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Rogue State Helvetia ?

Switzerland and the atomic bomb 1945-
1988

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Remark

The views expressed here are exclusively the author's own. They are not those of the Swiss Federal Department of Defence, Civil Protection and Sport.

Abstract¹

In the aftermath of the bombing of Hiroshima and Nagasaki, Switzerland began secretly to study the production of an own atomic weapon, or the acquisition of such abroad.

In 1958, the government officially stated that atomic weapons for the Swiss Armed Forces were not only a right, but also a duty. The Swiss people voted 1962 against a ban for nuclear weapons in the country. In 1963, a second initiative, requiring the government to ask the people to vote on each nuclear related weapon development, was also rejected.

However, further practical developments were not carried out. In 1977, Switzerland chose to ratify the Treaty on the Non-proliferation of Nuclear Weapons (NPT). A small task force kept studying the nuclear option in case of a failure of the NPT. This group was finally dismissed in 1988.

This presentation summarizes the story of Swiss atomic bomb plans and explains the reasons why Switzerland chose to ratify the NPT rather than develop its own program. Finally, it shows how those past developments paved the way to Switzerland's current policy on non-proliferation.

¹ *I would like Dr P. Braun for his fine comments as well as Mr. Anthony Gygax for his review of the english text.*

1. Introduction

The idea that neutral Switzerland, a peaceful country, home of the United Nations Office at Geneva, home of the international Red-Cross and of the Geneva Convention, had tried develop an atomic bomb, may seem absurd.

Therefore it might be a surprise to discover that Switzerland had indeed had secret plans for the development of an nuclear weapons.

This article presents the main reasons why Switzerland did indeed thought the upon developing a nuclear capacity in the '50 the '60 and why it finally decided to sign the Treaty on the Non-proliferation of Nuclear Weapons (NPT).

I will conclude by showing that Switzerland, in its quest for nuclear weapons, was far from being a rogue state and how those past developments paved the way to Switzerland's current policy on non-proliferation.

State of the sources

The Swiss quest for nuclear weapons is complex. Its history is still fragmentary, even though a couple of studies and articles have been published, most of them in German (Stüssi-Lauterburg 1997; Jorio 2001; Breitenmoser 2002; Neval 2003; Wollenmann 2004; Braun 2006).

This article is based on those mainly chronological studies. However, it presents and summarizes the topic under a topical structure.

2. In search of nuclear weapons

First reactions after WW2

The bombing of Hiroshima and Nagasaki made a great impression on the Swiss military leadership. A couple of days after the second explosion, the armed forces instruction chief, Lieutenant General Hans Frick, wrote a letter to the minister of defence, federal Council Karl Kobelt. Protection against atomic weapon was his main concern, but he also wondered whether or not Switzerland might be able to develop nuclear weapons on its own (Braun 2006 748-749).

Since the middle of the fifties, tactical atomic weapons had been. This led to considerations upon a redesign of the Swiss defence : until that time, strategic nuclear weapons were not assessed as a direct threat for the army, because of their huge destruction potential. Tactical nuclear weapons, however, could be used as a theatre weapon to selectively destroy military reserves without "significantly" destroying the civilian and industrial infrastructure. Should therefore the Switzerland's rather linear defence be replaced by a less vulnerable, but more expensive mobile defence ? Or should a more affordable area defence be chosen ? This question lasted for years, until it's settlement 1966 (Ernst 1971; Braun 2006).

During this, according to the Swiss defence community assessment, there were four reasons to develop atomic weapons :

1. Tactical level nuclear weapons as "better bullets",
2. Operational level nuclear weapons to as theatre deterrent,
3. Strategic level nuclear weapons to counter a possible soviet nuclear blackmail,
4. Atomic weapons would help balance the feared European, German above all, proliferation.

I will shortly described them below.

Tactical level

Feeling that nuclear weapons were more and more getting the status of "normal" weapons, several military writers openly called for the acquisition of atomic weapons. The Swiss Officers Society published a report that requested the procurement of nuclear weapons. The federal Council discussed this topic in 1955 and came to the conclusion that, although the nuclear weapons were morally repulsive, it might be appropriate for Switzerland to have them. The finance minister Streuli, hoping that atomic

armaments might lead to lesser costs, was favourable to nuclear weapons. A cooperation with Sweden, that was proceeding with similar research, was envisioned.

