



History and doctrine of the use of French tactical nuclear weapons (1959 - 1996) 1/2

military-Earth thinking notebook

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"The Army's nuclear armament has not ceased to emancipate itself, from its birth to the end of its life. This emancipation was achieved with difficulty. But in the end, the Army's nuclear weapons had acquired its letters of nobility" [1].

This quotation from Major General de Chergé, first commander of the HADES force, invites us to remember the little-known history of nuclear armament. This quotation from Major General de Chergé, first commander of the HADES force, invites us to remember the little-known history of nuclear armament, the tactical area that the French Army implemented between 1957 and 1996, when President Chirac decided to reorient our model of nuclear deterrence.

Why did France decide to acquire tactical nuclear weapons? In what strategic framework did it acquire them? What was the doctrine for the use of tactical nuclear weapons and how did it evolve?

1] Cf. Major General Robert de Chergé, "Specificity of the land-based nuclear component and the transitions between systems.in Histoire de l'artillerie nucléaire de Terre française 1959-1996, CERMA hors-série n°7, Paris, 2013 (henceforth CERMA), p. 13.

Tactical Nuclear Weapons (TNWs) can first be defined as a category of nuclear weapons whose power and range are adapted for use on the battlefield, in contact with conventional troops. The origin of the term "tactical" comes from a simple translation of the American "tactical nuclear weapon". Indeed, the United States, which invented it, opposed it from its birth in the 1950s to the so-called "strategic" nuclear weapon. The latter, which was carried by the Strategic Air Command's long-range bombers, was intended to destroy, by means of megatonic bombs, demographic or military targets of strategic importance.

All of these questions can be answered by recalling first that tactical nuclear weapons were first adopted and then developed in France in the political context of the Cold War,

because France wanted to assume its political ambition as a major ally within NATO's "shield" in the face of the threat of Soviet invasion in Europe. Secondly, because the ANT enabled France to establish a "logical" doctrinal link between the use of its conventional forces and that of its strategic nuclear forces.

In order to recall the Army's tactical nuclear adventure, it is important to first insist on the intellectual genesis of its doctrine of use, and then to briefly describe the major stages of its life between 1957 and 1996.

Genealogy of tactical nuclear strategic thinking

- Tactical Nuclear Weapons (TNWs) are first and foremost a legacy from the history of American nuclear deterrence..

Indeed, the creation of this weapon is first of all a continuation of the work of the Manhattan Project [1], which led to the first use of nuclear weapons on the Japanese cities of Hiroshima and Nagasaki in August 1945 [2].

2] Aware of the psychological and political effects of what was then a major break in the art of conceiving and conducting war, the United States then wondered during the Korean War (1950-1953) about the "nuclear weapon".the opportunity to create a Tactical Air Command within the Strategic Air Command[3] in order to allow General MacArthur to spare his Marines in the face of a Chinese enemy and an ever-increasing number of combatants from the Soviet air force.

In addition, as early as 1954-1955, the United States began a series of tests to qualify a standard of low-power bombs ranging from a few dozen kilotons to subkilotonics for use on the battlefield. France was invited to attend these tests: General Stehlin, deputy of the French delegation to the NATO Standing Group, attended a test campaign in Nevada in February 1955. His detailed account allows us to understand that in American minds, the atomic bomb was to complete the range of possibilities offered by conventional armament to military leaders at the tactical and operational levels [4].

4] At the same time, the United States imposed within the Atlantic Alliance the first use of the atom, both tactical and strategic, in response to a Soviet invasion. In fact, the idea that the only way to strengthen European defence against the plethoric Soviet aggressor would be the ability to exercise "massive and instantaneous reprisals" against him [5], had its origin in the New-Look policy wanted by the President of the United States.5] It originated in the New Book policy of President Dwight Eisenhower and was made public in a speech by Secretary of State John Foster Dulles, when he delivered what was later called the "mass retaliation" theory to the Council of Foreign Relations in January 1954 .

The addition of tactical and strategic strikes on the battlefield during the classic combat phases presented the allies with two advantages: First and foremost, it made up for the lack of available European troops, as revealed at the Lisbon Conference in 1952, and secondly, it gave the Allies the illusion that only the Americans would bear the cost.

- The idea of using low-power tactical nuclear weapons was then relayed in France by the three strategists Generals Welsh, Ailleret and Beaufre.

