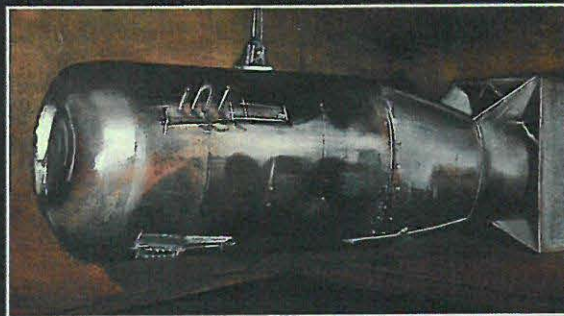


# MEDICAL GENOCIDE

PART 25

# F A T A L FALLOUT



BY GARY NULL

Nuclear power doesn't  
need a Hiroshima or Chernobyl to kill.  
Low-level radiation from  
atomic-bomb testing and power plants  
has already murdered  
some nine million Americans.

PAINTINGS BY MARSHALL ARISMAN

When it comes to nuclear power, people tend to fear the worst-case scenario—a large-scale, Chernobyl-type meltdown that spews high-level doses of radiation across thousands of miles. But recent evidence shows that the dangers of nuclear power may be much more insidious—and far more dangerous—than even such a tragic accident suggests. By one estimate, the low-level radiation caused by atomic-weapons testing and nuclear power plants has claimed the lives of some nine million Americans over the years and harmed countless others.

Granted, most scientists did not understand the full impact of low-level radiation when nuclear power got its start. Early studies of Hiroshima and Nagasaki survivors showed that high doses of radiation from bomb blasts could cause severe health problems, but until recently, scientists assumed that small doses of radioactive fallout would do little harm. Today statistics show that low-level radiation may have done far more damage over the years than previously thought. That means the continued operation of civilian nuclear reactors may do irreversible harm to future generations.

As early as 1943, nearly half a century ago, nuclear scientists Enrico Fermi, Robert Oppenheimer, and Edward Teller recognized the lethal nature of low-level radiation from atmospheric con-

tamination. According to *Deadly Deceit: Low-Level Radiation, High-Level Cover-Up*, by Jay M. Gould and Benjamin A. Goldman (published in 1991 by Four Walls Eight Windows), these scientists were reported to speculate that if we could not develop an atomic bomb in time, it would still be possible to kill millions of Germans by dumping strontium 90—which concentrates “dangerously and irretrievably” in human bone marrow—over the German landmass. Their reasoning was based on animal experiments, the results of which remained classified until 1969.

By 1958 two of the world’s greatest scientists—Linus Pauling and Andrei Sakharov, inventor of the Soviet hydrogen bomb—warned that the ingestion of bomb-test fission products would cause harm to millions of hormonal and immune systems. Pauling won his second Nobel Prize for a book predicting that the 150 megatons of explosive power released by 1958 would produce one million seriously defective children and an equal number of fetal and neonatal deaths.

In his recently published memoirs, Sakharov describes how after the success of his first hydrogen-bomb test, and with the results of similar animal tests, he worried so much about the biological consequences of nuclear testing that he calculated that every 50 megatons of explosive power would

accelerate the deaths of 500,000 to one million persons worldwide.

By 1962 Rachel Carson wrote in the prophetic *Silent Spring* that the sudden emergence of massive amounts of ionizing radiation could make other toxic chemicals even more dangerous.

The nuclear powers chose to ignore these warnings, and between 1945 and 1963, they released into the atmosphere fission products equivalent to the explosion of 40,000 Hiroshima bombs. The United States alone—with the explosion of 124 atomic and hydrogen bombs in Nevada in the 1950s and early 1960s—accounted for about one-third of this huge total. As a result, every part of the continent was showered with radioactive iodine, cesium, strontium, and other radionuclides known from animal studies to be lethal when ingested.

The true impact of this orgy of atmospheric bomb testing was recently revealed by a Canadian pediatrician, Dr. R. K. Whyte, in an article published in the prestigious *British Medical Journal* of February 8, 1992. Dr. Whyte noted that such bomb tests appeared to be the only possible explanation for an excess of some 320,000 infant deaths he found in the United States and the United Kingdom in the 1950s and 1960s.

While Dr. Whyte did not ask what happened to those babies who survived

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## THE RADIATION COVER-UP

According to documents discovered in recent years, the government has intentionally exposed people to radiation without their knowledge and secretly released tremendous amounts of radiation into the atmosphere during the bomb-testing years.

