Judge Says Atom Tests Caused Cancer

His decision could result in a substantial drain on the public treasury and significantly influence other environmental litigation

In a landmark opinion, a federal judge in Utah has ruled that the government's negligence is responsible for causing cancer among citizens exposed to fallout from open-air testing of nuclear weapons from 1951 to 1962. Although the ruling technically involved only ten cases of cancer, it is expected to have enormous legal and economic repercussions. Each case was selected as a representative of dozens of similar claims, which presumably will now also prevail.

The judge, Bruce Jenkins, ruled on 9 May after months of deliberation on a case of extraordinary scientific complexity. His principal conclusions are:

- Employees of the Atomic Energy Commission (AEC), working in the 1950's at the Nevada test site, failed to warn the nearby populace adequately about the dangers of fallout exposure.
- They subsequently failed to monitor the fallout exposure adequately.
- They also failed to inform the populace adequately about "well-known and inexpensive methods" to minimize the damage once fallout exposure had occurred. "As a direct and proximate result of such negligent failures . . . [the government] unreasonably placed plaintiffs or their predecessors at risk of injury," the judge said. Only one of the ten cancer victims survived.

As Jenkins described it, a central question in the lawsuit was "what reasonable men in positions of decision-making in the United States government between 1951 and 1963 knew or should have known about the fundamental nature of matter." His decision, which is based on a 7000-page trial transcript and 54,000 pages of exhibits, concludes that they knew quite a bit but failed to tell others. "Sound principles of radiation protection" were applied for test site employees, but a lesser standard was applied to the public, he said. Consequently, more than $2.6 million will be paid as compensation to the victims or their relatives.

To reach this conclusion, Judge Jenkins was forced to traverse a thicket of objections planted by the Justice Department. Government attorneys claimed, for example, that the atmospheric test program was immune from judicial scrutiny, on the grounds that the program's conduct lay within the discretionary powers reserved to the executive branch. Jenkins agreed that the AEC's decision to conduct the tests was indeed immune from challenge, but he drew a distinction between the discretion exercised at that level and the discretion exercised by scientists, engineers, and "GS 16 managers" in the field. "Public safety was a stated government objective," he emphasized, and U.S. employees at the testing site had an obligation to pursue it.

Justice Department attorneys also maintained that the lawsuit was barred by a statute of limitations, which specifies that such cases be brought within 2 years after a claim "accrues." The government argued that this meant the lawsuit, filed in 1979, should have been filed 20 to 30 years earlier, when the initial fallout exposure occurred. But Jenkins disagreed, stating that a claim accrues only when the victim is aware of the injury and has reasonable knowledge of its cause. Virtually all of the documents needed to form this knowledge were classified and unavailable until recently, the judge said. And any public suspicion of a link between the fallout and cancer was dispelled by "repeated AEC reassurances of safety."

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Jenkins acknowledges that alarms were indeed sounded at the time by AEC critics such as Ralph Lapp and Linus Pauling, who argued that the program's risks had been seriously underestimated (Pauling unsuccessfully sued to stop the tests in the early 1960's). Jenkins says these warnings were softened considerably, however, by contemporary news photographs of "scientists dining on experimental meals laced with strontium-90," and articles by weapons experts such as Edward Teller and Albert Latter, who claimed that "worldwide fallout is as dangerous to human health as being one ounce overweight, or smoking one cigarette every two months." Why should the plaintiffs have believed "a Pauling or a Sternglass when so much more was said by the government—in films, pamphlets, press statements—to the contrary," Jenkins asked.

Finally, and most importantly, the judge rejected the government's argument that sufficient attempt was made to safeguard the public, given the limited scientific knowledge then about the dangers of radiation and the manner in which it is dispersed by fallout. "A good deal was known about radioactivity and radiation, about atomic bombs, about fallout, and about real and potential effects on human health in 1951," he retorted. Citing page after page of confidential reports, he noted in particular that government scientists at the time were well aware that virtually any radiation exposure carried some degree of risk; that fission by-products such as strontium-90 and iodine-131 posed serious health risks if ingested or inhaled; that local weather conditions might create radiation "hot spots"; and that as a result many individuals could potentially be exposed to radiation levels in excess of the publicly stated limits. In light of this knowledge, Jenkins said he was "astounded" that little effort was made to monitor the radiation exposure of vulnerable individuals, particularly children, through body badges, thyroid and whole-body counters, or blood counts.