Indeed, we can without hesitation establish an intellectual filiation between our two countries, first of all thanks to the double contribution of Colonel Airman Pierre-Marie Gallois. On the one hand, because he belonged in 1953 to NATO's New Approach Group, a very restricted circle formed around SACEUR [6], and actively participated in the adoption of the nuclear doctrine within the alliance (cf. 6), and also because in 1956 he undertook to provide General de Gaulle with technical details concerning the consequences of the use of the atomic weapon, both tactical and strategic[7] . 7] It is interesting to note that the Welsh Colonel took up in his "professional thesis", written in 1954, the main idea of the NATO strategy of massive reprisals, by affirming that "from the moment that atomic weapons exist, it is therefore likely that, in a conflict where the stakes are high, these weapons would be used either initially or during the struggle". He went on to say that "it is accepted in both East and West that Western Europe would be atomically defended".and that a European atomic response "would automatically be launched, whatever the form, atomic or otherwise, of the enemy attack" [8].It was only later, during lectures at the Sorbonne University in 1974-1975, that he developed the role of tactical nuclear weapons. Based on the concept of use of the ANT formulated by Colonel Poirier (cf.infra), the Welsh General[g] retained that the ANT was above all a necessary tool for the dialectic established between an aggressor and a defender having recourse to the strategy of nuclear deterrence.He was the first to give it a "finished form" and "general public" [10] by explaining the concept in 1960 with the publication "Strategy of the Nuclear Age".

It then seems that it was Colonel Ailleret who really first theorized the use of the ANT within the battle corps itself. Indeed, in December 1950, when he was asked to deliver a lecture on "The Possibilities of Atomic Warfare" at the École Supérieure de Guerre (ESG), he noted that the power of atomic explosives was such that one could then wonder whether it might not be possible to revive it by modernising the famous formula: "Artillery conquers, infantry occupies" [11]. 11] The tactical use of the atom in the offensive would indeed make it possible, he replied, "to conquer the terrain and deliver it to the infantry". He thought in particular "in the case of exceptionally important positions from a strategic point of view and whose conquest could, by traditional means, be very difficult: preparation of a naval or airborne landing, for example" [12].

Consequently, atomic weapons could be used in cooperation with conventional weapons, "if only to ensure the occupation and clearing of the terrain" [12].conquered" by nuclear explosives or radioactive poisons" [13], or because atomic bases are also vulnerable to the "bold" hands of conventional troops.

Appointed to head the Special Weapons Command (SAC) in 1953, General Ailleret extended in 1956 before the ESG his thoughts on "the tactical and strategic properties of nuclear weapons". He stated very clearly on the use of the so-called tactical devices, i.e. the 20 kiloton class, that "it is obvious that the more a nuclear deviceThe lower the power of a nuclear device, the easier it is to use it in the vicinity of friendly troops, i.e. in support of their first echelon elements. But since the atomic battle will see devices spread over very large areas, contact problems will not be the only important tactical problems. It will often be necessary to attack devices in such depth and at such a distance from the apparent contour of the friendly device that even the use of the largest devices cannot be dangerous to the friendly device. He therefore concludes that it is precisely because the contour of the enemy's device, albeit fleeting, will only be known at the last moment, that it would be more useful to "systematically defeat the enemy".systematically beat the total surface on which it extends" [14], and thus to use bombs of different powers, from the smallest in contact with the infantry, to the largest.

But the contribution of General Ailleret is especially fundamental because he was the first

to draw the tactical conclusions from the use of this weapon, whose capacity to regain the power of the infantry was described by him. He was the first to draw tactical conclusions from the use of this weapon, describing its ability to take massive losses on the battlefield, and because he attributed to it the role of a "thermometer" to determine the degree of strength of the Soviet enemy's aggression.

First of all, he demonstrated that a bomb "energetically equivalent to 20.000 tons exploding over the battlefield would cause in a radius of about two kilometers, or an area of about 12 km², the neutralization at the total neutralisation of the exposed personnel on the battlefield, and even the total and definitive destruction of a significant part of it, at least a third of them". Now, to carry out such a neutralization with a 105 mm gun of traditional artillery, it would be necessary, he continued, to have 6,000 pieces of this caliber, a concentration impossible to achieve. He then concluded that the essential properties of atomic weapons are that they are very easy to set up and can be used without logistics, because they require neither very long set-up times nor major means of transport. The ANT thus constitutes a weapon of instantaneous action that allows the massive material destruction of the enemy [15].

