Chapter 1

Lord Burleigh’s Kiss

In a far distant corner of the galaxy sometime in the twenty-fourth century, the brisk and competent Kathryn Janeway, captain of the starship Voyager, is taking a break from her duties with her favorite “holonovel.” Exchanging her spandex-sleek Starfleet uniform for a hugely crinolined Victorian dress, Janeway enters one of the ship’s “holosuites,” which is running a three-dimensional simulation of a richly furnished English drawing room, complete with cozy armchairs and a roaring fire. Brooding by the fire is the handsome romantic hero, who greets her as she enters as his governess, Lucy Davenport. He gives her a meaningful look, and she returns it earnestly.

“Lord Burleigh, is something wrong?”

“Yes, terribly wrong.”

He suddenly steps toward her, takes her in his arms, and kisses her passionately. “I have fallen in love with you, Lucy.” They stare deeply into one another’s eyes.

But it is teatime, and they are interrupted by the arrival of the sinister housekeeper and Lord Burleigh’s two anxious and secretive young children. His little daugther, Beatrice, drops her teacup with
alarm when questioned about the mysterious piano music that Lucy has been hearing.

Beatrice's precocious brother, Henry, is quick to silence her.

As soon as they are again alone, Lucy confronts Lord Burleigh: “What's happening in this house? How can you not know that Beatrice plays the piano? Why shouldn't I go to the fourth floor? What's up there?”

“Those are questions you must not ask,” he declares imperiously.

“But I am asking them,” comes her fervent reply. “I'm worried about the children. Beatrice fantasizes that her mother is still alive.”

“Don't pursue this, I beg you,” he says, looking deep into her eyes.

The confrontation is escalating dramatically and Lucy is breathless with excitement when suddenly another voice is heard:

“Bridge to Captain.”

“Freeze program,” says Lucy/Janeway, reluctantly backing away from the now frozen image of Lord Burleigh. “Janeway here.”

“We've been hailed by a representative of the Bothan government. They'd like to talk to you.”

“I'll be right there.”

As she turns to leave, Janeway pauses before the stilled hologram of her would-be lover. “Sorry, my lord. Duty calls,” she says, grinning, before striding back to resume command of the ship.¹

Captain Janeway's Victorian excursion takes place on Star Trek: Voyager, the latest of four Star Trek television series in which gloriously equipped starships and space stations serve the ideals of the peace-seeking interplanetary United Federation of Planets.² There are many technical wonders in the Star Trek vision of the future, including lightspeed travel; photon weapons; medical “tricorders,” which diagnose and heal with the wave of a wand; the well-known “transporter” room, in which technicians “beam” the crew up and down from dangerous planets by decomposing and reassembling their molecular patterns; and the conveniently wall-mounted “replicators,” which can materialize hot and cold snacks on demand. The holodeck is an appropriate entertainment medium for the fortunate citizens of such a world: a utopian technology applied to the age-old art of storytelling.³

First introduced on Star Trek: The Next Generation in 1987, the holodeck consists of an empty black cube covered in white gridlines upon which a computer can project elaborate simulations by combining holography with magnetic “force fields” and energy-to-matter conversions. The result is an illusory world that can be stopped, started, or turned off at will but that looks and behaves like the actual world and includes parlor fires, drinkable tea, and characters, like Lord Burleigh and his household, who can be touched, conversed with, and even kissed. The Star Trek holodeck is a universal fantasy machine, open to individual programming: a vision of the computer as a kind of storytelling genie in the lamp. In the three series in which the holodeck has been featured, crew members have entered richly detailed worlds, including the tribal manor house of the Old English Beowulf saga, a gaslit London street, and a San Francisco speakeasy, in order to participate in stories that change around them in response to their actions.⁴

