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مقال يفتر الى الدقة ونقد كالمى ومحمد تهرنج
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Was this Saddam's bomb?

<http://www.sunday-times.co.uk/standing/sti/contact.html><http://www.sunday-times.co.uk/standing/sti/contact.html>

A female eye takes aim in the Iraqi sky



`javascript:browserNewWin ('nuclear_1.html', 770, 570, 'Nuclear');`

The mysterious visitor emerged from the shadows outside my hotel in Kurdish controlled northern Iraq, just as a crisis between Washington and Baghdad was reaching a climax in January 1998. His appearance set alarm bells ringing. Several westerners had recently been murdered in Kurdistan, and Iraqi intelligence agents were blamed.

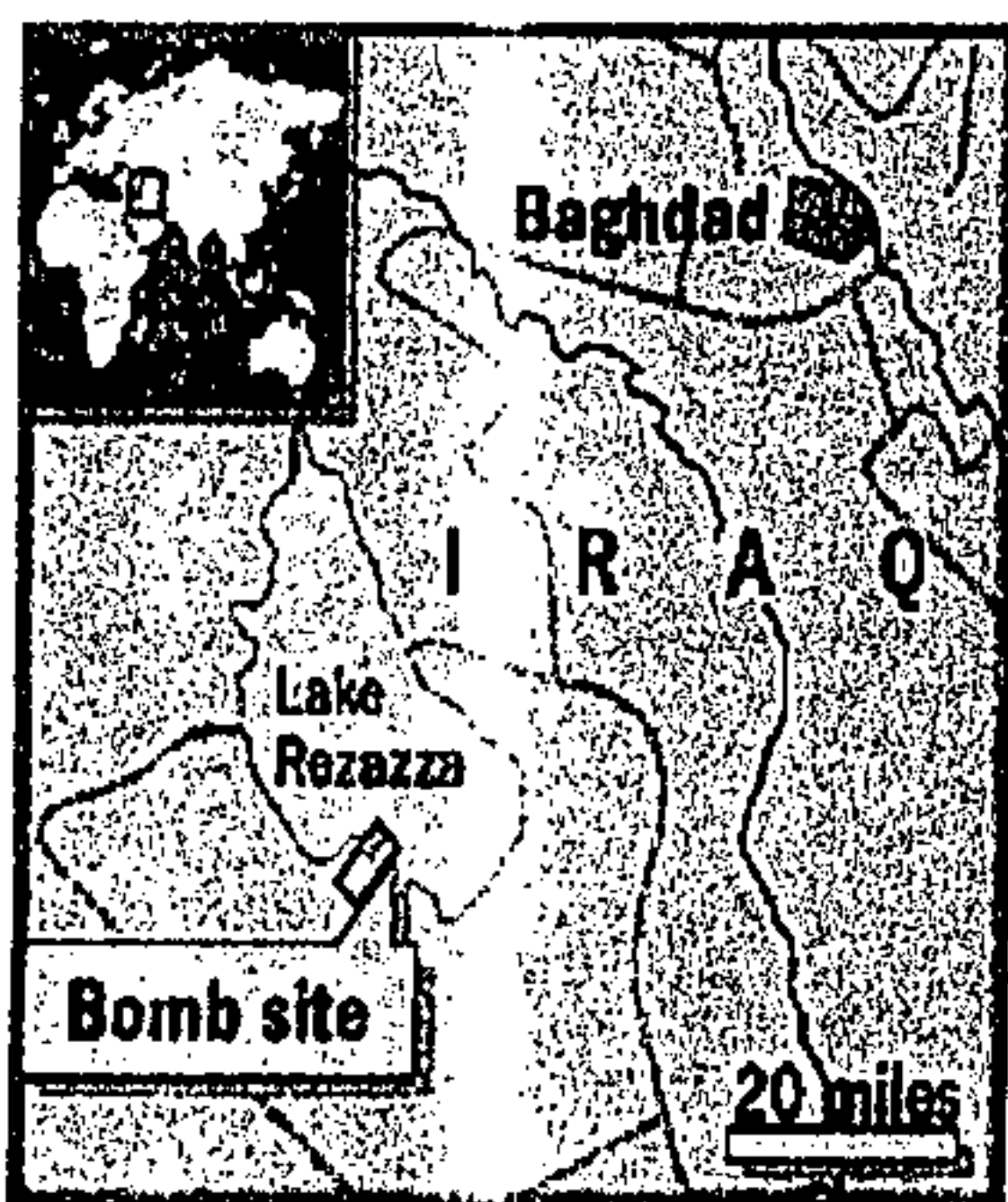
I was there to investigate the long-term impact of Saddam Hussein's gassing of the people of Halabja, the town he drenched in lethal chemicals in 1988. Iraq knew of the mission and my team was at risk. The visitor was visibly nervous and shivering, and the guards on the hotel steps were suspicious. Although it was bitterly cold, he was wearing a silk summer jacket.

