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# THE GODZILLA FACTOR: NUCLEAR TESTING AND FEAR OF FALLOUT

*Toni Perrine*

In its first screen appearance, Godzilla emerges out of the ocean to ravage a small island populated by superstitious folk. The island's natives believe Godzilla is the physical incarnation of a legendary monster, whose wrath can be assuaged with the sacrifice of a young girl. Their ceremony to ward off the monster is not effective, but neither is their superstition entirely discredited by the film. The scientific explanation for the appearance of Godzilla is only slightly more rational sounding, because it connects a fear of the unknown to a distrust of modern technological developments. Dr. Umani, "a famous paleontologist," identifies Godzilla's prehistoric link and speculates on the reasons for its reemergence from the Jurassic past. He says, "The question we must ask is how this animal reappeared after all these centuries . . . . The analysis of the creature's radioactive footprint shows the presence of strontium-90, a product of the H-bomb. It is my belief that Godzilla was resurrected by the H-bomb experiments."

Godzilla and other fallout creatures explicitly relate to the cultural anxiety about radiation that became intense in the 1950s. Since its discovery in 1895, the effects of radiation have been poorly understood. An example from the 1920s of this misunderstanding and its dire consequences will serve to graphically illustrate this point. Young women employed in painting luminescent watch faces with radium-based paint began to develop jaw cancer. The cancer was eventually linked to the women's practice of using their lips to form points on their paint brushes, which resulted in the ingestion of minute amounts of deadly radioactive materials. This early example of radiation poisoning demonstrates the lack of caution and knowledge that has characterized much of the nuclear age. International guidelines for the use and human tolerance of radioactive materials were finally established and standardized around 1934. Accidents and fatalities related to the Manhattan Project further underscored the lethal potential of radiation. Despite the fact that the devastating effects of radiation were downplayed in the decision to use the bomb, the scientists who developed it were aware of the need for extreme caution. Unfortunately, such caution was often not exercised as atomic research continued, with the result that unquantified numbers of civilians, animals, and military personnel were contaminated downwind of testing sites throughout the fifties and into the sixties.

The history of nuclear testing in the United States is filled with stories of misunderstanding, misinformation, even criminal negligence on the part of the people in charge of conducting the tests and keeping civilians safe from the effects of radiation. After the Trinity demonstration at Alamogordo, the next phase of American

testing took place on distant Pacific islands that were too remote for Americans to worry about. It wasn't until the early fifties, when testing returned to the American Southwest, that anxiety about the effects of radiation resurfaced in the American consciousness. Between 1951 and 1963, approximately one hundred above-ground tests were carried out in the Nevada desert, with radioactive fallout routinely drifting over bordering states. Public awareness of the dangers of fallout spurred protest, panic and pandemonium at the movies. After 1963, nuclear testing moved underground and lost its cultural immediacy as the fear of fallout dissipated.

## I. Nuclear Testing

The first peacetime test of the atomic bomb, named Operation Crossroads, took place on July 1, 1946 at Bikini Atoll, a group of tiny coral islands (thirty-six islands with a total area of 2.3 square miles), located roughly midway between Hawaii and Australia. At the time, Bikini was a U.S. protectorate and is now part of the sovereign state of the Marshall Islands. The 167 Bikinians were persuaded to give up their home as an atomic test site temporarily, in return for U.S. guardianship and the promise that they could return when testing was complete. The Bikinians are still in exile. Originally relocated to Rongerik, most now live on a solitary Pacific island called Kili. Twelve years of nuclear testing at Bikini Atoll during the 1940s and 1950s left the islands so contaminated that residents were not allowed to return. Only recently has the U.S. Department of Energy made a concerted effort to make the atoll safe for rehabilitation.

A total of twenty-three atomic tests were conducted at Bikini over the course of the next decade. At Enewetak (formerly Eniwetok) Atoll, two hundred miles west of Bikini, forty-three more nuclear tests were carried out over ten years and its residents also relocated. The first test at Bikini featured a bomb carrying the picture of sex symbol Rita Hayworth, the "blond bombshell." Meanwhile, on the French Riviera, a skimpy new bathing suit became the atoll's most famous namesake. Webster's dictionary defined *bikini* as a word derived "from the comparison of the effects wrought by a scantily clad woman to the effects of an atomic bomb." "Approximately 42,000 personnel, 240 ships (target and support), and 160 aircraft participated in Operation Crossroads. About 200 goats, 200 pigs, and 5,000 rats were also distributed throughout the target fleet so that the effects of each of the two nuclear bombs could be studied."<sup>1</sup> Somewhat anticlimactic after speculation that the bomb might "atomize" the ocean, the first test, Able, left the American public concerned primarily with the fate of the animals used to measure the effects of radiation.<sup>2</sup> The second test, Baker, in which the bomb was detonated underwater, was more impressive visually and more dangerous, because it spread a greater amount of fallout over the surrounding area. In fact, the level of lingering radiation was so great that a planned third test, Charlie, was cancelled.

The most momentous of the tests carried out at Bikini was a fifteen megaton hydrogen bomb code-named Bravo that was detonated on March 1, 1954. "With 750 times more explosives than the bomb that fell on Hiroshima, Bravo vaporized a large

portion of Nam (an island in the northwest corner of the Bikini Atoll) and two surrounding islets and sent a plume of highly radioactive debris floating eastward over the lagoon and over 7,000 square miles of open water."<sup>3</sup> The wind blew the radioactive cloud in the direction of two inhabited islands, Rongelap and Utirik. Military planners had not relocated the inhabitants, nor had they done much to monitor fallout, and they had not warned the islanders about what to do if the radioactive ash should come down on their islands. The effects of radiation on the islands' inhabitants were exacerbated because they did not know enough to wash the ash off food before eating it.

The fallout from Bravo was both radioactive and political. The U.S. government later admitted that Bravo was the worst single incident of fallout exposure in the history of the atmospheric testing program. Primary among the victims of Bravo were the 236 residents of Rongelap, a small island seventy miles to the east of Bikini, and the 23 sailors aboard the Japanese fishing boat, Fukuryu Maru (Lucky Dragon), situated ninety miles east of the blast. Both Rongelap and the Lucky Dragon were covered with radioactive ash that soon led to widespread symptoms of radiation sickness, including headache, fatigue, nausea, diarrhea and loss of hair. The United States government evacuated the residents of Rongelap to safety after measuring radiation levels twenty-five times higher than the acceptable lifetime exposure. "United States officials explained at the time that an unexpected wind shift accounted for the exposure. But documents later revealed that the wind shift had been foreseen and warnings ignored. . . . Four decades after Bravo, the incidence rate of thyroid cancers and abnormalities among the Marshallese population is the highest in the world."<sup>4</sup> By 1969, on one island, 84% of the children who were under ten years old at the time of exposure had developed thyroid nodules.<sup>5</sup>

Unlike the relatively voiceless inhabitants of the Marshall Islands, the Japanese media publicized the incident and considered the Lucky Dragon exposure to be the third atomic bombing of Japan.