Lucy Davenport (as we can call Janeway's unnamed adventure) is in many ways typical of the holonovel form. It is a period piece and a work of genre fiction in which the elaborate set design and recognizable story conventions (an arrival in the rain, ghostly noises at the window, a forbidden attic) are playfully savored, as if put there by a very thorough and well-read programmer. Holonovels provide customized entertainment for a variety of tastes. They reveal unexpected sides of familiar characters. Just as Jean-Luc Picard, the highly cultured captain of Star Trek: The Next Generation, enjoys film noir, his android crewman, Commander Data, identifies with Sherlock Holmes, and the sensitive Dr. Julian Bashir of Star Trek: Deep Space Nine prefers James Bond spy adventures, so the conscientious Captain Janeway turns to gothic fiction in her well-earned leisure hours.
But Janeway's holonovel marks a milestone in this virtual literature of the twenty-fourth century as the first holodeck story to look more like a nineteenth-century novel than an arcade shoot-'em-up. Unlike virtually all the holodeck stories run by male crew members, Lucy Davenport is not focused on a violent central conflict that is resolved within a single Star Trek episode. Instead, Janeway is involved in a more leisurely and open-ended exploration of the Burleigh household, a continuing avocation that she takes up regularly on her days off and that is presented over several episodes. From Janeway's references to events that are not dramatized, it seems that she is spending long periods of time in the household, participating in a daily routine, giving lessons to the children, having tea at regular hours, and getting to know each individual character. Like Jane Eyre, Charlotte Brontë's 1847 novel, which established the governess gothic genre, Lucy Davenport takes place in a mysteriously haunted household and emphasizes the perils of the governess's intense social relationships rather than the physical terrors of the situation. When Janeway is shown relishing a verbal contest with the sinister housekeeper, promising the reluctant Henry that she will be a challenging math teacher, or trying to assuage the grief of the clearly anguished young Beatrice, we can understand what engages the resourceful starship captain in this particular virtual world. As her name implies, Janeway has much in common with her fictional predecessor Jane Eyre, including a strong resistance to being bullied, a willingness to stand on principle, and the courage to face fear and isolation head-on. The Lucy Davenport story therefore suits her well, making the holodeck form itself seem worthy of adult attention.

Janeway's attraction to the illusory Lord Burleigh is taken seriously as an exercise posing psychological and moral questions for her. After she is surprised by his teatime embrace, Janeway is tormented by visions of the holonovel characters walking around the ship. She thinks she is hallucinating until it is discovered that a telepathic enemy alien is fabricating these visions as a way of incapacitating the crew members and taking over the starship. At the dramatic climax of the episode, almost all of Voyager's crew are lost in hallucinatory trances, transfixed by apparitions of distant spouses welcoming them home or disapproving parents sapping their confidence.

Janeway responds to the crisis much like a Victorian gothic heroine: she holds firmly to reason and duty, though all around her are going mad. But then the alien appears to her in the shape of her lover, Mark, whom she may never see again since her ship is stranded at the farthest corner of the known galaxy. The apparition tries to embrace her, but she pushes him away:

"Mark:" What's the matter? You used to love it when I kissed you there.

Janeway: I don't know who you are, what you are. But I won't let you touch me.

"Mark:" What about the man on the holodeck? You didn't seem to mind him touching you, did you? In fact, I think you liked it. Now I ask you, Kath, is that fair to me? I stayed faithful to you. I vowed to wait for you no matter how long it takes. Shouldn't you do the same?

Janeway: (stung, and turning to him) I haven't been unfaithful.

"Mark: Oh, Kath . . ."

She kisses him and enters a catatonic trance.