"Are you a journalist?" he asked my cameraman, who was filming outside the hotel. He was keen to talk about the Iraqi nuclear programme, but I was suspicious. After the Kurds had identified him as a bona fide nuclear scientist, I invited him back to the hotel.

"I am in danger here in Iraq," said "Leone", as we came to know him. "I signed a document every six months agreeing not to talk to foreigners. It said I and my family would be executed if I broke the agreement. If I reveal secrets to you, my life is at risk."

Nonetheless, Leone talked on - and he told me an astonishing story. If true, it completely contradicts the western consensus about the shortcomings of Saddam's nuclear weapons programme.

Intelligence agencies, including Israel's Mossad, insist that Saddam has never had the technology or the fuel to fulfil his ambition of creating a nuclear arsenal. Yet Leone, and other defectors who have corroborated his story, insist that Saddam not only has nuclear weapons but has tested them.



SITTING in a scruffy hotel room in Sulaymaniyah, Leone explained in detail the work he said he was involved in. He described himself as a military engineer who was a member of the Iraqi Atomic Energy Commission. Simultaneously, he said, he worked for the Republican Palace in Baghdad.

"There is a special scientific department there for supervising all activities for the Iraqi mass destruction weapons, especially the missile programme. So I was in a very privileged position. I had my own bodyguards and my special status protected me. I was authorised to travel to many secret sites all over Iraq. Very few can do this."

Leone worked through the night in the hotel, drawing detailed diagrams of nuclear weapons. "This is Iraq's nuclear bomb," he said,

spreading diagrams on the bed. "I saw it in the workshop in Tuwaita many times. This is the first successful prototype. When they finished it in 1986, they took it to the president by car, but without uranium. All members of the delegation got cars as presents for their work. Between 1985 and 1989, I saw this device at least five times."

He said it worked on the principle of the Hiroshima gun-type bomb, in which high explosives drive pieces of highly enriched uranium together at high velocity. This triggers a nuclear explosion.

Leone's design was unusual. The uranium was contained in a series of finely engineered tubes, like the control rods of a nuclear reactor. It was not the type of design one might find from a search of textbooks or the internet.

He showed me a photograph of what he said was a gun assembly nuclear warhead bought off the peg from Russia. Six devices were purchased during the late 1980s, he said, all of them without fuel. Iraq managed to purchase fissile material on the black market for at least one warhead.

Leone then made the staggering claim that Iraq had conducted a nuclear test before the Gulf war.

"The test was carried out at 10.30am on September 19, 1989, at an underground site 150km southwest of Baghdad," he said. "Saddam had threatened us with the death penalty if we told anybody about it.

"The location was a militarised zone on the far shore of Lake Rezzaza, which used to be a tourist area.

There is a natural tunnel there which leads to a large cavern deep under the lake. Labourers worked on it for two years, strengthening the tunnel walls.

"There was a big Republican Guard camp nearby and dirt roads leading to the site. You could see the thick high-tension cables on the ground, which disappeared into a huge shaft entrance. I saw one which must have been 20km long. The command post for the test was in a castle in the desert not far away.

"We went to a lot of trouble to conceal the test from the outside world. The Russians supplied us with a table listing US satellite movements. They were always helping us. Every six hours, trucks near the test site changed their positions. They had carried out a lot of irrigation projects in the test area during the year before as a diversion. But these weren't agricultural workers. They were nuclear engineers. It was a nice cheat.

"We had built a special platform for the bomb in the Tuwaita workshop and this was sent to the test site. This allowed the device to be jacked up inside the cavern. Then we sealed off the cavern by blocking part of the tunnel inside with a 50-metre concrete plug and piling up sand and rocks behind that. All this was intended to muffle the explosion, and it's known as 'decoupling'.

"I saw the air-conditioned yellow truck carrying the bomb near the site at dawn a few days before the test. They always used this vehicle to transport it. On its side was a sheaf of wheat symbol with 'Ministry of Trade' written below it. I saw the people in charge of the test head off in that direction as well - Dr Khalid Ibrahim Sayeed and Dr Jafaar Dhia Jafaar.

"When the test happened, there was no dust or anything. The air just vibrated. I was in my car at the time and it just shook. It reached about 2.7 on the Richter scale, and wouldn't really have been noticed by seismic stations outside Iraq."

Leone said that Hussein Kamel al-Majid, Saddam's brother-in-law, was in overall charge of the test.

[Kamel defected to Jordan in 1995 and was later murdered.] "After the test, they destroyed the entrance to the tunnel. They also removed any evidence to indicate that a test had happened.

