

# Script

## Reel Impact: Movies and TV That Changed History - "The China Syndrome"

Screenwriters and filmmakers often impact society in ways never expected. Frank Deese explores the "The China Syndrome" - the film that launched Hollywood's social activism - and the effect the film had on the world's view of nuclear power plants.

FRANK DEESE · SEP 24, 2020

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**As screenwriters, our work has the capability to reach millions, if not billions - and sometimes what we do actually shifts public opinion, shapes the decision-making of powerful leaders, perpetuates destructive myths, or unexpectedly enlightens the culture. It isn't always "just entertainment." Sometimes it's history.**

Leo Szilard was irritated. Reading the newspaper in a London hotel on September 12, 1933, the great Hungarian physicist came across an article about a science conference he had not been invited to. Even more irritating was a section about Lord Ernest Rutherford – who famously fathered the “solar system” model of the atom – and his speech where he self-assuredly pronounced: “Anyone who expects a source of power from the transformation of these atoms is talking moonshine.”

Stewing over the upper-class British arrogance, Szilard set off on a walk and set his mind to how Rutherford could be proven wrong – how energy might usefully be extracted from the atom. As he crossed the street at Southampton Row near the British Museum, he imagined that if a neutron particle were fired at a heavy atomic nucleus, it would render the nucleus unstable, split it apart, release a lot of energy along with more neutrons shooting out to split more atomic nuclei releasing more and more energy and... By the time Szilard stepped onto the opposite curb, he had invented the nuclear chain reaction that would soon lead to the first atomic bomb, Hiroshima, Nagasaki, the nuclear arms race, the nuclear power industry, nuclear medicine, and the 1979 Jack Lemmon/Jane Fonda/Michael Douglas thriller *[The China Syndrome](#)*.

After the horrific atomic end to the Second World War, the idea of generating electricity from Szilard's chain reaction was initially very popular. President Eisenhower's 1953 “Atoms for Peace” speech had been greeted with enthusiastic applause at the United Nations and Admiral Hyman Rickover's nuclear-propelled submarine program allowed the vessels to stay underwater almost indefinitely. Rickover's “pressurized water reactor” design was writ large to generate civilian electricity as nuclear power plants began operation all over the United States and the world. But civilian nuclear energy could not escape its close association with ever-expanding nuclear weaponry which began to pose an existential threat to the human race and a radiation health hazard through atmospheric nuclear testing finally banned by treaty in 1963.

The initial objections to the “clean, limitless energy” of nuclear power came in the late 1960s from those in the conservationist Sierra Club trying to stop the Diablo Canyon Power Plant proposed for a remote portion of the central Californian coast. The fear was not radiation or catastrophe, but overdevelopment due to cheap electricity. One prominent Sierra Club board member said he didn’t care about the danger because “there were too many people anyway.”

But concerns about operational safety mounted in the early 1970s. Alvin Weinberg, a pioneer of nuclear power and director of the Oak Ridge National Laboratory, privately voiced his increasing concern about how the Atomic Energy Commission was no longer taking worst-case scenarios seriously enough. His friend and one-time colleague at the lab, Claire Nader, suggested he have dinner with her younger brother Ralph, recently well known as an automotive safety advocate. Weinberg said “yes” and immediately regretted it.

Already suspicious of big corporations, Nader elevated Weinberg’s one-in-a-million possibility to vivid catastrophe claiming “A nuclear accident could wipe out Cleveland and the survivors would envy the dead.” Nader soon consolidated two hundred local anti-nuke groups into a coordinated national movement called *Critical Mass* dedicated to ending nuclear power in the United States. “We do not need nuclear power,” he said in an interview during the mid-seventies oil crunch. “We have a far greater amount of fossil fuels than we’re owning up to in this country.” Nader believed the ultimate goal was renewables like wind and solar, but those were decades away.

[\[Script Extra: A Starter Guide to Researching World-of-Story\]](#)

It was around this time that Hollywood got involved when socially-conscious documentary filmmaker [Mike Gray](#) struck research gold at Riccardo’s Restaurant in Chicago. Physicist Henry Kendall (co-founder of the Union of Concerned Scientists) sketched out an old worst-case nuclear scenario imagined by the scientists at the AEC once tasked with investigating worst-case scenarios. If an operating nuclear reactor became exposed to air it would superheat and melt downward through the containment floor in the direction of China, stopping at the water table to create havoc and radioactive steam and then a radioactive wasteland. The AEC disaster imagineers called this scenario “The China Syndrome.”