The story of the rational and courageous Captain Janeway seduced and undone by a simulated kiss reflects a common anxiety about the new technologies of simulation. Do we believe that kissing a hologram (or engaging in cybersex) is an act of infidelity to a flesh-and-blood partner? If we could someday make holographic adventures as compelling as Lucy Davenport, would the power of such a vividly realized fantasy world destroy our grip on the actual world? Will the increasingly alluring narratives spun out for us by the new digital technologies be as benign and responsible as a nineteenth-century novel or as dangerous and debilitating as a hallucinogenic drug?
Alien Kisses

The paralyzing alien kiss is the latest embodiment of the fear with which we have greeted every powerful new representational technology—from the bardic lyre, to the printing press, to the secular theater, to the movie camera, to the television screen. We hear versions of the same terror in the biblical injunction against worshipping graven images; in the Homeric depiction of the alluring Sirens’ songs, drawing sailors to their death; and in Plato’s banishing of the poet from his republic because “he stimulates and strengthens an element which threatens to undermine the reason” with his fraudulent “phantasms.” All the representational arts can be considered dangerously delusional, and the more entrancing they are, the more disturbing. The powerful new storytelling technologies of the twentieth century have brought on an intensification of these fears. While the Star Trek writers imagine holodeck versions of Beowulf and Jane Eyre, a widely read and influential dystopian tradition has depicted such futuristic entertainment forms as intrinsically degrading.

Aldous Huxley’s Brave New World (1932), set six hundred years from now, describes a society that science has dehumanized by eliminating love, parenthood, and the family in favor of genetic engineering, test-tube delivery, and state indoctrination. Books are banned, and science has come up with a substitute form of storytelling to delight the masses. In one of the novel’s most memorable scenes the unspoiled hero, called the Savage (since he grew up with a biological mother in a far-off American Indian village), goes on a date to the “feelies” with Lenina, a satisfied child of the state. They are seated in the popular Alhambra theater, which is a kind of high-tech version of the plush movie palaces of the 1930s:

Sunk in their pneumatic stalls, Lenina and the Savage sniffed and listened . . .

The house lights went down; fiery letters stood out solid and as though self-supported in the darkness. THREE WEEKS IN A HELICOPTER.
AN ALL-SUPER-SINGING, SYNTHETIC-TALKING, COLOURED, STEREOSCOPIC FEELY. WITH SYNCHRONIZED SCENT-ORGAN ACCOMPANIMENT.

“Take hold of those metal knobs on the arms of your chair,” whispered Lenina. “Otherwise you won’t get any of the feely effects.” (P. 134)

The attraction of the feely is an extension of the attraction of the movie and the talkie. The exuberant musicals of the early sound era are parodied by Huxley’s description of the feely’s foolish plot, which relies on arresting helicopter views, lots of sex, and characters who are constantly bursting into song. Writing in the age of the Hollywood star, Huxley describes the feely actors as simultaneously larger than life and less than human: a “gigantic Negro” and “a golden-haired young brachycephalic Beta-Plus female” who look “dazzling and incomparably more solid-looking than they would have seemed in actual flesh and blood, far more real than reality” (p. 134). When these too-real characters kiss, the Savage experiences for the first time the wonders of erotic engineering:

The Savage started. That sensation on his lips! He lifted a hand to his mouth; the titillation ceased; let his hand fall back on the metal knob; it began again. . . “Ooh-ah! Ooh-ah!” the stereoscopic lips came together again, and once more the facial erogenous zones of the six thousand spectators in the Alhambra tingled with almost intolerable galvanic pleasure. “Ooh . . .” (Pp. 134–35)

After the movie, the Savage feels debased by his own arousal. He rejects the eager Lenina and goes home instead to read Othello.

The horror of the feely theater lies in knowing that your intense responses have been calculated and engineered, in knowing that a technician has set the male voice at “less than 32 vibrations per second” to achieve an automatic erotic effect and has reduced the lips of all the individual audience members to just so many “facial erogenous
zones” to be stimulated by galvanic means, like so many light bulbs to be flipped on.

