

Rachel's Environment & Health News

#691 - The Major Cause of Cancer--Part 1

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When Wilhelm Roentgen first discovered X-rays, in 1895, "doctors and physicians saw the practical potential of X-rays at once, and rushed to experiment with them." [1,pg.7] Many physicians built their own X-ray equipment, with mixed results: some home-brew X-ray machines produced no radiation whatsoever, others produced enough to irradiate everyone in the next room.

The ability to see inside the human body for the first time was a marvelous, mysterious and deeply provocative discovery. Roentgen trained X-rays on his wife's hand for 15 minutes, producing a macabre image of the bones of her hand adorned by her wedding ring. Roentgen's biographer, Otto Glasser, says Mrs. Roentgen "could hardly believe that this bony hand was her own and shuddered at the thought that she was seeing her skeleton. To Mrs. Roentgen, as to many others later, this experience gave a vague premonition of death," Glasser wrote. [1,pg.4]

Within a year, by 1896, physicians were using X-rays for diagnosis and as a new way of gathering evidence to protect themselves against malpractice suits. Almost immediately --during 1895- 96 -- it also became clear that X-rays could cause serious medical problems. Some physicians received burns that wouldn't heal, requiring amputation of their fingers. Others developed fatal cancers.

At that time, antibiotics had not yet been discovered, so physicians had only a small number of treatments they could offer their patients; X-rays gave them a range of new procedures that were very "high tech" -- bordering on the miraculous -- and which seemed to hold out promise to the sick. Thus the medical world embraced these mysterious, invisible rays with great enthusiasm. Understandably, physicians at the time often thought they observed therapeutic benefits where controlled experiments today find none.

At that time -- just prior to 1920 -- the editor of AMERICAN X-RAY JOURNAL said "there are about 100 named diseases that yield favorably to X-ray treatment." In her informative history of the technology, MULTIPLE EXPOSURES; CHRONICLES OF THE RADIATION AGE, Catherine Caufield (see REHW #200, #201, #202), comments on this period: "Radiation treatment for benign [non-cancer] diseases became a medical craze that lasted for 40 or more years." [1,pg.15] "...[L]arge groups of people [were] needlessly irradiated for such minor problems as ringworm and acne.... Many women had their ovaries irradiated as a treatment for depression." [1,pg.15] Such uses of X-rays would today be viewed as quackery, but many of them were accepted medical practice into the 1950s. Physicians weren't the only ones enthusiastic about X-ray therapies. If you get a large enough dose of X-rays your hair falls out, so "beauty shops installed X-ray equipment to remove their customers' unwanted facial and body hair," Catherine Caufield reports. [1,pg.15]

Roentgen's discovery of X-rays in 1895 led directly to Henri Becquerel's discovery of the radioactivity of uranium in 1896 and then to the discovery of radium by Marie Curie and her husband Pierre in 1898, for which Becquerel and the Curies were jointly awarded the Nobel prize in 1903. (Twenty years later Madame Curie would die of acute lymphoblastic leukemia.)

Soon radioactive radium was being prescribed by physicians alongside X-rays. Radium treatments were prescribed for heart trouble, impotence, ulcers, depression, arthritis, cancer, high blood pressure, blindness and tuberculosis, among other ailments. Soon radioactive toothpaste was being marketed, then radioactive skin cream. In Germany, chocolate bars containing radium were sold as a "rejuvenator." [1,pg.28] In the U.S, hundreds of thousands of people began drinking bottled water laced with radium, as a general elixir known popularly as "liquid sunshine." As recently as 1952 LIFE magazine wrote about the beneficial effects of inhaling radioactive radon gas in deep mines. Even today The Merry Widow Health

Mine near Butte, Montana and the Sunshine Radon Health Mine nearby advertise that visitors to the mines report multiple benefits from inhaling radioactive radon, [2] even though numerous studies now indicate that the only demonstrable health effect of radon gas is lung cancer.