In the forties, fifties, and sixties, 220,000 American servicemen were exposed to radiation from atmospheric bomb tests. To date, approximately 9,600 of these victims have filed claims against the government for their injuries. The United States has, for the most part, denied any responsibility.

Nineteen thousand pages of documents obtained under the Freedom of Information Act, for example, reveal that the Hanford Nuclear Reservation poured thousands of curies of radioactive iodine into the air between 1944 and 1955—both deliberately and accidentally. Officials at the plant were aware that workers and the public were being exposed to potentially harmful levels of radiation and chose not to inform them.

Hanford radiation specialists also revealed that millions of curies of radia-

tion—enough to build several atomic bombs—were routinely dumped into the Columbia River. This information contradicted the government’s standard line about the safety of the plant. The state of Washington has since estimated that 20,000 babies born in the region between 1944 and 1960 are at risk of developing disease, according to a 1990 *New York Times* article. One victim, 43-year-old Tom Bailie, grew up near the Hanford Nuclear Reservation. He commented, “Without our consent, without our knowledge, this was done to us. It sounds like something done in Russia, but it was done here. We want to know why they placed children like me on the front lines of the Cold War.”

In another instance, records from the Rocky Flats nuclear weapons plant in Colorado—which was operated until 1975 by the Dow Chemical Company—indicate that some workers absorbed so much plutonium that the chromosomes of their blood cells became deformed; 13 workers have died of cancer. From 1975 to 1989, the Rockwell Interna-

tional Corporation operated the plant in much the same manner, and has recently paid an \$18.5 million fine for violations of the Resource Conservation and Recovery Act.

Meanwhile, the Savannah River plant in South Carolina released nearly one million curies of radioactive tritium—a key element in modern thermonuclear weapons—into the atmosphere. The plant—then operated by DuPont and now by Westinghouse—is presently storing more than a million curies of nuclear waste, more than half of the U.S. government’s inventory. According to *Deadly Deceit*, it is considered to be one of the most radioactive places on earth.

The United States is now buckling under the sheer weight of the evidence against it and paying out-of-court settlements to people who were exposed to radiation. The most famous of these cases took place in Fernald, Ohio, where the government essentially admitted to leaving several thousand pounds of radioactive uranium—some of which ended up in people’s backyards and drinking water—to pollute the atmosphere. **OT**

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birth in those years, Dr. Gould—in a subsequent letter published in the *British Medical Journal* of March 21, 1992, exploring the implications of Dr. Whyte's startling revelations—observed that the answer can be found in the data showing the rise in America since 1950 of the percentage of live births weighing less than 5.5 pounds. At the same time, there was a corresponding rise in the amount of radioactive strontium found in human bone in those years. This article will indicate what happened to those underweight babies.

In Nevada, for example, where the U.S. bomb tests began in 1951, Dr. Gould found that the percentage of premature, underweight babies more than doubled in that year from the 1950 rate—and has remained at above average levels ever since, even in the years after 1962, when underground testing replaced the more dangerous atmospheric tests.

The precedent for dishonest nuclear policy-making was set during the height of the Cold War, when President Eisenhower issued a top-secret memorandum that told insiders to "keep them confused" about the dangers of radiation. With this memo a policy of fabrication was set at the highest govern-

ment levels to ensure public acceptance of continued nuclear tests.

The deception actually preceded Eisenhower's presidency, beginning with a 1946 accident at Los Alamos, New Mexico, when physicist Dr. Louis Slotin, working with the core of an atomic bomb, was briefly exposed to more than 1,000 rads, more than twice the amount needed to kill a healthy adult. Others nearby were also exposed to high radiation levels but were denied access to the records. The government—recognizing the accident as a sensitive and potentially damaging issue—decided to suppress the information for fear that public disclosure would interfere with the bomb-test program and the operation of the military nuclear reactors already under construction.

With the cover-up strategy established, the government chose to intimidate and silence those experts who knew the truth and wanted to warn the public. Here is a roll call of some of these truly heroic scientists, many of whom—unlike Pauling, Sakharov, and Carson—are still quite unknown.

