

**BOOK REVIEW**

*Consequential Damages of Nuclear War: The Rongelap Report*, by Barbara Rose Johnston and Holly M. Barker. Left Coast Press, Walnut Creek, CA, 2008. 296 pages, \$29.95.

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Operation Crossroads took place in July 1946 and consisted of two nuclear bomb tests conducted by the United States. The first, Able, was detonated in the atmosphere above the Bikini lagoon in the western Pacific; the second, Baker, in the lagoon itself, with the device 90 feet underwater, dangling from a barge. The Baker test shot 2 million tons of radioactive water skyward in a column that made the target warships look like tiny playthings. Both Able and Baker used 23-kiloton plutonium devices—about the same size as the bomb dropped over Nagasaki on August 9, 1945.

Witnessed by a host of dignitaries, the explosions signified the bomb's post-World War II coming out party. The tests were the first in a series of sixty-six U.S. nuclear explosions conducted until 1962 in the Marshall Islands, an isolated array of tiny atolls and islands east of Micronesia that came under U.S. administration after the war. Twenty-three of the tests were conducted at Bikini Atoll. Decades later, the terrible health, environmental, economic, and cultural consequences of the tests continue to unfold.

Among the most affected were the people of Rongelap Atoll, about 100 miles east of Bikini. Barbara Rose Johnston and Holly M. Barker chronicle their tragedy in *Consequential Damages of Nuclear War: The Rongelap Report*, based on a 2001 publication prepared for the Nuclear Claims Tribunal of the Republic of the Marshall Islands (*The Rongelap Report: Hardships and Consequential Damages from Radioactive Contamination, Denied Use, Exile, and Human Subject Experimentation Experienced by the People of Rongelap, Rongerik, and Ailinginae Atolls*).

As is well known, fallout from the Bravo test of March 1, 1954, heavily contaminated the people and land of Rongelap with radiation. But as Johnston and Barker thoroughly document, the losses of the Rongelapese went much further and deeper; the harm struck to the core of their existence as a community closely tied to the atoll.

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<sup>1</sup> This is an electronic version of an article published in *Nonproliferation Review*, Vol. 17, No. 1 (March 2010):197-204, as "The Never-Ending Story: Nuclear Fallout in the Marshall Islands," a book review by Arjun Makhijani. *Nonproliferation Review* is available online at: <http://www.tandfonline.com/doi/abs/10.1080/10736700903484751>.

The problems for the Rongelapese began well before Bravo—and even before Able and Baker. In May 1946, they were evacuated to the island of Lae, only to be moved back shortly after the Crossroads tests. Though their absence from Rongelap was short, the harm done was long-lasting, according to Johnston and Barker. Among other things, the Rongelapese could not establish economic activities on Lae, and they did not have enough food; when they returned to Rongelap, they found their houses damaged.

In another example of less-well-known injury to the Marshallese documented by Johnston and Barker, the U.S. military also evacuated the people of Bikini to Rongerik Atoll for Operation Crossroads. Rongerik, about 25 miles east of Rongelap, was traditionally the property of the Rongelapese, who were not consulted on the relocation of the Bikinians. After the Bikinians were again relocated, the U.S. military kept Rongerik for its own use, without compensation.

Far worse was to come. The next test at Bikini, Bravo, on March 1, 1954, was a 15-megaton thermonuclear bomb—a yield 650 times greater than that of the Nagasaki bomb. But this time the Rongelapese were not evacuated; Rongelap, Rongerik, and nearby Ailinginae atolls had been designated as outside of Bravo's danger zone. The decision was apparently intended to avoid the harm done by the earlier evacuation. Moreover, U.S. military personnel were now stationed on Rongerik, where there was a new Air Force weather station. Bravo was to be conducted when the winds were blowing away from Rongelap and Rongerik.

But the weather in the days preceding the test indicated the potential for the fallout cloud to move east, according to the Rongerik weather station. Six hours before the test, the weather reports were distinctly worse, indicating that winds at altitudes of 20,000 feet would carry the fallout cloud east of Bikini, over all three atolls. The test proceeded despite this. On March 2, 1954, U.S. military personnel—who knew that the powder descending from the skies consisted of dangerous radioactive particles—were evacuated from Rongerik.

But the people of Rongelap were unaware of the hazards. They had had been given no briefing, no instructions about what to do in the event of fallout. Children played with the dust, which settled everywhere, including on people's bodies. The people ate and drank contaminated food. They were told nothing until March 4, when they were evacuated. They had already suffered, as a population, the largest downwinder doses from U.S. nuclear testing: hundreds of rads of external radiation, and thousands of rads to the thyroid—levels high enough to cause hair loss, severe skin burns, genetic deformities in children, widespread thyroid diseases, and resultant secondary harm, such as serious developmental problems in children. Commendably, Johnston and Barker have cited the most recent, careful research on radiation doses resulting from the Bravo test fallout. Regarding the changes in the pre-test weather patterns, their documentation—meteorological reports produced by the test personnel at the time, as well as subsequent official reports and investigations—is also scrupulous, as it should be for such a sensitive topic.

