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In 1954, the US Atomic Energy Commission (AEC), a civilian agency that since the signature of the 1946 Atomic Energy Act was in charge of the military, regulatory and developmental aspects of nuclear power in the United States, supervised a series of nuclear tests in the Marshall Islands.[1] The radiation released by one of these tests, in which a 15-megaton device nicknamed *Shrimp* obliterated an entire atoll, forced the evacuation of 236 Marshallese inhabitants and the withdrawal of the test's supervisory personnel.[2] In less than 24 hours, the fallout reached a Japanese fishing boat, the *Daigo Fukuryū Maru*, or *Lucky Dragon V*, exposing its twenty-three crew members to extremely high levels of ionising radiation.[3] The boat's chief radioman died a few months later from complications of radiation sickness. The *Lucky Dragon* accident ignited widespread fear of nuclear contamination and transformed nuclear fallout into a matter of global concern.[4] In the United States, the debate over nuclear radioactivity's health hazards hit the mainstream. Studies on the health hazards of nuclear fallout proliferated. Instigated by cellular biologist Barry Commoner, the Committee for Nuclear Information started disseminating information about the risks of strontium-90, a highly radioactive by-product of nuclear testing that, lodging in teeth and bones, could provoke different kinds of tumour and blood disease. Reports warning of milk contaminated by strontium-90 prompted nationwide surveys that helped to frame nuclear testing as a threat to public health.[5] Such mounting pressure induced the US Secretary of State John F. Dulles to recognise 'the dire consequences' that nuclear testing was producing on public opinion and President Eisenhower to announce a moratorium on nuclear testing from 1958 onward.[6]

The growing awareness of the consequences of nuclear fallout on public health, which in the mid- and late 1950s became part and parcel of a widening anti-nuclear conscience, had however deeper historical roots.[7] It stemmed from a debate between American nuclear scientists and medical professionals that this chapter brings to the fore. In the second half of the 1940s and up until the early 1950s, American scientists developed and consolidated a better understanding of the manifold effects of nuclear radioactivity on human health. Yet, at around the same time, the US government, and the AEC in particular, progressively sidelined public health concerns vis-à-vis the mounting exigencies and imperatives of the Cold War, which called instead for an unbounded expansion of the American nuclear programme. The advent of the atomic age, thus, and more so the launch of the nuclear arms race, ended up heralding the subordination of public health to national security. When, at the dawn of the Cold War and less than a decade after Henry Luce's famous proclamation of the American Century, nuclear weapons became the fundamental tool of US progress, development and ascendancy, as well as the main instruments through which to stymie the rise of global Communism, military, strategic and geopolitical considerations temporarily prevailed over the health of American people.

The benefits of the doubt

The Second World War brought about an unprecedented politicisation and militarisation of science.[8] In the United States, the expansion of empirical research was embedded into and intertwined with the government's overall war strategy. The architect of such a grand design, which interpreted science as an 'endless frontier' at the disposal of America's mission and at the service of its seemingly endless progress, was Vannevar Bush.[9] While chairing the Office of Scientific Research and Development (OSRD), a presidential advisory group, Bush's influence grew over the years to the point of convincing President Franklin D. Roosevelt of the necessity of expanding public investments in scientific programmes, and especially in nuclear physics, as the best guarantee to win the war.[10] At its height, OSRD's main venture, the Manhattan Project, employed roughly 125,000 scientific workers and cost more than $2 billion dollars in total.[11] When the war ended, Roosevelt's successor Harry Truman was confronted with the task of transitioning the vast, newly established scientific infrastructure to peacetime. Bush's emphasis on war mobilisation had to be replaced by a structure within which civilian and military authorities, public and private sectors could work together for the peaceful development of the country. The president's new Scientific Research Board, directed by John R. Steelman, summarised the new strategic approach in a famous 1947 report, which placed a greater emphasis upon basic and medical research and instructed the government to both manage its own scientific programmes and promote coordination between public institutes and private industry, universities and research laboratories.[12]

