



COMMISSIONE INTERNAZIONALE DI STORIA MILITARE
INTERNATIONAL COMMISSION OF MILITARY HISTORY
COMMISSION INTERNATIONALE D'HISTOIRE MILITAIRE



Airpower in 20th Century

Doctrines and Employment

National Experiences



RIVISTA INTERNAZIONALE DI STORIA MILITARE • INTERNATIONAL REVIEW OF MILITARY
HISTORY • REVUE INTERNATIONALE D'HISTOIRE MILITAIRE • INTERNATIONALE ZEIT-
SCHRIFT FÜR MILITÄRGESCHICHTE • REVISTA INTERNACIONAL DE HISTORIA MILITAR



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Presentazioni / Présentations

MATTEO PAESANO *

Giusto cento anni fa, nel corso del conflitto che la oppose all'Impero ottomano e che avrebbe portato alla conquista della Libia, l'Italia sperimentava, primo Paese al mondo, l'impiego bellico dell'aeroplano. Non erano trascorsi neanche otto anni dal volo di Kitty Hawk, che già l'invenzione dei fratelli Wright entrava nella guerra moderna, apprestandosi a rivoluzionarla, come del resto confermarono, di lì a pochi anni, le vicende della prima guerra mondiale. Spetta inoltre a un italiano, il Generale Giulio Douhet, aver per primo intuito e solidamente teorizzato, già agli inizi del XX secolo, il ruolo strategico, e determinante, che l'arma aerea avrebbe avuto nei conflitti futuri.

In virtù di questa sorta di doppio primato italiano, è apparso quasi naturale alla Commissione Internazionale di Storia Militare (CIHM) affidare alla Commissione Italiana di Storia Militare (CISM) la realizzazione di un numero monografico della propria Rivista da dedicare al potere aereo nel '900. La pronta e convinta adesione delle singole Commissioni nazionali, cui va il mio più vivo ringraziamento per la collaborazione accordata, oltre ad essere testimonianza di quanto proficua sia la collaborazione in ambito internazionale nello studio ed analisi della storia militare, ha permesso di riunire studiosi altamente qualificati che con i loro saggi hanno delineato una vasta panoramica su esperienze e concezioni del potere aereo così come si sono andati declinando, nell'ambito delle singole realtà nazionali, per un lungo tratto del secolo appena trascorso. Ed è con viva soddisfazione che voglio, inoltre, sottolineare come più di uno di loro abbia riconosciuto, già nel titolo, la centralità rivestita da Giulio Douhet nel pensiero militare moderno.

In tale prospettiva la CISM ha avuto la possibilità e l'onore di coordinare la realizzazione della pubblicazione, in collaborazione con l'Ufficio Storico dello Stato Maggiore dell'Aeronautica, che con il suo personale ha curato encomiabilmente l'opera, e con il Prof. Massimo de Leonardis, in qualità di supervisore, realizzando così un testo di analisi completa e ad ampio respiro, che traccia una descrizione globale di un fenomeno storico-militare di rilevante importanza: l'impiego operativo del potere aereo.

Ormai consegnato alla storia il quadro strategico caratterizzato dalla rigida con-

* Col. E.I., Presidente CISM.

trapposizione Est-Ovest, il potere aereo ha infatti conosciuto, per adattarsi ai nuovi ambienti operativi (Golfo, ex Jugoslavia, Iraq, Afghanistan, ecc.), nuove e più articolate formulazioni, allargando i propri orizzonti, tanto da doversi parlare oggi, più correttamente, di “potere aerospaziale”. Sono sicuro che questo numero della Rivista internazionale di storia militare non dia solo la possibilità di conoscere pagine significative della storia del XX secolo, ma costituisca anche un utile strumento per meglio comprendere gli sviluppi degli attuali scenari strategici.

Il volume, impreziosito dalla presentazione del Gen. Vincenzo Camporini, Capo di Stato Maggiore della Difesa nel periodo in cui fu dato mandato alla CISM di sviluppare questo progetto, valorizzato scientificamente dall'introduzione del Prof. Massimo de Leonardis, Vice Presidente della ICHM e Segretario Generale della CISM, arricchito graficamente da una sovra copertina che ritrae il dipinto di A. G. Ambrosi “Guerra nel cielo” del 1942 custodito presso il Museo dell'Aeronautica Gianni Caproni di Trento, rappresenta un valido esempio di efficace collaborazione internazionale in ambito interforze ed interuniversitario nel realizzare un'opera su un tema di grande interesse come il potere aereo.