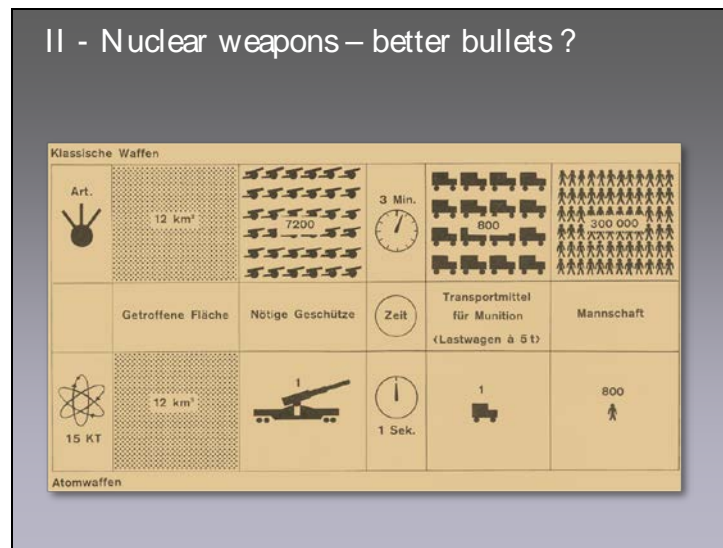


Figure 1 Picture from a Swiss military review (ASMZ) comparing nuclear and conventional artillery

Warfare with tactical nuclear weapons was considered manageable. Therefore, it was assumed that atomic bombs could help balance the conventional gap between small states and superpowers.

Nuclear bombs were understood as a more potent ammunition and not as a strategic way to sanctuarize the territory.

The strategic consequences caused by their possession were not anticipated at that time.

Operational level

For some Swiss officers, there was major a risk that the armed forces of the Warsaw Pact could use the so-called “atomic void” of Switzerland in order to outflank the NATO forces. To that purpose, the Eastern Forces would use tactical nuclear weapons in order to destroy the Swiss defence forces and then proceed through the country. However, NATO or France would not stay idle and use nuclear weapons against the Soviet divisions.

To avoid this double threat and enhance it's neutrality stance, the Swiss dissuasion strategy would require operational level nuclear weapons, in order to threaten WAPA's rear bases and logistic lines and therefore deter them to attack through Switzerland.

Strategic level

A further aspect that came to discussion in the middle of the '60 was the risk that the Soviet Union could pressure Switzerland with a nuclear blackmail. Switzerland would be threatened by atomic destruction, should the country not act according to the soviet will.

According to military strategist Gustav Däniker (Däniker 1966), the only solution would be to have strategic nuclear weapons, as well as vectors, to threaten back the soviet Heartland.

Proliferation balance

The last and more potent reason for a possession of atomic weapons was a fear of nuclear proliferation :

The acquisition of atomic weapons was therefore thought mainly as an answer to proliferation in case the monopoly of USA, UK and the USSR would have been broken. The military was concerned that the European military equilibrium might be broken should France, and above all Germany, procure atomic weapons.

It would place Switzerland back in a geopolitical position similar to the one it had during the 19th and the first half of the 20th century, a very delicate position between possible foes that might use its territory as a theater of operation.

Swiss nuclear weapons would help conserving the equilibrium within Europe as well as balance the conventional gap between small states and superpowers.

Steps towards nuclear development

SKA - The first study group

What were the steps towards nuclear procurement ?

It was already clear that from the onset that the armed forces alone would not be able to proceed. A nuclear energy study group (SKA), integrating scientists and military personal, was therefore created 1946. Its president was Professor Paul Scherrer, at this time the leading Swiss nuclear scientist. The secret study group's tasks were primarily to investigate protection measures. However, the development of weapons was also an option : the draft research order envisions atomic land mines for destruction and sabotage, nuclear artillery shells as well as atomic air-to-surface bombs (Breitenmoser 2002 91).

In order to finance the studies, money had to be supplied by the Parliament. The message from the government stressed the needs for civilian research but didn't utter a word about the secret military mission. However, some

members of the Parliament condemned this financing. They feared that, by not explicitly banning the development of atomic weapons, Switzerland might be perceived as a threat by its neighbours (Braun 2006 752-756).