The concurrent advent of the nuclear era and the emergence of the Cold War transformed the relation between science and politics into mutual interdependence. On the one hand, experimental science – and nuclear physics in particular – widened its scope and breadth, kept attracting extraordinary amounts of public funds, and, above all, gained previously unthinkable levels of political influence mostly due to the crucial role that nuclear weapons were playing in America's global strategy.[13] Nuclear physicists, as historian Jessica Wang has noted, came to be integrated 'into public life beyond anything that had ever happened previously in the United States', simultaneously enriching and enlivening 'public discourse at every level of politics'.[14] On the other hand, the federal government became more and more interested in conditioning, when not openly determining, the outcomes of scientific research.[15] Waging the Cold War and engaging in its arms race, in the end, required the mobilisation of the nation's best intellectual forces, whose contributions to the advancement of such different fields as agriculture, computer sciences, geology, oceanography or seismology were crucial for and a cipher of America's success in the bipolar confrontation.[16] To this end, the government established a series of new institutions that were meant to shape the structure of science, its research agendas and its goals. Presidential scientific boards and advisers became among the most influential actors in Washington; the National Science Foundation was established in 1950 with the declared objective of simultaneously protecting national health and national security; the Joint Research and Development Board was created in 1952 to coordinate all research activities of interest to the armed forces; from 1946 onward, the Office of Naval Research was given ample powers to set up and fund new scientific and technological programmes, including nuclear ones.[17]

At the dawn of the atomic age, thus, the US government turned to scientific research, and nuclear physics in particular, to advance its Cold War political agenda. The problem, however, was that nuclear physics had not yet solved one of its most excruciating dilemmas: could nuclear radioactivity be considered safe, and if so, when? Nuclear irradiation both appealed and appalled at the same time. Nuclear radioactivity promised life-saving treatments against cancer and the control of deadly diseases and yet it simultaneously encompassed dire and still rather obscure threats of genetic mutations. For nuclear scientists, casting light on the overall impact of nuclear fallout on human health was tantamount to mastering the energy of the atom. The Manhattan Project's scientific director, J. Robert Oppenheimer, had been among the first to indicate grave concerns about the safety of the personnel working with plutonium, since no one knew what plutonium contamination really entailed. That element had just been discovered and synthesised by Glenn Seaborg and his team at the University of California and its effects on human health were at the time completely unknown. In 1943, Oppenheimer had greenlighted the creation of a health division within the Manhattan Project and had tasked it with both research into radiation exposure and occupational safety.[18] Stafford Warren, a professor of radiology at the University of Rochester, was appointed as the first director, and under his guidance the Manhattan Project's medical research team gave safety guidance to the workers at risk of contamination and initiated experimental research on radioactive poisoning. Warren's staff tried for years to establish reliable levels of tolerance to exposure to ionising radiation. So urgent was the need to learn more about plutonium's dangers that the division's leaders soon authorised research with human subjects.[19]

These efforts notwithstanding, however, the goal of bomb production took precedence over research on the medical consequences of nuclear radiation. As Richard Hewlett and Oscar Anderson point out in their first-hand account of the early days of the nuclear era, biology and medicine ended up by 'having minor status in the Manhattan Project' and this inevitably affected the achievement of an immediate and comprehensive understanding of the full-scale consequences of nuclear contamination.[20] The death in August 1945 and May 1946 of two Los Alamos scientists, Harry Daghlian and Louis Slotin, both of whom had been exposed to lethal doses of radiation while performing experiments with plutonium, was the most immediate toll that that choice had implied.[21]