Instead of using a prosaic word like *fallout*, the Japanese press evocatively named the phenomenon *ashes of death*. Relations between the U.S. and Japan deteriorated further when Japanese fishing boats began bringing in radioactive tuna caught far from the test site. The Japanese government set up an emergency contamination standard for the *crying fish*, named for the chatter made by Geiger counters responding to the hot fish.<sup>6</sup>

These developments forced Atomic Energy Commissioner Lewis Strauss to hold a press conference to downplay the effects of the Bravo test, but his explanations further outraged Japanese scientists, who were very familiar with the effects of radiation. After 1954, it became increasingly difficult for government agencies to quell the fear of fallout with vague reassurances that there was no danger.

The fear engendered by the Bravo test was reinforced for Americans by increased public awareness of the dangers of the nuclear tests carried out in Nevada. In 1950, security became of greater concern as the Cold War heated up,

and so the government decided to augment the Pacific testing program with a domestic site. After considering test sites in Utah, Nevada, New Mexico and North Carolina, the government selected the Las Vegas-Tonopah Bombing and Gunnery Range, located sixty-five miles northwest of Las Vegas on a tract of desert land somewhat larger than the state of Rhode Island.

The Nevada Test Site program was initially shrouded in secrecy, as were most aspects of the American nuclear program. Local people soon discovered the nature of the research being carried out metaphorically in their backyards, when mushroom clouds were periodically visible on the early morning horizon. The residents of Las Vegas were at first enthusiastic about the testing program, convinced by the Atomic Energy Commission's public relations campaign that there was no danger from fallout. They jumped on the atomic bandwagon with "atomic" fashions, cocktails, games and the like. The national press was enlisted to broaden this support. "The commentary that emerged played up the spectacular side of the tests and ignored potential dangers. On April 22, 1952, a live television audience watched a bomb dropped from an airplane explode in midair."<sup>7</sup> Journalists were awestruck and enthusiastic in their descriptions of nuclear explosions. Newspapers published schedules of upcoming tests and directed the public to prime viewing spots. Whether in person or on television, millions of Americans witnessed atomic detonations during the decade.

A large percentage of the people most closely situated to the test sites were military personnel. At a time when tactical nuclear weapons were first contemplated, military planners wanted to see how troops would fare in close range of ground zero. "Soon after the domestic testing program began, the Army insisted that soldiers be included, both to train them to deal comfortably with nuclear weapons and to monitor their responses."<sup>8</sup> At one point, soldiers were positioned barely a mile from the point of detonation. Protective clothing was usually not provided, and radiation levels were rarely monitored closely. Over the course of the next decade, approximately a quarter of a million servicemen participated in atmospheric testing exercises.<sup>9</sup>

Assuring the American public there was no cause for concern because the downwind area was "virtually uninhabited," the AEC made no effort to "inform or evacuate them [the virtual uninhabitants!], even though the fact that most of them were dependent on food they raised themselves made them particularly vulnerable to fallout."<sup>10</sup> AEC monitoring of radiation exposure in the sparsely populated downwind areas was random, and the results were kept secret. Despite AEC assurances, the public began to suspect that military personnel, as well as area residents and animals, were being exposed to dangerous levels of radiation as atmospheric testing continued. The infamous "Dirty Harry" test shot of May, 1953, covered the town of St. George, Utah, and other small towns in Nevada, Utah and Arizona, with radioactive fallout that was connected to illness in people and the death of whole flocks of grazing sheep. The claims of sheepherders, who demanded compensation, were denied by the government, which contended that the level of radiation exposure could not account for the death of the animals.

Public debate on the topics of fallout and the hazards of low level radiation intensified after the Bravo test in 1954. A.H. Sturtevant, a geneticist at the California Institute for Technology, claimed that fallout from domestic testing not only harmed people and animals directly exposed but also affected their offspring in the form of genetic mutations. He calculated that fallout was producing 1,800 mutations per year. Linus Pauling, winner of a Nobel Prize in chemistry, linked the fallout from nuclear testing with leukemia and serious birth defects. In 1957, Pauling organized a petition among scientists that called for an end to nuclear testing. The scientific controversy had the effect of alerting the general public to dangers previously unsuspected. A Gallup poll indicated that while only 17% of people polled knew what fallout was in 1955, 52% considered it a real danger by 1957.<sup>11</sup> That same year, the most visible group protesting nuclear testing was formed, the National Committee for a Sane Nuclear Policy, known as SANE. Constituting a small but vocal groundswell, SANE had about 25,000 members who actively worked to end nuclear testing by the end of its first year.

SANE used newspaper ads, television commercials and even cartoons to convey its message. One famous magazine ad showed pediatrician Benjamin Spock's concerned expression with a caption that read, "Dr. Spock is worried . . . . Not so much about the effects of past tests but at the prospect of endless future ones. As the tests multiply, so will the damage to children—here and around the world."<sup>12</sup> SANE effectively combined widespread concern about nuclear testing with grass roots activities and political lobbying to affect public policy.

In the late 1950s, the fear of fallout focused on levels of strontium-90 found in milk. A 1959 *Consumer Reports* article on increased levels of strontium-90 in milk alarmed the public to such an extent that the Atomic Energy Commission was compelled to respond to the charges that radioactive byproducts were contaminating the American food supply. The AEC continued to maintain its somewhat contradictory position that fallout was harmless and that any possible danger was offset by the knowledge gained from the tests. Government authorities regularly circulated pamphlets with titles like "Facts about Fallout," which attempted to calm people's fears about residual radiation.

Despite these public relations efforts, fear of fallout did not go away, and mounting pressure for a test ban intensified when the Soviet Union announced a unilateral suspension of testing in March, 1958. Finally, in the fall of 1958, the United States joined the Soviet Union in a voluntary moratorium on testing, which lasted until the Soviets resumed their program in September, 1961. When the United States also resumed its program the following year, further public protest eventually led to the ratification of the Limited Test Ban Treaty in 1963.

## II. Radiation's Creatures

During the period when nuclear testing and the danger of fallout became part of the national agenda, radiation-engendered creatures also captured the public's imagination. The destructive creatures that result from radiation mutations are one

manifestation of collective guilt or fear related to the actual and potential use of nuclear weapons. The transformation of a variety of insects and reptiles into city-threatening creatures connects to an underlying preoccupation with the mystery and danger of nuclear power. The consistent element in all of the scenarios that became increasingly popular in the 1950s is the transformation of natural matter into an unimaginable destructive force. According to Susan Sontag, the monsters of this group of films are a metaphor for deep-seated fear of nuclear testing and warfare and represent

the trauma suffered by everyone in the middle of the 20th century when it became clear that from now on to the end of human history, every person would spend his individual life not only under the threat of individual death, which is certain, but of something almost insupportable psychologically—collective incineration and extinction which could come at any time, virtually without warning.<sup>13</sup>

Other readings of radiation-engendered creatures refute their significance as manifestations of nuclear anxiety. According to Richard Hodgins,

There is no need for indirect discussion or for a plot with a "symbol" as its mainspring. A twelve-ton, woman-eating cockroach does not say anything about the bomb simply because it, too, is radioactive, or crawls out of a test site, and the filmmakers have simply attempted to make their monster more frightening by associating it with something serious.<sup>14</sup>

Radiation is a terrifying concept and one poorly understood by most people precisely because it has been used as a substitute for, and somehow connects to, mystical processes and magical powers. The fact that radiation is an invisible force known to have devastating physical effects on organic matter adds to this confusion and fear. In the face of such confusion, it's easy to understand how the processes of radiation are imagined to generate mutant creatures capable of widescale destruction. A creature like Godzilla may not be necessary to signify nuclear fear; nonetheless, such "symbols" were explicitly connected to nuclear issues and did not exist in film before the 1950s.