Thus the medical world and popular culture together embraced X-rays (and other radioactive emanations) as miraculous remedies, gifts to humanity from the foremost geniuses of an inventive age.

In the popular imagination, these technologies suffered a serious setback when atomic bombs were detonated over Japan in 1945. Even though the A-bombs arguably shortened WW II and saved American lives, John Hersey's description of the human devastation in HIROSHIMA forever imprinted the mushroom cloud in the popular mind as an omen of unutterable ruin. Despite substantial efforts to cast The Bomb in a positive light, radiation technology would never recover the luster it had gained before WW II.

Seven years after A-bombs were used in war, Dwight Eisenhower set the U.S. government on a new course, intended to show the world that nuclear weapons, radioactivity and radiation were not harbingers of death but were in fact powerful, benign servants offering almost-limitless benefits to humankind. The "Atoms for Peace" program was born, explicitly aimed at convincing Americans and the world that these new technologies were full of hope, and that nuclear power reactors should be developed with tax dollars to generate electricity. The promise of this newest technical advance seemed too good to be true -- electricity "too cheap to meter." [3]

The Atomic Energy Act of 1946 created the civilian Atomic Energy Commission but as a practical matter the nation's top military commanders maintained close control over the development of all nuclear technologies. [4]

Thus by a series of historical accidents, all of the major sources of ionizing radiation fell under the purview of people and institutions who had no reason to want to explore the early knowledge that radiation was harmful. In 1927, Hermann J. Muller had demonstrated that X-rays caused inheritable genetic damage, and he received a Nobel prize for his efforts. However, he had performed his experiments on fruit flies and it was easy, or at least convenient, to dismiss his findings as irrelevant to humans.

In sum, to physicians, radiation seemed a promising new therapy for treating nearly every ailment under the sun; for the military and the Joint Commission on Atomic Energy in Congress it unleashed hundreds of billions of dollars, a veritable flood of taxpayer funds, most of which came with almost no oversight because of official secrecy surrounding weapons development; and for private-sector government contractors like Union Carbide, Monsanto Chemical Co., General Electric, Bechtel Corporation, DuPont, Martin Marietta and others -- it meant an opportunity to join the elite "military-industrial complex" whose growing political power President Eisenhower warned against in his final address to Congress in 1959.

Throughout the 1950s the military detonated A-bombs above-ground at the Nevada Test Site, showering downwind civilian populations with radioactivity. [5] At the Hanford Reservation in Washington state, technicians intentionally released huge clouds of radioactivity to see what would happen to the human populations thus exposed. In one Hanford experiment 500,000 Curies of radioactive iodine were released; iodine collects in the human thyroid gland. The victims of this experiment, mostly Native Americans, were not told about it for 45 years. [6,pg.96] American sailors on ships and soldiers on the ground were exposed to large doses of radioactivity just to see what would happen to them. The military brass insisted that being showered with radiation is harmless. In his autobiography, Karl Z. Morgan, who served as radiation safety director at the Oak Ridge National Laboratory (Clinton, Tennessee) from 1944 to 1971, recalls that, "The Veterans

Administration seems always on the defensive to make sure the victims are not compensated." [6,pg.101] Morgan recounts the story of John D. Smitherman, a Navy man who received large doses of radiation during A-bomb experiments on Bikini Atoll in 1946. Morgan writes, "The Veterans Administration denied any connection to radiation exposure until 1988, when it had awarded his widow benefits. By the time of his death, Smitherman's body was almost consumed by cancers of the lung, bronchial lymph nodes, diaphragm, spleen, pancreas, intestines, stomach, liver, and adrenal glands. In 1989, a year after it had awarded the benefits, the VA revoked them from Smitherman's widow." [6,pg.101]

Starting in the 1940s and continuing into the 1960s, thousands of uranium miners were told that breathing radon gas in the uranium mines of New Mexico was perfectly safe. Only now are the radon-caused lung cancers being tallied up, as the truth leaks out 50 years too late.