Jenkins noted repeatedly that these were all standard procedures at national laboratories such as Oak Ridge. "The notion that far greater releases of radioactive material than at the . . . national laboratories somehow justifies far less monitoring than undertaken at those laboratories defies reason and logic, falling well beyond any notion of reasonable care under the circumstances," he declared. "The negligence reflected in the monitoring program is highlighted," the judge concluded, "by the fact that even now we have more direct data concerning the amount of strontium-90 deposited in the bones of the people of Nepal, Norway, or Austria than we have concerning residents of St. George, Cedar City, or Fredonia"—the towns in Utah that lay directly in the fallout's path.

Jenkins also noted that although the radiation exposure limit for nearby residents was ostensibly equivalent to the exposure limit for test site workers (3.9 rads), it was in practice much greater. Decontamination procedures were not suggested, for example, unless the actual

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NAS Elects New Members

The National Academy of Sciences has elected 60 new members and 11 foreign associates. This brings the total membership to 1428 and the total of foreign associates to 224. The new members are:

Giuseppe M. Attardi, biology, California Institute of Technology; **Jonathan R. Beckwith**, microbiology, Harvard Medical School; **Howard C. Berg**, biology, Caltech; **Robert G. Bergman**, chemistry, University of California, Berkeley; **Ira B. Bernstein**, applied science, Yale University; **John McC. Bremner**, agriculture, Iowa State University; **William F. Brinkman**, physical research, AT&T Bell Laboratories, Murray Hill, N.J.; **Marshall H. Cohen**, astronomy, Caltech; **Stirling Colgate**, Los Alamos National Laboratory; **Joseph M. Daly**, agricultural biochemistry, University of Nebraska, Lincoln; **Roger F. Dashen**, physics, Institute for Advanced Study; **Peter A. Diamond**, economics, Massachusetts Institute of Technology; **Russell F. Doolittle**, chemistry, University of California, San Diego; **David A. Evans**, chemistry, Harvard University.

Stanley Falkow, medical microbiology, Stanford University School of Medicine; **Marilyn G. Farquhar**, cell biology and pathology, Yale University School of Medicine; **Gerald D. Fischbach**, neurobiology, Washington University School of Medicine; **Michael H. Freedman**, mathematics, University of California, San Diego; **Gerhard Giebisch**, medicine, Yale University School of Medicine; **James G. Glimm**, mathematics, New York University; **William A. Goddard III**, chemistry and applied physics, Caltech; **Roger C. Green**, anthropology, University of New Zealand, Auckland.

John L. Hall, physics, National Bureau of Standards and University of Colorado, Boulder; **Robert M. Hauser**, sociology, University of Wisconsin, Madison; **Elizabeth D. Hay**, anatomy, Harvard Medical School; **Mahlon B. Hoagland**, Worcester Foundation for Experimental Biology; **Nick Holonyak, Jr.**, electrical engineering, University of Illinois, Urbana; **James A. Ibers**, chemistry, Northwestern University; **Mary E. Jones**, biochemistry and nutrition, School of Medicine, University of North Carolina, Chapel Hill.

Edward A. Kravitz, neurobiology, Harvard Medical School; **Elliott H. Lieb**, mathematics and physics, Princeton University; **David J. L. Luck**, cell biology, Rockefeller University; **Mortimer Mishkin**, cerebral mechanisms, National Institute of Mental Health; **William W. Mullins**, applied sciences, Carnegie-Mellon University; **Jacob Nachmias**, psychology, University of Pennsylvania; **Alfred Nisonoff**, biology, Brandeis University; **Jack E. Oliver**, geology, Cornell University; **George W. Parshall**, chemical sciences, central research and development, E. I. du Pont de Nemours & Company; **Stanley J. Peloquin**, genetics and horticulture, University of Wisconsin, Madison; **Leopold J. Pospisil**, anthropology, Yale University; **Murray Rosenblatt**, mathematics, University of California, San Diego; **Michael G. Rossman**, biological sciences, Purdue University; **Janet D. Rowley**, medicine, University of Chicago; **William J. Rutter**, School of Medicine, University of California, San Francisco; **Gordon H. Sato**, W. Alton Jones Cell Science Center, Lake Placid, New York.