Ray Bradbury offered a remake of the same media nightmare at the beginning of the television era. In *Fahrenheit 451* (1953), a future dictatorship keeps the populace amused and docile with raucous “television,” sound and image systems embedded in living room walls at great expense and dedicated to incoherent but arresting entertainment. Televistor parlors are primitive holodecks in which housewife viewers converse with on-screen characters by reading from scripts in answer to their cues. Bradbury’s hero, Montag (named after a paper company), is a “fireman” whose job is burning books. The novel charts his awakening from destroyer to preserver of book culture. Montag’s wife, who has forgotten all the actual events of her life, has pressured him into buying three televistor walls and is pleading for the fourth so that she can be with her “parlor families” all day. In one key scene, Montag observes his wife and her friends sitting in rapt enjoyment of the disturbingly nonlinear televistor presentations:

On one wall a woman smiled and drank orange juice simultaneously. How does she do both at once? thought Montag, insanely. In the other walls an x-ray of the same woman revealed the contracting journey of the refreshing beverage on its way to her delighted stomach! Abruptly the room took off on a rocket flight into the clouds, it plunged into the lime-green sea where blue fish ate red and yellow fish. A minute later, Three White Cartoon Clowns chopped off each other’s limbs to the accompaniment of immense incoming tides of laughter. Two minutes more and the room whipped out of town to the jet cars wildly circling an arena, bashing and backing up and bashing each other again. Montag saw a number of bodies fly in the air. (Pp. 93–94)

As the housewives exclaim with delight at the entertainment, Montag pulls the switch, causing the images to drain away “as if the water had been let from a gigantic crystal bowl of hysterical fish.” But the damage remains, for when Montag tries to engage them in conversation about the coming war, the women cannot take in the reality of the situation. “It’s always someone else’s husband dies,” they agree, fidgeting anxiously before the now empty walls (p. 94). Like Janeway and her crew in the grip of the alien hallucination, the televistor viewers are mesmerized by an illusion so intense that it blocks out imminent danger.

The housewives’ psychological and moral paralysis is a direct consequence of the virtues of the technology, namely, its power to appeal to the senses of vision and hearing with stunning immediacy. In the words of Montag’s mentor, Faber (named for the pencil), the televistors are evil because they create “an environment as real as the world.” Books are praised as a better representational technology by virtue of their limitations; their meager sensory input makes their illusions easier to resist. “You can shut them and say, ‘Hold on a moment’ ” (p. 84). But with the new multisensory media, the populace is overpowered.

For Huxley and Bradbury, the more persuasive the medium, the more dangerous it is. As soon as we open ourselves to these illusory environments that are “as real as the world” or even “more real than reality,” we surrender our reason and join with the undifferentiated masses, slavishly wiring ourselves into the stimulation machine at the cost of our very humanity. In this dystopian view, the new entertainment technologies are a means of stripping away the language and culture that give life meaning and of reducing us to a state of abject bestiality. When the Savage complains that he prefers the works of Shakespeare because the feelies “don’t mean anything,” the spokesman for the technostate assures him that “they mean a lot of agreeable sensations for the audience” (p. 391). Why would the docile populace want a narrative art form that helps them to better understand themselves when they can enjoy a love scene on a sensuous bearskin rug whose “every hair . . . [can] be separately and distinctly felt”?

Starting in the 1970s and 1980s, the same fears provoked by the
advent of film and television began to be expressed against videogames, which added interactivity to the sensory allures of sight, sound, and motion. Critics have condemned the too-easy stimulation of electronic games as a threat to the more reflective delights of print culture. A prominent film critic, for instance, recently lamented the fact that his sons have deserted Dickens for shoot-'em-up computer games, which “offer a kind of narrative, but one that yields without resistance to the child’s desire for instant gratification.” In recent dystopian literature, the computer screen or virtual reality helmet is as addictive and delusional as the feely or televisor. The nightmare vision of a future totalitarian state has been replaced by the equally terrifying picture of a violently fragmented world organized around cyberspace, where ruthless international corporations, secret agencies, and criminal conspiracies struggle for control.