*Them!* (1954) is, in some ways, the prototypical radiation creature film. It preceded a spate of cheaply made and more exploitative films that followed it in the fifties and established some of the conventions that later films would employ. The film is set in the New Mexico desert, not far from Alamogordo, where the first atomic bomb was tested. The desert setting is significant not just for its historical connection to the fear of radioactive fallout, but for its important contribution to the *mise-en-scene* of the film. The desert is fathomless, barren and sparsely inhabited. The wind blows incessantly, and frequent sandstorms obscure human vision and make the landscape even more alien, more capable of bringing forth strange and threatening creatures.

*Them!* begins as a murder mystery, with police investigating the bizarre deaths of the parents of a little girl found wandering through the desert in shock. The initial crime is linked to the subsequent deaths of a local store owner and a police officer because in each case, no money was stolen, sugar was on the scene, and walls were pulled out rather than pushed in. Because one of the people killed was a federal employee, the FBI is called in to assist on the case. The combined forces of the local police and the regional FBI prove ineffectual, so they must appeal to Washington, which sends scientific experts and the military to help solve the mystery. *Them!* thus involves an orderly progression up the hierarchy of authority, culminating in the cooperation between scientific knowledge and military force to meet a problem of unprecedented magnitude, potentially "the end of the world."

After the police and FBI agents conclude that there is "lots of evidence but nothing adds up," the scientist brought in from Washington, Dr. Medford, offers his "theory of genetic mutation," involving, in this case, ANTS. According to the theory, the giant ants are the result of "a fantastic mutation due to lingering radiation" from the first bomb test nine years previously. Absent-minded, old, short in stature and feeble, but obviously the intellectual superior to the younger men surrounding him, Dr. Medford conforms to the stereotypical movie scientist. He refuses to speculate on his findings before he has gathered enough evidence to fully support his hypothesis. He is a model of cool rationality, as he focuses on the task at hand, with little emotion other than admiration for his subject. The ant, he informs the police and FBI, is the "only creature on earth besides man to wage war on its own kind." According to Dr. Medford, the ants have a capacity for "industry, social organization and savagery that makes man look feeble in comparison." The parallel drawn between the ants and humankind is not coincidental. As a morality tale, the film's lesson is clear: respect the power of nature or face dire consequences.

Dr. Medford is assisted by his daughter Pat, also a trained "formicologist," who functions in the film as competent scientist and helpless love interest simultaneously. She is introduced in a shot that emphasizes her legs, from the point of view of the two men waiting to greet her at the airport. After registering their astonishment that she is a doctor, the FBI agent, Bob Graham, wonders if she's a medical doctor because he "feels a fever" coming on. She soon impresses the men with her knowledge and competence, even as she plays down any inferiority they may feel at her status: "If Dr. bothers you, call me Pat." When the giant ants are first spotted in the desert, she screams and falls down in a shot reproduced in just about every creature movie ever made. The men come to her rescue but manage to destroy the ant with their weapons only with the assistance of Dr. Medford, who tells them to aim at its antennae. Throughout the film, the police and military authorities are ineffectual without Dr. Medford's scientific expertise. He devises the plan to destroy the ants which the military carries out under his direction.

Pat Medford reasserts her competence through her role of mediator between her father and the military men. On several occasions she both defends her father's position and translates his scientific jargon into language the others can understand. Pat insists on accompanying the men into the ant colony, since she is the only

trained scientist capable of doing the job, foregrounding her position as her father's proxy when she says, "Father is physically unable to do it. That leaves me." Perhaps because he is romantically interested in her, Bob Graham resists, saying, "One thing's for sure. This is no place for you or any other woman"; but she overcomes his objections and plays a vital role in detecting the absence of two queen ants. By the end of the film, however, Pat's role as active scientist is contained, and her conventionally female role, subordinate to the man she loves, is ascendant.

The Cold War context for the production of *Them!* is expressed in the film by its preoccupation with national security and the presumed need to avoid public panic. The characters assert again and again the need for secrecy, for "full cooperation with the military authorities," and for withholding information for the general good, even when it means abrogating the rights of the individual, as in the case of the man in Texas who sees the flying queen ant, is considered crazy when he reports it, and then is kept locked up even after the scientists verify his experience so "the story doesn't leak."

Before the assault on the ants in the storm drains of Los Angeles, the "authorities" hold a press conference. A government spokesperson informs the reporters that they are about to learn of "the greatest crisis this city has ever faced." The rhetoric of crisis makes the next statements logical and acceptable to the reporters: "There's no time for questions. Listen carefully so you can report the facts accurately to your newspapers." A live radio and television broadcast informs the citizens of Los Angeles that their city has been placed under martial law "in the interest of public safety." A series of shots shows the worried reactions of people to this news and to the influx of troops disrupting everyday life on the streets. People accept without question that their "safety depends on full cooperation."

These actions reinforce the paternalism that infuses the film. At the most obvious level, Dr. Medford barks orders to his daughter, who instantly responds. In addition, Dr. Medford, the strongest patriarchal figure by virtue of age and knowledge, most consistently maintains the necessity for secrecy in the national interest. "Something incredible has happened in this desert. We can't risk revealing it. We can't risk a nationwide panic." (Of course, many of the more "incredible" aspects of the testing program were kept hidden from public scrutiny.) It's no great distance between this position and the national security state that came to dominate American geopolitical strategy in the postwar years.

Two important scenes where children are threatened also reinforce the paternalistic center of *Them!* In the first example, the little girl wandering in the desert is rescued by police, who handle her with tender, fatherly care. The girl, dressed in plaid robe and pajamas with neat braids, is an icon of middle American childhood, circa 1950, but her vacant expression conveys the sense of something terribly wrong. She is catatonic but soon feels safe enough to fall asleep, situated between the two officers in their patrol car. At the hospital, where we see primarily female staff members, only Dr. Medford has the necessary knowledge to discover the nature of the girl's shock and set her on the road to recovery.

The representation of the mother whose children are lost in the Los Angeles drainage system is also revealing. The mother is confused and unable to take action on her own. She doesn't even know where her husband has taken the boys; it is up to police to locate the place where the father and sons frequently went to fly radio-controlled model airplanes. When a man proposes that gasoline be poured into the tunnels and set aflame to destroy the ants, Bob Graham responds that first they have to find out for sure if the two boys are alive. The man incredulously demands whether they are going to jeopardize the lives of all of the people of the city for two kids who are probably already dead. Ben Peterson, the New Mexico police officer who stays on the case because he feels responsible for the death of his partner, is especially vehement in his defense of the mother's interests. His replies, "Why don't you ask their mother that question? She's right over there." A shot of the worried mother is followed by the man acknowledging his insensitivity: "Yeah, I see what you mean." So the safety of the entire city *is* willingly jeopardized as the search for the two boys continues. Ben Peterson eventually sacrifices his life to save the boys and redeem the death of his partner. He finds them alive in a tunnel near the ant nest and lifts them to safety just as he is attacked by one of the giant ants and injected with formic acid by their deadly pincers. This sentimentality towards the mother and children is, of course, consistent with the larger patriarchal order, in which an important male function is to protect the weaker women and children through heroic action, underscoring the need for the male-dominated hierarchy.

