'France exploded its first atom bomb in Reggane at seven o’clock on Saturday morning' from Le Monde (14 February 1960)

Caption: On 14 and 15 February 1960, the French daily newspaper Le Monde announces the news of the explosion of the first French atomic bomb, on 13 February in Reggane, in the Algerian Sahara.

Source: Le Monde. dir. de publ. Beuve-Méry, Hubert. 14.02.1960 - 15.02.1960, n° 4 686; 17e année. Paris: Le Monde. "La première bombe A française a explosé samedi matin à 7 heures à Reggane ", auteur:Vichney, Nicolas , p. 1.

URL:
http://www.cvce.eu/obj/france_exploded_its_first_atom_bomb_in_reggane_at_seven_o_clock_on_saturday_morning_from_le_monde_14_february_1960-en-90a44d66-0769-4616-8cd9-6ff8a844fd0b.html

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How the experiment went

Clearly, the main aim of France's nuclear specialists was to prove that they, like the Americans, Soviets and British, are able to use atomic energy for military purposes. But for them the explosion must have been as much an experiment as a demonstration. Building an atomic weapon is a tricky business, and the device just tested is obviously not operational in its present state. The success of the operation, of which we have very few details for the time being, shows that the calculations made were correct on the whole, and that the firing mechanism worked properly. The experiment must have provided a great deal of data, which the scientists will now be analysing. Their conclusions will no doubt be tested in further experiments.

Having taken the first step, will they try to go further and build a hydrogen bomb? Some think so, but first, they will have to make the atomic bomb operational.

A metal tower

The device itself was designed to provide as much experimental information as possible. The components were flown in and stored on site in a special building. The bomb was mounted on top of a tall metal tower. The detonation was commanded from a forward post, and the command was transmitted to the tower via a coaxial cable. During the half-hour preceding the explosion, all operations were carried out automatically to prevent any human error due to the emotional build-up.

Measurements

Two types of measurement were made during the experiment. The 'internal' measurements were designed to show how the bomb actually functioned and to enable a diagnosis of the device's actual behaviour to be drawn up once the data has been analysed.

The 'external' measurements were designed to show the physical effects of the explosion. High-speed cameras were mounted on short towers relatively close to 'ground zero' to record images of the fireball at an extremely rapid rate. Other measuring devices were installed in an underground bunker. The readings were noted, or the measuring equipment removed, as soon as it was possible to enter the area where the equipment had been installed. Naturally, the personnel required to work in the area contaminated by radiation had to wear special protective clothing.

Electromagnetic radiation

French specialists were particularly interested in observing the electromagnetic radiation caused by the explosion, since the existence of such radiation enables nuclear tests to be detected at great distances. New equipment for measuring it had been devised in laboratory conditions, but it had yet to be shown to work properly in climatic conditions very different from those in which it was developed. Another problem was that the phenomena produced in a laboratory and those resulting from a full-scale experiment are of a quite different order of magnitude.

But the desire to gather the greatest possible amount of information on the explosion was not confined to turning the tower on which the bomb was placed into a laboratory or to positioning measuring devices all around it. The radioactive dust formed in the explosion was collected, both from within the mushroom cloud and from the whole area around 'ground zero'. Measurements of radioactivity were also taken by aircraft flying close to the ground. The radioactive cloud, which is moving eastward as predicted, is being monitored by radar.

The military effects of the explosion

While the atomic scientists were thus attempting to determine the power of the device (we have no information yet on this essential point) and its actual behaviour, military and medical experts were conducting two other types of measurement.

The military experts were attempting to evaluate the effects of the explosion. For this purpose, a large amount of military equipment — tanks, planes, etc. — was positioned around the pylon. The navy even built superstructures of warships in the middle of the desert. They were placed in different positions relative to 'ground zero' to assess the effects of blast and thermal radiation. In order to judge the effectiveness of the personnel shelters built in France, similar shelters were installed on the site. Finally, samples of various metals were placed around the site of the explosion in order to study any changes in their structure that might be caused by the neutron flux.

The tests performed by the medical experts concerned the damage caused to living organisms by thermal and nuclear radiation. Rats were exposed to the atomic blast, together with a dosimeter to measure the level of irradiation.

Medical tests

The medical experts were also keen to discover whether food and water in a contaminated area remained fit for human consumption, and to evaluate the protection against radiation afforded by various materials.

Naturally, the brutal confrontation of all the equipment with the blast and thermal radiation generated by the explosion was filmed. The scientists hope these pictures will provide useful information on the protection of military installations and equipment and on civilian protection.

No one doubts that the information gathered will usefully supplement the data already published by the Americans. But the greatest interest of the experiment lies in the power of the device exploded. Over 220 atomic and hydrogen bombs have already been detonated, and only the real magnitude of this Saturday's explosion will tell whether the French specialists have been content to follow in their predecessors' footsteps or have managed to transform a trial run into a masterstroke.