

A French atomic explosion at Moruroa Atoll: Moruroa's 100th nuclear blast will take place later this year

## WORLD IN FOCUS

# THE NUCLEAR MURDER OF MORUROA

*After a total of 101 blasts and countless protests, the French are continuing nuclear tests in the Pacific. Here, two writers living on Tahiti, BENGT and MARIE-THÉRÈSE DANIELSSON, describe how the French are destroying Moruroa atoll — the main testing site — and how the damage is spreading to other islands.*

MORUROA, the small Polynesian atoll, will have the dreadful distinction this year of exploding its 100th nuclear bomb. But it already has become so battered and polluted that France has decided to use another atoll soon for bigger and dirtier explosions.

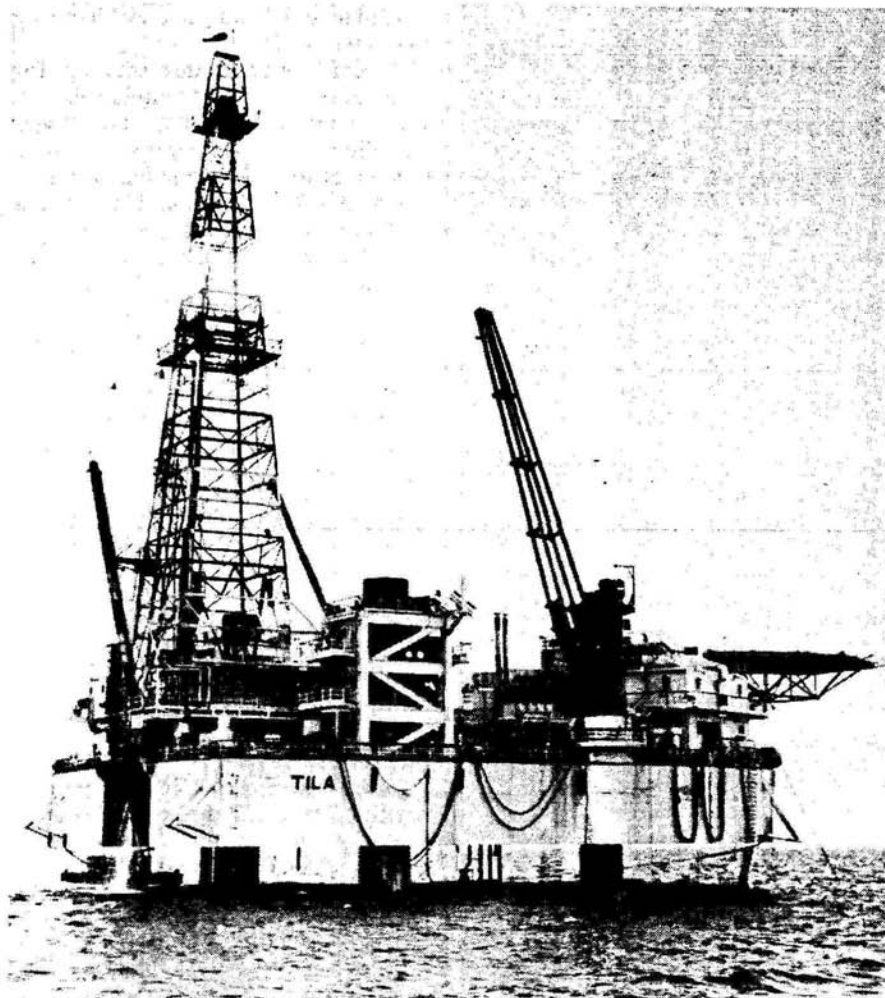
To overcome the very real danger that Moruroa may disappear into the

depths if testing continues at the same pace and manner, France will again use the uninhabited atoll of Fangataufa, the site for four tests already, which is 40km south of Moruroa.

Although this atoll was heavily contaminated in 1968 after the explosion of a 2.5 megatonne hydrogen bomb and subsequently was put off limits indefi-

nitely, it was re-occupied last year by French legionnaires and Polynesian workmen (to do the dirty jobs). They are busily blasting a navigable pass through the reef to allow naval transport vessels with platforms and drilling equipment to enter the lagoon. The atoll has no natural entrance.