These accounts of a digital dystopia both eroticize and demonize the computer. Cyberpunk surfers are like cowboys on a new frontier or motorcycle hoodlums with a joystick in their hand instead of a motorcycle between their legs. They are outlaw pirates on an endless voyage of exploration throughout the virtual world, raiding and plundering among the invisible data hoards of the world and menaced by the stronger pirate barons who reach in and reprogram their minds. In this world, first popularized in William Gibson’s *Neuromancer* (1983) the addictive delusional experience is vividly imagined as “jacking in,” that is, wiring your neurons directly into the immaterial world of “cyberspace,” a word coined by the novelist to describe the virtual terrain of databanks along a surfaile internet. The popular entertainment form in Gibson’s gritty world is the “simstim,” a way of riding in someone else’s consciousness and thus experiencing the world through that person’s sensorium by seeing, hearing, and feeling whatever he or she does. Case, the hero of *Neuromancer*, is addicted to the thrill of jacking in to the cyberspace data banks but is bored by the simstim as a mere “meat toy,” for meat is what the body becomes when the mind finds its narcissistic love object within the machine. Yet it is hard to know which of these virtual experiences—jacking in to cyberspace or hitching a ride in a simstim—is more disturbing. In *Neuromancer* the human condition is to be faced with such choices and to flip back and forth between them with a kind of ultimate feely knob. The illusory world has become so powerfully enticing that it has subsumed physical reality itself.

But it is not just the essayists and novelists who have expressed their terrors of the emerging virtual landscape. Television shows and films have also targeted the computer as a dehumanizing representational technology. The television series *Trek War* (produced in the early 1990s by William Shatner, the actor who played the optimistic and heroic Captain Kirk on the original *Star Trek* series) is set in a future America destroyed by the illegal traffic in Tek, a hallucinogenic technology resembling a virtual reality headset. In the first episode of the series, for instance, the hero is paralyzed by powerful Tek programs, bought on the black market, that simulate his ex-wife returning to love him. When his partner arrives to tear off the helmet and bring him back to chasing bad guys, it is a scene very like the classic Western cliché of the sheriff sobering up the drunken deputy but with darker urban overtones suggesting a heroin or cocaine habit. Throughout the *Trek War* series, virtual reality technologies are explicitly equated with lethal drugs as the source of addiction, destitution, bad trips, overdose deaths, and gangster violence.

Movies have been even more lurid in their depiction of computer-based entertainment. Perhaps the most explicit filmic statement of the dangers of cyberspace is *Launmower Man* (1992), in which a virtual reality researcher turns a simpleminded gardener into a digital monster. In this retelling of the Frankenstein story, Dr. Larry Angelo experiments with Joe Smith with the intention of expanding his mental abilities. Larry’s first step in sending Joe down the road to psychosis is to invite him in to play virtual reality videogames that speed up his mind, awakening neurons the rest of us leave dormant. Soon Joe rejects books as too slow a means of learning and listens to music by jumping from one short excerpt to another. Once he has left the world of linear media behind, he quickly turns to horror-movie-style slaught-
ter, accomplished by the sheer power of his unnaturally augmented brain. The movie climaxes with Jobe leaving his body and entering the machine, where he appears as a kind of videogame character. The virtual Jobe easily outfights the virtual image of his creator and eventually escapes into the Internet. At the very end of the movie, we hear the sound of all the telephones in the world ringing simultaneously, signaling that this superior being is on the verge of taking over the planet. In effect, the videogame will play us from now on. Lawnmower Man is the most extreme version of the dystopian vision: the representational technology as both diversion and dictator all in one.

The Thinking Woman's Feeley

Which vision of digital storytelling are we to believe? Will the literature of cyberspace be continuous with the literary traditions of the Beowulf poet, Shakespeare, and Charlotte Brontë as the Star Trek producers portray it, or will it be the dehumanizing and addictive sensation machine predicted by the dystopians? Is the optimistic Star Trek view too pat and sentimental to be credible at all in the light of Huxleyan criticism?