In general, the main characters function in ways which became more and more codified in the science fiction film genre as it evolved in the 1950s. The role of science, of women, and of the "authorities" are consistent with audience expectations and Hollywood conventions. *Them!* is overtly respectful of the current social organization; its discourse does not actively subvert the status quo. Through cooperation and committed action on the part of the authorities, the immediate threat is overcome. At the edge of the discourse, however, lurk the giant ants who do threaten the social order. The mutation of the ants is an affront to nature, but it is also a symptom of human loss of control over technology. The perceived dangers of this loss of control were only beginning to enter the consciousness of the mass audience in 1954, but *Them!* struck a chord that resonated throughout most of the decade. The question remains as to what other genetic mutations may have resulted from hundreds of other nuclear bomb tests. Dr. Medford's final lines summarize the uncertainty of the early atomic age, "When man entered the atomic age, he opened the door to a new world. What he will find in that new world, nobody can predict."

The Godzilla films were widely seen in this country and were popular with audiences despite their increasingly formulaic nature. The series was initiated with *Godzilla: King of the Monsters* (1956) and *Rodan* (1956), both productions of Japan's Toho Company Ltd. Since Godzilla and related creatures appeared after the Bravo test and the Lucky Dragon incident, they likely represent manifestations of fear of fallout, but they also connect to lingering trauma over the use of the bombs on Hiroshima and Nagasaki. Godzilla evolved over time from the Tokyo-stomping "king of the monsters," directly connected to nuclear fear, to a larger symbol of the danger

of disrupting the forces of nature and the need to protect the environment. In later films, Godzilla even defends humankind from other monstrous threats, like Mothra. The radiation creatures of this cycle of films come from the sea, from volcanoes or cracks produced by earthquakes, and they are associated with elemental natural forces. In the most recent film of the series, *Godzilla 1985: The Legend is Reborn*, this connection to nature is explicitly stated: "Godzilla is like a tidal wave; it must be approached as a force of nature." Godzilla conveys an environmental message and functions as a warning that "mankind in conflict with nature creates monsters." This message is reiterated at the end of the film, when the narrator states that Godzilla acts as "Nature warning man of just how small he is, how puny in the face of a tornado, earthquake and Godzilla. The strangely innocent and tragic monster has gone back to earth. The things he has taught us remain." The idea that Godzilla is an innocent and tragic figure is obliquely present from the beginning when the paleontologist says that Godzilla should be studied, not destroyed. Godzilla as a misunderstood monster who is searching for something lost and perhaps irrecoverable connects to earlier horror tales like Frankenstein and to the lost innocence of human society in the nuclear age.

Structurally, most of the original Godzilla movie consists of flashback scenes narrated by an American foreign correspondent, Steve Martin (played by Raymond Burr). The fact that the film is organized around an American perspective is at least partially responsible for its favorable reception in the United States (since the Japanese dialogue is either dubbed into English or translated by English-speaking Japanese characters). Martin bears witness to the devastation of Japan by this terrifying force unleashed by human interference with nature. His own life is threatened by what he repeatedly calls an unstoppable destructive power against which humans have no defense. As a journalist, Martin is given access to important information and even shapes developments when he sends Amiko to persuade Dr. Sarosaura to use his oxygen-destroying device against Godzilla. The power of Americans to influence critical events in Japan is also present in *Godzilla 1985* when it is up to the Americans to shoot down the errant Soviet nuclear missile and save Japan from destruction. Of course, both films also suggest that American tampering with nature's elemental matter is responsible for the problems in the first place.

The first shot of *Godzilla: King of the Monsters* is a panoramic view of a ravaged and burning Tokyo. The extent of the destruction is far more widespread than what we actually see Godzilla perpetrating later in the film. The voice-over reinforces the idea that a disaster of unprecedented magnitude has occurred overnight: "This is Tokyo. Once a city of six million people. What had happened here was caused by a force which up until a few days ago was entirely beyond the scope of man's imagination. Tokyo. A smoldering memorial to the unknown. An unknown which at this very moment still prevails and could at any time lash out with its terrible destruction anywhere else in the world." The parallel between the destruction wrought by Godzilla and fear of the nuclear bomb is clear. Like Godzilla, nuclear devastation is beyond human imagination, a destructive force without precedent in human history, its destructive potential incalculable. Like Godzilla, it could happen

anytime, anywhere. In addition, for Japanese audiences, and Americans too, the shots of a smoldering Tokyo connect to the experiences of World War II, the firebombing of Japanese cities as well as the aerial shots of Hiroshima and Nagasaki after the atomic bombings.

The Godzilla films conform to science fiction genre conventions of the 1950s in the way that they invoke the fear of social chaos and then resolve the crisis through cooperative effort on the part of science and the military. Ordinary people can do nothing but panic and stampede in the streets in front of the terrible lizard. According to Steve Martin, the "answer to the disaster would come from these men [scientists]." The suggestion that "these men" may be responsible for the disaster in the first place is more oblique. It is also significant that in a period that still believed in technological solutions to global problems, Dr. Sarosawa's oxygen bomb is used to exterminate Godzilla. *Godzilla 1985* ups the ante, and military solutions are largely ineffective. A giant fire-breathing dinosaur crushing Tokyo no longer satisfies. After escalating global tensions, an accidental missile launch with references to Star Wars-type, space-based weapons programs adds suspense to the climax of the film. Now the authorities must eliminate Godzilla as well as avoid a global thermonuclear war.

Combined military forces use a new weapon, the "Super-X," against Godzilla with apparent success. When a Soviet missile, aimed at Tokyo and armed with a warhead one hundred times bigger than the Hiroshima bomb, is launched accidentally, the Japanese government calls on NORDAC to shoot it down. The Americans easily shoot down the Soviet missile, as a general explains that the resulting fallout is "the natural aftermath of a stratospheric nuclear blast—perfectly harmless." However, the red, radioactive cloud that descends to earth restores Godzilla to consciousness, just as its earlier contact with a nuclear power plant made it stronger. Godzilla destroys the Super-X and continues rampaging. Eventually, scientists lure Godzilla into an active volcano by exploiting the creature's instinctual attraction to the sounds of birds, its prehistoric ancestors. The kinship with birds was apparently what Godzilla was searching for in its forays into the world of man. The unsuccessful search for meaning in a hostile world emphasized Godzilla's stature as victim as tragic as any in the nuclear age. Although the crude plots, special effects and other manifestations of a low budget film production make the creature films often laughable, they also connected to a pervasive anxiety about the lingering effects of radiation.