The Bravo test triggered a new round of cultural and economic horrors. Immediately after their evacuation to another atoll, Kwajelein, men and women were made to strip and stand naked together—highly taboo among the Rongelapese—while they were hosed down for decontamination by U.S. military personnel. Such cultural insensitivity continued after the immediate cleanup effort; over the next three months, male U.S. military members periodically ran Geiger counters over the bodies of naked women as the decontamination efforts went on. After three months at Kwajelein

Atoll, the evacuees were taken to Ejit Island in the Majuro Atoll. Their previously self-sufficient ways were headed for ruin, as Johnston and Baker demonstrate. The Rongelapese culture and economy were traditionally centered on ample fishing grounds and land-based food resources. Ejit was small, unfamiliar, and insufficient relative to Rongelap.

The health problems caused by Bravo were far more complex than those directly caused by radiation exposure. In addition to the repeated traumas of decontamination and medical examinations, the people now had to rely on U.S. military rations for sustenance. The sweet refined foods that became new staples and presaged diseases like diabetes, the readily available cigarettes and alcohol, the lack of work for adults and lack of educational opportunities for children, and the personal and social stresses caused by the erosion of community all combined to sow the seeds of cultural decline—the slow destruction of a culture centered on slivers of land amid the vast sea that both provided sustenance and the warp and woof of the culture. The saddest—and some of the best—parts of the book are the interviews that chronicle this decline.

The Rongelapese returned to their atoll in 1957 on the premise that it was safe. But it was not. It was heavily contaminated with residual radioactivity, notably strontium-90 and cesium-137. In the potassium-deficient soil, plants and marine animals absorbed the radioactive cesium with voracity. Coconuts, a dietary staple, became quite contaminated, as did the coconut crabs. One resident recalled the severity of the food contamination in an interview with Holly Barker, one of the authors of the book:

“Rongelap was an atoll with so much food—coconut, pandanus, and breadfruit. Now there is none. Because of the poison, it disappeared. When we returned, we ate the arrowroot. It gave us blisters in our mouths, but we had to eat it, especially during times of hunger. The local doctor eventually stopped us from eating it. We also ate crabs, even though we weren’t supposed to.”

Perhaps the most cynical part of this tragedy was the turning of the contaminated land and bodies of the Rongelapese into the opportunity for a large research project on the effects of radiation. There were now three classes of Rongelapese: those not on the atoll on March 1, 1954, those born afterward, and those who experienced the fallout.

This last group was extensively studied. Medical follow-up was centered on radiogenic diseases. There were periodic examinations; blood and urine specimens were taken. Children who did not want to be sampled were pursued into the classrooms and hauled out. The people of Rongelap became radiation outcasts, much like the survivors of Hiroshima and Nagasaki. Norio Kebenli of Rongelap told Barker, “Our radiation exposure was so embarrassing. ... Many people used to say things like: ‘Don’t marry the Rongelapese because they are sick and your kids will be sick.’ ... The embarrassment still continues today.”

Although there was a medical-treatment aspect to the follow-up, research was central. Not only were the Rongelapese decontaminated naked in public, they were also photographed naked, presumably for the benefit of medical research on radiation effects. Merrill Eisenbud, a pillar of the U.S. health physics establishment and a pioneer in research on radiation protection, said in 1956, “While it is true that these people [exposed Marshallese] do not live, I would say, the way

Westerners do, civilized people, it is nevertheless true that they are more like us than the [laboratory] mice.”<sup>2</sup>

It is difficult to put such language even in the context of the time. Yet it is important to remember that this was part of a pattern, as *Consequential Damages of Nuclear War* explains. As a Presidential Advisory Committee documented in the 1990s, human radiation experiments were conducted without informed consent in the United States from the 1940s into the 1970s.<sup>3</sup> The victims were black and white and Native Americans—and Marshallese. They were men and women and children. The common thread was that they were vulnerable—they were poor, or they were prisoners, or they went to charity hospitals, or they were children labeled retarded in a warehouse school.