A sudden acceleration to the study of the consequences of nuclear radioactivity on human health was given by the atomic blasts in Japan. In the aftermath of the bombings, two medical experts, Shields Warren, a pathologist from Harvard, and Ashby Oughterson, a surgeon from Yale, coordinated a team of scientists that formed the Joint Commission for the Investigation of the Medical Effects of the Atomic Bomb in Japan (JCIMEAB). The JCIMEAB submitted its final report in September 1946. In roughly 1,300 pages, the committee presented evidence taken from more than 14,000 cases of direct exposure to nuclear irradiation, but could not come to a unanimous conclusion on a direct correlation between nuclear fallout and health hazards.[22] To further clarify the matter, Congress created the Atomic Bomb Casualty Commission (ABCC), which, however, had no better success than the JCIMEAB. The scientists of the ABCC did not consider the mid- and long-term problems suffered by the survivors of the atomic blasts as an effect of over-exposure to radioactivity. Shields Warren, who took part in the works of the ABCC as well, defined the 'radiation sickness' that was haunting the *hibakusha* purely in terms of bone marrow sickness.[23]

This tendency to downplay the long-term medical consequences of nuclear radioactivity became the prevalent attitude within America's scientific community in the first years after the war. Under Shields Warren's leadership, the AEC Division of Biology and Medicine kept dismissing the long-term effects of nuclear exposure as being related to the emergence of secondary physiological failures. At the beginning of 1946, Warren went so far as to state that the A-bombs had basically had 'no residual effect of any significance' on their survivors. Likewise, he wrote, the radioactivity released by the 1946 Bikini nuclear test series could be considered just as 'a minor factor'.[24] Furthermore, Warren's division kept stressing the huge potential of nuclear energy's medical applicability and launched a wide radioisotope programme that, inaugurated exactly one year after the bombing of Japan, was meant to promote medical research into ionising radiation. The AEC oversaw such a programme with enthusiasm and made radioactive isotopes widely available for medical research, therapy and industry.[25]

Informed dissent

Within the broader American scientific community, however, not everyone approved AEC's rather dismissive attitude towards the health hazards of nuclear fallout. A few nuclear physicists and physicians in fact took a much more cautious and critical stance, and found in the Federation of Atomic Scientists (later the Federation of American Scientists, FAS) and the *Bulletin of the Atomic Scientists* two important channels through which to streamline their dissent. Both the FAS and the *Bulletin* had been set in motion between the end of 1945 and the beginning of 1946 by University of Chicago's leading biophysicist, Eugene Rabinowitch, who, foreseeing the dire prospect of a nuclear arms race, wanted to make sure that both the general public and the policymakers could grasp fully the extent of the threats to human health posed by the power of subatomic forces.[26] By December 1945, the FAS had launched a National Committee on Atomic Information with the specific goal of informing the public on the functioning and the potential risks of atomic energy. Similarly, the *Bulletin* was serving as one of the main platforms where scientists discussed the dangers of an unbounded application of nuclear power.[27] Whereas the main goal of the publication was to promote nuclear disarmament and the establishment of forms of civilian control of atomic energy, it was soon also addressing issues concerning the repercussions of nuclear radioactivity on public and environmental health.

In March 1946, from the *Bulletin*'s pages Farrington Daniels, a well-known chemistry professor from the University of Wisconsin, explained in layman's terms some of the most disturbing consequences and health risks that nuclear contamination entailed. Daniels emphasised how the fission process at the base of nuclear power production was able to generate dangerous gamma rays that, to be made innocuous, required the adoption of complex precautions, including not only adequate safety measures for the operators but also the construction of thick separation walls between the reactor and the external environments in order to avoid the contamination of the surrounding area. Such provisions, however, could not constitute per se a sufficient guarantee against nuclear contamination. In the case of an accident in a nuclear pile, the professor warned, the release of dangerous radioactive elements would be massive and their persistence in the surrounding environment would last for an extremely long period of time. Such consequences would be unavoidable and basically unstoppable, due to the fact that the core would remain unapproachable for years. To Daniels, thus, these issues should have preoccupied the government way more than the research on radioisotopes, and the AEC should have set up adequate forms of fallout prevention and control. The government's response, however, was to Daniel largely inadequate and seemingly indifferent to such urgent threats.[28]

