

Can building an atomic bomb be right?

Hiroshima: a reminder and a warning

On the morning of 6 August 1945, US bomber “Enola Gay” dropped a nuclear bomb over Shima hospital in the centre of Hiroshima. The name of the bomb “Little Boy” sounded harmless; however, to this day the blaze from the atomic explosion and its radioactive contamination have lost none of their horror.

At the time of the bombing, around 350,000 people were in Hiroshima, including soldiers and slave labourers from Korea, Taiwan and mainland China, as well as American prisoners of war. It is estimated that more than 70,000 of those died immediately followed by 70,000 more in the following months. It will never be possible to determine the exact number of casualties because many people died from long-term effects of the radiation.

A second bomb was dropped on Nagasaki three days later. Approximately 70,000 inhabitants died there by the end of the year. They were the first, and so far only, nuclear weapon attacks in the history of warfare.

The vision of a world without atomic bombs

Their consequences were so horrific that to date no government in the world has dared to use an atomic bomb. In fact, there were lots of initiatives to reduce the number of existing atomic weapons and make the earth free from atomic weapons once again. Unfortunately, these attempts were unsuccessful and at the moment it looks like even small states are trying to take possession of atomic weapons to exploit their deterrent potential.

In 2016, former US President Obama visited Hiroshima and commemorated the innocent people who died during the Second World War. He repeated his vision of a world without atomic bombs, which he had already stated at the start of his time in office during a speech in Prague in 2009, and for which he received the Nobel Peace Prize in the same year.

However, Obama did not apologise to the Japanese victims. The American public still agrees that the use of atomic bombs in the war against Japan was justified and prevented further suffering. This assessment is not seriously questioned by anyone in the United States.

A Nobel laureate and the bomb

German Nobel laureate Hans Albrecht Bethe represents the inner conflict between the desire to carry out research and social responsibility. Bethe won the Nobel Prize in Physics in 1967 for his work on energy production in stars. However, he was also significantly involved in the development and construction of the atomic bombs that were dropped on Hiroshima and Nagasaki.

Hans Bethe was born in 1906 in Strasbourg, which belonged to Germany at the time, and was the son of a physiology professor. He studied physics in Munich when the world-famous scientists and later Nobel laureates Erwin Schrödinger and Werner Heisenberg were instrumental in advancing quantum

mechanics there. Because his mother was Jewish, he was excluded from the University of Tübingen in 1933, where he worked as an assistant professor. He then became a professor at Cornell University in Ithaca, New York State, one of the world's most prestigious universities.

Worried that Hitler's Germany could build the atomic bomb first and win the war, Hans Bethe supported the USA in developing this kind of bomb as part of the "Manhattan Project". After the end of the Second World War, he became committed to disarmament and arms control, but despite all his concerns he took part in the development of an improved hydrogen bomb for a short time during the Korean War. However, immediately afterwards he admitted that in all these years he had constantly doubted whether he had done the right thing by building the atomic bomb. He later led campaigns for the peaceful use of nuclear energy, criticized the American government's "Star Wars" programme and repeatedly appealed to his fellow scientists to cease participating in the development of nuclear weapons.

Bethe died aged 98. He was the last survivor of a series of important German physicists.

Exercises:

Watch the "Science, ethics and society" video clip and answer the following questions.

<http://www.mediatheque.lindau-nobel.org/videos/33615/2014-mini-lecture-science-ethics-society>

1. Which consequences did dropping the first two atomic bombs on Japan have?
2. Why do most Americans think that dropping the bombs was justified, even today?
3. Why did Nobel laureate Hans Bethe support the construction of an atomic bomb even though he always felt that it was wrong to do so?
4. What does the Nobel laureate Roald Hoffmann demand of all scientists and inventors in the video clip "Science, ethics and society"?
5. Can the invention and construction of a terrible weapon to annihilate people therefore be right?