Among the Rongelapese, by the late 1970s the rate of cancer, especially thyroid cancer, had increased greatly. Developmental difficulties, reproductive problems, and other health complications had surged. But the medical work focused on those who were initially exposed. For instance, second-generation deformities were in evidence but regarded as outside the ambit of radiation-related problems. As a result, the alienation of the people of Rongelap increased, and a major opportunity for a better understanding of multigenerational effects that a more compassionate and encompassing approach would have afforded was missed. Konrad Kotrady, a medical doctor who was sent to the Marshall Islands by Brookhaven National Laboratory, described the process of medical examinations of the Rongelapese in a 1977 report to the Laboratory as follows:

The doctors always appear with a predetermined plan of what will be done, who will be seen and what will be achieved. The people are not consulted beforehand and are essentially ordered to do things. . . . When the people raise any hint of an objection or seek to question some point, the doctors think they are trying to cause trouble. What seems to be forgotten is the patient’s right to decide how, when, where or by whom he/she is treated. It is easy for a research project to neglect such patients’ rights and feelings in the interest of the outcome of the program.<sup>4</sup>

By the late 1970s, the people of Rongelap were still living in a contaminated environment, and the U.S. government refused to relocate them. The Rongelapese finally accepted the help of Greenpeace in 1985 to relocate to Mejjatto, an island with few resources, no protected lagoon, and no possibility of reestablishing the traditional economy of relying on local food. Johnston and Barker examine the case for reparations to the Rongelapese, both in terms of the damage done and of precedents. They list the categories of damage as

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<sup>2</sup> U.S. Atomic Energy Commission, transcript of the 54th Meeting of the Advisory Committee on Biology and Radiation, January 13–14, 1956, New York, pp. 231-232, as quoted in International Physicians for the Prevention of Nuclear War (IPPNW) and Institute for Energy and Environmental Research (IEER), *Radioactive Heaven and Earth: The Health and Environmental Consequences of Nuclear Weapons Testing in, on, and above the Earth* (New York: Apex Press, 1991), p. 82.

<sup>3</sup> *Advisory Committee on Human Radiation Experiments: Final Report* (Washington, DC: Government Printing Office, 1995).

<sup>4</sup> As quoted in IPPNW and IEER, *Radioactive Heaven and Earth*, p. 82.

- loss of life;
- “loss of critical resources and damages to a way of life”;
- “natural resource damages”;
- “stigma damages”—as illustrated by the above quote from Norio Kebenli (and for which there is extensive evidence from Hiroshima and Nagasaki survivors); and
- damages from “human subjects experimentation.”

The atomic tests destroyed the local culture and economy of Rongelap Atoll. Half a century later, the Rongelapese are now planning a return to their home atoll, hoping that tourism will provide them with jobs in an independent, if not traditional, economy.<sup>5</sup>

Johnston and Barker have systematically illustrated that the damage has gone well beyond the usual radiation health effects that are the subject of most scientific research. They have documented a variety of traumas inflicted on the Rongelapese (and on other Marshallese) in a thorough way. *Consequential Damages of Nuclear War* can serve to make a good case not only for better health care (which it recommends), but also for a better understanding of potential synergisms between economic, dietary, and cultural factors; stress; and direct exposure to radiation or other disease-causing agents.

Johnston and Barker write in a detached scholarly tone, and that is one of the book’s merits. The content is wrenching, yet the book reads rather like a policy and legal brief for obtaining reparations. This characteristic is perhaps understandable, given that the core of the book is essentially the 2001 report prepared for the Nuclear Claims Tribunal. It makes the book useful as a tool that the Rongelapese can potentially wield to receive better compensation and healthcare from the U.S. government. But it also makes for a repetitive and rather difficult read.

Perhaps it was the legal-brief approach that led to a rather surprising omission: discussion of the *Lucky Dragon*—the Japanese fishing boat that had the misfortune to be in the area of the Bravo test and whose crew was heavily irradiated—merits only passing mention (p. 17). Yet when the boat landed in Japan—and its catch of tuna was unloaded and sent to market before anyone understood exactly what had befallen the crew—an international scandal broke out. The plight of the Japanese fishermen brought the horrors of nuclear weapons testing to life, graphically splashed across newspaper pages. Lewis Strauss, then-chairman of the U.S. Atomic Energy Commission, tried to brush off the incident by saying that the *Lucky Dragon* had been a Communist spy boat—a story so obviously untrue that it did not wash with the public.

The severe radiation damage suffered by the Rongelapese and the Japanese fishing crew sparked a worldwide movement to ban nuclear weapons testing that was, at the time, the leading edge of a demand for nuclear disarmament. It focused attention on the potential health and environmental consequences of atmospheric detonations at the Nuclear Proving Ground in Nevada that had begun in January 1951. The fallout from Bravo was perhaps the most consequential single event that mobilized leaders of countries and grassroots activists to call for disarmament, eventually leading to the atmospheric nuclear test ban treaty. In fact, much of the strength of the movement disappeared

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<sup>5</sup> See the Rongelap Atoll Local Government website, <[www.visitrongelap.com](http://www.visitrongelap.com)>.

after the United States, Soviet Union, and Britain signed that treaty in 1963, indicating that it was at least as much a treaty about health and the environment as it was about disarmament.