MATTEO PAESANO *

Airplanes were first used in an actual war just one hundred years ago, during the conflict that opposed Italy to the Ottoman Empire ending with the conquest of Libya.

Not even eight years after the historic first flight at Kitty Hawk, the invention of the Wright Brothers was introduced into modern warfare, bringing about a dramatic change, as confirmed by the subsequent events of World War I. In addition to this, the Italian General Giulio Douhet was the first to understand and theorize, at the beginning of the XX Century, the strategic and fundamental role of Air force would play in the coming wars.

Given this kind of double Italian primacy it was quite obvious for the International Commission of Military History (ICMH) to task the Italian Commission of Military History (CISM) with publishing a monographic issue of its Review completely devoted to air power in the XX century. The prompt and eager support expressed by individual National Commissions, that I would like to thank most warmly for their cooperation, besides being a clear evidence of the fruitful international cooperation in the study and analysis of military history, gave us the opportunity to bring together quite a number of high ranking scholars. In their essays they have illustrated various experiences and concepts on the matter of air power, as they took place and developed in individual countries during the last century. To this regard, it is a great pleasure for me to stress how various scholars have recognised the pivotal role played by Giulio Douhet in the development of modern military thought.

In this context the Italian Commission of Military History, in cooperation with the Air Force Historical Studies Branch, whose personnel have commendably edited this work, and under the supervision of Professor Massimo de Leonardis, has now the opportunity and the honour to issue a deep and extensive work on this subject, drawing a comprehensive analysis of a very important historical and military event, i.e. the operational employment of air power.

Now that the unyielding confrontation between the Eastern and the Western blocks is part of history, in order to adapt itself to new operational environments (Gulf, former Yugoslavia, Iraq, Afghanistan, etc.), air power had to change accordingly and extend its scope to a point that, today, it would be more correct to identify it as "aerospace power". I am convinced that this issue of the International Review of Military History is not only an opportunity to know some important events of the

* Col. E.I., President CISM.

XX century but it is also a useful tool to better understand the developments of current strategic scenarios.

The presentation by General Vincenzo Camporini, Chief of Defence Staff in the period when CISM was tasked with developing this project, adds further value to this volume, whose scientific content is also corroborated by the introduction of Professor Massimo de Leonardis, ICMH Vice President and CISM Secretary General. The beautiful book jacket is a reproduction of the painting by A.G. Ambrosi “Guerra nel Cielo” (War in the sky), painted in 1942 and kept in the Air Force Museum “Gianni Caproni”, Trento. In sum, this volume is a valid example of an effective international cooperation, at a joint and inter-academic level, for the production of a work on such an important subject as air power.

VINCENZO CAMPORINI *

Non potrebbe esserci momento migliore per offrire al pubblico questa raccolta di saggi che analizzano da varie angolazioni nazionali (e quindi da varie angolazioni culturali) e con riferimento a periodi storici diversi, ma parte di un continuum pienamente coerente, la tematica del potere aereo e del suo indispensabile contributo all'utilizzo ottimale nella gestione degli affari internazionali dello strumento militare, sia in potenza che in atto: l'attualità della pubblicazione deriva proprio dalle vicende degli ultimi venti anni, che hanno visto le più diverse modalità di impiego delle forze armate con l'applicazione di dottrine quanto mai varie e a volte contrastanti, dando modo ai commentatori ed agli analisti di sostenere ciascuno la propria tesi, spesso in contraddizione l'uno con l'altro.

Così la prima guerra del Golfo, condotta se si vuole in modo del tutto tradizionale, ha visto un impiego massiccio e pressoché esclusivo del potere aereo nella prima fase, che ha, di fatto, annichilito le capacità delle pur poderose forze terrestri di Saddam; queste, all'avvio della campagna di superficie, non hanno potuto che opporre una debole resistenza, di fatto concretizzatasi in un unico ed infruttuoso tentativo di controffensiva, ma erano state così fiaccate dal martellamento aereo da non costituire più un reale ostacolo per l'avanzata delle forze della coalizione, che sono state fermate prima di arrivare a Bagdad dalla specifica volontà politica di non causare il collasso delle strutture istituzionali irakene.