"They washed out the shaft with water to remove any radioactivity. They then filled it with cement, rocks and sand, and destroyed the entrance. They also created a long river channel near the shaft entrance to drain off contaminated ground water."

Leone showed me a letter signed by Kamel that seemed to confirm the test. Written in Arabic and dated September 19, 1989, it read: "With the help of God and the effort of the heroic freedom fighters in the military industrialisation institution and the atomic power organisation, we have successfully completed Test Number One of the Iraqi Atomic Bomb. Its strength was 10 kilotons and highly enriched uranium was used with a purity of 93% . . . With this experiment Iraq is considered the first country in the world to carry out this sort of experiment without the knowledge of the international monitoring authorities."

I still had a problem with Leone's story. Iraq did not have the industrial capacity to produce enough bomb-grade fissile material for a test. Leone said the Iraqis had bought it on the black market.

"We had a purchasing department whose job was to buy highly enriched uranium. Brazil purchased highly enriched uranium from South Africa and then delivered it to Iraq. I am not talking about tons. It was between 20 and 50 kilograms. France also supplied us secretly with highly enriched uranium after the Israelis bombed the Osirak reactor in 1981."

The Rezzaza test, according to Leone, sealed the fate of the Observer journalist Farzad Bazoft, who had been investigating the cause of a huge explosion at a military complex south of Baghdad.

The Iranian-born reporter was arrested on September 15, four days before the test date, after taking soil samples near the al-Qaqa facility, about 80km from the test site. He was executed for espionage the following March.

I knew the Bazoft story well. In 1988 I had entered Iraqi Kurdistan and gathered soil samples which proved that the Iraqi regime had used chemical weapons against its own people. Bazoft had reportedly seen my film *Winds of Death*, which documented this horrific crime, and attempted to emulate my methods, with tragic results.

"He was accused of working for a foreign intelligence agency," said Leone. "The authorities were convinced he was trying to find out about the planned Rezzaza test. This was a state secret of the highest importance and, once they even suspected this, he was never going to be released."

In August 1990, Saddam invaded Kuwait. After his defeat in the ensuing Gulf war, UN arms inspectors discovered an Iraqi crash programme to build a nuclear bomb, known as PC3. But, according to Leone, they missed the most successful part of the programme.

"They thought they had stopped the Iraqis from building the bomb, but they overlooked the military organisation codenamed Group Four. This department is a comprehensive section that was involved in assembling the bomb from the beginning to the end. It was also involved in developing launching systems, missile programmes, preparing uranium, purchasing it on the black market, smuggling it back into Iraq."

Leone told me that Group Four successfully developed a gun-type device at the nuclear weaponisation centre at al-Atheer. Unscm, the UN inspectorate, was aware that the Iraqis were working on an implosion-type nuclear device there, but knew nothing about Group Four. All evidence of its existence had been removed before they arrived in Iraq, Leone said.

The Iraqis went to extraordinary lengths to protect their secrets. In one incident on 1991, the UN nuclear weapons inspection team managed to film sensitive documents listing names of key personnel in the nuclear programme. Leone claimed the Iraqi official who allowed access, Adel Fayed, was later murdered.

"He was killed by knives in his home," said he. "They cut off his head. Everyone knew that Saddam's cousin, Ali al-Takriti, was responsible. Nobody talked to Unscm after this assassination."

To avoid Unscm detection, scientists from the main weaponisation groups were spread throughout Iraq. Group Four was relocated in civilian aircraft factories at Taji in the north of Baghdad. Using the factories as a front, they imported "aircraft parts" from Russia and eastern Europe. These consignments often concealed components for the nuclear programme.

Group Four also bought up American and Russian designs for gun-type nuclear bombs. Leone alleged that these were acquired with help from India.

Leone said his pivotal job brought him into close contact with Khalid Ibrahim Sayeed, Group Four's leader, a military engineer whom he met regularly to discuss weapons design.

Another important bomb design organisation, Group Five, operated out of an agricultural machinery factory near Mosul in northern Iraq, said Leone. Group Five scientists worked on a thermonuclear device, he said. The components were assembled at secret locations under Mount Hemrin, 140km northeast of Baghdad.

In 1993, Saddam awarded Group Five's leader, Dr Ahmed Abdul Jabar Shansal, the Golden Sword of Mesopotamia (First Degree), the highest decoration in Iraq, for completing work on a nuclear implosion bomb, a far more complex design than the gun-type, Leone said. In 1995, Group Five was renamed the State Enterprise for Extracting Industries.

Leone's disclosures were detailed, and his knowledge of personnel in the programme was encyclopaedic. His bomb diagrams demonstrated specialist knowledge of nuclear weapons. His most stunning claim, however, was that Iraq now possessed three Hiroshima-type bombs, three implosion weapons and three thermonuclear weapons.