Thomas C. Schelling, economics, Harvard University; **Thomas W. Schoener**, zoology and environmental studies, University of California, Davis; **Edward M. Scolnick**, virus and cell biology, Merck Sharp & Dohme Research Laboratories, West Point, Pennsylvania; **Charles V. Shank**, quantum physics and electronics research, AT&T Bell Laboratories; **James M. Sprague**, anatomy, University of Pennsylvania School of Medicine; **Frank H. Stillinger, Jr.**, AT&T Bell Laboratories; **Edward C. Stone, Jr.**, physics and chemistry, Caltech; **Lubert Stryer**, structural biology, Stanford University; **Nathan E. Tolbert**, biochemistry, Michigan State University; **Karl K. Turekian**, geology and geophysics, Yale University; **Jonathan W. Uhr**, microbiology, University of Texas Southwestern Medical School; **James W. Valentine**, geology and evolutionary biology, University of California, Santa Barbara; **Harold E. Varmus**, microbiology and immunology, University of California, San Francisco; **Joseph E. Varner**, biology, Washington University; **Ray J. Weymann**, astronomy, University of Arizona.

The new foreign associates are:

Werner Arber, biology, Abteilung Mikrobiologie, Biozentrum der Universitat, Basel, Switzerland; **David R. Bates**, physics and mathematical sciences, Queen's University of Belfast, Northern Ireland, United Kingdom; **William Brass**, population studies, London School of Hygiene and Tropical Medicine, United Kingdom; **Harald Cramer**, former chancelor of the Swedish university system, Stockholm, Sweden; **Jack Halpern** (Canada), chemistry, University of Chicago; **John L. Harper**, agricultural botany, University College of North Wales, Bangor, United Kingdom; **Tomas Hokfelt**, histology in cell biology, Karolinska Institut, Stockholm, Sweden; **Gerard 't Hooft**, Institut voor Theoretische Fysika, University of Utrecht, Utrecht, Netherlands; **Aaron Klug**, structural studies, Laboratory of Molecular Biology, Medical Research Council, Cambridge, United Kingdom; **Georg F. Melchers**, emeritus member, Max-Planck Institut für Biologie, Tübingen, West Germany; **Bohdan Paczynski** (Poland), Princeton University Observatory; **Michael O. Rabin**, mathematics, The Hebrew University and Harvard University, Jerusalem, Israel; **Bengt Samuelsson**, physiological chemistry, Karolinska Institut, Stockholm, Sweden; **Nai Xia**, Institute of Archaeology, Chinese Academy of Social Sciences, Beijing, People's Republic of China.

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exposure was at least twice the public limit. "It is assumed that any member of the general public may receive external exposure up to 25 [rads] without danger," one test site report said. "For areas where exposure above 50 [rads] may occur, consideration must of necessity be given to evacuating personnel, but such a step should not be taken unless it is firmly regarded as essential."

The activities of a test site employee named Frank Butrico in the aftermath of the HARRY blast in 1962 were said by the judge to be tragically commonplace. Dispatched to the town of St. George, Butrico recorded radiation readings so high that they exceeded the limit of his portable monitor. Although he was advised by a superior to discard his clothing and take several showers, Butrico failed to convey this warning to anyone else. This was not an isolated instance, the judge added. In a safety manual for test site employees, for example, workers were told that "since there is no proof that living tissue is actually tolerant of ionizing radiation, even at background levels, the aim should always be to keep radiation exposures as small as possible." In a free government handout, however, the public was informed that "the body can withstand considerably greater doses of radiation than that from normal background because the effects are repaired almost as rapidly as they are produced."

In the end, Jenkins concluded that the government was responsible for inflicting seven persons with leukemia, one with breast cancer, one with thyroid cancer, and one with lymphoma. Each was said to have "developed a biological condition which is consistent with having been caused by the hazard to which he was negligently subjected, such consistency having been demonstrated by substantial, appropriate, persuasive and connecting factors." He dismissed 14 additional claims involving different cancers, largely because epidemiological studies had failed to discover an increased incidence of those cancers in the Utah–Nevada area.

The potentially costly ramifications of the decision were foreseen by the government in 1980, when an interagency task force warned in a confidential report that an adverse ruling "would have precedential impact upon other occupational and environmental pollution cases, with far-reaching impact on both existing [government] compensation programs as well as future litigation." Justice Department attorneys have indicated that they will file an appeal.—**R. JEFFREY SMITH**