

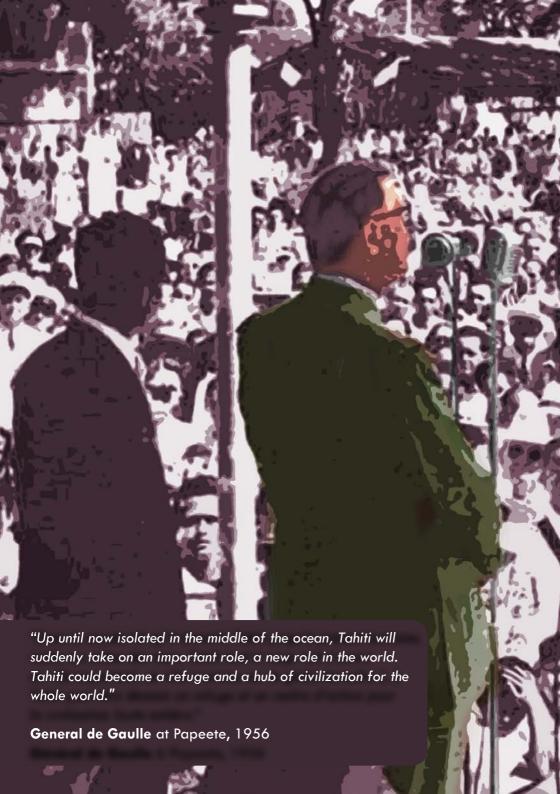
(Moruroa: The Bomb and Us)



**Bruno BARRILLOT** Heinui LE CAILL

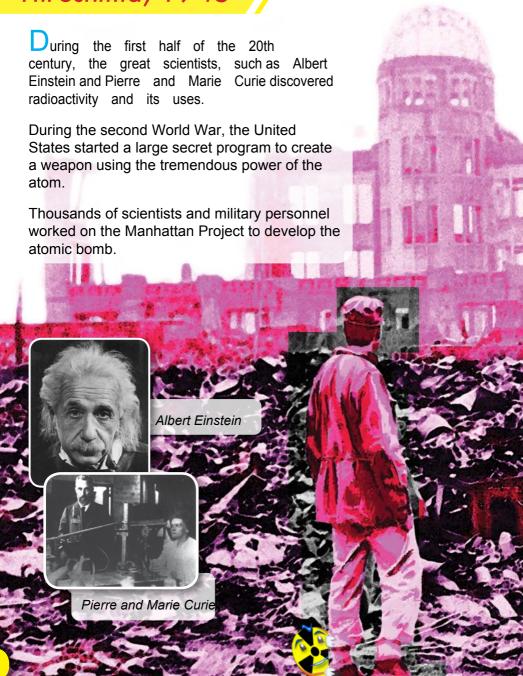
DSCEN

Délégation pour le suivi
des conséquences des essais nucléaires



# CONTENTS p.2 Hiroshima, 1945 p.4 French nuclear tests **p.6 CEP** construction sites CEP on the islands **p.8** July 2, 1966, how does a bomb work p.10 The brave letter p.16 of Deputy John Teariki p.<mark>18</mark> The story of Tureia (1967 – 1968) p.22 The protest Upsetting the economy and p.24 society of Polynesia p.26 Underground testing at Moruroa p.28 1995: Testing resumes

## Hiroshima, 1945



In 1945, in order to end the war against Japan, President Harry Truman made a unilateral decision to drop the first atomic bomb, named Little Boy, on the city of Hiroshima on August 6 and the second bomb, named Fat Boy, on the city of Nagasaki on August 9. In a few minutes, 140,000 human beings perished at Hiroshima and almost 90,000 died at Nagasaki.

The consequences of these bombings are still felt today: thousands of survivors have died thereafter or developed serious illnesses because of the radiation dispersed by these bombs.



### French nuclear tests

n 1945, in creating the Atomic Energy Commission, (CEA), General de Gaulle understood that the atomic bomb would make France one of the most powerful nations on earth. Soon after his return to power as president of the Fifth Republic, in May 1958, General de Gaulle started France's nuclear weapons program.

Between 1960 and 1966, France detonated four atomic bombs in the atmosphere, at Reggane in the middle of the Sahara, then 13 underground tests in Tan Afela mountain to the north of the Hogarth massif in the south Sahara.

In 1962, during the negotiations for Algerian independence, France continued nuclear testing in the Sahara while waiting for the completion of a new test site in French Polynesia.