It is interesting to note that secondly, General Ailleret thought as early as 1959 of the place of the ANT within the allied classic-nuclear air-land battle corps, the "shield" of NATO. It will be recalled that in the sword and shield theory in force at NATO, one expected a characterized aggression, i.e. "aggression conductedIt should be recalled that in NATO's Sword and Shield theory, a characterized aggression was expected, i.e. "aggression led by an air-land battle group composed of numerous motorized and mechanized divisions supported by a strong cooperative air force"; an aggression with two variants: aggression with two variants: use or non-use of nuclear weapons from the outset, nuclear weapons themselves possibly tactical and/or strategic.

In this framework, the mission of the conventional battle corps was at best to destroy the enemy battle corps, at worst to prevent it from crossing a line of fire. In this context, the mission of the conventional battle group was at best to destroy the enemy battle group, at worst to prevent it from crossing a defensive line, at least "to gain, by a delaying manoeuvre, the time necessary for the execution of the decisive operations of the strike force". The ANT, thought Ailleret, despite the extreme weakness of the battle corps in case of nuclear aggression from the outset, would make it possible to "define and establish the degree of aggression that will automatically trigger the system of nuclear fires protecting the continent". He explains: "It is by measuring the strength of the enemy's aggression that we will know whether it justifies the firing of a nuclear barrage. It follows that the shield which constitutes the thermostat of aggression must meet the following two essential conditions: It must be able to stop all aggression of minimal volume, i.e. prevent aggression below a given temperature; it must trigger when it is no longer capable of stopping the flow of energy by itself. the high-powered machine that will take on the task of preventing access to the continent, i.e. starting the high-performance mechanism designed to extinguish the fire from a certain temperature" [16].

General Ailleret was thus the first to conceive, by force of logical reasoning, what a posteriori constituted the doctrine for the use of the French ANT in the air-land battle corps, once France had withdrawn from the integrated command of NATO. In short, it was a question of exercising such a deterrent within the classico-nuclear battle corps that "the enemy who would want to invade the continent" would be obliged to "prepare and operate an action in force characteristic of a determined degree of aggression" [17].

Finally, General André Beaufre completed the mission assigned to the ANT, specifying in 1964 that the ANT made it possible to mitigate the "aggression of the enemy".the

impossibility of a nuclear riposte in the face of "minor actions", in particular those "undertaken at the level of the Cold War". Indeed, if the strategy of nuclear deterrence rather incites an aggressor to be cautious and moreover places the relations between the two super-majors in a strategic balance, "it is indispensable that this level be made completely supportive of the nuclear level by the threat of the use of tactical atomic weapons. It is only at this price - and at this risk - that nuclear deterrence can be fully effective at the conventional level" [18].

- The doctrine of use of the national ANT was finally "the work" that Colonel Poirier completed in 1966, and that the White Paper on National Defence published in 1972

Indeed, Colonel Poirier was charged by the Centre de prospective et d'évaluation [19] (CPE) to draw up the national doctrine for the use of nuclear weapons. To do so, he relied in particular on his remarkable strategic intelligence, put to the test by his successive assignments to the staff of the Indochina and then Algerian command between 1951 and 1962, as well as on his contacts with the French strategists listed above, and American nuclear deterrence theorists such as Schelling, Wohlstetter and Khan [20].

The archives of the office of the Minister of Defence preserve the classified memorandum of the "Logical Study of a Conceivable Strategic Model for France", presented by the CPE to Pierre Messmer on 15 March 1966, but an article published in the *Revue Défense Nationale* (RDN) in March 1972 gives us the gist of it.

First of all, Lucien Poirier's "Study" was "... in the spirit of a strategic, in the spirit of a national deterrence strategy, the principles of which had been laid down by Ailleret and Gallois and which de Gaulle's declaratory strategy had made official" [21]. [21] [21] Thus we find all the characteristics of the ANT as described by Ailleret and Beaufre (cf. above): a deterrent weapon in itself, capable of massive reprisals and complementary to the action of conventional air-land forces.

Lucien Poirier summed up his thinking in 1972 by writing very clearly in the RDN: 'In this perspective [of use in an allied framework as an autonomous weapon], the so-called tactical nuclear weapon would have a dual function: its mere existence would force the aggressor to commit more powerfully, and therefore more clearly, than he would wish, if he intended to continue hostilities.... Secondly, in the hands of the Head of State, who alone is empowered to decide when and how it is to be used, it would make it possible, by means of a warning shot fired only at the attacking forces, to materialize in a manner that would make it possible for the aggressor to take action in the event of a conflict. It would make it possible, by means of a warning shot fired only at the attacking forces, to unequivocally materialize the moment when we believe that enemy aggression will cross the critical threshold of aggressiveness beyond which we believe that our survival would be irremediably compromised, which would call for our response. This capacity to warn is therefore a final element in the dialogue with an adversary, whom we would call to reason, giving him an unequivocal sign that we have detected his intentions and are determined to punish him".