Well, this was too good for another art-house documentary. Trained as an aeronautical engineer, Mike Gray now trained himself to write a feature-length screenplay. First, he typed the entire script for *The African Queen* at a standing desk, ala Ernest Hemingway, then he worked out his own screenplay calling it *The China Syndrome*. Not without industry connections, Gray got his third draft to actor/producer Michael Douglas hot off his Oscar for producing *One Flew Over the Cuckoo’s Nest*. Douglas loved it and very quickly enlisted anti-nuke actor Jack Lemmon as the plant operator, and then Richard Dreyfuss as a documentary filmmaker. But Gray insisted he wanted to direct his one and only screenplay, so Richard Dreyfuss dropped out not wanting to work with a newbie. Douglas surmised Dreyfuss’s part could be played by a woman and personally delivered Gray’s script to activist actor Jane Fonda on the set of *Coming Home*. When she said “yes” the entire project jumped to a much higher star-power-money orbit and Mike Gray got to experience the most fundamental Hollywood screenwriting rite of passage: being replaced.

The final film, script-credited to Mike Gray & T.S. Cook and James Bridges, opens with human-interest TV reporter Jane Fonda visiting a nuclear power plant with her bearded cameraman Michael Douglas to do a puff piece on “clean, limitless energy.” There they witness a non-puff turbine trip, emergency shutdown, and then a flooding of the reactor that turns out to *not* actually be due to a stuck water-level needle. Plant manager Jack Lemmon scurries to re-pump coolant into the hot reactor. The averted meltdown then reveals building contractor skullduggery involving fake pipe-weld X-rays and a reporter of color run off the road (ala Karen Silkwood) bringing the fake X-rays to a Nuclear Regulatory Commission hearing. True nuke-believer Jack Lemmon fears a serious accident if the bottom-line-minded utility restarts the plant with weak pipe welds so he takes it over by gunpoint in order to express his concerns on live TV into Jane Fonda’s extended microphone. The utility cuts off the news feed and a sheriff’s SWAT team breaks in and shoots Jack Lemmon dead. What Jack Lemmon feared actually happens but the back-up systems avert an actual “China Syndrome.”

The technical details of *The China Syndrome* were meticulously researched and no expense was spared realizing them on screen. The two-story control room set built on Stage 4 of Sunset-Gower Studios was an exact re-creation of the Trojan Nuclear Power Plant in Oregon. Even the trash in the wastebasket was true to fact. Unfortunately, this level of care was not extended to the screenplay that tries but fails to emulate the complex paranoia of post-Vietnam-Watergate classics (like *Three Days of the Condor*, *The Parallax View*, and *All the President’s Men*) because the audience is left wondering who the actual villain is working behind the scenes. Is it the contractors who built the plant, with their shadowy cadre of murderous “security men,” or the utility company which inexplicably has no interest in protecting its capital investment or holding the contractor accountable for its fraudulent cost cutting?

[\[Script Extra: The Anatomy of a Scene: Adding Layers in 'All The President's Men'\]](#)

Nevertheless, the expensive marketing campaign for *The China Syndrome* played brilliantly upon the paranoia of the era with newspaper, magazine, billboard, and TV ads brandishing the star power, a mysterious film title – what the hell is a “China Syndrome”? – and the teasing line: “Today, only a handful of people know what it means. Soon you will know.”

On March 16, 1979, *The China Syndrome* premiered nationwide to excited reviews and robust box office nearly earning its entire production budget opening weekend. The stars were featured on magazine covers, talk shows, and news shows revealing the title’s meaning and fulfilling the “soon you will know” of the marketing campaign. Supporters of nuclear energy pushed back – Conservative George Will wrote: “There is more cancer risk in sitting next to a smoker than next to a nuclear power plant” – but the overwhelming consensus was the film was doing heroic service warning the public of this imminent danger lurking near where they live and work. Then came an improbable event which some in this paranoid era insisted was a studio “publicity stunt.”

Just before 4:00 am on Wednesday, March 28, 1979 at the Three Mile Island nuclear power plant on the Susquehanna river southeast of Harrisburg, Pennsylvania, a condensate polishing pump failed in the secondary cooling loop of Reactor #2. This led to a series of additional pump failures and the generator turbine spinning down. The reactor automatically "scrammed" lowering the control rods to shut off Szilard's chain-reacting neutrons. But the reactor was still very hot and the secondary cooling loop was not pumping water. A pressure release valve on the reactor vessel opened, but unfortunately stayed open which triggered the emergency core cooling pumps to flood the reactor core with water. All good, except... The men in the control room (not unlike the film) misread the myriad of dials and meters to surmise that the pressurized reactor was filling up with water which might bring about the number one Rickover-no-no: a water-filled reactor without a shock-absorbing air bubble. Not knowing this was impossible because the release valve was stuck open, they turned off the cooling water on a still very hot reactor which then began to melt. Not good. Radioactive water spilling inside the concrete containment dome triggered loud alarms inside a very confused control room.

As the sun came up, "Captain Dave," the traffic reporter for Harrisburg's Top-40 WKBO picked up chatter on his citizens band radio about something going on at the power plant. He radioed news director Mike Pintek who looked up "Three Mile Island Nuclear Generating Station" in the phone book, dialed, and was actually put through to the TMI-2 Control room. He heard the alarms and pandemonium in the background and the response: "*I can't talk right now; we got stuff going on.*" [The story from WKBO](#) aired at 8:25am. "There is a general emergency at Metropolitan Edison Company's Three Mile Island nuclear power plant. A utility spokesman says there was a problem with a feedwater pump this morning..."