Con le campagne balcaniche si è assistito invece ad un impiego più politico delle forze aeree, con finalità che, accanto a quelle più propriamente operative (il diniego per Belgrado di utilizzare mezzi aerei a sostegno delle proprie operazioni terrestri), si qualificavano come mezzo di pressione per indurre Milosevic a sottostare alle condizioni volute dalla NATO; proprio così si spiega l'efficacia della pur limitata e breve campagna di bombardamenti effettuata, anche dai nostri Tornado, nel 1995, che indusse i serbi a sedersi al tavolo delle trattative che si conclusero con gli accordi di Dayton: un conflitto, dunque, risolto dal solo impiego del mezzo aereo.

Pochi anni dopo, per la crisi del Kosovo, in un contesto, tutto sommato, analogo, ci si illuse di riproporre lo stesso schema: si disse che sarebbero bastati pochi giorni di bombardamenti ben calibrati per giungere ad una soluzione politica. Invece per piegare la volontà di Milosevic ci vollero quasi tre mesi, nonostante sul terreno la guerriglia condotta dalle milizie Kosovare avesse un soddisfacente livello di efficacia; vennero quindi gli accordi di Kumanovo e le truppe della coalizione poterono fare il loro ingresso in Kosovo in un quadro permissivo, ma il livello di tensione era tale da rendere necessaria la loro presenza sul terreno ben oltre il prevedibile, dando

* Generale A.M., già Capo di Stato Maggiore della Difesa.

così evidenza che, nella situazione politica generatasi dopo la caduta del muro di Berlino, gli obiettivi politici di una missione militare si potevano conseguire solo con il concorso delle varie componenti dello strumento militare, in tempi e con modalità diverse, ma in forma assolutamente coordinata e convergente.

Venne poi l'Afghanistan, ambiente operativo assai peculiare, in cui le cose si sono andate complicando con il passare del tempo, dopo il fulmineo successo iniziale che ha permesso di spazzare il governo del Mullah Omar, senza sforzi eccessivi. Le operazioni, prima nel solo quadro di Enduring Freedom e poi con l'intervento NATO e l'avvio di ISAF, si sono sviluppate in un quadro essenzialmente, per non dire quasi esclusivamente terrestre, con interventi delle forze aeree in un ruolo quasi esclusivo di trasporto logistico, di ricognizione e di close air support, condotto anche con mezzi non concepiti per tale ruolo, come il B1-B, e spesso solo nella modalità 'show the presence', al fine di minimizzare i rischi di colpire civili innocenti. Qualcuno ne ha tratto la deduzione che nell'attuale quadro strategico, caratterizzato prevalentemente da operazioni di peace keeping/enforcement, il ruolo delle forze terrestri sia diventato assolutamente dominante, con le altre componenti ridotte ad un ruolo di mero supporto, ma dimenticando che anche in Afghanistan le truppe di terra godono di libertà di movimento solo perché la coalizione gode di un dominio dell'aria assoluto, dominio che può essere conseguito e mantenuto solo dalla disponibilità di un'adeguata, per qualità e quantità, disponibilità di mezzi aerei delle varie tipologie.

E siamo oggi alla Libia. La coalizione ha deciso fin dall'inizio che sarebbe intervenuta solo con mezzi aerei e che non avrebbe messo 'boots on the ground', convinta di riprodurre la fase iniziale della vicenda kosovara, confidando che le forze ribelli avrebbero svolto agevolmente il ruolo sostenuto a suo tempo dalle milizie kosovaro-albanesi e che, visti gli sviluppi delle pressoché contemporanee vicende in Egitto e in Tunisia, i tempi sarebbero stati assai rapidi. Ci sono stati evidentemente degli errori di valutazione, sia circa le peculiarità della situazione libica rispetto a quelle dei paesi confinanti, sia soprattutto circa le effettive capacità degli insorti: questi, lungi dal costituire una reale minaccia per le forze regolari lealiste, hanno evidenziato un'iniziale assoluta incapacità operativa, il che ha reso necessario un prolungarsi della campagna aerea, che peraltro non è mai stata martellante, al fine di dare tempo alle forze dell'insorgenza di costituirsi, organizzarsi, addestrarsi al fine di dare consistenza alla propria azione.

Quali conclusioni possiamo trarre da tutte queste vicende? Molto semplicemente che nessun obiettivo politico potrà essere conseguito da un'azione militare, qualsiasi tipo di quadro strategico si voglia considerare, se non si dispone di un complesso armonico ed equilibrato di capacità in tutte le dimensioni operative. Non solo, ma la varietà delle situazioni può essere tale da richiedere la disponibilità pronta ed efficace di unità atte ad operare in tutto il possibile spettro delle operazioni: per rimanere sul terreno, nessuno si illuda di potere rinunciare alle componenti corazzate e di artiglieria pesante senza correre rischi inaccettabili di constatare la propria impotenza di fronte a situazioni che ne richiedono l'impiego.