On February 6, 1964, the Permanent Commission of the Territorial Assembly of French Polynesia decided to give the two atolls of Moruroa and Fangataufa to France so it could continue nuclear testing.

Thus began the work on the islands.



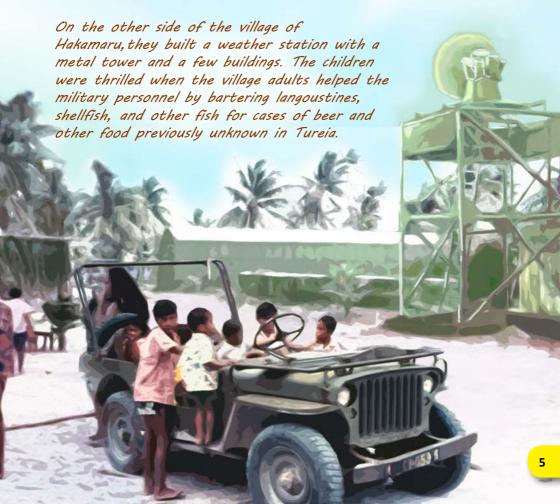


The bomb detonates at the height of it trajectory.



The bomb detonates in the mountain.

At Tureia, the atoll the closest to Moruroa, with about 80 inhabitants, they'd never seen anything like it. French Legionnaires built a large village called "Life Base" behind the cemetery.



#### The CEP construction sites

Starting in 1964, work for the Pacific Testing Center began on Moruroa, Fangataufa and Hao. Coconut trees were cut down. In their place, three air fields, docks, roads and huge concrete bunkers\* were constructed by the lagoons of Moruroa and Fangataufa. On Hao, labs, hangars, and hundreds of housing units engulfed the little village of d'Otepa. Dozens of cargo ships converged near the atolls, disgorging tons and tons of cement and other materials of all types. Polynesia hadn't seen so much activity since the installation of the U.S. military base on Bora Bora in 1942, and the construction of the air field at Faa'a in 1961.

Hundreds of Polynesian workers were recruited from all around the archipelago by the CEP, the CEA and their associates. Thousands of soldiers, sailors and contingents\* of draftees all took part in this huge undertaking. In 1965, there were more than a thousand underground tunnels on Polynesia, all for the CEP and CEA construction sites, under the direction of the biggest public works effort of the city.







It was hard to house everyone for the construction sites on Moruroa and Fangataufa. All the personnel were lodged in the ships docked near the construction site, at Denise, Dindon, Kathie or at the main buildings of the CEP. For the Polynesian workers, it was completely different.

On the islands, agriculture and traditional activities disappeared. All the men were on Moruroa. Soon, this exodus to Tahiti included entire families, who left Faa'a and Papeete in droves.



1965

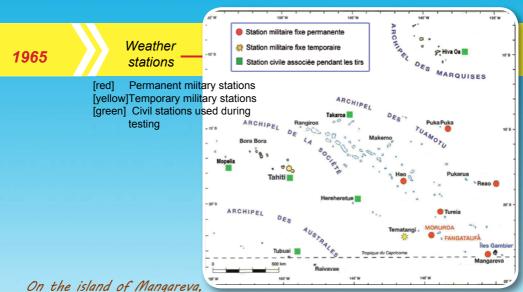


#### CEP on the islands

But the nuclear testing organization needed additional installations in the Polynesian archipelago. In 1965, in Gambier, about 400 meters west of Moruroa, the CEP built a military base and an air field on the Totegegie reef, facing the island of Mangareva. Soon, the 400 inhabitants of Mangareva, Akamaru and Taravai were outnumbered by hundreds of military personnel. To the north of Moruroa, outside Tureia, weather stations and control centers were built on the atolls of Reao, Pukarua, Puka Puka and even as far as Marquises at Hiva Oa and Nuku Hiva. To the south, mostly at Rapa but also at Raivavae and Rimatara, more weather stations were built. To the west, toward Tahiti, the CEP installed a small military base at Tematangi and a weather station at Hereheretue.

On Tahiti, the Nuclear Testing Center built two local bases: one military base with Superior Command of CEP at Pirae, the other a civil base with the Atomic Energy Commission at Marina. On Arue, a large military camp took care of provisioning the entire infrastructure of the CEP. At the port of Papeete, the naval military base was upgraded to be able to maintain the hundreds of Naval ships that would sail our Polynesian waters.