A different kind of nuclear anxiety is portrayed in *The Incredible Shrinking Man* (1957). In this case, the effects of contact with radiation are limited to a single person and his family; both Scott Carey and his family are completely disintegrated by the effects of radiation in the film's surprising resolution. Other films which treat the subject of individual contamination that results in fantastic mutations and social isolation include *The Atomic Kid* (1954), *The Amazing Colossal Man* (1957), *The 4-D Man* (1959) and *The Man With the X-Ray Eyes* (1963). Even viewers who might have little empathy for radiation creatures, however innocent, cannot ignore their connection to the all-too-human, radiation-engendered monsters of this group of films.

*The Incredible Shrinking Man* begins with the lazy afternoon idyll of a young married couple, Scott and Louise Carey, who are first shown relaxing on a boat on a horizonless body of water. After a good-natured argument about who should fetch Scott's beer, Louise eventually concedes and goes below. While she is gone, a strange cloud envelops the boat and deposits a glitter-like substance on Scott.

The film's plot resumes six months later with a familiar and comfortable domestic scene: Scott dresses for work as Louise prepares his breakfast. The normality of the scene is disrupted when Scott notices that his clothes are too big for him. Louise's insistence that Scott's recent weight loss explains the ill-fitting clothes seems reasonable. Still worried, Scott visits his family doctor for a physical, from which he learns that he has lost ten pounds and two inches. The doctor also attempts to reassure him with rational explanations, which Scott reluctantly accepts. After several more weeks of barely observable shrinking, X-rays prove that Scott is, in fact, getting smaller. He is sent to the California Research Institute, where he undergoes a series of intensive tests. After three weeks, a "paper chromatography" test reveals what the doctors call an "anti-cancer," which is producing the rearrangement of Scott's molecular structure. They determine that his condition is the result of exposure to radioactivity combined with exposure to pesticides.

The film's main enigma is now set up, and, typically, the remainder of the film should work to resolve the problem. In this case, however, the problem of the incredible shrinking man is not resolved; instead, throughout the film, Scott continues to shrink until his body completely disappears. In this film, contact with radiation has produced profoundly disturbing results that cannot be reversed by technology: the doctors are unable to arrest, let alone cure, Scott's mysterious ailment. As Scott's body shrinks, so does his sense of manhood and humanity. A voice-over narration informs the audience that Scott feels puny and absurd and is filled with self-loathing. As he becomes increasingly dependent on his wife, he becomes more resentful, impatient, and tyrannical. When his degeneration is temporarily checked by the doctors, Scott meets a midget woman who is even smaller than he, and for awhile he gets "a grip on life." This period of resignation ends abruptly when Scott learns that he is shrinking again. In the next sequence, Scott resides in a doll house and is now literally his wife's toy. The film thus makes a direct equivalency between Scott's size and his sense of masculinity, and it is the loss of his masculine power that becomes the film's greatest tragedy. After being attacked by the family cat, Scott acknowledges that he must adapt to his new reality in order to survive. Much of this part of the film depicts Scott's efforts to conquer his new environment. When he fashions weapons from nails and pins, the voice-over informs the audience, "With these bits of metal I was a man again."

The final sequence of *The Incredible Shrinking Man* involves a lengthy meditation on the nature of the universe. Scott begins to wonder about the "infinitesimal man of the future," who will necessarily result from further contact with radioactive matter in the nuclear age. Instead of continuing to berate his fate or mourn the loss of his body, as he has throughout the film, Scott transcends the corporeal world and gains a sense of oneness with nature, which he had never before experienced. He feels he

now "knew the answer to the riddle of the infinite universe," in which "the unbelievably small and vast meet like the closing of a circle." He realizes that the idea "that existence begins and ends is man's conception, not nature's." These realizations allow Scott to understand that his fate is not tragic but enviable, because it affords him absolute understanding and peace (something akin to nirvana). This ending underscores the inevitability of our nuclear status quo, which we might as well accept with good grace.

*The Incredible Shrinking Man* is resolved with the idea that accepting the effects of radiation, either in a universal context or as an act of God, will ultimately bring an unparalleled peace of mind. As his "fear melted into acceptance," Scott knew that "the vast majesty of creation had to mean something. I meant something too. To God, there is no zero. I still exist." According to Vivian Sobchak, "Despite its somewhat gratuitous and metaphysically upbeat ending, visually the whole film moves us pessimistically and existentially away from the supposed security of human relationships, the comforts and connotations of home, into a totally vast, unstable, and anthropomorphic universe."<sup>15</sup> The ending unconvincingly contradicts the more consistent pessimism of the film's inexorable descent into nothingness. Since it can offer no solutions, the film placates the audience by urging them to accept the inevitable and even makes a virtue of nuclear age necessity.

### III. Radiation Metaphors and the Nuclear Family

Of course, fear of fallout wasn't restricted to the 1950s and didn't produce only outlandishly mutated creatures and monsters. Although it is set in the 1950s, *Desert Bloom* was released in 1986 and uses fear of fallout as a metaphor for the potentially destructive capacity of the family. It is the coming-of-age story of a thirteen year old girl named Rose, who grows up in the context of the early nuclear testing program in Nevada. The film draws a strong parallel between the secrecy, power and destructive potential of the atomic bomb and the girl's own nuclear family. Rose, her mother Lily, step-father Jack, and two younger sisters live in the idiosyncratic desert town of Las Vegas and witness the first atomic test there in 1951. Despite the harshness of her surroundings, Rose is able to "bloom" and even learns to value the memory of those difficult times.

*Desert Bloom* begins with a long moving camera shot over a forbiddingly beautiful desert landscape, as a melodic female voice-over, presumably Rose as an adult, talks about how her grandmother's favorite wildflowers "grew in the hardest places." The next series of shots gradually reveals the contents of a chest, as Rose continues to talk about her memories: "Remembering was my way of making things matter." In these opening shots, the face of the woman who carefully removes the things from the chest is never shown; instead, the camera focuses on the objects themselves: photos, books, nail polish, a red polka dot dress, a set of dog tags, and finally a pair of glasses—all of which will figure prominently in the film. The glasses function as the transition to the next sequence, signalling a flashback from adulthood memories to childhood experiences, reinforced by the voice-over, which recounts that the setting

is Las Vegas in 1950, during the Korean War. Glare from the glasses creates a flash that prefigures the atomic explosion at the end the film.

From a series of shots of isolated and magnified brown eyes, the audience deduces that Rose is having her vision tested and that she needs glasses, which become an important icon in the film. The glasses signify corrected vision and the possibility of seeing better, or at least differently. According to Rose's voice-over, "the glasses made everything look different, including me." The glasses also mark Rose's entry into adulthood. On one level, they make her look "sophisticated"; they give her "mystery and cheekbones"; they "make her look like Ingrid Bergman." On another level, they signify Rose's slowly maturing way of seeing things in all of their complexity, of abandoning the innocence of childhood, of acknowledging the existence of injustice.

Rose's growing understanding is contrasted with the obscured vision of her mother: "Momma had a way of not seeing things." Lily has presumably forsaken the clear vision of youth in order to manage a difficult life. She opts instead to "look for the silver lining," and much of her dialogue consists of trite aphorisms like "every path has its puddle," "nothing dries faster than a tear," and "after dark clouds comes fair weather." Naturally the song she sings to entertain her guests at a party is "Over the Rainbow." Lily calls her husband "Daddy" and uses all of her fifties-style feminine wiles to cajole him into contentment. Below these good-girl coping mechanisms, however, Lily nurtures an anger that must, inevitably, it seems, explode.