We should begin with Dr. Karl Z. Morgan, who was the nation's first nuclear-health physicist, founder of the Health Division, and who fought a lifelong battle to set safer radiation-protection standards. Recently, the *Journal of the American Medical Association* asked Dr. Morgan for an article on the contri-

bution to medicine of health physicists, but it was rejected when he wrote rather briefly that the principal function of the discipline he founded was to find reasons to deny compensation to radiation victims.

Another American hero who should be honored is Dr. John Gofman, who, as a graduate student in the early 1940s, was the first to isolate workable amounts of plutonium. He later became the first head of the biomedical division of a Lawrence Livermore National Laboratory in California, where most of our nuclear weapons have been designed. But he was forced to resign by the Atomic Energy Commission when, in 1959, he publicly announced that there was no safe radiation level and that there would be 20 times more cancers per unit of radiation as had been believed.

"It is very clear to me that we find cancer being produced in excess found at very low levels," he says. "Government scientists claim that no effects have been observed below 50 or 100 rads, but that simply is not true. Cancer has been demonstrated at ten rads. The hoax that you might have a safe level of radiation is at variance with the evidence." In *Deadly Deceit*, Dr. Gofman is quoted as saying: "I feel that at least several hundred scientists trained in the biomedical aspect of atomic energy—myself definitely included—are candidates for Nuremberg-type trials for

crimes against humanity for our gross negligence and irresponsibility. Now that we know the hazard of low-dose radiation, the crime is not experimentation—it's murder."

Included among the experts consulted for this article are the eminent British epidemiologist Dr. Alice Stewart, who was the first to discover how sensitive the developing fetus is to low-level radiation, and Dr. Thomas Mancuso, emeritus professor of epidemiology at the University of Pittsburgh Medical School. Both Dr. Mancuso and Dr. Stewart were asked by the Atomic Energy Commission to study the health effects of workers at the Hanford Nuclear Reservation in Washington, but they were each fired when they came up with what the A.E.C. regarded as the wrong answers.

In the past decade, however, the government's cover-up policy has been harder to uphold. Under the Freedom of Information Act, classified information on radiation and mortality has been taken public. In 1979, for example, an investigative report by Bill Curry of *The Washington Post* revealed that the United States knew for decades that the incidence of leukemia and cancer around the bomb-testing site in Nevada far surpassed expectations.

"Officials involved in the U.S. bomb tests feared in 1965 that disclosures of a secret study linking leukemia to radioactive fallout from the bombs could jeopardize further testing and result in costly damage claims," wrote Curry. "That study, as well as a proposal to examine thyroid-cancer rates in Utah, touched off a series of top-level meetings within the old Atomic Energy Commission over how to influence or change the two studies. The document also indicates that the Public Health Service joined the A.E.C. in reassuring the public about any possible danger from fallout."

Very few official epidemiological investigations have been done to study the impact of atmospheric testing. Each year the U.S. Public Health Service publishes a chart showing an overall decline in mortality rates since 1930, but it never comments on the very obvious flattening out that can be observed in the 1950s and early 1960s. In *Deadly Deceit* it was calculated that from 1930 to 1950 the annual rate of improvement (i.e., decline) in total mortality rates (after adjusting for an aging population) was two percent, but only 0.8 percent during the bomb-testing years.

The consequential cost in human lives is startling: The cumulative difference between the observed rates after 1950 and what would have been expected if the earlier rate of improvement had continued is approximately *ten million* premature deaths. As in the case of the 320,000 excess infant deaths found by Dr. Whyte, the probability

that these excesses could be due to chance variation is infinitesimal.

About 125 million Americans, over half of the population, live close to either one of the 17 nuclear-weapons plants or the 100-odd currently operating civilian nuclear power plants, with the largest concentrations in the New York, Philadelphia, and Chicago metropolitan areas. As a nuclear plant must emit a certain amount of radiation to operate, those living close to a facility are automatically exposed even during normal operation. But what is even more worrisome is the fact that since reactors are most often located in rural areas near dairy farms, the radioactive iodine gets into the fresh milk, which is then shipped overnight—while it's still highly radioactive—to urban areas. The mobility of nuclear-fission products increases their lethal nature. They can be carried far from their point of origin by wind and rain, as we know from the fall-

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As a result of atom-bomb testing, every part of our continent was showered with radioactive iodine, cesium, strontium, and other radionuclides known to be lethal when ingested.

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out from major accidents like Three Mile Island and Chernobyl.