"I am certain about this," he said. "They are stored deep underground in a bunker in the Hemrin mountains."

Having disgorged this information, Leone disappeared into the cold streets of Sulaymaniyah. His evidence contradicted the claims of the International Atomic Energy Agency (IAEA) that Iraq's nuclear weapons programme was more or less dismantled after the Gulf war. Was he a hoaxer? I tracked down people in Kurdistan who knew him and a picture began to emerge.

Leone had defected in the mid-1990s to the safe havens of northern Iraq. Seeking sanctuary for his family, he had met officials from the West's four-nation military co-ordinating centre. They flew him to Ankara to debrief him but never gave him what he wanted: sanctuary in the West.

He tried to reach Europe through Ukraine and approached the British embassy in Kiev. Diplomats arranged for experts from the IAEA to fly in to debrief him, but Leone refused to co-operate when he realised they were unwilling to provide visas for the West.

"There was no doubt he was genuine," said Arras Habib Kareem, who debriefed him in Kurdistan for the opposition Iraqi National Congress (INC). "When other Iraqi nuclear scientists came north they recognised him within seconds. He knows a lot about the Iraqi nuclear programme. He knows about the test areas, the facilities and the equipment the Iraqis used."

"He once provided me with a list of 200 names of people working in the programme, with their rank and what each was doing - 90% of what he said was later confirmed by other Iraqi scientists who defected." Seeking expert advice, I turned to Dr Frank Barnaby, the former nuclear weapons scientist who vouchsafed the authenticity of Mordechai Vanunu's evidence of the Israeli bomb programme in 1986. I asked him to assess Leone's drawing of the 1989 test device.

"The design is unusual, but I see no reason why it shouldn't work if it is well engineered," Barnaby said. "I find it impressive. All the nuclear physics he is talking about is reasonable. He has to be taken seriously because he is obviously competent. The very least we are dealing with here is a radiological bomb, a nuclear weapon in its own right, which Iraq was suspected of developing."

Could it be a hoax? "If it were, Leone would use a more standard design, not invent an unusual one," replied Barnaby. He described Leone's disclosures as more dramatic than Vanunu's, because they contained more detailed information about weapon design.

If Leone was telling the truth, surely the blast would have been detected by seismologists?

Officials at the International Seismic Centre near Newbury said detecting an event of this size - about 2.7 on the Richter scale - would be "extremely difficult" in this region, especially if it had been decoupled, as Leone claimed.

I visited Sulaymaniyah's local seismic station. It is 640km from the Rezzaza site, and its director confirmed that its range was limited. "Whether we would pick up an event 100 to 200km away would depend on its magnitude," he explained. "If it's really big, we would record it. If it's small, then we may miss it."

Records from 1989 showed no trace of an event on September 19, but a map of Iraq's main earthquake zones provided a potential clue. The Rezzaza region is virtually earthquake-free, but the map showed one exception - a tremor marked by a red circle on the southwestern shore of the lake, close to Leone's test site. Nobody at the seismic station knew when this tremor occurred, except that it was after 1985 and before 1991.

I needed corroboration from other defectors from Iraq's nuclear weapons programme. Most were too scared to talk. One scientist living in northern Europe, who had received a video from Baghdad of his sister being sexually abused by security agents, refused to have anything to do with me.

But I tracked down a "Dr Imad" who had worked for Group Four, and persuaded him to meet me in Denmark. The story he told, unprompted by me, fitted Leone's.

"There were two groups working on two different projects. One was the implosion bomb under Dr Jafaar and the other the gun-type device, under Dr Khalid Ibrahim Sayeed," Imad said "Dr Khalid headed Group Four."

Again echoing Leone, Imad continued: "The headquarters of both groups was at al-Atheer, the nuclear weapons design centre south of Baghdad. The UN inspectors only discovered one project there. They missed the Group Four programme, which had the same funding but was far more successful. This was Iraq's best-kept secret."

Imad was adamant that the Iraqis had conducted a nuclear test, although he did not know where. "Group Four was working specifically on a Hiroshima-type bomb. In 1986-87, they began to run computer simulation models, but I know for a fact that in 1989 they fed in real test data."

"From an actual test?" I asked.

"From an actual test. They modified the model according to the test data. They finished it."

"So does Iraq have the bomb?"

"Iraq tested the bomb and they have it," he said.

He also described how a senior Iraqi scientist had brought the fuel from Brazil in a private jet and was rewarded with money and land.

Imad's evidence meant that two former senior Iraqi scientists - one in Kurdistan and the other in Denmark - had independently confirmed that an organisation called Group Four not only existed but had successfully tested a gun-type atomic bomb. If this was true, the UN inspection teams had missed half of Iraq's nuclear programme. It was difficult to comprehend failure on such a massive scale.

