

Alaska State Library
Historical Collections

Guide to Collection

Merrell, Theodore R.

Theodore R. (Ted) Merrell, Jr., Moving Image Collection, 1967-72

AV 004

1 linear ft. (1 box)
5 reels audio tape
2 reels 16mm

Processed by: Jim Simard
September 2009

Acquisition: Ted Merrell donated two reels of 16 mm film in 2006. Both reels relate to the underground atomic blasts on Amchitka Island in 1971. “The Amchitka Program” film was originally the property of the U. S. Atomic Energy Commission, Nevada Operations Office, Las Vegas, Nevada; the “Post-Cannikin Shoreline Surveys” film is associated with Pan American World Airways Inc., Nuclear Rocket Development Station Project, Jackass Flats, Nevada. Still photographs donated by Ted Merrell constitute a separate collection, PCA 450.

Access: DVD copies of the films are available for viewing.

Copyright: Request for permission to reproduce material from the collection should be discussed with the Librarian.

Processing: The films were moved from PCA 450 to AV 004 in 2009. The original large reels of 16 mm film were copied over, for preservation and access, to the following formats: Betacam SP, DVCAM, DVD, and AVI digital format.

Biographical Note

Theodore Reed Merrell, Jr., (Ted) was born in Superior, Wisconsin, on June 12, 1923. He attended St. Olaf College until 1943, when he entered the Army. In 1948, after World War II, he completed his B.A. at St. Olaf; and, in 1949, a M.A. in Zoology and Fisheries at the University of Michigan. After six years as a fishery research biologist for the Oregon State Fish Commission, he became a Fishery Research Biologist at the Auke Bay Laboratory, Bureau of Commercial Fisheries, National Marine Fisheries Service, in Juneau, Alaska.

From 1967 to 1972, Ted Merrell represented the Federal Bureau of Commercial Fisheries on Amchitka Island, acting as a research coordinator during underground tests of nuclear warheads for the proposed Spartan U.S. Anti-Intercontinental Ballistic Missile System. He reviewed research of the Atomic Energy Commission-sponsored ecological studies, monitored the activities of AEC contractors, and recommended measures to minimize harmful impacts on the environment. The two professionally produced 16 mm motion pictures were used by Merrell in school programs.

Historical Background

NUCLEAR WEAPONS TESTS AND THE ENVIRONMENT OF AMCHITKA ISLAND

by Theodore R. Merrell

Amchitka Island, 1300 miles southwest of Anchorage, is one of Alaska's most historically significant places. More than 70 ancient middens along its shoreline indicate that it was once one of the most densely populated of the more than 200 islands that make up the Aleutian Chain. The culture of its inhabitants was complex and highly developed to exploit the abundant marine food resources around the island. Although treeless, driftwood is abundant for construction of boats, living quarters, tools, and fires. Temperatures are mild, and there are many protected beaches for launching skin boats.

Following Vitus Bering's voyage of discovery of the Aleutians in 1741, freelance Russian hunter-traders rapidly decimated both the valuable sea otters and the human inhabitants. By 1849 the last permanent settlement on Amchitka had been abandoned, a result of disease and subjugation of Natives throughout the Aleutians.

In 1913, in order to protect the remnant sea otter population and abundant birds, President Taft established the Aleutian Islands National Wildlife Refuge. Amchitka was the centerpiece. Taft's Executive Order stated that "The reservation should not interfere with the use of the islands for lighthouses, military or naval purposes." So, the U.S. military has a legal right to use Amchitka.

Beginning in January, 1943, a major air base was constructed on Amchitka to forestall a Japanese invasion of Alaska. After war's end, thousands of deteriorating structures and other wartime debris were abandoned. Then, during the Cold War between the U.S. and the Soviet Union, the Atomic Energy Commission, with the

Department of Defense, began a series of underground nuclear tests of nuclear "devices," "events," or "shots," as they were euphemistically called.

My Amchitka background is as research coordinator to the U.S. Atomic Energy Commission from 1967 to 1972, representing the U.S. Bureau of Commercial Fisheries. During that period I spent several weeks each year on the island, alternating with another biologist from the Bureau of Sport Fisheries and Wildlife. Our role was to recommend studies of environmental effects of nuclear tests, review reports by other researchers, and monitor and assist in field activities.

The Fish and Wildlife Service first learned of AEC's plans to conduct a series of tests of large nuclear weapons on Amchitka in spring 1967. AEC's plans were already complete and meticulous, including a contract with Battelle Columbus Laboratories to manage all aspects of research to measure environmental effects of the tests. AEC rejected a request by the Service to provide additional funds to support two federal research biologists to review, advise, and monitor ongoing research.

In mid-1967, however, AEC reconsidered its decision after Department of Interior Assistant Secretary for Fish and Wildlife Clarence Pautzke notified AEC that "...if I were queried on the Amchitka Program by National conservation leaders, I would be unable to reply that the present arrangements are adequate." AEC then agreed to part-time support of two U.S. Service research biologists. However, by then, field studies were already underway, so we had little opportunity for effective input. On the other hand, once ASC agreed to our participation, we received generally good cooperation.

