. Like Pozzo's ceiling at San Ignazio honoring the Jesuit order, the spiral upwards was a blaze of comfort, with symbolic chaos below—in theaters, public spectacles, as well as churches. Immersive ceilings were meant as a bridge between the world of the numinous and the tangible space below, *mondo simbolico.*[50] This bridge *(axis mundi,* Jacob's Ladder) was a political warning for those who fretted about chaos and demons, in this world and the next. We return to

Pozzo's marble "spot," where both forms of chaos could be seen momentarily in balance. A maxim near the spot reminded one observer (1740) of the following from Aristotle:[51]

> It is easy to miss the mark, but hard to hit it.
> Thus, both excess and defect belong to same Vice, to the state that is Virtue.

Through smoke and mirrors as paint, this instability becomes essential to understanding order. The viewer steps in one direction, and the image teeters. In another direction, it reverses itself. The viewer is gripped by a mystery unveiled in multiple and single perspective—literally, "I embrace you because the world is uncertain. You are safe to move around, because you have rendered unto me. Now you are free."

Hold Still the Sun: Collapsing the Foreground into the Background

Up to this point, I have only discussed the Baroque form of immersion. There is an alternative, the *panoramic*, as it appears after 1787. Let me clarify how the two differ: When a movie set is prepared for a shot, the space tends to look Baroque. The seams left by trompe l'oeil Artifice and mixed media stand out. But once the camera records the shot, what winds up on film may well look panoramic, a long shot ten miles deep. Certainly, Artifice disappears. The camera smooths away what was a Baroque cutout; a juggle, a feint.

Baroque Artifice tends toward balletic imbalanced space, but timed very precisely—three acts in only a few seconds, Joshua "holding still the sun."[52] To time that minutely, the "script" relies on majestic interruptions, trompe l'oeil Artifice.

By contrast, the panoramic tends toward the languorous and the picturesque. Thus nature looks endless, without Artifice. Clearly, nineteenth-century European panoramas, or American cycloramas, were immersive in an entirely different way than the Baroque, with wraparound paintings thousands of square feet in scale (very often of battles, I might add, like Gettysburg). Digital sound in stadium-seating movie theaters is immersive in both ways—Baroque and panoramic. Nineties virtual reality systems were both, helmet and all. But Vegas casino interiors do indeed suggest a return to the Baroque, with twists even trompe l' oeil cannot deliver.

Fascist or Feudal Play

However, both forms of immersion (Baroque and panoramic) share one architectonic principle: *They collapse the space between the viewer and the foreground.* There is no way to step back, only to drift inside. That keeps the story inside the immersive space, where artifice and nature play themselves out. But they each have a different sensory impact. Inside the Baroque, the space beneath the dome operates like a gas prosthetically encircling your head. It inflates your vision until you go dizzy with the occlusion and spinning release. By contrast, the center of the Grand Canyon on a clear day is panoramic. The desert light distorts the bowl of the Grand Canyon like a nineteenth-century panorama, not a Baroque theatrical machine.

The closest to Baroque immersion in the Canyon may be those metal signs announcing when you have descended to a new climate zone. That becomes a map of the unfindable. You can almost smell an imaginary continent. Nature is invaded by artifice. By contrast, panoramic immersion tends toward the infinite, uninterrupted view; that is, nature without any occlusion.

The panoramic claims to be egalitarian, but can tend toward fascism. The Baroque claims to respect your unique identity, but can tend toward something like hierarchical, or transnational, feudalism. The panoramic is a metonym for the great outdoors, toward the endless potential of capitalism. The Baroque is a metonym for free choice in a secure hierarchy.

Perspective

Thus, inside Baroque churches in Rome, nature looks miraculously artificial, hardly like a trip outdoors. Beneath the dome is Artifice, the path to God according to the Baroque Catholic Church. Paint and stucco are like transubstantiation, wine into the blood of Christ. The clouds in Pozzo's ceiling suggest cloth as the sky transubstantiated. The special effects are an intermediary, a theater of unknowing. What lies beyond this theater is God, above heaven and earth. Similarly, Pozzo's vertigo effect, the *sotto in su*, foreshortening "from below upward," is *supposed* to look like painted architecture. Its imaginary stones, imaginary perspectives, form a Catholic agency to God.