Yet Unmovic, the UN agency that took over from Unscm after inspectors were barred from Iraq in 1998, was completely in the dark about Group Four. Dr Hans Blix, Unmovic's executive chairman, who also headed the IAEA for 16 years, thought a nuclear test was improbable.

I turned to Dr David Kay, a former head of the UN nuclear inspection team. He suspected that the Iraqis were working on a gun-type bomb and was not quite so adamant in refusing to believe that one had been tested.

"One thing I've learnt in Iraq is that it is unwise to totally exclude anything, because in fact the Iraqis spent a lot of money and got a lot of assistance from other people. They were always trying to do it, and they did it under totalitarian pressure. So people can occasionally do miraculous things," he said.

Kay knew of Group Four - he called it a "major weapons design group operating under the auspices of Saddam himself" - but he had discovered few details about its activities.

It was Kay who uncovered Iraq's crash programme to build an implosion device. He had been amazed at its size. "What we found was more or less an exact replica of a crash US Manhattan Project during the second world war. The facilities were large in number. I remember the initial briefing identified three or four sites. There turned out to be more than 50. We now think there were somewhere between 10,000 and 20,000 working on the programme. The best guess of costs is somewhere in the order of \$10 billion."

Late last year I turned to the most important Iraqi defector to reach Europe, Abbas al-Janabi. He was personal assistant to Saddam's son, Uday, for 15 years, was imprisoned eight times by his former boss and routinely tortured. He finally fled the country with his family in 1998.

His cousin, Fadil al-Janabi, was high in the Iraqi nuclear programme and other members of his clan were highly placed within Group Four. His response to my probing was succinct. "A nuclear test was carried out - in 1988 or 1989 - in an underground site beside Lake Rezzaza," he said.

He pointed out the test site on a map of Iraq. It was close to Leone's location. "It's a military zone," he said. "I doubt whether UN inspectors ever visited it." He himself had clambered down into a vast underground cavern.

He learnt of the successful test from Uday, who, he said, was unable to conceal his jubilation. "They were talking about the test, about their ability to produce a nuclear bomb. They were talking about a new powerful Iraq," said Janabi.

Was it definitely a nuclear test? "Definitely. There is no doubt about that. It was a small nuclear test." Who had supplied the highly enriched uranium for the bomb? South Africa, he said, via South America.

He claimed to know the person who had negotiated with the South Africans. "He was talking about 50kg. Negotiations began in 1986 and the delivery was made in 1988."

In the mid-1990s, on a Channel 4 investigation, I visited Valindaba, the facility near Pretoria which produced South Africa's bomb-grade uranium. Officially, I was told the plant never achieved its design output because of technical problems. In its lifetime, it was said to have produced weapons-grade uranium for only six or seven devices. But a plant supervisor let slip that it had functioned flawlessly from 1976 until 1989. It could have produced enough for 20 simple uranium bombs.

So had South Africa sold off surplus stocks? I contacted a former intelligence official under the apartheid regime who had helped procure components for his country's nuclear weapons programme on the black market. "The story is true," he said. "About 50kg were sold to the Iraqis."

For the final stage of my investigation, I used the latest space technology. I bought pictures of Lake Rezzaza taken in July 1989 - two months before the claimed test - by a French Spot Image satellite and compared them with images from the Indian IRS1D spacecraft shot in September 2000.

Professor Bhupendra Jasani of King's College, London, analysed them. He quickly discovered the tunnel Leone and Abbas al-Janabi had told me about. It was 4km long and 400 metres wide and stretched under Lake Rezzaza. Roads led from a railway line to the shaft entrance, a huge rectangular structure. Many lorries could have driven abreast into the tunnel.

To the southwest, Jasani found more evidence of an unusually sensitive military zone - an army base with some 40 buildings, each 40 by 70 metres in size, and a massive missile base nearby.

The September 2000 image showed that 60% of these buildings had been destroyed. Jasani and I assumed this must have been in allied air attacks. When I mentioned this to Leone, however, he said the Iraqis themselves had blown them up to cover up the evidence. At the UN headquarters in New York, I showed my satellite images to UN arms inspectors who confirmed they had never visited the western shore of Lake Rezzaza.

The 2000 picture also provided a vital clue. The shaft entrance was destroyed and the tunnel blocked up, exactly as Leone had told me. I got hold of a third satellite picture from 1990, which revealed that this blocking had happened before the Gulf war in January 1991.

"If you wanted to hide something, I guess this is exactly what you would do," said Jasani.

But was it consistent with this being a nuclear test site? "The infrastructure is certainly consistent with test activity. You require storage sites, vehicle activities, communications systems like the train, railway tracks and roadworks. All of those things you can certainly see on the image," said Jasani.