The first nuclear test, code-named LONG SHOT, was detonated October 29, 1965. It was buried at a depth of 2300 feet and had an 8G-kiloton yield -- the explosive equivalent of 20,000 tons of TNT Its purpose was to distinguish between natural earthquakes and clandestine underground nuclear tests by USSR and China. LONG SHOT caused few surface physical effects but continues to leak low levels of radioactive krypton and tritium.*

In 1966, two much larger and deeper nuclear explosions were scheduled to test the warhead of the Spartan Antibalistic Missile. These tests required construction of facilities for 800 men (no women!) at a cost of \$275 million, \$55 million for the camp alone.

The first Spartan Missile test, code-named MILROW, was detonated October 2, 1969. (Originally named GANJA, until someone discovered that GANJA was the Turkish word for marijuana, suggesting the unfortunate term POT SHOT!) MILROW was buried at a depth of 4,000 feet at the bottom of a shaft five feet in diameter. It had a 1-megaton yield equivalent to 1 million tons of TNT. It resulted in some surface damage within 2,000 feet of ground zero, and created a shallow subsidence crater. Its purpose was to calibrate (duplicate) the largest previous detonation at AEC's Nevada Test site, preparatory to testing the larger weapon.

The second and final Spartan Missile test, code named CANNIKIN, was detonated November 6, 1971. It was buried at a depth of 5,875 feet at the bottom of a shaft eight feet in diameter. It had a 5-megaton yield equivalent to 5 million tons of TNT. A surface subsidence crater 55 feet deep resulted from the collapse of rubble into the 800-foot diameter cavity of vaporized rock at the bottom of the shaft. The surface crater has subsequently filled with water, forming a 30-acre lake, the largest and deepest on

Amchitka. Six nearby shallow lakes were tilted and drained by the blast when the ground surface was permanently raised nearly 4 feet. A third shaft, 10 feet in diameter, was completed but not used. A fourth shaft, 10 feet in diameter, was abandoned before completion.

MILROW killed no sea otters; CANNIKIN killed some sea otters but the number is a matter of dispute. Only 21 dead or injured otters were recovered on beaches after the blast, but several hundred may have died in the water and been blown offshore by winds following a severe storm on the eve of the explosion.

So far, according to AEC, no surface radiation has leaked from either MILROW or CANNIKIN. AEC has sometimes been accused of being less than truthful with the public. In a moment of candor during a radio call-in program in Fairbaks, an AEC information official said, "AEC never lies; we may dissemble, but we never lie." I found this to be true and have no reason to doubt AEC's claim. This was confirmed in 2004-2005 when, on the recommendation of the National Academy of Science, AEC funded an independent study by a consortium of 14 senior scientists from 6 major universities. They found no evidence of radiation leakage and established baselines for future reference of naturally occurring radiation on Amchitka and nearby Kiska Island.

Recent advances in understanding plate tectonics have raised another concern about radiation products buried on Amchitka: AEC had assumed that Amchitka is geologically stable; but geologists now believe Amchitka is one of the least stable tectonic environments in the U.S., moving westward toward the Asian continent, at a rate of 2 cm per year.

An indirect benefit of the nuclear test program is the publication of studies of biological, physical, and chemical features of Amchitka's environment. One result of these wide-ranging studies is its designation by the United Nations as a Biosphere Reserve, to encourage international research into, and preservation of, plants and animals having unique importance.

Amchitka's ecosystem has reverted to nearly its prehistoric pristine condition. Most of the visible evidences of World War II and the weapons test program have been removed by a \$13 million cleanup program. However, there remains the specter of eventual leakage of radiation to the marine environment or the atmosphere, and westward transport of buried radioactive magma, permanent legacies of the Cold War.

Scope and Contents Note

In the 1960s and early 1970s, three underground nuclear tests -- Long Shot, Milrow, and Cannikin-- occurred on Amchitka Island. The tests were surrounded by controversy; however, government officials believed the tests were essential, in the context of the Cold War, for national security. In the end, the Supreme Court decided for the last and largest test: Cannikin. The footage of "Post-Cannikin Shoreline Surveys" films the entire coastline of Amchitka after the Cannikin blast. The footage of "The Amchitka Program" tells the story of Amchitka from the perspective of the Atomic Energy Commission.

SUBJECTS

Nuclear weapons -- Testing
Nuclear weapons - Testing -Environmental aspects
United States - Politics and government
Amchitka Island (Alaska)

INVENTORY

Film

- 1) 16 mm color print, narrated motion picture reel: "The Amchitka Program"
24 minutes

Other formats: BETACAM SP, DVCAM, and DVD

- 2) 16 mm color print, silent motion picture reel: Post-Cannikin Shoreline Surveys:
Bering Sea Coastline and Pacific Ocean Coastline
22 minutes

Other formats: BETACAM SP, DVCAM, DVD, and AVI digital format

Audio reels

- 1) unknown contents
- 2) possibly public forum
- 3) unknown
- 4) unknown
- 5) AEC - Spring 1969 Juneau hearings,