

# From front loading to rear loading on the same weapon

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## Introduction

On 3 July 1864, the Prussian army's breech-loading rifle in the fencing at Lundby put approx. 10 km south of Aalborg, an effective period for the hostilities in the war that was so unhappy for Denmark.



The particularly sensational and much talked about battle between a Danish infantry company from the Danish Life Regiment of approx. 160 men and a Prussian of 124 men, which ended with the total disintegration of the Danish company, clearly showed the leaving gun's irrevocable sortie in the history of war.

Without going into the exaggerated views put forward - especially by many civilian historians - that it was exclusively the Danish assault rifles that were to blame for us losing the war, here is a brief explanation of the background for the feverish restructuring of the the arming of the Danish army's infantry regiments from preloading to rearloading, which took place immediately after the end of the war as a result of the strongly prevailing attitude in Danish military and political circles, which resulted in a war of revenge against Prussia - possibly in alliance with France - to get the lost land back.

Denmark was poor after the war, large parts of the country were following the thesis: "Woe to the vanquished!" after relentless and legally completely untenable demands ceded to Prussia. That the big bulk of the army, i.e. the infantry, needs a breech-loading rifle that could correspond to the Prussian trigger gun M/1841 and 1862 was obvious.

They looked for a usable system (NB: It was also cheap!), which could replace the tap rifle used in the war and the minié rifle, both of which were "born" trigger guns with percussion locks (percussion = blow), and they then found on, as a temporary emergency solution, converting the breech-loading rifles into breech-loading, a phenomenon of an exceptional nature in the rifle's century-old existence.

## The tap rifle and the mini gun

We will initially look at the two systems here.

The majority of the Danish infantry was equipped with the tap rifle during the war. This was a rifled assault rifle, designed in 1840 by the French Colonel Thouvenin. Before his design, the ordinary, rifled breech-loading rifles had to contend with the problem of getting the bullet introduced from the front into the barrel to follow the opening of the rifle passages. If you made the bullet so large that it was difficult to push down the barrel of the magazine, this process was further complicated by the large amount of gunpowder sludge that settled in the barrel from shot to shot.

If you went the opposite way and made the bullet smaller, the rifle barrels would not have the opportunity to work, just as part of the powder gas would be lost and thereby give a shorter shot.

In the tap rifle, the problems were fortunately overcome. A strong steel pin was screwed into the bottom of the barrel.

When charging was to take place, it happened as follows:

The soldier took a cartridge (paper cartridge) from the cartridge bag, bit the tip of the paper, poured the gunpowder into the barrel, where it settled on the pin at the bottom and stopped the lead ball (tipped projectile) down the barrel. Since the caliber of the projectile was smaller than that of the barrel, it fell effortlessly to the bottom, where it landed on the tip of the pin. The soldier then grasped the charging stick, which at its lower end had a conical hollow corresponding to the tip of the projectile, guided it down the barrel and gave the projectile a few powerful shocks, which should be so powerful that the projectile was "stabbed" (c:expanded) so much in caliber, that on firing it stepped out into the rifling passages, whereby the desired rotation was produced. Finally, the soldier cocked the cock and, from a special cap pouch on the waist belt, placed a cap on the piston (c: the cap hole), and the rifle was now ready to fire. On the trigger, the cock struck the breech cap, the charge of which detonated and sent a jet of fire into the barrel through a firing channel to the powder charge, igniting this, creating the powder gas and expelling the bullet.

The Minié rifle, based on the system designed in 1849 by the French captain Minié, was a so-called "self-cocking" rifle. This means that a larger, conical recess was formed in the rear of the tip projectile.

When ignited, the pressure of the powder gas penetrated the recess and expanded the projectile so much that it stepped out into the rifle passages and was thereby brought into rotation. The system was an advance from the tap rifle in that it was considerably easier to load. The soldier had only to guide the projectile down to the powder charge with the charging stick, and the repeated tapping with the charging stick, which often destroyed the threads of the tail screw, was unnecessary.

The infantry of the Prussian army were mainly armed with the M/1841 flintlock rifle, which had sights corresponding to distances of 300, 400, 500 and 700 paces. It was a rifled breech-loading rifle, the ignition system of which was essentially based on a long firing pin (c: firing pin) which, on the trigger, was propelled from the rear through the paper cartridge and into the cap that sat at the front of the cartridge, and the usual process that ejected the projectile, took place.

Disadvantages of the tap rifle include the slow and laborious loading, where the skirmish i.a. depended on the "lay" of each shot in the course, which had to be the same from time to time. Of course, this often could not be implemented due to e.g. the soldier's lack of skill in handling weapons and possible nervousness. The fact that charge, projectile and cap were not combined in a unit cartridge was understandably a significant disadvantage.