The tunnel and the entrance were huge and the manpower needed to block it up massive. Leone had told me that thousands of political prisoners worked on the tunnel after a presidential amnesty.

"They were well fed and lived in comfortable caravans. In return, they worked hard. But none of them came out of it alive," he said. "Many were contaminated with radioactive waste. Friends working for Iraqi security who were guarding them said they were buried in caves nearby. The Iraqi regime hoped the secret of the Rezzaza lake test would die with them."

"Hussein Kamel gave the order to kill these people . . . I was disgusted by it and it's one of the major reasons I fled."

This grotesque story was corroborated by Imad. He said he was aware that political prisoners who worked on the Rezzaza tunnel were massacred by Iraqi security guards to conceal an unspecified secret military project. He did not know this was the nuclear test site.

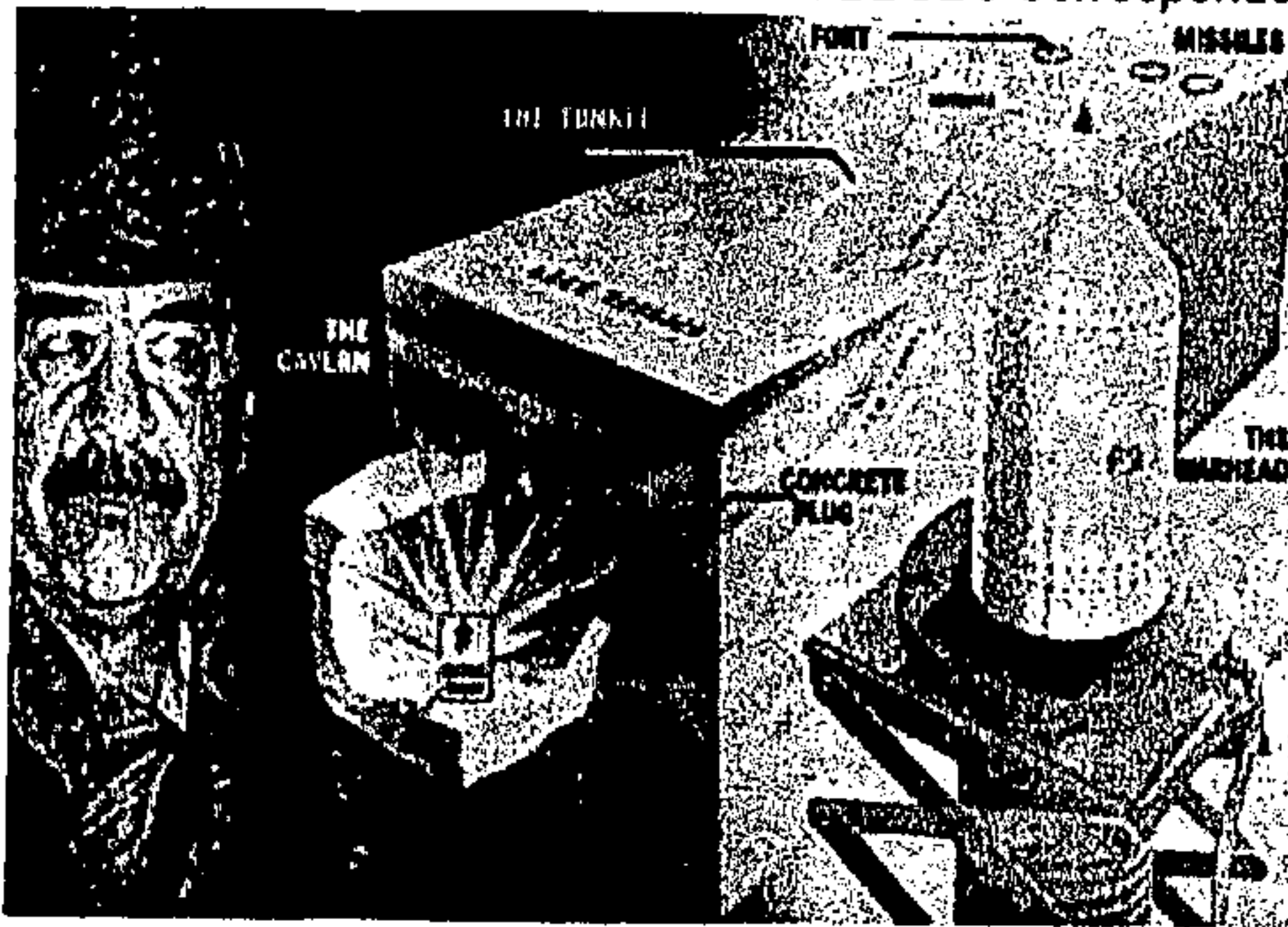
Last year Leone and his family finally reached the West with the help of the UN refugee programme. Although comparatively safe, he fears reprisals. Last week his brother was arrested in Iraq after the Anglo-American air raids.