Quest'opera può dunque rappresentare un utilissimo stimolo a riflettere in modo documentato e realistico sull'evoluzione del pensiero militare aeronautico, dai primordi ai giorni più recenti e, nella varietà dei toni e delle visioni, dà piena consapevolezza della poliedricità di questo tema vitale, che nessuno può sentirsi autorizzato a trascurare, soprattutto ora che l'orizzonte non è affatto sgombero di nubi, in un mondo in cui le potenze emergenti non nascondono le proprie ambizioni, comprese quelle militari.

VINCENZO CAMPORINI *

There couldn't be a better time to present the public with this collection of essays which analyse, from different National points of view (and therefore from different cultural points of view), air power and its essential contribution, both in theory and in action, to the employment of the military instrument in international affairs management, through different historical moments linked in a fully coherent continuum. The topical interest of this issue is due to the events of the last twenty years, when different modes of employment of the armed forces and very different and sometimes opposed doctrines have been applied, thus allowing observers and analysts to support each his own, often contrasting, thesis.

Thus, the first Gulf War, conducted in a very traditional way, witnessed a massive and almost exclusive use of air power in the first phase, which actually destroyed the capabilities of Saddam's strong land forces. At the beginning of the land campaign, the latter could only oppose a weak resistance, carried out in a single and fruitless attempt at counter-offensive: they had been so worn out by air raids that they didn't actually represent an obstacle for the coalition forces, who stopped before reaching Baghdad due to the political will to prevent the collapse of Iraqi institutions.

In the Balkans campaigns there was a more political use of air forces which, besides operational aims (the denial for Belgrade to use air force in support of their own land operations), were meant to put pressure on Milosevic to make him accept NATO conditions. That explains the effectiveness of the 1995 short raid campaign, which saw the participation of our Tornados and brought the Serbians to the negotiation table, leading to the Dayton agreement. The conflict was thus solved by the use of the air force.

A few years later, during the crisis in Kosovo, in a similar context, we thought the same strategy could be applied, and that a few days of calibrated raids would be enough to bring about a political solution. On the contrary, it took almost three months to bend Milosevic's will, despite the effective guerilla conducted on the terrain by Kosovo militia. Then, the Kumanovo agreement was signed and coalition troops could enter Kosovo in a permissive environment: but the level of tension was such that their presence on the terrain had to be extended well beyond plans. It was thus proved that, in the political context that followed the fall of the Berlin wall, the political goals of a military mission could only be achieved by the various components of the military instrument working together in a coordinated and consistent way.

Then, there was Afghanistan, a very peculiar operational environment where,

* General A.M., former Chief of Defence Staff.

after the sudden initial success and the obliteration, without great effort, of Mullah Omar's government, things got worse as time went by. Operations, at first strictly within the framework of Operation Enduring Freedom, followed by NATO intervention and ISAF, developed mainly, not to say almost exclusively, as land operations, limiting the role of air force to logistic transport, surveillance and close air support, implemented by means that were not designed for those purposes (the B1-B, for example), and often only in a "*show the presence*" mode, in order to minimize the risk of harming innocent civilians. Someone inferred that, in the current strategic scenario characterized mainly by peace keeping/enforcement operations, land forces have assumed a predominant position, with the other components playing merely a supporting role. This point of view, however, does not take into consideration the fact that, in Afghanistan as in other areas, freedom of movement of the land forces is provided by the Coalition's absolute air supremacy, obtained and maintained thanks to the availability of appropriate, in terms of both quality and quantity, air capabilities.

And now, Libya. From the very beginning the Coalition decided to intervene only with air assets, and that there would be no "boots on the ground", in the conviction that it was possible to re-enact the initial phase of the Kosovo operation, in the belief that the rebels would effortlessly play the same role as the Kosovo-Albanian Militia and that, based on the developments of the almost concurrent events in Egypt and Tunisia, the whole operation would only take a short time. It is now clear that this was a mistaken evaluation, both as regards the peculiarities of the Libyan situation as compared to its neighboring countries, and the real capabilities of the insurgents. The latter, far from representing an actual threat for the loyalists, proved to have no operational capabilities. As a consequence the air campaign, never a relentless one, had to be extended in order to give them time to set up, organize and train their forces and be effective in their action.

