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## **Nuclear 1**

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*Nuclear* names not only a prominent form of ENERGY but also myriad ways of being in relation to energy, society, and the world. *Nuclear* occupied a significant place in postwar politics and culture, as a source of great energy and great destruction. But recent concerns about the development of nuclear capabilities in Iran and North Korea, as well as the 2011 DISASTER at the Daiichi nuclear power plant in Fukushima, Japan, point to the salience of nuclear technology today. In addition to its political valences, nuclear themes recur throughout postwar and contemporary popular culture. Is “nuclear” still an adequate energy metaphor, or does our continuing enthrallment to the reality and metaphor of belonging to a nuclear world impede thinking about our collective futures?

Nuclear technology began with Marie Curie’s discovery of radioactivity in uranium in 1898 (“Marie Curie” 2014). Not until 1933 did Jewish Hungarian-born physicist Leó Szilárd discover the possibility of obtaining large amounts of energy, and explosive capability, from nuclear reactions (L’Annunziata 2007, 240). Szilárd filed for a patent the following year, claiming that he wanted to prevent his discovery from being weaponized. With the rise of fascism in Europe, however, he altered his position and urged his friend, Albert Einstein, to warn President Roosevelt about the growing nuclear research program in Germany. Szilárd thus helped spur the American-led Manhattan Project to develop nuclear weapons. In 1943, a research laboratory was set up in Los Alamos, New Mexico, under the directorship of J. Robert Oppenheimer, where the first atomic bomb was developed. The only two atomic bombs ever to be used militarily were detonated by the United

States at the end of World War II, over Hiroshima on August 6, 1945, and Nagasaki on August 9, 1945. The first nuclear power plant went online in the small town of Obninsk, near Moscow, in June 1954, six months after President Eisenhower gave his “Atoms for Peace” speech at the United Nations, advocating the development of peaceful uses of nuclear technology (Eisenhower 1953) and precipitating amendments to the US Atomic Energy Act to allow for commercial development of nuclear power plants (“Atomic Energy Act” 2013).

This tension between energy and weaponry is inherent to the history of nuclear technology. In nuclear fission, the nucleus of a particle splits into smaller parts, producing free neutrons or photons and releasing large amounts of energy. In bombs, the fissile material must be capable of sustaining nuclear chain reactions. In nuclear reactors, however, the rate of the chain reaction is controlled by rods of material that absorb the neutrons and slow the fission. Commercial reactors contain only a small percentage of fissile material, bombs approximately 90 percent (Marder 2011).

Anxieties about the nuclear arms race and the commercial development of nuclear energy recur throughout global popular culture of the postwar period. In Ishirô Honda’s 1954 film, *Godzilla* (“Gojira”), a gigantic monster/dinosaur comes to life as the result of fallout from US atomic weapons—testing in the Pacific. Stanley Kubrick’s *Dr. Strangelove or: How I Learned to Stop Worrying and Love the Bomb* (1964) depicts American nuclear anxiety after the 1962 Cuban Missile Crisis. The film’s sardonic juxtaposition of the “cowboy” riding the nuclear missile with the iconic image of the mushroom cloud depicts contradictory nuclear impulses—a fear of destruction linked directly to the imperialist, “frontier-minded,” machismo that might well bring destruction about.

A parallel development to the commercialization of nuclear technology in the postwar period was the emergence of the term “nuclear family,” what Gilles Deleuze and Felix Guattari (1983) mockingly dub the “mommy-daddy-me” relationship. The conjugal family of early bourgeois culture spread to the middle strata of the working population in capitalist countries, as the “class compromise” of the postwar period made possible a comfortable, consumerist lifestyle, best encapsulated in the common imagery of the suburban middle-class family. We might consider whether the rise of the nuclear family in the postwar period was one way of managing anxieties about nuclear technologies, quite literally domesticating them.

The popular animated series *The Simpsons* (1989–present) offers a sharp commentary on postwar American society by satirizing both the nuclear family and the nuclear power plant. One episode, “Two Cars in Every Garage and Three Eyes on Every Fish,” juxtaposes the suburban ideal with rising concern about the hazards of nuclear waste; no matter how loveable the bumbling patriarch Homer Simpson might be, he is a terrifyingly ineffectual nuclear safety inspector. Concerns over the safety of nuclear power are also evident in the eerily prescient film *The China Syndrome* (1979), which tells the story of a news anchor (Jane Fonda) and her camera operator (Michael Douglas) who witness and secretly film the technicians at a power plant responding to a nuclear meltdown. The film was released on March 16, 1979, twelve days before a malfunction in a secondary cooling pump

at the Three Mile Island plant near Harrisburg, Pennsylvania, caused a partial meltdown and allowed some radioactive steam to escape. Box office sales for *The China Syndrome* increased following this event (“Timing Is Everything” 2013).

The Three Mile Island incident and the 1986 Chernobyl disaster in Ukraine were signal events in the growing antinuclear movements in Europe and the United States that helped bring GREEN issues to the forefront of progressive politics and found echoes in 1980s popular culture. In Robert Zemeckis’s *Back to the Future* (1985) an early prototype of Doc Brown’s DeLorean time machine was powered by a plutonium rod, causing Michael J. Fox’s character, Marty McFly, to exclaim, “Are you telling me that this sucker is nuclear?!” Further tinkering on the time machine replaces the nuclear engine with one that runs on compost.

A contest between renewable and nuclear energy, and between nuclear energy and nuclear weaponry, is also at the heart of the often forgotten, and rather ill-conceived, *Superman IV: The Quest for Peace* (directed by Sidney J. Furie, 1987), in which Superman promises to rid the world of nuclear weapons. When Superman throws all of the nuclear missiles on Earth into the sun, his archenemy Lex Luthor secretly plants on one of them a device containing material that gives birth to the villain Nuclear Man. Superman himself is SOLAR powered, drawing his strength from Earth’s yellow sun (not the debilitating red sun of his home planet, Krypton).

Nuclear and solar technologies are taken up as political metaphors in Langdon Winner’s book, *The Whale and the Reactor* (1986). Winner draws upon Lewis Mumford’s distinction between democratic and authoritarian technics. For Mumford, authoritarian technologies are powerful and system-centered but unstable. By contrast, democratic technologies are centered on the natural rhythms of humanity; they are relatively weak but more durable (Mumford 1964, 2). Winner uses this distinction to compare the politics attached to nuclear and solar technologies. Nuclear demands authoritarian, centralized, and systematized control; solar is more easily distributed and fosters more democratic and egalitarian forms of political organization. Nuclear energy is powerful but unstable. Solar energy is more accessible, comprehensible, and controllable than nuclear energy (Winner 1986, 32–33). Solar energy implies a commons—what Slavoj Žižek refers to as the “commons of external nature” (2009, 91).

As neoliberalism and austerity in postcrisis capitalism are centralizing power and concentrating wealth in the hands of the one percent, Winner’s account of nuclear authoritarianism aptly describes current configurations of political power. Crises in capitalism disadvantage the working classes and the indigent more than the wealthy, and new forms of authoritarianism and plutocracy in liberal democratic countries include policies and policing that favor the rich. Given its association with authoritarianism, “nuclear” remains a useful metaphor for thinking critically about politics in the present. But in order to go (back) to the future, what we need is not merely new ENERGY REGIMES but also new energy metaphors for thinking beyond the limits of the present.

See also: AMERICA, FICTION, RENEWABLE, SUPERHERO COMICS.