This "mission of test and information" of the Government on the intentions of the enemy devolved to the ANT was first baptized "warning shot", then "warning", finally "final warning". It is within this doctrinal framework that the French ANT was used, and its remarkable trajectory within the Army must now be quickly recalled.

1] This international scientific collaboration was conducted in the United States between 1942 and 1945 under the direction of physicist Robert Oppenheimer and General Leslie Groves. The aim was to precede Germany in its work on nuclear fission and to build an atomic bomb for military purposes within three years. See Bertrand Goldschmidt, "L'aventure atomique, ses aspects politiques et techniques", Librairie Arthème Fayard, Paris, 1962.

2] On the other hand, it was Frédéric Joliot-Curie who discovered artificial radioactivity in 1934. Just before the declaration of war in 1939, he filed four secret patent applications, one of which concerned the use of the explosive obtained by fission for military purposes.

3] This was the "Vista" project, commissioned by the Department of Defense in September 1950, which finally failed due to opposition from the leaders of the Strategic Air Command. See David C. Elliot, "Project Vista and Nuclear Weapons in Europe", in International Security, Summer 1986, vol. 11 n°1.

4] Cf. archives of the Minister's office, GR 1R 161, "Armes nucléaires, généralités", Service historique de la défense (hereinafter SHD).

5] This is the meaning of the document endorsed by NATO's Military Committee in December 1954 as the "most effective system to adopt for NATO's military force", and which constitutes the first doctrine for the use of nuclear energy within NATO, first called MC 48 and then MC 14/2.

6] Supreme Allied Commander Europe, at that time Army General Gruenther.

7] Cf. François Géré, "Contemporary French strategic thinking" *Économica*, Paris, 2017, in "Pierre-Marie Gallois", page 70.

8] Cf. the "professional thesis" of the Welsh colonel, pp. 4-5, in Géré, op. cit., page 77.

9] Colonel Gallois (1911-2010) left active service with the rank of air brigadier general in 1957 to join Dassault Aviation, where he was notably in charge of export sales. He pursued until the end of his life an intense intellectual activity devoted to the study of the nuclear deterrence strategy.

10] Cf. Géré, op.cit., page 75.

11] Cf. Colonel Ailleret, "Les possibilités de la guerre atomique", December 1950, lecture of the cycle of general studies to the 4th class of the ESG, 1950-1951, page 10, ^{Bibliothèque} patrimoniale de l'École militaire, cote 77516.AI.1730.

12] Cf. supra, page 16.

13] Idem, page 21.

14] See "Conferences on the Tactical and Strategic Properties of Nuclear Weapons", by General Charles Ailleret, Commander of Special Weapons, December 1956, Bibliothèque patrimoniale de l'École militaire, file number NGF 5.

15] Cf. "Essai de stratégie nucléaire" by General Charles Ailleret, of the Joint Command of Special Weapons, synthesis of lectures in the framework of higher military education, Paris, May 1959, pp. 51-53, Bibliothèque patrimoniale de l'École militaire, reference number CONF. I. 1/4.

16] Idem, in "À propos de la défense périphérique", chapter XIV, p.158 et seq.

17] Ibidem.

18] Cf. General Beaufré, "...Deterrence and Strategy" Librairie Armand Colin, Paris, 1964, Part I: "The Laws of Deterrence", Chapter II: "Analysis of Bilateral Deterrence", page 66.

19] The Centre for Foresight and Assessment was created by the Minister of National Defence Pierre Messmer in 1964 to establish, among other things, the doctrine for the use of national nuclear weapons, since it is the responsibility of the Minister of National Defence to ensure that the doctrine is applied to the use of nuclear weapons. It was on this date that the MIRAGE IVs of the strategic air forces carrying the AN 22 went on nuclear alert for the first time, thus allowing France to maintain its freedom of political action.

20] Cf. Géré, op.cit., page 103.

21] Cf. Lucien Poirier, "[21] The Laws of Deterrence, Chapter II: "Analysis of Bilateral Deterrence", page 66. Le chantier stratégique,

interviews with Gérard Chaliand"Hachette, "Pluriel", Paris, 1997, page 264.

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