Father Daniel, the indisputable leader of the island, tried desperately to protect his 'flock' from the influence of the young soldiers and sailors who, since Totegegie, infiltrated the local village bars of Rikitea. Beer and wine flowed like water! The small weather station at Taku was built just as the military finished construction of the bunker on Taku. Then, one day in 1966, they erected a huge inflatable tent close to the Rikitea jetty. Why?



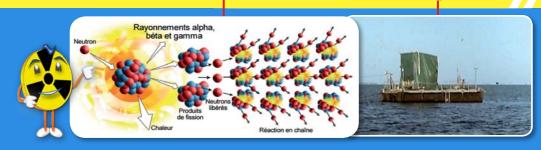
## July 2, 1966, how the bomb works

he idea behind the atomic bomb - the A bomb - is simple: when the tiny atoms of plutonium or uranium are split, it creates tremendous heat and emits dangerous radiation. Uranium and plutonium are the main elements in the bomb.

When uranium or plutonium atoms collide and split (scientists call this 'fission') in a chain reaction, a huge explosion is unleashed and emits radiation. An atomic explosion has three main effects: heat of millions of degrees spewed in a violent burst of air, a destructive shock wave, and a release of deadly radiation for a short distance, which is also harmful to living things and the environment for a much greater distance.

The H bomb, or thermonuclear bomb, relies on a different principle: by producing enormous heat and compressing hydrogen isotopes, the gasses at the core fuse, creating a huge amount of heat and spewing large amounts of radiation. There's no limit to the power of an H bomb.

The military was interested in nuclear weapons for a simple reason: the one bomb that destroyed Hiroshima created an amount of energy a thousand times greater than the most powerful conventional bomb that uses chemical explosives.



On July 2, 1966, on Moruroa, the bomb was put on a large barge in the lagoon facing the Dindon bunker. Moruroa was still covered with coconut trees and other vegetation. All the civil and military personnel left Moruroa in their ships. They went to admire the large mushroom cloud. Then a vulture plane\* went into the cloud to gather samples.



# July 2, 1966, Tureia...

#### At Tureia.

At dawn on July 2, 1966, the population and military personnel got ready to go into the cement bunker. The Father of Kapuroro was at his post, on the other side of the lagoon, near the scaffolding where the cameras and other photographic equipment were: he was the one who was going to take the

pictures of the mushroom cloud.



The instruments to measure radioactivity were installed at the weather station.

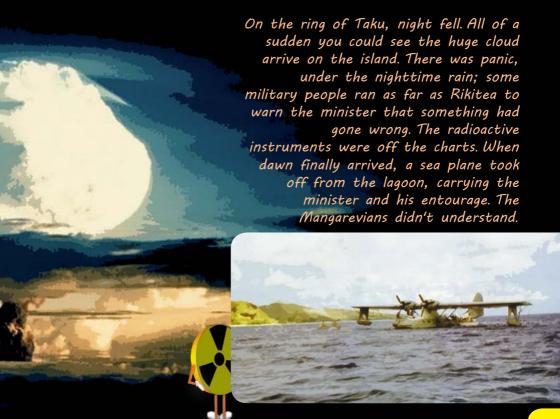
At 5:34, a flash rose over Moruroa.



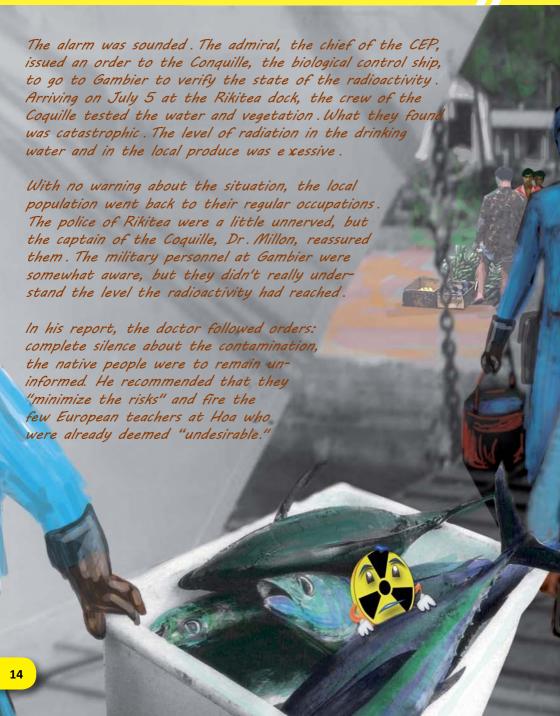
#### On Mangareva,

the French Overseas Minister
came to watch the first
French bomb at Moruroa.
There were several
Polynesian elected officials
and an interpreter with him.