The film foregrounds its setting in the early atomic age. School children learn to "duck and cover," and there are several drills in which they practice this survival technique. They have their blood typed and are issued dog tags for identification purposes in the event of an atomic attack. At several points, the radio reports events in Korea and the opinion of several commentators that the United States should use the atomic bomb there. Excitement builds in Las Vegas as activity steps up at the Bombing and Gunnery Range sixty-five miles northwest of town. Jack changes the name of his gas station to "Jack's Atomic Gas," and the local country club features an atomic fashion show replete with geiger counters ("Some of these girls are too hot to handle!"). The family visits the Hoover Dam, where Jack observes, "Next to the A-bomb, it's man's greatest engineering achievement." When Lily gets a job with the Atomic Energy Commission, she says, "It's exciting to be part of the bomb test"; however, she infuriates Jack when she won't tell him what she knows, saying, "I took an oath. My lips are sealed. I don't know anything."

The connection drawn between secrecy and security is another way that *Desert Bloom* parallels and plays off its historical setting. The atomic testing program must be kept secret in the interest of national security, even though that secrecy may have devastating consequences for the people most closely connected to it. In the same way that the government deceives the public into believing that the testing program poses no threat, the surface life of Rose's family attempts to deny its troubled core. The family hides and denies problems, including Jack's drinking and Lily's gambling, in order to remain intact. *Desert Bloom* does not follow these connections to their logical conclusions: it never shows how dangerous the fallout from denial and

secrecy can be. Instead, like most other nuclear films, it is a story about survival. The film is bookended with references to survival: in the first sequence, the camera pans across the book, *How to Survive an Atomic Attack*, and, during the last shot, as the camera zooms in on Rose's face watching the mushroom cloud, a radio announcer says, "Good morning, survivors."

As the central male figure in the film, Jack is an interesting study in Cold War paranoia. He is traumatized by recurring nightmares that are based on his experiences in World War II, and his alcoholism is related to these flashbacks. He has made a shrine of his WWII momentos but is deeply disturbed by the Korean War. Jack suffered an unspecified injury (apparently both physical and psychological) that has left him impotent, a fact that he cannot admit. Instead, his impotence works itself out in unmotivated attacks on his stepdaughters, especially Rose. Jack is most animated when he talks about his war experiences with Robin, a boy who lost his father in the war. Jack also claims to have inside information about the activities of the military at the Nevada Test Site and, in order to monitor developments, uses a short wave radio with a large antenna, a phallic symbol, especially as it connects with knowledge and power. Star observes, "Jack's gotta have the biggest antenna in town." Lily conspires in helping him maintain his feeling of male competence, for example, by saying that Jack knew about the upcoming atomic test "way before the announcement." Jack constantly questions the military men and "science-types" heading out to the test site about what is going on, and he feels frustrated by his lack of knowledge. He seethes with a barely repressed resentment towards Jews (he names Oppenheimer and Einstein) who he thinks control the bomb, and, in another context, towards "nig, uh Negros." Jack best represents the feelings of fear, impotence and insecurity engendered by the bomb, in the context of a changing social structure where women, Jews and blacks may displace men like him.

The relationship between Jack and Rose is complicated and volatile. Rose seeks Jack's approval but distrusts and increasingly resents him. In their first interaction, Rose is proud to have solved the riddle posed by Jack. Later that night, however, in a frustrated rage, when he can't find his hidden stash of whiskey, Jack pulls Rose out of bed to scream at her for not having finished washing the dishes. Rose has no defense in the face of his irrationality, and Lily's weak, "it'll be all right in the morning" is small consolation. These two incidents set the tone for their continuing love/hate relationship, summarized later when Jack is in the hospital drying out, and Rose says she's "happy he's gone and afraid he won't come back."

When Rose has his radio fixed as a Christmas present, Jack repudiates the gift by saying, "Don't mess around with it again." Later Jack awkwardly tries to apologize to Rose, referring to his wedding night when Rose hit him over the head with a frying pan: "That took guts. I like that. You thought you were protecting your mother. That's what I'm trying to do, protect my family." Rose's reply underscores the parallel drawn between the patriarchal family and the bomb: "Protect us from who?" Paradoxically, like the bomb that most threatens those it is designed to protect, Jack is the main threat to the family he claims to protect. From Rose's perspective, Jack himself is the

source of danger. He admits this fact himself later when he says that he, not Rose, should leave the family.

In the film, Jack is contrasted to Mr. Mosel, the good father. Mr. Mosel protects his family from the bomb by sending them to Los Angeles when the test is imminent, unlike Jack, who takes paramilitary precautions, as if fallout were a tangible enemy. Whereas Jack constantly undermines Rose emotionally, Mr. Mosel gives her nothing but positive reinforcement, most obviously during the spelling bee, when he makes a ten dollar bet that she will win. Mr. Mosel expresses his concern for her on several occasions and boosts her ego by telling her how smart she is. After he notices her black eye, he warns Jack, "If I see another bruise on Rose, I'm coming after you. I don't care how many guns you have."

Another important character in *Desert Bloom* is Lily's sister and Rose's favorite aunt, Star, who has come to stay with the family for the time necessary to get a quickie Las Vegas divorce (forty-two days) and hopefully snag a wealthy prospective husband: "the courthouse divorce line is a great place to meet men." Whereas Lily attempts to maintain a semblance of domestic respectability (even when she is working in casinos), Star is a good-time glamour girl whose primary activities are dressing to go out on the town, evaluating her clothes, doing her nails and drinking. There is a special intimacy between Star and Rose: Star helps Rose dress, gives her a bath, and shares her bed, confidences, special looks and winks. Star functions as Rose's model of sexual maturity. With her movie star clothes and sexual promiscuity, Star does attract the attention of a rich man, who gives her flowers and jewelry—but no marriage proposal. Star's feelings of rejection feed into the film's climactic scene the night before the A-bomb test.

Star spends a considerable amount of time working to make her niece more glamorous, more like her, but Rose feels ambivalent about these efforts. The form-fitting clothes that Star insists she wear make Rose feel awkward and out of place; she doesn't fit in without the jeans-and-baggy-shirt uniform worn by her girl friends. Rose can't help noticing, however, that Robin asks her out after she wears the tight a-line skirt provided by Star. Their first date involves going swimming at the country club, and Rose obviously feels very uncomfortable about exposing her body. She starts to have fun splashing around the pool with Robin and forgets about the falsies Star insisted she wear. After one of them floats away from Rose in the pool, only the assistance of another woman saves her from utter humiliation. When Rose dresses to go to a dance party later in the film, Star once again convinces her she needs some padding up top, but promises to stitch it in more securely. Rose's strapless dress attracts the attention of the boys and the envy of the girls at the party, but is obviously inappropriately alluring for a thirteen-year-old in the early fifties.