We can certainly see Captain Janeway's experience as dystopian. The holodeck is in many ways exactly the sort of entertainment machine Huxley dreaded: a masterpiece of engineering aimed at inducing delusional physical sensations. No doubt the appropriate moisture and temperature of Lord Burleigh's kiss have been as carefully calculated as the sensations produced by the feely knob. But unlike the helpless fantasy addicts of the dystopian stories, Janeway is the master of the apparatus that is creating the illusion. This is made clear when she returns to the holodeck after her initial hallucinations to check it for a malfunction and is eagerly greeted by her virtual lover:

Janeway: It's a costume.
Burleigh: You'd look lovely in anything. (Takes her hand) I've thought of you constantly, remembered your touch, your perfume, your lips.
Janeway: (Eyes closed, as if surrendering to his magnetism) Computer, delete character!

Even as she swoons in an embrace, Janeway is in control of the mirage. In Bradbury's terms, she can shut the book. Lord Burleigh is deliciously enticing but unenslaving, just as movie and television heart throbs from Clark Gable's Rhett Butler to George Clooney's Dr. Doug Ross have proved to be, despite dystopian fears.

The Star Trek story can be seen as a fable differentiating humane and meaningful digital storytelling from the dehumanizing illusions that the dystopians warn about. Janeway is paralyzed by her hallucination of her lover, Mark, because it is too literal a transcription of her fantasies. The alien treats human consciousness like a stimulus–response machine. The holonovel, on the other hand, is aimed not at Janeway's neurons but at her imagination. Although it offers the pleasures of an art form "more real than reality," it is clearly make-believe. At the end of the episode, Janeway is skipping her regular visit to the holodeck to think about the issues the enemy hallucinations have raised. Now that the alien is defeated by the superior telepathic powers of another female crew member, Janeway thinks, "In a way, maybe he did us all a favor. Maybe it's better to look those feelings in the eye than to keep them locked up inside." The holodeck, like any literary experience, is potentially valuable in exactly this way. It provides a safe space in which to confront disturbing feelings we would otherwise suppress; it allows us to recognize our most threatening fantasies without becoming paralyzed by them. Like a magical starship designed for safely exploring the distant quadrants of the galaxy, the holodeck is an optimistic technology for exploring inner life. For Captain Janeway, a person of Victorian integrity, such
an exploration brings the benefit of self-knowledge. It is not paralyzing. It sends her back to the real world all the stronger.

The holonovel offers a model of an art form that is based on the most powerful technology of sensory illusion imaginable but is nevertheless continuous with the larger human tradition of storytelling, stretching from the heroic bards through the nineteenth-century novelists. The feely (and its successors) offers an opposing image of a sensation-based storytelling medium that is intrinsically degrading, fragmenting, and destructive of meaning, a medium whose success implies the death of the great traditions of humanism, or even a fundamental shift in human nature itself. Neither vision of the future refutes the other. Together they sum up the hopes and fears aroused by the increasingly visceral representational technologies of the twentieth century. As these utopian and dystopian fictions remind us, we rely on works of fiction, in any medium, to help us understand the world and what it means to be human. Eventually all successful storytelling technologies become “transparent”: we lose consciousness of the medium and see neither print nor film but only the power of the story itself. If digital art reaches the same level of expressiveness as these older media, we will no longer concern ourselves with how we are receiving the information. We will only think about what truth it has told us about our lives.

Chapter 2

Harbingers of the Holodeck

The final quarter of the twentieth century marks the beginning of the digital age. Starting in the 1970s, computers have become cheaper, faster, more capacious, and more connected to one another at exponential rates of improvement, merging previously disparate technologies of communication and representation into a single medium. The networked computer acts like a telephone in offering one-to-one real-time communication, like a television in broadcasting moving pictures, like an auditorium in bringing groups together for lectures and discussion, like a library in offering vast amounts of textual information for reference, like a museum in its ordered presentation of visual information, like a billboard, a radio, a gameboard, and even like a manuscript in its revival of scrolling text. All the major representational formats of the previous five thousand years of human history have now been translated into digital form. There is nothing that human beings have created that cannot be represented in this protean environment, from the cave paintings of Lascaux to real-time photographs of Jupiter, from the Dead Sea Scrolls to Shakespeare’s First Folio, from walk-through models of Greek temples to Edison’s first movies. And the digital domain is