The population welcomed him as they were expected to and got the locals ready for the next day.



# July 2,1966, Mangareva...





# September 7, 1966 the brave letter of

#### To General de Gaulle...

No government has ever been honest or frank in recognizing that their nuclear testing could be dangerous.

No government has ever hesitated to put other people, especially defenseless people, at risk during their most dangerous nuclear testing.

- The Americans put the heaviest burden of their biggest bombs on the inhabitants of the Marshall Islands

- The English, the inhabitants of the Polynesian islands of the equator, closest to Christmas Island

- The Russians, to people of the Great North

- The Chinese, to Tibetans and Mongolese

- The French, to Africans and now us

But I am compelled, Mr. President to express to you, in the name of the inhabitants of these lands, all the bitterness and sadness that we experience to see France, home of human rights and land of Pasteur dishonored by such an undertaking.

## Deputy John TEARIKI



# The Story of Tureia



June 27, 1967: Two bombs exploded at Moruroa and a third would be detonated soon thereafter.

Father Victor wasn't happy. He wrote to Monsignor Maze: "All the islands where we've planted 135,000 young coconut trees with the men of Reao, Pukarua and Tureia are off limits. They are all contaminated. Our people are all as devastated as I am."



A few days later, Philippe, a young pilot, was on a mission to retrieve two soldiers from the weather station at Tureia, as they had been assigned to the testing since the beginning of June. Philippe landed his helicopter on the beach. Just routine. Before taking off, some children from surrounding islands said their fond farewells to the two military men who were leaving.

After a few minutes in the air, the helicopter rejoined the ship anchored off the coast. What a shock! The Geiger counters started rising. The blades of the Alouette were contaminated and the two weather men from Tureia were completely irradiated. So much so that they'd have to return to France within 48 hours. "And you think we could have alerted the people of Tureia," said Philippe to his friend Jacques. Hardly! When I think of the children... as a Christian, I find this unacceptable."

On returning to Hao, the two friends decided to hand in their resignation to the army. The colonel who received them blew his top!

"No questioning of authority in the army! I refuse your resignation." But the two friends prevailed.

Jacques and Philippe would be shunned in France. They'd be demoted and then thrown out of the army.



#### Evacuation of Tureia for Tahiti



Was the resignation of two military personnel the thing that woke up the hierarchy of the CEP? From high in the chain of command, they decided to evacuate the population of Tureia for the tests of 1968. The CEP was preparing to explode the first H bombs and feared the fallout on Tureia.

But how to convince people to leave their homes? It would be too hard to persuade them there was any danger. For 10 years, they'd assured the native people that the bombs of Moruroa didn't carry any risk. They just wouldn't understand.

The governor and admiral decided to send Lionel, a Tahitian police office, to Tureia with the secret mission to convince the people of Tureia to leave the atoll for a few weeks.

After some discussion, Lionel was able to convince the young people, saying "You'll be able to take part in the July festivals in Tahiti. You'll be fed, given lodging, and you'll even get some spending money. Isn't that something?" To the adults, the police officer announced that they'd be the guests of the governor. So, even the reluctant ones agreed.

1968





A shelter in Mangareva

To prepare for the most powerful bomb detonated in 1968, the CEP built hangars to shelter the people at Mangareva, Reao and Pukarua. The people on these islands wouldn't be evacuated. On August 24, 1968, the people of Mangareva were alerted by the cathedral bells. Everybody went to the shelters, even the policeman and his family, as well as Father Daniel. They stayed in the shelter for the night and a long day... while the cloud from the bomb named Canopus passed over the island.

The legionnaires stayed behind to look Tahiti then had to 1968, the entire village of Hakamaru left for Tahiti on the ship "The Storm." They wouldn't return to their atoll until September, after the Canopus nuclear blast of August 24, which would be the most powerful undertaken by France: 170 times more powerful that the Hiroshima bomb!

after the animals and, in mid June reassurances that the inhabitants of Tureia weren't on their atoll to vote because they were on vacation in Mataiea. "The News" published a magazine letter from the heads of the families of Tureia to the governor asking him to "please transport Tureia to Papeete" to attend the festivals in July.

Apparently, the evacuation of Tureia would remain secret to avoid upsetting the Polynesians. Inconveniently, however, several journalists figured out that no one on Tureia had voted in the elections at the end of June: "Did Tureia disappear under the bombs?"