Daniels was not alone. The *Bulletin* continued publishing research findings that highlighted the health hazards of nuclear radioactivity. One of the first physicians to ever study the effects of radioactive poisoning on human bodies, Harvard Medical School's pathologist Hermann Lisco, popularised his works through the *Bulletin*. Lisco, who left Berlin in 1936 to join first the pathology department at Johns Hopkins University and then Harvard Medical School, had been invited during the war to join the Manhattan Project. There, he had worked with a few colleagues from the University of Chicago to gauge the consequences of acute radioactive poisoning on human health, by studying the physiology of those operators who had been in close contact with radioactive materials.[29] Lisco was also the one to conduct the autopsy on the bodies of Harry Daghlian and Louis Slotin.[30] His findings were groundbreaking and represented a milestone in research on nuclear irradiation. Lisco, in fact, was among the first to study and publish extremely well-detailed accounts of the effects of radioactive poisoning on the human organism and to establish a direct causal relationship between high exposure to radioactivity and deadly mutations of human cells.[31] For the first time, Lisco's empirical observations and laboratory research proved that over-exposure to such radioactive elements as radium and plutonium actually led to the emergence of malignant tumours in human tissues. To Lisco, the 'catastrophic consequences' of radium absorption in human beings called for 'a whole justifiable conservation in our attitude toward human exposure to other radioelements'. The pathologist lamented that the discussion over atomic energy was revolving around national and international control, whereas the issue of the physical hazards of nuclear radioactivity was not being discussed adequately nor with the necessary 'frankness'. In his opinion, radiation sickness should have attracted a greater degree of public and political attention, as it could have represented a serious problem for the future of the country. Quoting John Hersey's famous reports from Hiroshima and demystifying any superficial account of the medical consequences of the US atomic bombing, Lisco said that 'in view of the rapidly expanding exploitation of nuclear fission for various purposes, clinical and laboratory investigation of all aspects of radiation sickness' should have become 'a primary concern to those responsible for the welfare of the people connected with such developments and to all physicians interested in the welfare of the population as a whole'.[32]

Anxiety about the health hazards of radioactivity surged with the expansion of AEC's nuclear programmes. Princeton University professor and renowned mathematician John von Neuman, while criticising the dangerous intermingling of science with politics in the atomic age, pointed out that nuclear physics' main goal should be the containment of radioactive hazards, while the government's should be the implementation of all the necessary 'safety and health regulations' to make that containment possible.[33] A young radiological safety officer who witnessed first-hand the explosions at Bikini, David Bradley, popularised the dangers of radioactive fallout through his best-selling book *No Place to Hide*, which came out in 1948. Bradley was much impressed by Stafford Warren's early efforts to awaken the public to the hazards of nuclear radiation and by Warren's work to preserve the health of Manhattan Project scientists. *No Place to Hide* revealed the extent of the menace posed by nuclear radiation and framed nuclear fallout as a direct threat to both human health and the environment.[34]

These pressures induced the AEC's Medical Board of Review, an advisory group comprising some of the most prominent physicians in the country including the Lambert Professor of Medicine at Columbia University, Robert Loeb, and the chairman of the National Research Council, Detlev Bronk, to call for a new approach towards the health hazards of nuclear energy. In a report that came out at the end of June 1947, the Board defined the need for further medical and biological research on the various effects of radioactive substances as 'urgent and extensive', and invited the AEC to cooperate more in this field with the US Public Health Service, the agency that from 1912 until the mid-1960s under the guidance of the surgeon general helped the US government to protect the welfare of the nation, to better investigate 'methods of protecting industrial employees and civilian populations against hazards of gases, dust, contact, effluents, and other forms of exposure to radiation'.[35] A few months later, the Board criticised the AEC publicly and condemned the agency's policies for raising 'new medical and public health problems'. The Board 'strongly recommended that research and training in all aspects of the application of atomic energy to medical and biological problems be continued' and possibly expanded, and it invited the AEC to assume 'extensive responsibility' for the study of the effects of products of atomic fission on human life.[36]