Before the control engineers even understood what was happening in their plant, Three Mile Island was fast becoming a national story with *The China Syndrome* publicity campaign still very much in the public's consciousness. At the New York Daily News, the managing editor shouted to his reporters: "Who here has seen *The China Syndrome*?" The three raised hands were sent to Harrisburg.

The plant operators initially revealed very little which was exactly all they knew. With radiation levels rising in the containment dome and leaking into the control room, they tried to solve the puzzle wearing masks and respirators. Reporters were quickly frustrated with the lack of information and almost immediately accused the utility of a coverup. WKBO's Mike Pintek recalled shouting at the utility spokesperson "You started to melt that thing down! Didn't you?! Didn't you?!" Panicked relatives from around the country were calling their families in the area imploring them to "get out!" voicing fears of a China Syndrome event.

With the situation still fluid, Pennsylvania Governor Richard Thornburgh had to decide between a general area evacuation, with all the panic that might ensue, or risk deadly radiation exposure to the city of Harrisburg. He split the difference and ordered children and pregnant women to leave. More than 100,000 men and non-pregnant women also took that as their signal to get out. Banks were inundated with people withdrawing money so much so that the Federal Reserve had to send armored trucks filled with cash to meet demand.

The rush to leave cranked up to high gear when the Associated Press reported there was now danger of a hydrogen gas explosion inside the containment dome leading many to conflate “hydrogen gas explosion” with “hydrogen bomb explosion.” But the former was bad enough and came from the calculations of Nuclear Regulatory Commission advisor Roger Mattson who was telling everyone who would listen that hundreds of thousands more needed to be evacuated. One person who did not listen, however, was President Jimmy Carter – a former naval nuclear engineer under Admiral Rickover – who decided he and his wife Rosalynn would visit the beleaguered plant on Sunday. Ahead of the Carters’ arrival, Roger Mattson drove from Washington to Harrisburg to enlist the support of NRC colleague Victor Stello. He needed the President to change his mind. They argued heatedly about the hydrogen bubble as Marine One arrived; and while the Carters toured the plant wearing radiation dosimeters and water-proof booties, Stello showed Mattson the error in his chemical calculations. There was no imminent hydrogen explosion. Roger Mattson retracted his alarm with a Litella-like “never mind.”

The President and First Lady’s visit was greeted with cheers from the locals who had not fled and did much to deflate the panic as did the quiet resolution to the hydrogen bubble scare. Due mostly to human error, the reactor core had been uncovered for several hours and partially melted down rendering the TMI Reactor #2 a total loss which cost the utility a billion dollars to clean up. After closing a few years for safety upgrades, TMI Reactor #1 continued to generate electricity until 2019.

The accident at Three Mile Island was the worst in U.S. history, but had a death and injury toll of zero. The radiation exposure to the public was slight and the short-half-life radioactive xenon gas that was released the first day quickly dissipated into the atmosphere. The concrete containment dome prevented what could have been a Chernobyl-like catastrophe. (A concrete containment dome would have done the same for Chernobyl as well where fifty-five people lost their lives due to acute radiation poisoning, hundreds more may have serious health consequences, and thousands of square miles of Ukraine were rendered uninhabitable.)

The accident was real and serious, but it did not put into the public’s mind the highly unlikely image of a molten mass of radioactive fuel burning through the thick concrete floor of a reactor containment structure in the direction of China. That was the movie and its marketing campaign. How much effect the TMI accident and *The China Syndrome* individually had on the rise of the anti-nuclear power movement and the decline of nuclear power in America is impossible to measure because the two are inextricably linked in history, if not conflated as one event in the public’s consciousness.

#### [\[Script Extra: Movies and TV that Changed History - "Patton" and Nixon\]](#)

Strong opposition made nuclear plants too expensive to build because no one wanted to be anywhere near the possibility of an actual China Syndrome. Some reactors got very far in the design and approval stages before being abandoned. The Shoreham Nuclear Power Plant on Long Island was completed, tested, and ready to go online in the mid-eighties, but was scuttled due to superheated opposition by its neighbors and the Governor of New York. Nearly all the nuclear plants that did not happen had their electricity demands met by coal or other fossil fuel-burning plants.

Meanwhile, in the years the United States was leveling off nuclear power after TMI-TCS, France embraced it wholeheartedly and now generates 75% of its electricity needs with eighteen nuclear plants. France presently has a much smaller carbon footprint than its European neighbors, enjoys much cleaner air, and has had no serious nuclear accidents. There are a lot of reasons for this, but the most likely is uniformity and simplicity. NRC chairman Ivan Selin once explained it this way: “In France, there are 365 kinds of cheese and one kind of reactor. In the United States, it’s the opposite.”