The MAP Study

In the beginning of the fifties, the department of Defence created a new expert group, on part time basis, to assess the possibilities of developing atomic weapons in Switzerland. In 1963, the group gave a report, *Möglichkeiten einer eigenen Atomwaffenproduktion*, (MAP) stating that Switzerland could be able to produce autonomous atomic weapons. In order to develop a plutonium-based bomb, the more expensive type, it was estimated that 750 experts and 2.1 billion Swiss Francs over 30 years would be required. For more extensive information, the group requested a further study over 3 years, requesting 20 full-time experts and 20 Mio Swiss Francs. Still, the government didn't allowed for the creation of the expert group: it seemed that it wanted only to keep the window for the procurement of atomic weapons open, but not to procure them.

Getting to fissile material

The main problem was to find radioactive material in order to be able to proceed with developments. Three directions would be envisioned :

1. Study the use of other radioactive element that might be found in Switzerland;
2. Search for uranium in the Swiss Alps;
3. Buy foreign uranium.

The first two option didn't lead to success. For the third one, cautious probes, first with the USA, then with East-European countries, Popular Republic of China and India, were unsuccessful, partially because the USA bought most of the available material to avoid proliferation. In 1954 and 1955, it was finally possible to get 10 tons of uranium from Belgian-Congo through a contract with the United Kingdom and Belgium, with limitation that it shouldn't be used for any military purposes (Braun 2006 759-763). This amount would have allow to build only one atomic bomb.

During the same period, the industry began to be interested in nuclear energy. It brought welcome capabilities to the study group : the armed forces wouldn't be have been able to provide the human resources, let alone to finance the research on their own. In 1953, after Eisenhower's "Atoms for

Peace” Initiative, the Swiss industry began to work on this direction. A joint civilian-military research reactor was built. Very soon, however, the industry lost interest in it, as the USA had sold two civilian reactors at very low prices, with constraints that the radioactive material should not be used for military purposes.

3. Towards the NPT

Why did Switzerland changed its strategy to embrace the NPT ?

Initiatives against nuclear weapons

It is not, as sometimes assumed, that the Swiss population had voted against atomic weapons.

Indeed, in the end of the '50, a civilian group against atomic weapons (Bewegung gegen den Atomtod), assembling representative from churches, universities and left-wing groups, had began to voice its concern. It began to organize and request a nuclear ban for Switzerland.

The government did not like those attitudes and intended to counter this "defeatist propaganda". Therefore, in July 1958, the Swiss government declared officially that atomic weapons were not only offensive, but also defensive weapons. For a neutral state having to use the best weapons to defend itself, nuclear weapons were definitively an possible option. This report described a long term vision but it was misunderstood and led to the impression Swiss Armed Forces would begin to procure atomic bombs.

There was some concern in occidental foreign countries that this decision might contribute to proliferation. Since this inception, the Warsaw pact doubted upon the Swiss neutrality and is therefore assumed to have included Switzerland in its offensive plans. On the national realm, two popular initiatives were submitted to the Swiss population. The first one, sponsored by pacifists, intellectuals as well as religious movements, wanted to forbid any development, procurement, construction, storage or use of atomic weapons on Swiss soil. The second one, endorsed by the Swiss socialist party to avoid a split between its left and right wing, wanted a lesser goal : any action in atomic weapon development should have been submitted to the people. Both initiatives were rejected at a rate of about two to one : the population did not send a veto against the possible acquisition of atomic weapons by Switzerland.

The reasons for the strategy change were domestic and external :

Domestic reasons

Human resources problem

Firstly, the MAP report stated that, in order to develop a plutonium-based bomb, the more expensive type, 750 experts and 2.1 billion Swiss Francs over 30 years would be required. It would have been very difficult to train and recruit those scientists.

Missing political will

Secondly, a gap had appeared between the defence and the foreign departments. Since the beginning of the sixties, the department for foreign affairs was considering that the integration in the international community through non-proliferation was a safer strategy than nuclear weapons in autonomy. The military didn't shared that opinion.

Mirage Affair

Finally, in 1964, a setback in the procurement of a French fighter airplane that could have been used as a possible atomic bomber, further closed the nuclear window of opportunity. The so-called "Mirage Affair" happened when the costs for the procurement of 100 airplanes climbed more than 150% higher than budgeted. The Parliament refused a budget increase and cut the number of airplanes down to 57. The armed forces had therefore no more vector for an atomic bomb. Moreover, the department of defence lost a lot of political support. The armed forces were clearly unable to manage a complex project.

