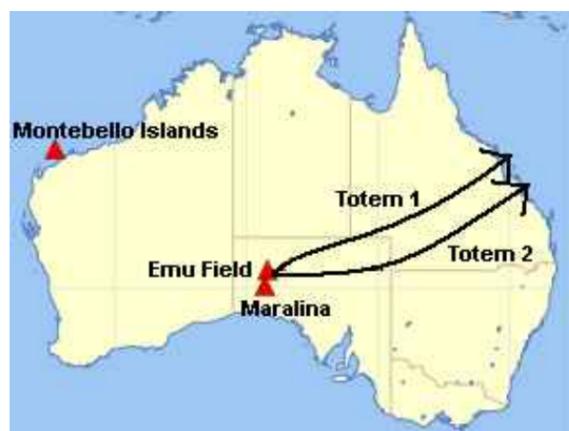


## Emu Field, Australia Nuclear weapons test site

After testing its first nuclear weapons off the west coast of Australia in 1952, the UK sought to test its newer models on land. At Emu Field, the British detonated their two “Totem” nuclear devices in October of 1953, exposing a large population to radioactivity.

### History

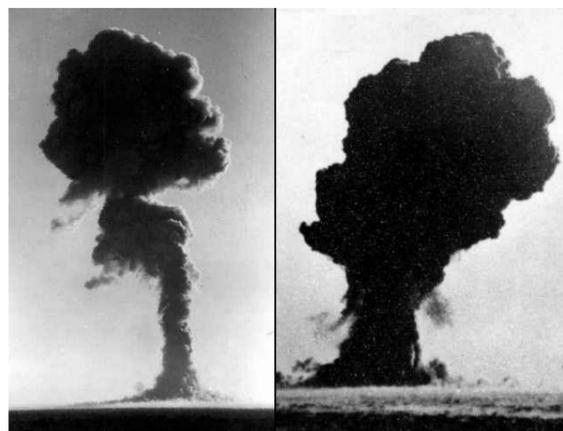
For their nuclear tests, the Australian government gave the UK a flat sandstone plateau in the Great Victoria Desert called Emu Field. Due to a lack of weapon grade plutonium-239, attempts were made to fill nuclear bombs with a higher proportion of plutonium-240. While cheaper and easier to produce, plutonium-240 is prone to spontaneous fission, which increases the risk of a criticality accident. The purpose of the Totem trials was to determine the acceptable limit of the amount of plutonium-240 in a nuclear weapon. Permission was not sought for the tests from local Aboriginal groups such as the Pitjantjatjara, Tjarutja and Kokatha.<sup>1</sup> On October 15th, 1953, Totem 1 was detonated at Emu Field and caused a cloud of radioactive dust to shoot up to 4,500 m. This cloud drifted towards the East as a “black mist”, exposing people at nearby places like Coober Pedy, Twelve Mile, Coffin Hill, Ernabella, Kenmore Park, Everard Park, Granite Downs and Mabel Creek to high levels of radioactivity.<sup>3</sup> By the time the cloud reached the Australian coast near Townsville 3 days later, the second nuclear bomb, Totem 2, was detonated, producing an 8,500 m high cloud that could be tracked for 500 km.<sup>2</sup> After the Totem tests, Emu Field was abandoned by the British army. Future nuclear testing was performed on the Montebello Islands and at the permanent test site in Maralinga.



Trajectories of radioactive clouds

### Medical and environmental aspects

The use of nuclear weapons contaminated great tracts of Aboriginal land, causing radiological, psycho-social and cultural damage. In 1985, a Royal Commission was set up to investigate the effects of British nuclear testing in Australia. Its final report stated that Totem 1 was fired under wind conditions that would knowingly produce unacceptable levels of fallout and did not take into account the existence of people down-wind of the test site. Measures undertaken by the army to ensure that people were informed about the tests and left the affected areas were deemed inadequate.<sup>4</sup> The Commission stated that fallout from Totem 1 on inhabited regions exceeded the proposed limits and resulted in high radioactive exposure for Aboriginal people.<sup>4</sup> At least 45 Yankunytjatjara people in Wallatina experienced signs of acute radiation sickness (vomiting, peeling skin, diarrhea, headaches) and over half are reported to have died.<sup>5</sup> Similar effects were reported by the Kupa Piti Kunga Tjuta people.<sup>1</sup> Wise and Moroney estimated the total number of cancer deaths for all British nuclear tests in Australia to be 35. They made clear, however, that their calculations did not take into consideration the two groups most acutely affected by radioactive exposure: Aboriginal people and the personnel directly involved in the tests.<sup>6</sup> Other factors that were never taken into consideration were the increased susceptibility of children to radioactivity and the poor health status and distinctive lifestyle of Aborigines which also led to a high vulnerability: lack of clothing and footwear, the practice of cooking and eating in unsheltered locations and a diet liable to biological magnification of radioactivity.<sup>1</sup>



Nuclear clouds of Totem 1 and Totem 2



### Outlook

Nuclear weapons tests were continued on Australian soil until 1963. The overall impact of the radioactive exposure on account of these tests will never be known. The health effects on the test personnel and the heavily exposed Aboriginal people were never systematically studied. The Royal Commission found that no meaningful epidemiological research had been undertaken regarding health effects to the Australian population and that “there is now little prospect of carrying out any worthwhile epidemiological study of those involved in the tests nor of others who might have been directly affected by them.”<sup>4</sup>

### Sources:

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Eternal warning at Totem test site