If the soldier shook his hand and spilled some powder, the shots would be unevenly long, just as cold, stiff fingers could easily drop the small copper catch cap. At the same time, the loading rifles allowed for "double loading", as the soldier perhaps nervously loaded his already loaded rifle. Such a shot would be quite erratic, or the pipe would explode. (Among 24,000 abandoned rifles that were collected

on the battlefield at Gettysburg in 1863 during the North American Civil War, was approx. 3/4 loaded with 2 or more shots, some even with more than 10 shots!)

What it meant during fencing, that the shooter had to stand up or at least kneel down to use the charging stick, speaks for itself.

In contrast, the Prussian flintlock rifle could be loaded in a horizontal position, which gave the gunner the opportunity to fire significantly more shots per round. unit of time than the Dane, who, moreover, by his upright positions formed excellent targets for the lying Prussian. Likewise, the possibility of "double-loading" was excluded with the breech-loading rifle, since after each shot the shooter had to open the lock for reloading, thereby looking into the chamber.



*Photograph of a Danish infantry company (department unfortunately unknown!) in 1864 armed with tap rifles with attached bayonets.*

*The picture was taken by photographer Schrøder from Copenhagen on Als in the spring after Dybbøl's fall on 18 April. Behind the right wing noncommissioned officer (a lance corporal) is seen a private with a secured rifle ("cock at rest"). Note the characteristic total lack of press pleats in the trousers, not an inevitable consequence of field life, but press pleats only came into fashion at the beginning of this century.*

After original photo in reg. court photographer Elfelt's archive.

In terms of range, the two weapons were roughly equal. The effective range of the tank rifles was usually calculated at 600 cubits (1 cubit = 0.6211 m), although there is evidence that our infantry fire could be effective at approx. 8-900 cubits, which means that occasionally you could even get the enemy artillery within range. Opposite this stood the trigger gun with 100 cubits.

However, the range of fire for a standing man was 363 cubits for the pin rifle, 401 for the minigun, and 419 cubits for the trigger gun. Here the breech-loading rifle was clearly in the lead. It should be mentioned, however, that the sight of the flintlock rifle was significantly inferior to the Danish bow and gallows sight. Therefore, the Prussian infantryman had to memorize a so-called "Haltezettel" (c: choice of direction point), corresponding to the different distances. Eg. corresponded to the notches of the small visor flap at distances of 300, 350 and 400 cubits, as the aim was then to be aimed at the waist belt, face or headgear respectively. This system required a long time of thorough indexing, but that was precisely the great advantage of the Prussian army with its long conscription.

Although the trigger gun also had certain disadvantages, e.g. relatively often burning out the firing pin, what came to the fore most, i.e. not range or impact, but the rate of fire. The Prussian shooting training required a rate of fire of 6 - 8 rounds per round. minute, while that of the leaving gun did not exceed 1 ½ per minute. This colossal firepower came out eerily clearly in

the fencing at Lundby, where the Prussian company commander waited with his fire attack until the Danes were approx. 110 m away. Since the weapon controls of the Prussian infantrymen were to such an extent "beaten" into their bodies, they almost all took the same amount of time to reload, which is why their shots fell almost like 3 volleys approximately at the distances of 165, 110 and 15 m, at which last distance the Danish company's attack broke together.

## **The development in Denmark after 1864**

The Danish army leadership had this affair in clear memory, together with the 8th Brigade's heroic but futile counter-attack against Dybbøl Mølle on 18 April 1864, when after the war it looked around for an acceptable breech-loading rifle. It turned out that the tap rifles and minie rifles were relatively easily converted into breech loaders according to a system invented by the Dutch-American wine merchant Jacob Snider.

This involved sawing off the rear part of the barrel, on which a locking seat was screwed with a block mechanism, which was mounted on a horizontal shaft and which could be swung out for insertion of the cartridge (brass cartridge with edge ignition). A spring-loaded locking cam with a finger grip and extractor was mounted on the block, just as the block also accommodated the firing pin, which, when the tap struck, hit the catch cap at the edge of the casing, whereby the ignition took place. Should the case detonate, the powder gas could escape through a conically drilled hole in the block.

That the system could never be the same as a "born" rear loader is obvious. The converted rifle also did not have a long life in the infantry, as the army, in connection with the Army Act of 1867, adopted the American 11 mm "born" breech-loading rifle of the "Remington" system, a good, long-range rifle with sights from 200 - 2100 m (still in use in Greenland), which remained as an infantry rifle until 1889, when the repeater rifle of the "Krag-Jørgensen" system with space for 5 cartridges in the magazine was introduced.

The 67 was given significant importance in connection with a possible war of revenge against Prussia in alliance with France. Only the war of 1870-71 had to show that Napoleon III's glorious great power, which celebrated so many triumphs in the 1850s and 60s, was only a facade militarily. We didn't know that when, in 1867, we phased out the converted breech-loading rifles in favor of decidedly breech-loading guns, which gave the Danish infantry a weapon that was among the best in Europe.

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