#### **Protests**

Starting in 1970, France undertook atmospheric testing. In the Pacific countries the pressure mounted: Australia, New Zealand, Fiji, and even South American countries protested. The radioactive clouds caused fallout that contaminated the air, the soil, vegetation, animals, and human beings within hundreds and even thousands of kilometers. Several countries went before the International Court of Justice to try to halt the French nuclear tests.

In the waters of Papeete and around Moruroa, protest boats arrived each year at the moment of the blasts, broadcast by TV cameras around the whole world. In 1973, a French general joined the non-violent crew of the "Fri." The ship would be intercepted by the navy, the general placed under arrest in Hao. Upon his return to France, he returned his Legion of Honor medal to the minister of the Army.

On June 23, 1973, in Papeete, a large crowd led by Senator Pouvanaa and deputy Francis Sanford protested against the tests. Several French deputies, representatives of the Catholic church, and French Protestants were also part of the demonstrations.

In May 1974, Valery Giscard d'Estaing became the president of the Republic. He announced the end of atmospheric testing but only after the round of tests planned from June to September had been completed. Jean-Jacques Servan-Schreiber, who had demonstrated in Papeete the previous year, was named minister. He resigned abruptly after 14 days upon learning that atmospheric testing would resume on June 16.

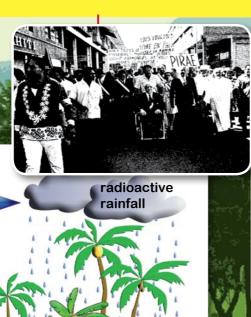
On July 17, 1974, the radioactive cloud "Centaure" seriously contaminated the whole island of Tahiti, which is more than 1,200 kilometers from Moruroa.

At the end of September, the atmospheric testing ended.

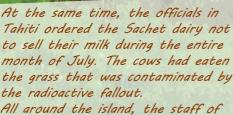


July 1974. A military vessel headed for Tahiti as fast as it could. On board, there were rumors that the cloud from the last nuclear test was headed for Tahiti and that the officers wanted to warn their spouses not the eat the local fruits and vegetable because they'd be contaminated.

MORUR



meadow



All around the island, the staff of the Biological Control Service (SMCB) discreetly gathered samples

of water, vegetables, and fruit. also measured radioactivity in the air Papeete. Everything was gathered the grass that was contaminated by at the laboratory of the CEA of analyzed under Mahina and strictest secrecy. They finally released the bare minimum of the results 24 years later in a report by the IAEA\*.

radioactive cloud from testing

# Upsetting the society and economy of

As a result of the founding of the CEP in 1964, a large number of families of workers originally from the islands came to Papeete, Faa'a and surrounding areas.

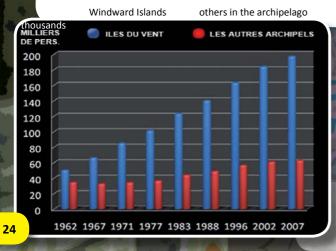
Having no access to the sea and no land for farming, these families forgot their traditional ways and customs, instead following the European model: getting a job, consuming imported goods, buying cars, watching television...

A lot of soldiers, teachers, and other skilled workers landed in Tahiti. Commerce thrived and salaries increased as the numbers of those working in administrative jobs, in schools, and in municipal positions increased.

However, around 1968, when the testing sites on Moruroa and Hao were completed, many workers from Moruroa who were now unemployed stayed in Tahiti. Some became rich, while many others remained very poor, crowding into the unhealthy neighborhoods of Papeete, Faa'a, and Pirae.

After the end of the atmospheric testing in 1974, the opponents of the bomb were few in number. The Protestant church, the first environmentalists, and those pushing for independence continued to seem indifferent. And the development that was promised when the CEP was created never came.

Thus ended the era of atmospheric testing.





Population of the Windward Islands (mostly Tahiti) increased during the bulding by the CEP starting in1964.



#### Subterranean tests at Moruroa

Between 1975 and 1996, the CEP undertook a total of 147 subterranean tests on Moruroa and Fangataufa. This required digging shafts, sometimes 1,000 meters deep, on the periphery and lagoons of the atolls.

The bomb was then lowered to the bottom of the shaft, connected by cables to all sorts of recording and measuring equipment. The shaft was partly sealed with cement and rubble and then the bomb was detonated.

Normally, the radioactivity produced by the bomb was trapped in a large vitrified cavern created by the explosion. But cracks in the soil let leaks of hazardous radioactive gas escape. One gas leak lasted 60 days.