But Moruroa's star is not about to



A platform on Moruroa which drills the shafts used in the testing of nuclear bombs

wane as Fangataufa's rises. Tests are not being transferred entirely from one atoll to the other. The program will be more concentrated by using both atolls at the same time, with the bigger blasts on Fangataufa.

Moruroa, where 97 nuclear bomb blasts have exploded since 1966, should retain easily its "distinction" of being the dirtiest island in the world. The scoreboard — measured by the number of atomic, hydrogen and neutron bombs exploded by the French (F), Americans (US) and British (UK) — looks like this:

Moruroa (F) 97  
 Enewetak (US) 43  
 Christmas (UK/US) 32  
 Bikini (US) 23  
 Johnston (US) 7  
 Fangataufa (F) 4

For 20 years, French Polynesians have been protesting to Paris about France's use of Moruroa — the last big demonstration was in Papeete, Tahiti, in February — and they have been heartened by the recent news that Australian Foreign Minister Bill Hayden has called for a report on what suitable geological structures exist within France for underground nuclear testing.

Australia appears to be getting ready to ask why the tests can't be done in France. The Australian Office of National Assessments in Canberra is to prepare the report for Hayden, the idea being that if it can be shown that France has the capacity to do the job in its own backyard, Australia will be able to increase pressure to end testings in the Pacific.

The official French line, touted by ministers and ambassadors and repeated in Australia recently, is that the nuclear tests at Moruroa are harmless and will go on "indefinitely." The French say that since 1975, tests (which started — in the atmosphere — in 1966) have been underground and all radioactive substances emitted have been trapped in the solid rock foundation of the atoll at a depth of 600 to 1000 metres.

But it can be argued that the 58 underground blasts so far at Moruroa and the two at Fangataufa are as injurious to the health of the people living in the Pacific as the 39 above-ground tests over Moruroa and the two at Fangataufa between 1966 and 1974.

Moruroa, which is 26km long by 13km wide, like all atolls, can be best described as a coral tower standing on a



## Writers of the Pacific

**THE WRITERS:** Dr Bengt Danielsson and his wife, Marie-Thérèse, have lived for many years on a beautiful 2.5ha property in the Paia district of Tahiti. She is an elected member of the local council. Their long association with French Polynesia began in 1947 when Danielsson, then a young Swedish anthropologist, arrived rather dramatically by raft from South America as a member of the celebrated *Kon-Tiki* expedition and they married the following year. He is Swedish consul in French Polynesia.

Bengt Danielsson's list of books and publications on French Polynesia include a recently published six-volume history of the area, *Memorial Polynésien*, a biography of Gauguin and *Moruroa, Mon Amour*, a best-selling book about the Moruroa tests, published in 1974.

— Stuart Inder

submerged basalt mountain of volcanic origin. Coral is highly porous and basalt is extremely brittle and has been found to be a poor insulation material.

Bikini and Enewetak, where the Americans tested bombs in the atmosphere between 1946 and 1958, are, as atolls, equally unsuitable for underground testing.

The British, who in the late 1950s used a Pacific atoll, Christmas Island (not to be confused with the island in the Indian Ocean), for atmospheric testing, likewise decided that atolls could not be used for underground testing and accepted an American offer to share underground facilities in Nevada.

President De Gaulle, to whom the Americans made a similar offer, turned it down and ordered the French army to occupy Moruroa.

It is now well-known that in 1974, when the newly-elected President Giscard d'Estaing had to bow to international pressure over atmospheric testings, the French military favored establishing a base in metropolitan France for underground tests.

Their main consideration was that it would be safer but an equally weighty argument was financial: it would be much cheaper to do the underground tests at home in France than to continue

to send material and personnel half way round the world.

Giscard rejected this solution for political reasons. Thirty million French voters would object, whereas there was no political threat from the comparative handful of French Polynesian voters.