Leone no longer needs to draw attention to himself to get help, yet he continues to give more details of the bomb programme, insisting that his story is true.

Western intelligence sources, while recognising that he is well informed, continue to insist that he and the other Iraqi sources I have spoken to are wrong about the test. Personally, I think the evidence is compelling.

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Saddam's Bomb will be broadcast on BBC2's Correspondent programme at 6.20pm next Saturday



THE CAVERN: The device was raised on a platform inside a massively enlarged cavern deep under the lake

THE TUNNEL: Iraqi engineers enlarged a natural tunnel under Lake Rezazza, southwest of Baghdad

FORT: The test was said to have been controlled from an old fort

MISSILES: The test site was a highly militarised area with a huge storage site and a missile base

THE WARHEAD: A Hiroshima-style 10-kiloton device was exploded underground before the Gulf war, according to a former member of Saddam's secret weapons programme

CONCRETE PLUG: To avoid detection, the tunnel was plugged with concrete and filled with rubble

Next page: A female eye takes aim in the Iraqi sky

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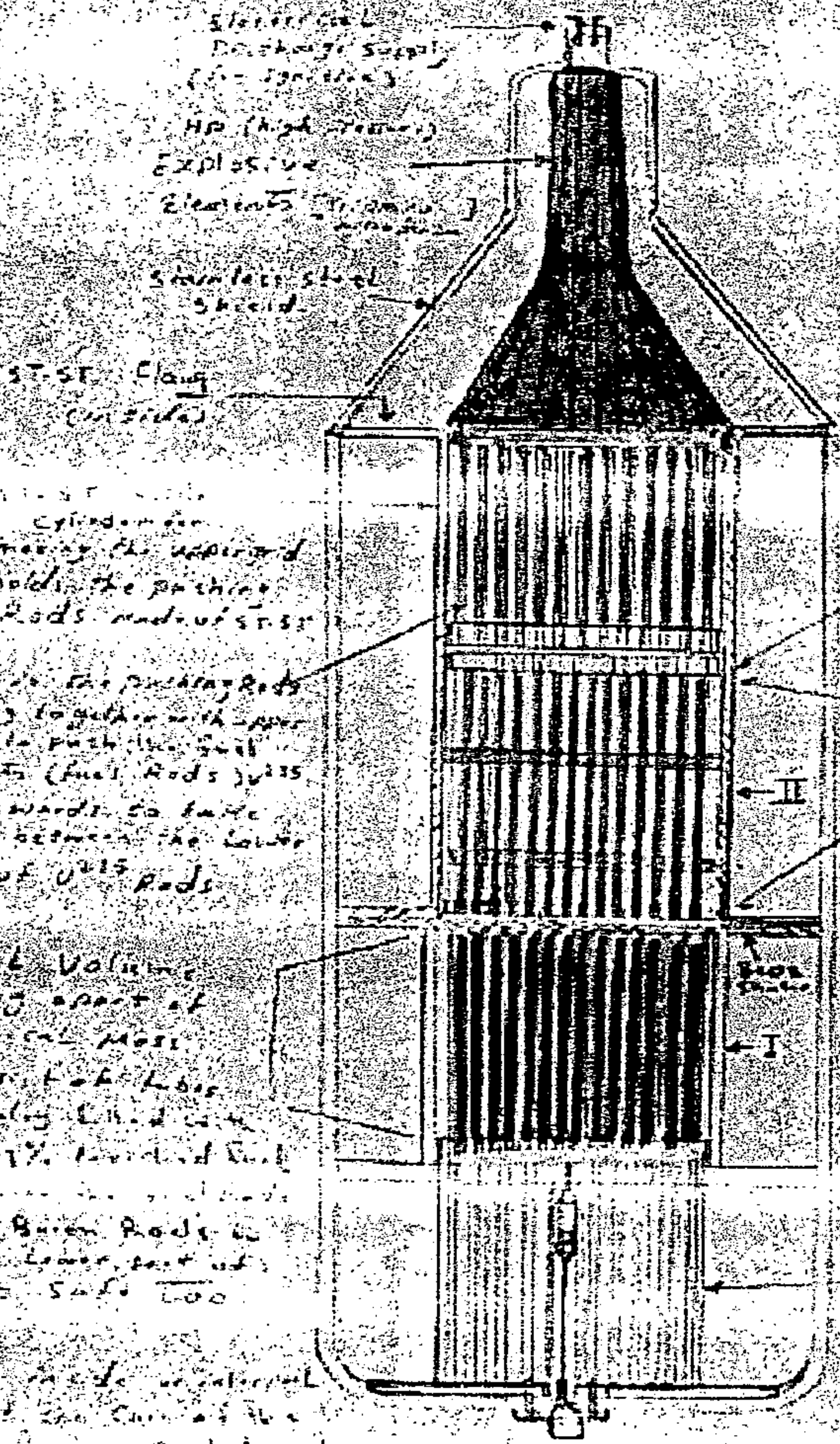
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[Iraqi Nuclear Bomb]
IAEC