The relationship between Star and Rose is threatened when Rose sees Star kissing Jack when she returns home early to help with the preparations for Star's divorce party. Rose feels betrayed and runs away before Star can either explain the situation or comfort her. The county spelling bee is scheduled for that afternoon, and Rose is a top contender, but she is so emotionally distraught that it seems she won't be able to compete. With Mr. Mosel and his family cheering her on, Rose makes it

through the first few rounds. Then Rose sees Jack at the back of the room, and, for a few tense moments, it seems she will choke on spelling the deciding word in the contest. Instead, she spells the final word correctly and wins the spelling bee, and both Mr. Mosel and Jack applaud her performance.

That evening at home, Rose packs her clothes and some food before running away from home to go live with her grandmother. As she finishes packing, Lily arrives home and wants to know why Rose is so upset. Jack blandly attributes her emotional state first to winning the spelling bee and then to anticipation over being witness to history-in-the-making, the A-bomb test. Lily is skeptical of these explanations as she examines Rose's face. Lily focuses her confusion on the cans of mushroom soup Rose has packed: "Why has my baby packed my mushroom soup?" (Mushroom soup also figures prominently in the recipes Lily prepares for the family earlier in the film.) A symbol of 1950s homogenous consumer convenience and comfort, the can of mushroom soup also prefigures the mushroom cloud of the upcoming test, one of the decade's defining moments.

Finally, Star obliquely acknowledges, "Jack and I had a few drinks; Rose got the wrong idea"; and Lily instantly sees through this statement to the truth of the betrayal. Her loss of control in the face of this assault on her domestic tranquility is absolute. All hell breaks loose. Lily screams at Star, calls her a whore, and starts throwing her clothes on the floor. She screams at Jack and belittles his manhood: "Big war hero shooting blanks!" Jack responds violently and starts beating Lily. Star jumps on Jack and tries to pull him off Lily. Rose sees Jack's rifle, grabs it and points it at Jack. At this climactic moment, the doorbell rings; Mr. Mosel and some friends have arrived a bit early for the divorce party. Lily yells for them to go away, but Rose opens the door and invites them in. In perhaps the film's most telling statement on social hypocrisy, everyone acts as though nothing out of the ordinary has happened. The arrival of the guests immediately defuses the situation, as people take up their accustomed social roles. The social controls that contain the impulsive violence of the nuclear family are once more in place.

Rose uses the party's activity as cover to carry out her plan to run away to the one safe place she knows, her grandmother's house. As she finishes her preparations, Jack, dressed in fatigues, is also busy getting ready for the A-bomb, by monitoring radio transmissions. Rose enlists the help of Robin to help her get to Reno. They hitch a ride but are turned back by military authorities, who tell them the roads are closed to all but military traffic. Rose and Robin find themselves stranded near the Test Site, where they decide to camp out. They build a fire, eat tuna with mushroom soup, and talk. Rose thanks Robin for not deserting her, and they share a first kiss. At that moment, the glare of a helicopter's searchlight illuminates them. Rose panics, runs, stumbles, loses her glasses, and then assumes the fetal duck-and-cover position. Significantly, the position does keep her safe until Jack comes to take her home. In an act of contrite bravado, Jack defies the military security and runs into the desert to find Rose's glasses. This act provides the impetus for them to reach some kind of understanding and forgiveness.

When they arrive home, the remnants of the party are sleepily awaiting the atom bomb test. Rose embraces her mother and her aunt and is comforted by them. In a voice-over, Rose concludes, "Star finally found a man who adored her . . . . Things never came easy for Jack but the worst part was over. . . . Momma kept seeing what she wanted to see." Because of the film's flashback structure, we deduce that Rose has also survived this difficult period of her life, the metaphor of which is both the desert rose, blooming in the most difficult places, and the mushroom cloud, whose blooming beauty signifies destructive potential.

#### **IV. *The China Syndrome*: Nuclear Power and Fear of Fallout**

A growing awareness of the dangers of nonmilitary applications of nuclear technology was evident in the United States by the late 1970s. This general awareness was a long time coming, because most people preferred to believe in the possibilities of the "peaceful atom," with its promise of energy "too cheap to meter." Intimately connected to the nuclear weapons program and like it, the nuclear power industry being developed in the United States was also shrouded in secrecy and bureaucratic obfuscation. Until 1974, the Atomic Energy Commission, was responsible for overseeing the development of both nuclear weapons and nuclear power in this country, an association that some critics have visualized as a two-faced monster. The extraordinarily costly efforts to produce nuclear power as a cheap alternative to the burning of fossil fuels has not succeeded, but the thirty-plus year experiment with nuclear energy has certainly exacerbated the problems of nuclear waste, weapons proliferation and environmental radiation—all at the expense of developing viable sources of renewable energy.

There was a wave of enthusiasm, in the early and mid 1950s, for the development of atomic technology, including medical, agricultural and military applications. Atomic allure was especially evident in the area of nuclear power, the development of which, it was optimistically assumed, would solve the energy problems of both the industrial powerhouses and developing countries. The multinational corporations with the most to gain from the proliferation of nuclear technology, General Electric and Westinghouse, energetically promoted their own reactor designs, even to utility companies that were skeptical about the cost efficiency of the new technology. Contracts in which GE took on all the risks in order to sell the technology to the utility companies created a market for nuclear power that might not have developed on its own. After peaking in 1957, confidence in the new technology waned, and planned projects were dropped, due especially to cost overruns and a greater awareness of the dangers of even peaceful atoms. In the mid-sixties, there took place a new boom that saw the widescale establishment of commercial nuclear reactors. "By 1966, Westinghouse had sold six plants in the United States with a total capacity of 5,000 Mw and had a stunning thirteen additional orders for a total of 11,000 Mw in 1967. GE had sold a total capacity of 7,700 Mw by 1966 and 6,200 Mw in 1967. . . . By 1970, with only 4,200 Mw of nuclear capacity actually operating, a staggering total of 72,000 Mw was under construction or on

order."<sup>16</sup> The commitment to nuclear power was reinforced world-wide in the early 1970s, when the tremendous increase in oil prices encouraged nations to develop alternative energy sources.

In the United States, 1976 was a major turning point away from that commitment, as a number of nuclear engineers turned whistleblower and declared the nuclear power industry unsafe. "As the flow of technical criticism increased—especially from the United States—the expressions of overall hostility to nuclear power exploded throughout the world with a uniformity and spontaneity that was unprecedented."<sup>17</sup> Reports of minor accidents at nuclear power plants fueled a growing antinuclear movement, which emphasized the high cost, the immediate safety hazards, the longer term health hazards, and the apparently irresolvable problem of nuclear waste.

The coincidental timing of the release of *The China Syndrome* (1978) two weeks before the accident at the Three Mile Island plant near Harrisburg, Pennsylvania, in March of 1979 dramatically alerted the general public to the "perils of the peaceful atom." Perhaps the scariest thing about the accident for many people was that it was eventually attributed to operator error. Although there were a number of factors that contributed to the partial meltdown at Three Mile Island, human errors certainly exacerbated mechanical problems and design flaws. According to one report, "These failures included operator error, poor operator training, poor reactor control room design, failure of communication within and between the companies that built and managed the plant, failure of the regulatory process, and poor emergency planning."<sup>18</sup> A growing public concern over the dangerous complexities of producing nuclear energy, and the perceived likelihood of other, even more serious accidents, was not relieved by the Nuclear Regulatory Commission's public relations efforts.