Although the normal emissions from reactors are small—far below the scale of meltdowns—the cumulative exposure to such emissions over several decades may be more harmful than previously realized. A study conducted at the nuclear-weapons plant in Oak Ridge, Tennessee, found that workers who were exposed to very low levels of radiation for many years had a 63 percent higher leukemia death rate than the general public. The longer the employees were monitored, the higher the leukemia rate.

In an interview with *The Washington Post*, Dr. Steve Wing, one of the study's principal authors, drew this conclusion: "It has been assumed that the chances of finding an effect of exposure at this level would be like a few drops of water in a swimming pool, not enough to be measurable. Now we see it looks like it's not a few drops."

To hear the nuclear industry tell it, power plants are safe, clean, inexpensive, and essential. The companies often use soothing words to describe

their operations—the radiation is measured in "sunshine units," they say, and its effects are no worse than a suntan. One campaign even suggests that a little radiation *boosts* the immune system! What they neglect to mention is that the real danger from low-level radiation comes when tiny amounts of fission products are ingested and become concentrated in certain organs, like the fetal thyroid or bone marrow, as was anticipated by Pauling and Sakharov.

It was not until 1972 that we had a full understanding of the biochemical mechanism underlying the damage done by ingested radionuclides, as a result of the discoveries of a biophysicist named Dr. Abram Petkau, of the Canadian Atomic Energy Commission. Working with animal cell membranes—which he noted typically required as much as 500 rads to be destroyed—he was amazed to find, quite by accident, that they could be far more easily destroyed overnight by a solution of slightly radioactive salts, measured at less than one-tenth of a rad.

This led to our current understanding that chronic internal exposure to very low radiation levels, such as from strontium 90 lodged in the bone marrow, promoted the formation of "free radicals," which are particles with an extra negative charge, and which by the force of electrical attraction can penetrate cell membranes. In this way blood cells making up the immune system can be damaged and lose their ability to fight off infectious agents or mutant cancer cells. Dr. Petkau found that at high levels of radiation, the many free radicals negated one another and did less damage per unit of radiation than at low levels, when a free radical can most efficiently find and destroy a cell. Thus he settled a long-standing debate among nuclear scientists about the shape of the dose-response curve to radiation. It was not linear, an assumption that had encouraged the hope that there was some level of radiation low enough to be "safe."

According to Dr. Ernest Sternglass, of the University of Pittsburgh Medical School, it was the lack of an understanding of the "supra-linear" shape of the dose-response curve that misled us about the dangers of internal low-level radiation, thus leading us to ignore the epidemiological evidence that he had offered, as far back as 1969, of the many premature deaths associated with radiation releases.

Sternglass has long been regarded by members of the nuclear establishment as their chief opponent. They have never forgiven him for having shamed Governor Dick Thornburg into ordering the evacuation of women and children from the immediate Three Mile Island area on the third day after the accident in March 1979, after having on the previous day informed a room-

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ful of news correspondents in Harrisburg that radiation levels as he was speaking were dangerously high.

*Deadly Deceit* has documented the wave of cancer deaths that has since swept through a ten-county area around the stricken reactor. It has even been noted that a curiously high proportion of news correspondents who covered the accident have since died of cancer.

Dr. Sternglass has contributed greatly to the information contained in *Deadly Deceit*, and he and Dr. Gould, a member of the E.P.A. Science Advisory Board during the Carter administration, collaborate as expert witnesses in the growing number of class-action suits involving radiation victims. For example, it is not generally known that there are still about 2,000 cases pending against the Three Mile Island utility, with several hundred having been settled, each with the provision that there be no disclosure of the amount of the settlement. Recent admissions by the Department of Energy that large emissions from Hanford in the late 1940s have caused thousands of thyroid-cancer problems have been reported to have generated the preparation of some 26,000 lawsuits against companies that were contracted to operate those facilities.

For litigation purposes, Dr. Gould's non-profit Radiation and Public Health Project has assembled from official sources giant computer data bases containing annual mortality rates for major causes of death for every county since 1945. Thus he can report that the six Washington counties downwind of the Hanford reactors have since registered cancer-mortality increases ten times greater than the national average. Similar data can be offered for counties affected by reactor meltdowns at the Savannah River nuclear-weapons plants in 1970, which were first revealed by Senator John Glenn in fall 1988. (Some of this data has been published by Benjamin Goldman in map form in a recent Times Books title called *The Truth About Where You Live*.)