This is the explosive material to push the upper parts down wards to make insertion between the upper parts I and the lower part II

out side view of Iraqi nuclear bomb while center painted
Tested in 1980 April 6th at 10 o'clock AM South west mosque

L = 103 cm
D = 72 cm



These are the pushing rods moving together with upper part to push the fuel elements (fuel rods) into place between the lower mass of U235 rods

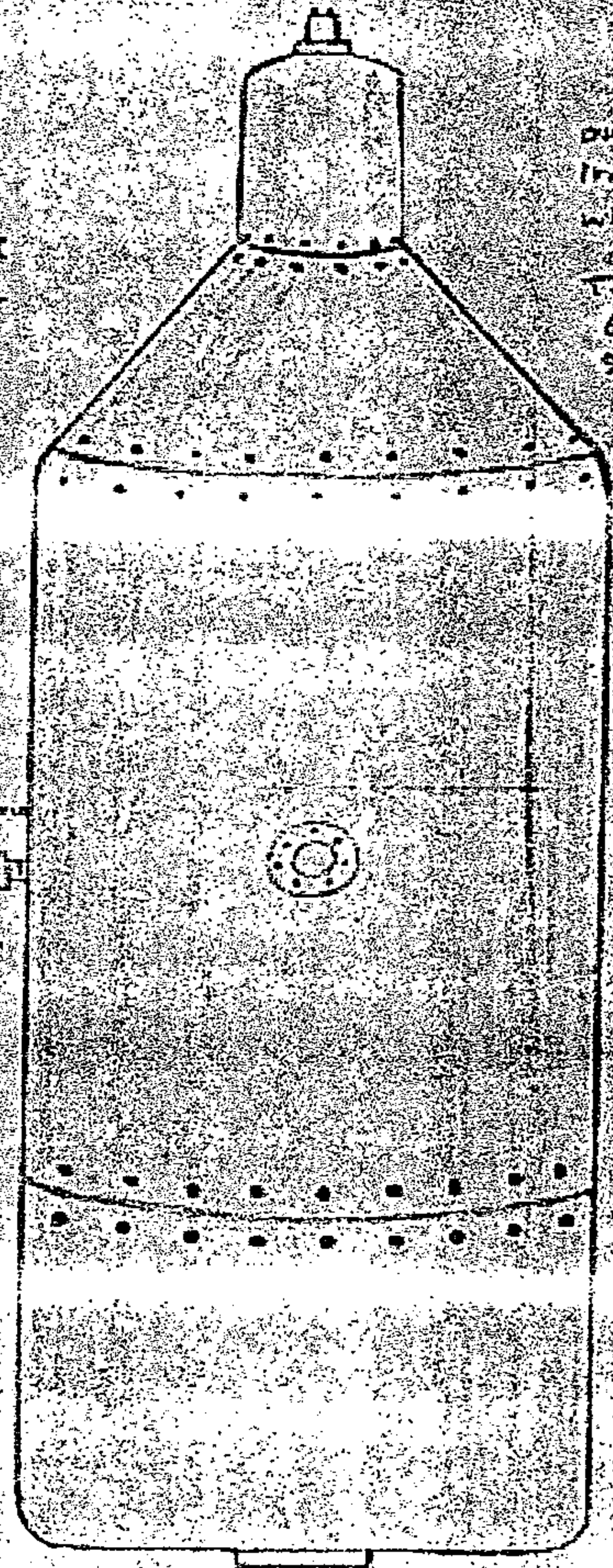
Critical Volume containing part of the critical mass. The central fuel rods of Zircaloy lined with U235 91% enriched fuel

These are the boron rods which are used to make the lower part of the bomb safe too

Note the inside of internal surfaces of the bomb are coated with Boron to make it safe material

upper part of critical mass
central Boron Rods it will stay in the same position when the pushing Rods push the fuel rods
Cylindrical Liner will contract at a rate of 5 cm/sec with half the length the moving Zircaloy tubes which will be holding the pellets and fixed Boron Rods as usual whenever it functions to make the fuel rods safe when the upper part moves down ward it push the fuel rods to take place of the Red Colour of the lower pieces of Boron Rods

The Boron Rods contains like containing tubes



U = nuclear source fitting