*The China Syndrome* depicts a similar event (a partial meltdown) at the Ventana Nuclear Power Plant in Southern California and the company's efforts to cover up the reactor problems. Kimberly Wells (Jane Fonda), a television reporter, visits the plant to interview the public relations director at Ventana as part of an "energy series" for her station. While working on this routine story, Kimberly and her cameraman Richard (Michael Douglas) witness a "scram," an emergency procedure to stabilize the reactor. Although forbidden to shoot in the control room area, Richard captures the event on film and eventually convinces Kimberly that she must help expose the potential dangers at the nuclear power plant. To this end, they try to convince Jack Goodell (Jack Lemmon), a senior technician at the plant, to "blow the whistle" on the plant's technical problems and the attempted coverup.

In the film's opening sequence, nuclear power is described as the "magical transformation of matter into energy" and this country's "best shot at energy self-sufficiency." The film foregrounds the way nuclear energy connects to both deep-rooted cultural themes of alchemy (or the magical possibility of creating something valuable from ordinary elements) and the more pragmatic need for a plentiful energy source to offset the increasing cost of fossil fuels, mostly controlled by greedy Arab nations in the wake of OPEC price controls. The idea that nuclear power provides a "clean," unlimited supply of energy, promulgated by the PR director, is initially

accepted without question by Kimberly. This plot point demonstrates both the way the nuclear industry has used the mainstream media as a public relations tool to encourage public acceptance of nuclear energy, and Kimberly's naivete about journalistic practices and how corporations operate in their own interest. *The China Syndrome* charts her growth as a "hard news" reporter even as it exposes the corruption at the core of the nuclear industry.

The event that Kimberly and Richard witness and record is caused by a malfunctioning valve, and it *is* handled by the plant's technicians. In this case, mechanical error is corrected by human action, and especially by the cool-headed rationality of Jack Goodell, who is contrasted to other workers when he remains calm as they begin to panic. He is singled out as the "only one old enough to know what he's doing." Jack relies more on experience and intuition (how the plant "feels") than on the instrument panels, which are providing confusing and contradictory readings. As the accident progresses, an employee evacuation is ordered, and even Jack begins to worry that the emergency measures won't be effective. Suspense builds through a series of close-ups of the main characters and a dial that measures the reactor's water pressure, which is too low. Because of his thorough knowledge of the reactor's design and operational idiosyncracies, Jack saves the situation with some unconventional measures that aren't strictly "by the book," and the reactor's water pressure begins to rise. Thus, Jack is established as a competent technocrat who combines technical knowledge with an instinct for how the reactor should and will respond to various conditions.

The film's main conflict develops when Channel 3 decides not to run the story about the Ventana accident, even though two of its employees were eye-witnesses and the entire event was captured on film. Citing potential legal difficulties ("Nuclear plants are considered secure installations. Unauthorized photography is a felony."), the station manager decides "the film stays in the vault." A crusading Richard and more reluctant Kimberly take action to bring the story to light. Jack Goodell is persuaded to join their efforts only after he realizes that the plant's management is taking risks to preserve the bottom line. In a particularly telling exchange, Jack argues with his boss about bringing the reactor back on line after the accident. Jack detects a leak and demands a complete inspection with new x-rays of all the welds. His boss responds that such measures will take too long and cost too much, that the plant loses one half million dollars every day it's off-line. Although Jack continues to follow orders, he knows that something is wrong: "That vibration was a warning. The plant should be shut down. . . . it could lead to the China syndrome."

The China syndrome refers to a complete reactor meltdown which would be so powerful it would presumably flow through the earth's core all the way to China. At one point, Richard describes the accident to a physics professor, an anti-nuclear activist, who also refers to the China syndrome. He says, "The number of people killed depends on which way the wind is blowing. It could render a state the size of Pennsylvania uninhabitable, not to mention cancer." Given the timing of the film's release, this explicit mention of Pennsylvania is particularly eerie.

Jack agrees to testify at a public hearing about the Ventana plant's safety violations only after his own life is threatened. On his way to the hearings, he realizes he is being followed and instead goes to the Ventana plant, where he forcibly enters and locks himself in the control room. The managers order a scram to try to force Jack out of the room. By now, Jack is completely unnerved by his sudden collapse of faith in the company and the technology he has devoted his life to. With the help of Kimberly and Richard, who arrive on the scene to interview Jack, the power plant becomes the site of a media frenzy. The reporters, cameras and lights, along with swarms of police, create utter pandemonium at the plant, to the near hysterical alarm of PR director Phil Gibson, who ironically shouts to one reporter, "What you're doing is totally irresponsible."

As a SWAT team attempts to gain entry to the control room, Kimberly interviews Jack and tries to get him to describe the problems at the plant. Jack is disoriented and babbles incoherently, when suddenly the alarms go off, the television cameras lose their pictures, and the SWAT team enter the control room and shoot Jack. A huge shudder is felt, and the lights go out completely. After a confused and terrifying silence, the lights come back on, the alarm stops, the reactor is shut down, and the "event" ends. As Phil Gibson attempts to "stick to the prepared text" (the situation inside is resolved, the public was never in danger, the slight damage has been contained, and the problem was due to a deranged employee) Kimberly emerges to report the true story. The film ends the same way it began, with color bars that signify the professional television industry's procedure to "adjust" technically.

*The China Syndrome*, in concert with the real reactor accident at Three Mile Island, raised the alarm not only about the dangers of nuclear power in general, but also the cynical disregard for public safety that seemed to be standard operating procedure for the big utility companies. On another level, however, the film itself is oddly reassuring, because it suggests that the problems at one nuclear power plant are not the result of anything intrinsically wrong with nuclear power ("the system works" is repeated several times), but instead are caused by corrupt managers overly concerned with their profits. The psychologically satisfying Hollywood-style resolution of the problem, in which attractive characters heroically fight against the corruption, increases the mass audience's tendency towards complacency and diffuses the larger, longterm dangers of nuclear power. And, in the discourse of this film, Kimberly's development from an attractive model doing fluff pieces to a hard news journalist is just as important as are the problems of nuclear power.

What I have called "the Godzilla factor," the fear of radiation contamination through nuclear testing or accidents within the nuclear power industry, is probably the most immediate and frightening manifestation of nuclear fear for most people. It is not the widescale destruction of the earth through thermonuclear war, but the gradual and irreversible damage done by environmental contamination that seems a greater reality, one that is currently playing out in public relations battles over the fate of the nuclear power industry and the politics of atmospheric nuclear testing.

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- <sup>4</sup>Davis, 46.
- <sup>5</sup>May, 100.
- <sup>6</sup>May, 99.
- <sup>7</sup>Winkler, 91.
- <sup>8</sup>Winkler, 92.
- <sup>9</sup>Winkler, 92.
- <sup>10</sup>May, 88.
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- <sup>16</sup>Pringle, Peter and James Spigelman. *The Nuclear Barons*. (New York: Holt, Rinehart and Winston, 1981), 273.
- <sup>17</sup>Pringle, 359.
- <sup>18</sup>May, 136.