Protests against the bomb continued in Tahiti and around the Pacific. In 1985, the French secret service blew up the Greenpeace boat "Rainbow Warrior" while it was in the port of Auckland, New Zealand. One Greenpeace activist died and there were protests around the world.

Construction site for digging

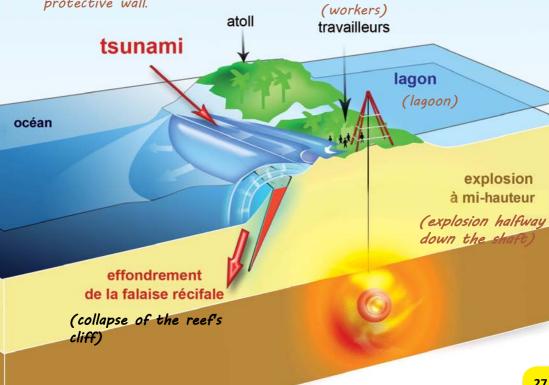


Working underwater

	MORUROA	FANGATAUFA
underground	<b>83</b> tests	2 tests
under the lagoon	<b>54</b> tests	<b>8</b> tests



On July 25, 1979, there was an accident involving the "Tydee" explosion, on the southwest portion of Moruroa. The bomb got stuck halfway down the shaft. They couldn't raise or lower it. They exploded it just the same. A portion of the reef's cliff collapsed into the ocean and caused a tsunami that swept the workers from where they were and injured them. Subsequently, workers built surveillance platforms and a protective wall.



### 1995: Testing resumes

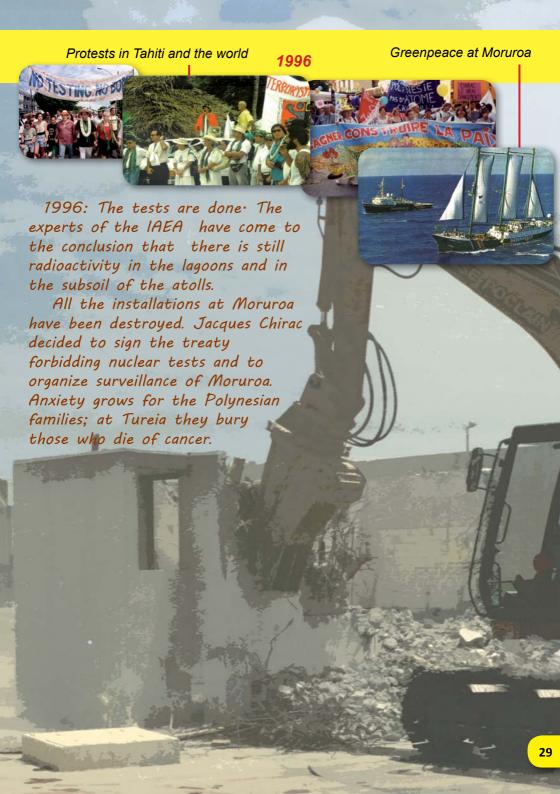
n 1989, the Cold War ended. World leaders thought the menace of nuclear arms would diminish. In April 1992, Francois Mitterand decided to stop nuclear testing on Moruroa. President Clinton of the United States followed suit, signing the Comprehensive Nuclear Test Ban Treaty, since the Russians had already ceased their testing in 1990.

On Tahiti, they prepared for life after nuclear testing. Unfortunately, Jacques Chirac, just elected president of the Republic, decided in May 1995 to start a new round of nuclear tests at Moruroa. There were worldwide protests. Protesters organized in the main capitals of the world.

At Papeete, people from around the world participated in a march against the tests. Greenpeace boats returned to Papeete to form a flotilla of peace which would travel to Moruroa. Images of the protests were televised worldwide...

On September 5, the day of the first test at Moruroa, the anger of the Polynesians sparked a riot in Faa'a and Papeete. Jacques Chirac would be forced to shorten the testing campaign. The last test took place on January 27, 1996 under the lagoon of Fangataufa.





From 1966 to 1996, France detonated 193 bombes at Moruroa and Fangataufa. During those 30 years, the lives of Polynesians have been completely upended. Young people are ill informed about what actually happened at Moruroa and about the changes to the daily lives of their parents caused by the testing by the CEP. With some essential facts, individual stories, photos and illustrations, this brochure, geared toward young readers, will let them learn about this important but forgotten time that is actually so recent.

Moruroa, the Bomb and Us was conceived by la Délégaton pour le suivi des conséquences des essais nucléaires.

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