External reasons

There are also three external reasons that blocked the nuclear development of atomic weapons :

Non proliferation deals

Firstly, through US dumping measures to support the development of a civilian nuclear industry, such as cheap heavy water or the discounted sale of an civilian reactor, it was possible to dissociate a civilian-military joint venture and therefore render an autonomous development much more difficult. This closed down the dual-use path.

Diplomatic and economical pressure

Secondly, pressure from the USA, on non NPT signing states was raising : should Switzerland not sign the NPT, the civilian industry might not receive further fissile material anymore.

Security through non proliferation

Finally, the prospects of signing the NPT and therefore to get more integration with the international community, avoid pressure and keep civilian fissile material would bring Switzerland more security in general than atomic weapons.

The nuclear stability in Europe could be attained as Germany signed the NPT. It would be an easier and cheaper way to reach an equilibrium this way that way than to procure atomic weapons.

The NPT Track**Signature of the PTBT**

Switzerland signed the Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and under Water in Moscow in 1963. The gap

had widen between the foreign department and the military. The latter wanted to keep the atomic weapon procurement window open. The former wanted to join the Treaty on the Non-proliferation of Nuclear Weapons. Sweden, fully embracing the NPT path, was not a research partner anymore. On one side, it had rendered the autonomous development even more difficult. On the other side, it gave a role model to follow

Signature of the NPT

In 1969, the government signed the NPT. The military was strongly opposing the idea and tried to influence the legislative power. The ratification by the Parliament took a long time. Firstly, because the Government wanted to be sure that the NPT was gripping before issuing its message to the legislative. Then the Parliament wanted to wait for result. Therefore, the treaty was only ratified in 1977. There was subsequently no further opportunity for the military to develop more than laboratory atomic studies.

The AAA study group

When the government signed the treaty in 1969, the military wanted to keep the highest possible liberty of action by having a nuclear study capability and by keeping the status of a threshold country. A further study group, *Arbeitsausschuss für Atomfragen* (AAA) was therefore constituted. Its task was to counsel the military leadership on any nuclear-related question. However, as it didn't have meetings on a regular basis, the study group's goal was rather to prepare option in case Germany left the NPT.

4. Conclusion

In 1981, after the Government came to understand that the NPT was working, it added the Congolese uranium – whose location had been more or less forgotten in the meantime – to the IAEA supervision. Finally, in 1988, the AAA was dismissed.

Switzerland signed 1995 to extend the NPT indefinitely and without conditions. In 1996, it also signed the Comprehensive Test Ban Treaty (CTBT).

Switzerland's official long term goal is the universal and verifiable elimination of Nuclear Weapons. Some of its middle term objectives include the preservation and the reinforcement of the NPT, the definition of a Fissile Material Cutoff Treaty (FMCT) as well as support for CTBT. Officially, it is thought that international agreements on the limitation or reduction of nuclear weapons stocks contributes to transparency and confidence-building. Thus, they increase security, for the international community and for Switzerland.

An example for today ?

Can the example of Switzerland's dealings with the NPT draw a path for today ? I don't think so.

The Swiss nuclear armament has always been a rather theoretical option : Switzerland had never the intention to become a rogue state.

Even though its population rejected twice a ban on the development of nuclear weapons, Switzerland had chosen the non-proliferation path rather than the development of atomic arms. It changed its paradigm by realising that the nuclear path brought less security and was much more expensive than the non proliferation way : This was due to incentives brought by the international community in term of security and the threat of stopping civilian uranium deliveries.

What is more, during the cold war, Switzerland conventional strategy benefited indirectly from NATO's nuclear weapons protection. There was no need to develop them.

The prospects of the NPT in the seventies, bringing stability in Europe, were more cheerful at that time.

But I find very inspiring that, in the search for security, between defence and diplomacy, Switzerland chose the latter.

About the Author

Christian Bühlmann (1962) was born in Lausanne, Switzerland. He works as a regular officer with the rank of colonel (GS) for the Swiss armed forces planning staff (deputy chief of military doctrine and head of doctrine research and development). He holds a Master in Computer Science from the Swiss institute of technology (1988) and he is currently writing a PhD thesis in political science on “Changing Switzerland’s defence policy (1945-2003): The role of ideas”. He is member of the IUSAFS and associate member of the IISS.

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