

Attempts to achieve victory on the occasion of the first appearance of a weapon of a radically new type have failed because the number of the new weapons introduced into combat was insufficient to accomplish truly decisive results. Examples were the first use of tanks, and of poison gas, in World War I, and of V1 and V2 missiles and jet-propelled fighter aircraft in World War II.

The early efforts at arms control between the two World Wars were directed at both numbers and quality of weapons. The German army was to be limited to 100,000 men. But naval strength was to be limited by tonnage, and calibre of guns, rather than by the number of ships or guns². It was clear that in comparison to a ship of smaller tonnage a large warship could be provided with guns of longer range and greater hitting power, could have thicker armour, more powerful engines, and carry fuel for longer endurance. The designer could choose among these advantages, but whichever he selected would come at the cost of an increase in the tonnage of the ship. A feature of the thinking of that period was that like would fight against like, a belief not borne out in subsequent naval wars.

The Proliferation of Nuclear Weapons

The invention of nuclear weapons introduced a radical discontinuity to the spectrum of weapon capability. Instead of measuring damage potential in terms of kilograms (kg) of chemical High Explosive (for artillery shells), or tons (for heavy bombers), it was necessary to use kilotons, even megatons. All weapons that were not nuclear were lumped together under the term “conventional”³

After the second world war, the dominant concern for arms control was the proliferation of nuclear weapons. The Non-Proliferation Treaty committed signatories who did not already possess nuclear weapons to refrain from acquiring any at all, but left the signatories⁴ who had them in 1968 free to increase both their number and quality, albeit with a general undertaking to reverse the process in the future. In the Threshold Test Ban Treaty of 1974 the USA and USSR agreed to limit

2 The Washington Naval Treaty of 1921 allowed the USA and Britain 525,000 tons of capital ships, Japan 315,000, and France and Italy 175,000 tons. The same countries were permitted 135,000, 81,000, and 60,000 tons for aircraft carriers. No capital ship could exceed 35,000, and no carrier 27,000 tons. The guns of capital ships were limited to a calibre of 16 inches. The London Conference of 1930 set tonnage limits on cruisers, destroyers, and submarines. See *Sea Power: A Naval History*, ed. E.B.Potter, US Naval Institute Press, Annapolis, 1981, pp.234-235.

3 Chemical and biological weapon are often excepted, in which case there are four categories of weapons: nuclear, biological, chemical (NBC) and “conventional”. Sometimes, especially in arms control language, the first three are categorized as “weapons of mass destruction”.

4 Of the five states which possessed nuclear weapons in 1968, three (the USA, USSR, and United Kingdom) signed the NPT. France and China did not sign.