



Lies and incompetence

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NUCLEAR DUMPING

Lies and incompetence

By SERGEI LESKOV

At the end of March, a Russian government commission revealed the full extent of the former Soviet Union's practice of dumping radioactive waste into the seas and oceans surrounding its territories. The commission was led by Aleksei Yablokov, an environmental expert and adviser to President Boris Yeltsin. Other members included the directors of the ministries of defense, atomic energy, national security, and foreign affairs.

The report, the first example of Russia's new openness about its ocean dumping, completely reverses the former Soviet Union's official position, announced in 1985, that the Soviet Union never dumped, was dumping, or intended to dump, radioactive materials into the sea. (Even in 1989, after glasnost, the Soviet Union denied any dumping when asked by the International Atomic Energy Agency (IAEA). Although the Yablokov report's calculations of the actual radioactivity of ocean-dumped wastes are preliminary, the report marks the first time since 1917 that the Soviet (now Russian) government has agreed with independent international organizations about the former Soviet Union's internal pollution problems.

The report acknowledges that the former Soviet Union buried 18 nuclear reactors at sea, and that nuclear fuel was not removed from six of them. Sixteen of the sunken reactors (including the six with fuel) are in the Arctic's Kara Sea, where nuclear waste dumping is prohibited by international law. The other two reactors are in the Sea of Japan. A reactor screen (with 125 irradiated fuel assemblies) from the Lenin (a nuclear ice-breaker) was also sunk in the Kara Sea.

As a result of four accidents from 1968 to 1989, five Soviet nuclear submarines with their reactors were sunk in ocean waters adjoining or near the Hawaiian Islands, the Bay of Biscay, Bermuda, and the Norwegian Sea. The report also noted a total of some 50 radioactive objects from other nuclear countries that reside in various oceans.

Liquid radioactive waste was regularly dumped in Arctic seas. Some 319,000 curies of radioactive waste was emptied into the Barents Sea; 2,419,000 curies of waste was dumped into the Kara Sea; and 19,000 curies of radioactive waste was unloaded along the Russian Pacific coastline.

The London Dumping Convention, created in 1972, forbids disposal at sea of all highly radioactive waste products. Disposal of low- and medium-level waste was permitted with special permission from the International Maritime Organization if these IAEA requirements were met: dumping must be beyond the edge of the continental shelf, at a depth of at least 4,000 meters, and only between the latitudes of 50 degrees north and 50 degrees south. The only waters in the former Soviet Union that meet these specifications are along Russia's Pacific coast. However, international observers suspected for a long time that the northern fleet was turning the shallow Arctic seas into a gigantic and uncontrolled radioactive burial ground.

During subsequent London conventions (in 1983 and 1985) signatories agreed to a voluntary moratorium on all types of radioactive waste disposal at sea. According to the IAEA, from 1949 to 1982 Britain dumped 74,000 tons of radioactive waste in the North Atlantic, the En-

glish Channel, the Bay of Biscay, and waters around the Canary Islands. Much of it was low- and medium-level materials from nuclear power stations, such as the one at Sellafield. Of the estimated 3.7 million curies of radioactive waste that various countries have dumped at sea, Greenpeace estimates the former Soviet Union is responsible for 2.5 million curies, Great Britain for 906,000 curies, and the United States for 76,800 curies, although the U.S. figure may be somewhat understated.

During a Moscow press conference at the end of March, Yablokov said: "We cannot identify the level of danger in the ocean, because we do not have objective data on how radioactivity penetrates the ecosystem. Perhaps nothing terrible will happen. However, it is not impossible that substantial radioactivity will get into fish that man consumes."

The commission concluded that the level of radioactive pollution in the oceans had not yet increased to dangerous levels, but noted that it may be too early to predict the ultimate effects of the dumping. The Russian military fleet used a variety of containers to bury the radioactive waste. Many were made of alloys that undergo electrolytic reactions in sea water and corrode quickly, according to the report, which estimates that the metal containers will be breached in about 10 years, concrete in 30 years. The submarine *Komsomolets*, sunk in 1989 in the Norwegian Sea, is made of steel and titanium and is especially dangerous. According to eyewitness accounts, it was not unusual for containers to be shot full of holes so they would sink faster.

The Yablokov commission reports that Russia possesses 235 ships and submarines with a total of 407 nuclear power reactors—60 percent of the world's naval reactors—and that radioactive waste from these ships will continue to be dumped at sea because of Russian disposal problems. There is a catastrophic shortage of depots for radioactive waste in the fleet's shipyards. Russia's northern and Pacific fleets have already accumulated 30,000 thermal exhaust assemblies from atomic submarines—but there are only 600 depots available now and probably for a decade into the future. (Normal military submarine servicing

(continued on page 55)

ies made by unprepossessing astronomers and other scientists, frequently using relatively simple equipment. Science, says the author, need not necessarily be small to be successful. It does, however, need to be different. And then he tells us about Bernhard Schmidt, who invented and built glorious telescopes—with one hand, as his other had been destroyed in an explosion.

Dyson knows scientists—living and dead—and he has a knack for spotting their truly arresting observations. From J. B. S. Haldane's essay "On Being the Right Size," for instance, he offers us this: "You can drop a mouse down a thousand-yard mine shaft; on arriving at the bottom, it gets a slight shock and walks away. A rat is killed, a man is broken, a horse splashes." And the book's sections are marked with some of scientist Leo Szilard's ten commandments; one of the best: "Do not destroy what you cannot create." ■

LIES (cont. from p. 13)

requires reloading 2,000 assemblies yearly for each of the fleets.) The depots are in disrepair and do not meet international standards. Many purification systems are missing. And solid radioactive wastes are not being transferred to Ministry of Atomic Energy plants.

The Soviet government's 1985 plan to build waste depositories for nuclear compartments from submarines by 1993 was never realized. Today, radioactive materials at fleet bases are simply stored on open ground. The Yablokov commission predicted that Russia will be forced to continue dumping radioactive waste of all kinds into the oceans for the next five years, since the construction of new coastal complexes for processing liquid radioactive waste is not expected to start until 1997. The program's cost in today's prices is estimated at one billion rubles. Treating solid radioactive wastes will be even more expensive. No decisions have been made on how to address the problem. ■

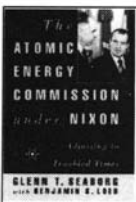
Sergei Leskov, who covers science and economic issues for Izvestia in Moscow, is a Bulletin visiting fellow.

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