

Les fondamentaux de la puissance aérienne moderne

Philippe Steininger.



Read by Jean-Christophe Noël

There are two ways in which to introduce Philippe Steininger. First, as a brilliant General Officer, born in 1960, who joined the French Air Force Academy aged 20 before leading an integral career as a fighter pilot. He made his air defense debut on the Mirage IIIE, then flew the F-4F Phantom as part of an exchange program with the Luftwaffe. He specialized in conventional attack on the Jaguar before closing his operational career as the Commanding Officer of the 1/12 Cambrais fighter squadron flying the Mirage 2000. He was next posted to the French Air Force Staff, in roles at the crossroads between the military and the political spheres. His final assignments were as the Strategic Air Force Commander, then Deputy Secretary-General at the General Secretariat for Defence and National Security. In this latter position, he became Senior Official of an institution in charge of coordinating the actions of the ministries within these two fields. Currently the military advisor to the President of the French National Centre for Space Studies (CNES), P. Steininger is therefore far more than an airman. He is a man of the military, well acquainted with political requirements and contingencies.

Yet he is also a air power thinker, not to say one of the few French air power thinkers of his time. He drew attention with his French translation of J. Warden's *The Air Campaign*, published by Economica in 1998, contributed to the development of a journal specialized in strategy and aeronautics, the "BDOC", and published multiple valuable articles on air power, albeit sporadically due to the pervasiveness of his professional activities. All he had yet to accomplish was to write a referential document which could represent the entirety of his standpoint on the air power.

His track record is now complete with his 2020 publication, *Les fondamentaux de la puissance aérienne moderne*. This book is a study of the use of air power over the last thirty years, with an opening on the challenges to come. Inspired by British author J. F. Fuller, P. Steininger mentions the effects of air weaponry in the physical, mental and moral spheres. To this end, he turns to a three-stage process.

The first part deals precisely with the range of effects that air power can trigger. As expected, he opens on a mention of the diplomatic and political dimensions, before focusing on more military aspects. This allows him to outline J. Boyd and J. Warden's theories, which he completes with an article of J. Barlow in the Winter 1993 *Airpower Journal*. Amongst the military effects he highlights, he places the most emphasis on mass, reach, accuracy and reactivity. The contribution of military aviation in counter-insurgency conflicts is not left out, with a brief theoretical introduction of this strand of war.

The author then introduces the coercive use of air power, with a distinctive focus on the fact that its effectiveness could have pervasive effects. Politicians would expect too much from it, either because they are unfamiliar with the way it works or because they imagine it is omnipotent.

Next, the author highlights the elitist aspect of air power. It only involves a handful of professionals, therefore efforts must be made for military and political stakeholders to better understand it. At the same time, its effectiveness relies on cutting-edge technologies, especially in the fields of stealth, accuracy and information. Mastering these technologies is crucial to ensuring air power's success.

The second part turns to the specificities of air power and the knowledge its appropriate use calls for. Achieving air superiority is of course a requirement proven by the main conflicts of the 20th and 21st centuries. Having reminded how the control of air space by western forces is currently threatened, the author matter-of-factly demonstrates the importance of the number of aircraft and crews trained to carry out such a task.

P. Steininger pursues his analysis with an examination of C2. In light of the lessons learned from the former Yugoslavian conflict, he explains how the lack of a centralized command hindered the action of air power, as political constraints held back decision-makers. Instead, he advocates the rapid and forceful use of air power to ensure its effects.

The author concludes this section by recalling the transient nature of air power, due to the technological limitations of aircraft. UAVs do not change this fact, as their use is rather confined to permissive theaters of engagement.

The third and final part tackles future challenges. The first of these challenges is a cutback on combat fleets along with a decision between quality and quantity. The author rightly reminds us that the worst thing would be to give up on both. However, if a choice must be made, he favours quality, by demonstrating that technological superiority has proved more decisive than number in recent conflicts.

The second theme is the hardening of probable engagement scenarios. P. Steininger turns to mathematics to show how a high attrition rate could swiftly put an end to any operation within the third dimension. He suggests an array of ways to remedy this situation. He then delves into the future requirements for interoperability, highlighting the United States' dominant position in this area. It can dictate its standards, in particular thanks to sales of F-35 to most of its allies, and it can decide on the level of cooperation it wishes. In a way, it holds a share of their partners' sovereignty. The closing chapter discusses the influence of technologies such as directed energy weapons, hypersonic delivery systems or artificial intelligence: Steininger concludes on the way air power could connect to orbital systems.

Three appendices extend the book. P. Steininger proves to be both a brilliant lawyer and an uncompromising prosecutor. He first assumes the lawyer's gown, in his explanation of the airborne nuclear component's continued relevance. He then becomes a prosecutor, pointing out the combat helicopter's limits within modern conflicts, as well as the marginal relevance of the aircraft carrier, especially for countries that only own one. In the first case, he reckons that the use of helicopters in autonomous in-depth missions is of a high risk. In the second case, he considers the arguments in favour of the use of aircraft carriers. Seemingly convinced of their usefulness – in high number - or when they move the same weight as American carriers, he raises many pertinent questions, beyond the French Navy's legitimate need to replace the *Charles de Gaulle* aircraft carrier.

Les fondamentaux de la puissance aérienne moderne is a truly well-written book, an easy read allowing any curious reader to master the general principles of air power and to better grasp its issues. The author shows a rare and extensive knowledge which he uses to defend his theses.

Some weaknesses can certainly be found here and there. One may regret the book's very austere layout, some typos, the use of a rather long succession of examples to demonstrate a point, as in the paragraphs on the political dimension. The author could have attempted, even in passing, to better specify overused terms such as "flexibility" or "reversibility", that are tied to air power as if self-evident. A few more elaborations on Pape's thesis, which marked the 1990s and provoked a brief, mild controversy with Warden, would have been appreciated. Some sources could also have been quoted for the reader to delve deeper into certain ideas or facts. Lastly, no bibliography is listed.

The explanation for these shortcomings is quite simple. This book is not an academic book. It is, in our opinion, a book intended to educate through a plea for air power. Just as any advocacy, it is passionate, committed and persuasive. Passionate, because the author shares with us his fervor, and incites us to follow him into the mysteries of war in the third dimension. Committed, because the author - which really is very appreciable - is not content with presenting problems. He shares with us his vision, his beliefs and suggests us to take certain ways to solve these difficulties. Lastly, it is persuasive, because the arguments it presents are often oriented in a direction that is in favor of air power. The limits of the use of military aircraft are naturally acknowledged, but commentators are likely to bring more subtlety to certain narratives here and there.

As a reader, his plea may irritate or delight you, but it cannot leave you indifferent. This is why we must read this fascinating book, the fruit of forty years of reflection. It would undoubtedly deserve a wider release and a greater response, both in France and abroad, to contribute to a quality debate. We shall leave it up to the military leaders and potential publishers to judge. Meanwhile, it is recommended to the readers of this journal.