The Board hit a raw nerve and forced the AEC to respond to its recommendations. The Commission's overall attitude towards the health hazards of nuclear radioactivity seemed to change. The AEC launched a groundbreaking programme to further biological and medical research and education on nuclear fallout. It appointed a permanent Advisory Committee for Biology and Medicine. It established a Division of Biology and Medicine within its own headquarters in Washington, DC, tasking it with carrying out medical and biological research and connecting government-sponsored programmes with private laboratories' activities, including training projects. The AEC also set up a series of 'unprecedented safety measures' to protect the health of those atomic operators who were involved in atomic energy production processes.[37] The whole work of the AEC in relation to the health hazards of nuclear fallout was reorganised around four distinct pillars: the safeguard of atomic workers; the protection of environmental health, which involved the problems of waste disposal; the development of basic research on the effects of ionising radiation on human cells; and, eventually, the promotion of possible medical applications of radioactive isotopes as treatment for cancer.[38]

The renewed activism of the AEC served as a booster for further research into the medical consequences of nuclear fallout. Research in this field proliferated. William Bloom, a professor of anatomy in Chicago, collected and published a series of studies on the histopathology of nuclear irradiation, a work that aimed at establishing some clear 'tolerance levels' below which nuclear irradiation could be considered innocuous.[39] Carl Voegtlin, a PHS pharmacologist, and his colleague Herold Hodge from the University of Rochester published a two-volume study on the toxicology of uranium compounds, which related skin and eye intoxication to the contamination and absorption of uranium in the body.[40] Between November 1947 and November 1948, the AEC sponsored and concluded more than 2,000 research reports, 210 of which concerned biology and medicine. Such a growing body of research helped to clarify how and to what extent exposure to nuclear radioactivity could cause human cell mutations, that is, could interfere with the normal workings of heredity. Most of these studies were conducted through laboratory experiments that over-exposed guinea pigs to nuclear radioactivity. Others were grounded on analysis of animals that had been exposed to nuclear radiation in their own environment, as in the case of a herd of cattle that had been accidentally irradiated by the first atomic test in New Mexico in the summer of 1945. AEC scientists tried to gauge and assess the hazardousness of the radioactivity produced by both underwater and land explosions, the maximum threshold of radioactivity that living organisms could suffer, and its accumulation in certain parts of the human body. AEC researchers working in laboratories like Los Alamos and Argonne started studying the interaction between radiation and human tissues, focusing on the risk of elements commonly used in atomic processes like beryllium and plutonium. Lung disease, serious damage to the liver, kidney failure and bone marrow sickness entered the vocabulary of nuclear physics and started shaping its contours.[41] The AEC, eventually, accepted that advancing America's nuclear knowledge could not ignore the safeguarding of America's public health, and invested a lot of resources into learning how to forestall the many dangers of nuclear fallout.[42] Such a moment of reckoning, however, proved to be short-lived.

Security over health

The expansion of AEC medical programmes coincided with a whole reconfiguration of the role that nuclear power played in American politics, culture and society. From the late 1940s on, the public perception of nuclear power changed rapidly. Russia's first successful atomic test had opened a new phase of the Cold War and inaugurated a dangerous nuclear arms race. The government took a clear stance on atomic power and started portraying it as the main field of competition with the rival superpower. Atomic superiority became the nation's top priority, and to many it represented the nation's best hope against the threat of Communism. The federal government began to frame the dangers of nuclear radiation as a necessary part of the superpower game and dismissed concerns over radioactivity as simply exaggerated.[43] As historian David Holloway has pointed out, the pursuit of an effective nuclear deterrence, which implied the risk of further nuclear contamination and exposing people to serious health hazards, became 'the organizing principle' of US domestic and foreign policymaking.[44]