In retrospect, a kind of nuclear mania swept the industrial world. What biotechnology and high-tech computers are today, atomic technology was in the 1950s and early 1960s. Government contractors spent billions to develop a nuclear-powered airplane -- even though simple engineering calculations told them early in the project that such a plane would be too heavy to carry a useful cargo. [4,pg.204] Monsanto Research Corporation proposed a plutonium-powered coffee pot that would boil water for 100 years without a refueling. [4,pg.227] A Boston company proposed cufflinks made of radioactive uranium for the simple reason that uranium is heavier than lead and "the unusual weight prevents cuffs from riding up." [4,pg.227]

In 1957, the Atomic Energy Commission established its Plowshare Division -- named of course for the Biblical "swords into plowshares" phrasing in Isaiah (2:4). [4,pg.231] Our government and its industrial partners were determined to show the world that this technology was benign, no matter what the facts might be. On July 14, 1958, Dr. Edward Teller, the father of the H-bomb, arrived in Alaska to announce Project Chariot, a plan to carve a new harbor out of the Alaska coast by detonating up to six H-bombs. After a tremendous political fight -- documented in Dan O'Neill's book, *THE FIRECRACKER BOYS* [7] -- the plan was shelved. Another plan was developed to blast a new canal across Central America with atomic bombs, simply to give the U.S. some leverage in negotiating with Panama over control of the Panama Canal. That plan, too, was scrapped. In 1967, an A-bomb was detonated underground in New Mexico, to release natural gas trapped in shale rock formations. Trapped gas was in fact released, but -- as the project's engineers should have been able to predict -- the gas turned out to be radioactive so the hole in the ground was plugged and a bronze plaque in the desert is all that remains visible of Project Gasbuggy. [4,pg.236]

In sum, according to *NEW YORK TIMES* columnist H. Peter Metzger, the Atomic Energy Commission wasted billions of dollars on "crackpot schemes," all for the purpose of proving that nuclear technology is beneficial and not in any way harmful. [4,pg.237]

The Plowshare Division may have been a complete failure, but one lasting result emerged from all these efforts: A powerful culture of denial sunk deep roots into the heart of scientific and industrial America.

[To be continued April 13.]

--Peter Montague (National Writers Union, UAW Local 1981/AFL-CIO)

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[1] Catherine Caufield, *MULTIPLE EXPOSURES; CHRONICLES*

OF THE RADIATION AGE (New York: Harper & Row, 1989). ISBN 0-06-015900-6.

[2] Jim Robbins, "Camping Out in the Merry Widow Mine," *HIGH COUNTRY NEWS* Vol. 26, No. 12 (June 27, 1994), pgs. unknown. See <http://www.hcn.org/1994/jun27/dir/reporters.html>. And see <http://www.roadsideamerica.com/attract/MTBASradon.html>

[3] Arjun Makhijani and Scott Saleska, *THE NUCLEAR POWER DECEPTION; U.S. NUCLEAR MYTHOLOGY FROM ELECTRICITY "TOO CHEAP TO METER" TO "INHERENTLY SAFE" REACTORS* (New York: The Apex Press, 1999). ISBN 0-945257-75-9.

[4] H. Peter Metzger, *THE ATOMIC ESTABLISHMENT* (New York: Simon & Schuster, 1972). ISBN 671-21351-2.

[5] Michael D'Antonio, *ATOMIC HARVEST* (New York: Crown Publishers, 1993). ISBN 0-517-58981-8. And: Chip Ward, *Canaries on the Rim: Living Downwind in the West* (New York: Verso, 1999). ISBN 1859847501.

[6] Karl Z. Morgan and Ken M. Peterson, *THE ANGRY GENIE; ONE MAN'S WALK THROUGH THE NUCLEAR AGE* (Norman, Oklahoma: University of Oklahoma Press, 1999). ISBN 0-8061-3122-5.

[7] Dan O'Neill, *THE FIRECRACKER BOYS* (New York: St. Martin's Press, 1994). ISBN 0-312-13416-9.

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