

Technology of war in 1914

The planning and conduct of war in 1914 were crucially influenced by the invention of new weapons and the improvement of existing types since the Franco-German War of 1870–71. The chief developments of the intervening period had been the machine gun and the rapid-fire field artillery gun. The modern machine gun, which had been developed in the 1880s and '90s, was a reliable belt-fed gun capable of sustained rates of extremely rapid fire; it could fire 600 bullets per minute with a range of more than 1,000 yards (900 metres). In the realm of field artillery, the period leading up to the war saw the introduction of improved breech-loading mechanisms and brakes. Without a brake or recoil mechanism, a gun lurched out of position during firing and had to be re-aimed after each round. The new improvements were epitomized in the French 75-millimetre field gun; it remained motionless during firing, and it was not necessary to readjust the aim in order to bring sustained fire on a target.

Machine guns and rapid-firing artillery, when used in combination with trenches and barbed-wire emplacements, gave a decided advantage to the defense, since these weapons' rapid and sustained firepower could decimate a frontal assault by either infantry or cavalry.

There was a considerable disparity in 1914 between the deadly effectiveness of modern armaments and the doctrinal teachings of some armies. The South African War and the Russo-Japanese War had revealed the futility of frontal infantry or cavalry attacks on prepared positions when unaccompanied by surprise, but few military leaders foresaw that the machine gun and the rapid-firing field gun would force armies into trenches in order to survive. Instead, war was looked upon by many leaders in 1914 as a contest of national wills, spirit, and courage. A prime example of this attitude was the French army, which was dominated by the doctrine of the offensive. French military doctrine called for headlong bayonet charges of French infantrymen against the German rifles, machine guns, and artillery. German military thinking, under the influence of Alfred, Graf von

Schlieffen, sought, unlike the French, to avoid frontal assaults but rather to achieve an early decision by deep flanking attacks; and at the same time to make use of reserve divisions alongside regular formations from the outset of war. The Germans paid greater attention to training their officers in defensive tactics using machine guns, barbed wire, and fortifications.