The excess mortality of the bomb-testing years can be taken as validation of Sakharov's prediction that millions of immune systems would be immediately harmed by radiation, and in this way explains what must be regarded as the greatest epidemiological mystery of the century. But he even offered an explanation for why U.S. mortality rates for the first time since the 1950s rose in the 1980s—an explanation that was finally addressed by the Atlanta Centers for Disease Control in an important article entitled "Impact of the Human Immunodeficiency Virus Epidemic on Mortality Trends of Young

Men" in the September 1990 issue of the *American Journal of Public Health*.

Sakharov had warned that the radiation would also accelerate the mutation of new strains of viruses and bacteria that would prove to be particularly harmful to persons whose immune systems were already damaged by radiation. The C.D.C., in effect, offered support to this hypothesis by noting that the mortality rate of young men aged 25 to 44 had been declining in the 1970s but, particularly since 1983, had risen, for the first time ever; the rise was attributed to AIDS.

The C.D.C. even showed that if the declining trend of the 1970s was projected into the 1980s, the gap between those expected rates and the observed rates would approximate the 100,000 AIDS deaths recorded since 1981.

The C.D.C. neglected to note that these young men had been born in the bomb-testing period of 1945 to 1965,

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The nuclear establishment never forgave Dr. Sternglass for having shamed Governor Dick Thornburg into ordering the evacuation of women and children from the Three Mile Island area.

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and that the same anomalous mortality rise in the 1980s was also true for women in this age group.

But when the C.D.C. technique of comparing observed rates in the 1980s with the declining rates of the 1970s is applied to all age groups—for both sexes, and whites and nonwhites—the excess mortality observed in the period of 1980 to 1989 amounts to 1.2 million, 12 times greater than the number of AIDS deaths. In fact, the greatest number of excess deaths in the 1980s was accounted for by women over 45, who are dying prematurely of such immune-deficiency diseases as cancer, septicemia, and pneumonia.

This raises many questions about the role of the HIV virus, which, while known to be constantly mutating, in accord with Sakharov's predictions, may turn out to be a symptom rather than a cause of the AIDS epidemic, for surely not all those older women dying prematurely today would have a positive test for the HIV virus. Another mystery that remains unsolved is why the deterioration of mortality rates of young people since 1983 found in the United States

by the C.D.C. can—according to the *United Nations Demographic Yearbook*—also be found in the United Kingdom, France, and (probably) the former Soviet Union, but *not* in Japan or western Germany. Could it be that these two nations were precluded from exposing their populations to emissions from making or testing nuclear bombs?

We now know that Chernobyl was the third great nuclear disaster in the Soviet Union, and that a large percentage of the population has already eaten or will ingest radioactive food or water, thus triggering grave health problems. These problems have contributed to the sudden collapse of the former Soviet Union, since Gorbachev came into power one year before the disaster.

If Americans, too, ignore the link between the man-made radiation of the past half century and our fragile immune systems—which required millions of years to adapt to natural background radiation—as first proscribed by Sakharov but ignored by the Russian people, we may suffer the same fate. The wave of immune-deficiency diseases already overtaking us is contributing to an average annual ten-percent increase in medical expenditures, which will soon exceed one trillion dollars and will bankrupt many states that are forced to deal with impossible Medicare and welfare programs without federal help.

With such growing evidence of radiation's dangers, why do we tolerate an industry that pollutes the environment, threatens our health and well-being, and is increasingly seen to be far more costly to operate than fossil-fuel plants?

Here we can be guided by some knowledge of the true crisis confronting the nuclear establishment today. None of the government's 17 military nuclear facilities are now operating, and *not* because the Bush administration has finally realized that the Cold War is over. The simple truth is that they have become so radioactively dangerous that the supervisory staff is reluctant to enter the buildings, and the displaced workers find themselves regarded by insurance companies as unacceptable risks for other jobs. The same fate awaits the civilian reactors when they reach the end of their lives around the turn of the century.

Popular opposition has recently forced the closing of the Shoreham and Yankee Rowe reactors—which offers us great hope. We should demand that *all* reactors operating today be immediately closed and quickly converted to burn cheap and plentiful natural gas. It is environmentally benign, will save many lives, and can even save money for an ailing utility industry that's struggling to deal with the mounting costs of radioactive-waste disposal. **OT**