The renewed emphasis on nuclear power, which pervaded the United States from 1949 onward, deeply affected the actions and policies of the AEC, especially for what concerned its investments into research concerning the harmful effects of nuclear fallout, but also in relation to its broader military and civilian nuclear programmes. The H-bomb project, for instance, which took off after President Truman signed the famous National Security Council Paper 68 (NSC-68) in 1950, monopolised the attention of the Commission for years.[45] The radioisotopes programme, which had been the AEC's flagship for the promotion of the peaceful uses and medical applications of atomic energy, was resized and downgraded in light of the intensifying nuclear arms race. The radioisotopes programme was split into a series of smaller international programmes and most of its experimental research was outsourced to Britain and Canada, which were permitted to purchase isotopes for medical and industrial applications.[46]

Subscribing to such a new mood, AEC director David Lilienthal started popularising the idea that the expansion of the nuclear programme was innocuous and did not contribute to an increase in health hazards.[47] At the 1948 national convention of the American Medical Association, Shields Warren chaired a special session on atomic energy in which several physicists and AEC commissioners praised the medical value of radioisotopes and defended the experimental application of nuclear radioactivity.[48] In a presentation titled 'The Medical Profession and Atomic Energy', AEC commissioner Lewis Strauss urged physicians to help nuclear physics to overcome a widespread 'prejudice against work on atomic energy', which was based, according to Strauss, on purely insufficient and fragmented information. To him, the impression that atomic energy could constitute a health hazard was misleading and physicians had to work side by side with the AEC to assuage rising public fears about nuclear fallout.[49] As the historian Paul Boyer has explained, 'the implicit (and often explicit) message underlying much of this medical discussion of atomic energy – that the therapeutic promise far outweighed and even cancelled out its menacing aspects – penetrated the profession very deeply'. As a result, 'with rare exceptions, all levels of organized medicine actively supported and lent credibility to the government effort to persuade the American people' of the overall soundness and harmlessness of America's nuclear expansion.[50]

Strauss, and prominent physicists such as Edward Teller, Karl Compton and Ernest Lawrence, openly called for expansion of the AEC nuclear testing programme, even if they knew that this would have entailed further emission of radioactivity and exposure to nuclear fallout. They were convinced that in the wake of the newly achieved Soviet atomic capability the United States had no choice other than to upgrade its nuclear arsenal by investing in more powerful systems, such as, for instance, thermonuclear weapons. To Teller, it was not the duty of scientists to determine whether the government should authorise the building, or even the use, of an H-bomb. Scientists, to him, were only charged with the duty of studying the technical feasibility of such programmes. Any concern that was not strictly related to the exigencies of national security, and any limitation on nuclear research – including those limitations determined by the fear of the possible impact that nuclear testing might have on public health – had to be declared illegitimate.[51]

Those who criticised such a lenient attitude towards the health hazards of nuclear radioactivity came to be perceived as a threat to national security and therefore as potentially un-American. Any form of dissent began to be progressively isolated within the AEC, when not openly ostracised. AEC scientists who showed their dissatisfaction with the new course came under increasingly intrusive Congressional scrutiny. In the summer of 1949, Republican Senator Bourke Hickenlooper, chairman of the joint Committee on Atomic Energy, asked for and received an official statement on the loyalty of AEC fellows.[52] Congress attacked AEC management of nuclear material. Throughout that year, a series of Congressional investigative hearings were held to determine whether certain shipments of radioisotopes to Norway and Finland had to be considered national security lapses.[53]

The main targets of this conservative campaign in favour of unbounded nuclear developments were the members of the General Advisory Committee (GAC) of the AEC, who reacted vehemently against the prevailing pro-nuclear mood. Chaired by Oppenheimer and composed of other prominent figures in nuclear physics such as