To achieve these careful visual leaps, and their politics, the Baroque master had to understand perspective profoundly well. Perspective was even championed as part of the Jesuit political message. Pozzo's manual *Prospettive de Pittori e Architetti*[53] served a very clear ideological function for the order. In fact, many

Jesuits specialized in the study of perspective as occult science. Perspectival research was vigorously approved by Loyola himself, featured at Jesuit colleges that produced great masters of geometry and perspective, like Honor Fabri, Francesco Grimaldi, Andrea Pozzo, Athanasius Kircher. In 1601 Matteo Ricci brings Jesuit systems of perspective and illusion to China, calling them "even greater than the Bible" because they showed potential converts "what words alone could not convey."[54]

The Missionary's Universe

Returning to Fra Pozzo, like many Jesuit natural scientists, he was revealing the Ptolemaic universe, but geometrically. He would show the earth at its center. To arrange this, he worked with a candle from the floor, to stretch a grid as in a map. It projected shadows on to the ceiling that helped him adjust his grid to how the eye distorts. Within this grid were vanishing points, to position the viewer inside a geocentric truth. Like astronomy for Christ, instead of a telescope to see the heavens, Pozzo built a spiral into the void: signified by the marble disk. Even his use of the candle was symbolically appropriate. The candle signified preaching by showing: the Catholic earth mathematically standing in as the sun (the Light).

Thus, immersion also suggested missionary faith. From astronomy to architecture, the magical mathematics of commerce were joined to the missionary work of the Counter-Reformation. Immersive ceilings helped to prove that Ptolemy and Ignatius belonged together, that science was the word of God. And at the same time, there was a price for this truth. By revealing through special effects how inscrutable God was, believers were reminded that prayer alone was not enough. No path to God was direct. The Protestants were wrong. The Fall could not be redeemed purely by faith.

Not surprisingly then, as hinted at earlier, Baroque churches in Protestant cities look much less flamboyant than those in Italy, Vienna, or Munich. Christopher Wren's *St. Paul's Cathedral* (1671) has considerably less of the trickery or the immersion—trompe l'oeil, accelerated perspective, *quadratura*. The ideology of the Anglican Church disavowed flamboyant effects, coded as Italian, therefore a popish intervention. However, Bolognese "squaring of the round" ceiling paintings (*quadratura)* were fine for *personal* residences, even for the court; as were secular Venetian "machines" for theaters in England, northern Germany, Scandinavia. But in Italy, Baroque theatricality was often

wedded to the Counter-Reformation as a filter *(axis mundi)*, a cathexis between this world and the next.

Clouds as Thick as Cotton

Even urban planning in Baroque Rome relied increasingly on many of the same effects, particularly after 1585 with the rebuilding campaign. To frame these enhanced piazzas and churches, many wider business roads were added during (and after) the reforms of Sixtus V (1585–90). However, this systemic network points toward the panoramic as much as the Baroque, toward deep focus as circulation as much as special-effects theater. Perhaps as city planning, Baroque effects were simply modernizations (the same could be said of eighteenth-century Paris or Vienna). They gave medieval facades a "modern" face. This implied that feudal remnants could be given new life, that divine right was open for business. There probably never was a purely Baroque moment for city planning, only the uneasy, eccentric pressures of modernization.

By contrast, at the church Il Gesu,[55] the ceiling frescoes painted by Giovanni Battista Gaulli (1685)[56] seem choked with clouds, like the dust made by horses in a Kurosawa fight scene. These clouds, as solid as thick cotton, reverse gravity. They spin the Chosen upward as if through an inverted drain, toward the cupola lantern, which stands in for God's nature. It is the genius of Artifice once again. Compare this to 3-D in cinema, very much a panoramic form of immersion. Here, 3-D runs second to the fact of carpentry as special effect. The media are mixed very directly: paint, stone, stucco, cloth. And they cannot be witnessed by just sitting, simply as immersion. They require walking.

Through Artifice, their illusions change every few feet.

Some effects are fixed-point, optical tricks, or sculptural irony framed inside a chapel. Others are multiple-point, relying on solid geometry and immersion—many angles at once. Below the oculus, under a lantern or a cupola, the effects stop. Then one starts again, navigating from one crease (fold) in a microcosmos to another, one hierarchical fantasy to another. With that in mind, we lose another day strolling inside the labyrinth of churches in Rome. It is ironic to imagine these as more "democratic," and yet obsessively in support of feudal hierarchy. Shall we call them an interactive pilgrimage about dispensing with free will? The freedom to believe in papal omnipotence?

It is an allegorical "freedom to move." It points toward the political economy in Italy, to the mercantile city rebuilding the medieval church. The glories of perspective become an ecstatic pilgrimage. The Renaissance, in this sense,

was "postmodern." Byzantine and Romanesque styles were appropriated (misremembered) into a new "script," honoring the "freedom" to wander a bit more inside an immersive space. It was obviously a rebuttal of the popularism of the Protestant heresies. There was only the tangible path to God. What a vast ideological fantasy had to float inside the skin of these domes. No wonder they were so lavishly detailed. They were a disappearing *labyrinth*, as we will discover farther on.