So, in 1975 underground tests began at Moruroa. Each time a bomb was exploded in the basalt foundation — and many were of a yield five to 10 times that of the Hiroshima bomb — seepage into the ocean occurred through the cracks which opened up around the 100 to 200-metre-wide explosion chambers. Simultaneously, radioactive gases rose to the surface through the porous coral layer.

The technicians had the delicate and difficult task of erecting oil rigs on the narrow coral ledge of the atoll and drilling through porous coral and brittle basalt to depths of 1000 metres.

By the end of 1981, they had sunk 44 shafts in the 22km stretch of coral reef at their disposal — the south coast of Moruroa — and had exploded 32 atomic and 12 neutron bombs, with varying degrees of success.

Since these explosions produced cavities 50 to 150 metres in diameter every 500 metres or so, the engineer in charge, Claude Aycoberry, appropriately referred to the atoll as "Swiss cheese."

The damage done underground was mirrored eventually on the surface as dozens of faults appeared in the reef, some almost two metres wide and several kilometres long.

But there have been other problems. Little by little, horrifying accounts of serious accidents have leaked from Moruroa. The accidents usually were due to miscalculations, with the explosion bigger than expected or igniting at the wrong level (having got stuck in the shaft) and, on each occasion, great chunks of the outer wall of the atoll were torn out.

The French geologist Haroun Tazieff, who twice visited Moruroa on official missions, estimated in a semi-confidential report that the biggest accident so far, involving a 150-kilotonne bomb on July 25, 1979, pried loose one million cubic metres of coral and rock.

These accidents sometimes have caused huge tidal waves which have swept through the Tuamotu group — of which Moruroa is a part — causing additional havoc.

Apart from accidents and other difficulties, since November 1980 Moruroa has suffered considerable destruction from cyclones. Until then, French Polynesia had been remarkably free from cyclones but seeming far-reaching climatic changes in the eastern Pacific this decade have produced eight violent cyclones, five of which have swept over

Moruroa or passed close enough to bring giant waves washing over parts of the atoll.

The north coast of Moruroa was badly hit each time. Nothing could have been more unfortunate for, since 1966, this has been the place where base commanders have dumped contaminated material such as clothes, tools, timber and metals, "sealed" in plastic bags or metal drums, until a pyramid covering an area of 30,000 square metres has been built up.

During the same period, between 10 and 20 kilograms of plutonium, the deadliest of all radioactive substances, with a half-life of 24,400 years, has been spilled on the nearby reef.

This information got to the public only because a report compiled by French technicians at Moruroa was leaked to the press by their trade union.

After the leaking, the admiral in charge of the nuclear-testing program announced regularly that a long and slow clean-up operation was under way. The truth was that most of the job has been done by cyclones. That is, a considerable quantity of radioactive waste, including plutonium, was scattered around the islands or is still adrift in the Pacific.

It has been a matter of constant surprise in France and in French Polynesia that President Mitterrand has not stopped the Moruroa tests. The most plausible explanation is that when he was installed in 1981 he was confronted with an accomplished fact. The French nuclear strike force, although of doubtful military value (it totals 180 nuclear megatonnes to Russia's 30,000) was a reality and, if he scrapped it, the 300 billion French francs expended would go down the drain.

But what is the justification for continuing to test bombs? While France already has built all the nuclear submar-

ines and missile silos she can afford, the Paris bureaucrats have explained that nuclear weapons are like cars and that it is highly desirable to improve existing models and design new ones.

France has no plans to give up testing in the Pacific. If material proof is required, it is the recent construction on Moruroa reef of 23 high "refuge platforms" at 700-metre intervals to ensure the survival during future cyclones and tidal waves of all 3000 men and 12 women stationed on the island.

Furthermore, a thick concrete wall is being built around the living quarters, offices and workshops at a cost of 22 million French francs (\$2.85 million).

And, of course, the decision to take the pressure off Moruroa by exploding the bigger bombs at nearby Fangataufa is further proof that the French mean to stay in the Pacific. □