Every nuclear weapons establishment has harmed its own citizens in the name of national security.<sup>6</sup> They have also spread that harm far and wide to non-citizens, especially via uranium mining and establishing test sites in colonial and tribal areas. The Russian test site in Kazakhstan caused radiological disasters in the nearby population. The truth about French testing in Algeria is only now beginning to emerge. The British tested in tribal areas in Australia. Even the Nevada Test Site is located on land claimed by the Western Shoshone.

The readiness to harm humans in order to create and expand a nuclear arsenal was perhaps best expressed in an April 1960 editorial that appeared in the alumni magazine of the University of California School of Engineering:

The increase in radiation one receives from fallout is about equal to the increase one receives from cosmic rays when moving from sea level to the top of a hill several hundred feet high. ... It means, though, your babies' chances of having a major birth defect are increased by one part in 5,000 approximately. Percentage wise, this is insignificant. When applied to the population of the world it means that nuclear testing so far has produced about an additional 6,000 babies born with major birth defects.

Whether you choose to look at "one part in 5,000" or "6,000 babies," you must weigh this acknowledged risk with the demonstrated need of the United States for a nuclear arsenal.<sup>7</sup>

Later investigations showed that the specific size of a nuclear arsenal required for U.S. security was never established.<sup>8</sup> The actual radiation risk is not really relevant here. It is the presumption of the editorial writer(s) to accept—indeed to practically insist upon—thousands of severely damaged children *worldwide* for the sake of the U.S. arsenal that takes one's breath away. That same presumption operated in the Marshall Islands testing program and its aftermath.

Some countries, including the United States, have acknowledged at least a part of that harm in the form of compensation programs. But, as *Consequential Damages of Nuclear War* amply demonstrates, the harm is far beyond that from radiation alone, and much deeper and more complex.

Their other recommendations are described in a rather extensive manner, but the main ones are:

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<sup>6</sup> For an extensive, global analysis see Arjun Makhijani, Howard Hu, and Katherine Yih, eds., *Nuclear Wastelands: A Global Guide to Nuclear Weapons Production and Its Health and Environmental Effects* (Cambridge, MA: MIT Press, 2000).

<sup>7</sup> Editorial, *California Engineer*, April 1960, as quoted in Makhijani, Hu, and Yih, *Nuclear Wastelands*, p. 8.

<sup>8</sup> See Stephen I. Schwartz, ed., *Atomic Audit: The Costs and Consequences of U.S. Nuclear Weapons Since 1940* (Washington, DC: Brookings Institution Press, 1998), pp. 22–27.

1. Expand the definition of the area damaged to cover Ailinginae and Rongerik Atolls in addition to Rongelap, and to include the lagoon and marine reef areas, since these are vital to the economy and culture of the people.
2. Create a nuclear stewardship program that would train local people “to conduct their own intergenerational epidemiological surveys and environmental risk assessments and to develop culturally appropriate environmental risk management strategies.” This would include funds under local control to carry out such projects.
3. Compensate for natural resource damage in way that recognizes “market, non-market, and subsistence values” and the damage done by environmental contamination.
4. Compensate for radiation damage as well as social stigma experienced by a larger population than just those present during the March 1, 1954, fallout event.
5. Take “remedial actions” to recognize (i) the “negligent misrepresentation” on a number of counts such as assuring the people of Rongelap that it was safe to return in 1957 and (ii) the human experiments that were done without informed consent that amounted to “assaults [that] constitute physical battery.”

The harsh words in the last point above should be seen in the context of the responsibility given to the United States as a Trustee of the Marshall Islands by the United Nations. That trusteeship required the United States to “promote the political, economic, social, and educational advancement of the inhabitants of the trust territories, and their progressive development towards self government or independence”<sup>9</sup> The damage to local political, economic, and cultural institutions as well as to health and the environment by the testing shows a massive violation of this trust.

As the Obama administration tries to convince the United States and the world that we must achieve complete and verifiable nuclear disarmament—no mean task, given that less difficult goals have created mountains of conflict—it should give the recommendations of this book a fresh look. The people of Rongelap and of the Marshall Islands deserve a more thorough, compassionate, and practical recompense that will enable them to live healthy, economically independent lives.

Further, it would be salutary if President Barack Obama asked the United Nations to establish a “truth commission” on the health and environmental effects of nuclear weapons production. The United States was not the only power to damage indigenous people. The British did it on Christmas Island and in Australia. The French tested in their colonies in Algeria and Polynesia; the Soviets did it in Kazakhstan. Johnston and Barker’s book provides a powerful case for such a commission so the world can better understand the vast damages, from uranium mining to fallout, to the cultural and economic destruction that the nuclear weapons age has wrought. Putting a human face on that continuing damage would also promote the case for elimination of nuclear weapons.

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<sup>9</sup> Charter of the United Nations, articles 75 and 76 (June 26, 1945), as quoted by Johnston and Barker 2008, p. 195.