James Conant, Enrico Fermi, Cyril Smith, Lee DuBridge and Isador Rabi, the GAC warned against the extreme health hazards that the project of building new nuclear weapons implied. These dissenters championed another form of security and argued that nuclear deterrence could not preserve international stability and peace because it could not eliminate the risk of nuclear war. To them, the 'superbomb' represented an intolerable 'threat to the future of the human race', and its use, which would be an 'inhuman application of force', could be neither strategically justified nor ethically countenanced. In addition, the release of radioactivity related to the testing of these new devices would have provoked 'very great natural catastrophes'.[54] According to this view, the potentially harmful effects of nuclear radioactivity outnumbered any supposed military advantage.[55] These ideas were also shared by the American Institute of Physics, which expressed 'grave concerns' over the 'misleading impression on the public' resulting from Congress discrediting the AEC and lamented the substantial abandonment of research focusing on the health hazards of nuclear fallout.[56] In his testimony before Hickenlooper's commission, Alan Gregg, the head of the AEC Advisory Committee on Biology, a committee that fully aligned with the GAC's group in matters concerning nuclear fallout, condemned government's intrusion into the cause of science and stressed that such an interference was hampering the possibility of achieving superior aims such as the safeguarding of public health.[57]

No controversy, however, better exemplified the tension that was dividing the American scientific and medical community between the end of the 1940s and the beginning of the 1950s than the one between Willard Libby, the physical chemist who pioneered radiocarbon dating, and the renowned biochemist Linus Pauling, who at that time was conducting groundbreaking studies on the effects of nuclear radiation on blood cells. Both Libby and Pauling published widely circulated articles and gave numerous interviews in which both of them kept providing two distinct and conflicting interpretations of the relationship between radiation exposure and public health.[58] Libby was a staunch supporter of nuclear power and believed that the abundance it could bring about would one day make nuclear weapons superfluous. Nuclear power, to Libby, would also satisfy human 'needs for all time' and nuclear medicine would herald a disease-free world.[59] Pauling, in contrast, framed people's exposure to nuclear radiation as a violation of human rights to 'life, liberty and the pursuit of happiness'.[60] Libby was convinced that it was possible to determine a safe threshold for people's exposure to nuclear radiation and that it was therefore possible to conduct nuclear testing safely.[61] Pauling publicly opposed such an idea and stressed on multiple occasions how the simple fact that radioactivity exposure produced genetic mutations was sufficient to prove the impossibility of determining the existence of any safe threshold of nuclear fallout.[62]

Cold War medicine and the American Century

As with many other scientific fields, medicine therefore became a hot Cold War battlefield.[63] By the mid-1950s, only a few physicians in the United States remained optimistic about the chances of providing adequate medical responses to the health hazards of nuclear testing and contamination, while a few others kept working on the promising field of nuclear medicine, breaking new ground in cancer treatment and diagnosis. Such peaceful endeavours, however, were seldom disinterested. The promotion of the atom entailed, almost intrinsically and unavoidably, as historian Jacob Darwin Hamblin has recently demonstrated, the endorsement of a broader Cold War confrontation.[64] Thus, those physicians who despised the risks of nuclear fallout and warned against the jeopardisation of public health openly joined the (liberal) camp of those who were calling for a halt to both the nuclear arms race and any medical research supporting it.

The arms race and the unabated quest for nuclear supremacy ended up undermining people's health in many ways: from the militarisation of landscapes to the radioactive contamination of communities and commodities.[65] Yet America's early Cold War nuclear entanglements simply could not contemplate illness. Medical and scientific dissent was able to subvert such a narrative only when it finally converged into a broader, grassroots and transnational anti-nuclear campaign, which demanded the safeguarding of human health over political, ideological and military aims. By the early 1960s, the management of nuclear policies was framed as an issue concerning global and environmental health, and this induced the US government and its main allies to start thinking beyond the logic of the blocs. Since then, as proved by appeals like that of American paediatrician Benjamin Spock, the influential work of Hellen Caldicott, and the activism of groups such as Physicians for Social Responsibility, trading public health for national security became more difficult.[66] But, back in the late 1940s and early 1950s, when nuclear physics represented the main instrument of America's Cold War, the imperatives of national security largely overshadowed the differences of opinion within the scientific community on the importance of public health.

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