Which conclusions can we draw out of all these events? Very simply, that no political aim can be reached by military action, regardless of the strategic framework under consideration, if no coordinated and balanced capabilities are available in all operational dimensions. Moreover, a vast variety of situations can occur that may require the prompt and effective presence of units able to cover the full spectrum of operations: for example, as regards land operations, no one should linger under the delusion that we could give up our armored and heavy artillery components without running the unacceptable risk to witness our own lack of power when confronted with situations that require their employment.

This volume can therefore serve as a useful encouragement to analyze the evolution of Air Force military thinking, from the very beginning to the current time. Its variety of registers and visions makes us fully aware of the multiple implications of this vital theme, which none of us can afford to neglect, especially now, when the horizon is all but cloudless, in a world where emerging powers do not hide their ambitions, military ones included.

Introduzione / Introduction

MASSIMO DE LEONARDIS*

Aviazione e superiorità tecnologica tra nuovi conflitti e diplomazia

I contributi raccolti in questo numero della *Rivista internazionale di storia militare* testimoniano l'importanza del tema del Potere aereo e l'interesse da esso riscosso presso molti degli studiosi che, attraverso le Commissioni Nazionali, fanno parte della *International Commission of Military History/Commission Internationale d'Histoire militaire*. Una parte dei saggi affronta il tema dal punto di vista generale delle dottrine del potere aereo, altri esaminano alcune specifiche campagne militari particolarmente significative.

Accogliendo il cortese invito a scrivere una breve presentazione, nella mia duplice qualità di Vice Presidente Internazionale e di Segretario Generale della Commissione Italiana, che ha promosso questo numero, ritengo opportuno, piuttosto che tentare un'ardua sintesi degli argomenti trattati, soffermarmi su alcuni aspetti di specifico interesse per gli storici delle relazioni internazionali, come chi scrive, particolarmente attenti ai rapporti tra politica estera e politica militare, tra diplomazia e strategia.

Aeronautica e superiorità tecnologica nei "nuovi conflitti"

Le relazioni internazionali sono sempre «all'ombra della guerra»: nel sistema westfaliano, gli Stati, non accettando più alcuna autorità sopra di loro (*superiorem non recognoscentes*), nei casi estremi (*l'ultima ratio regum*) regolano i loro rapporti con il ricorso alle armi; la «più alta prerogativa» dello Stato «consiste nel diritto-dovere di stabilire chi siano i 'nemici': coloro contro i quali soltanto vi sarà guerra legittima»¹. Come osserva Raymond Aron, «il "diplomatico" e il "soldato" sono le due figure-simbolo che operano sulla scena internazionale, quelli che rappresentano lo Stato nei due momenti cruciali della negoziazione e dello scontro armato»². La diplomazia «dispone di tre strumenti: la persuasione, il compromesso e la minaccia

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¹ G. Miglio, *Le regolarità della politica. Scritti scelti raccolti e pubblicati dagli allievi*, vol. II, Milano, 1988, pp. 766-67.

² R. Aron, *La politica, la guerra, la storia*, Bologna, 1992, p. 72.

dell'uso della forza»³; secondo l'immagine efficace del Re Federico II di Prussia «i negoziati senza le armi fanno poca impressione, come gli spartiti senza gli strumenti». Le Forze Armate servono quindi a combattere le guerre, ma anche come strumento di pressione per evitarne lo scoppio, attraverso la dissuasione, la deterrenza o l'uso minimo della forza.

Riguardo al primo compito, gli strateghi seguaci del «metodo realista», enfatizzano l'importanza del progresso tecnologico e sottovalutano i fattori storici ed etico-politici, ricercando la *silver bullet* che offra la «soluzione finale» delle guerre⁴. Tale convinzione è particolarmente diffusa negli Stati Uniti. Come osserva qui nel suo saggio il Prof. Corum, «from the very beginning of American military aviation, the central idea behind American airpower doctrine and theory has been to employ airpower with decisive, war-winning effect. For almost a century, the U. S. Air Force has maintained its strategic focus and has built a force with a strong common belief that decisive victory in war could be achieved by airpower, with a minimal contribution by other forces. While the technologies and tactics have changed, the core doctrinal principles have remained constant».

Tuttavia la superiorità tecnologica non può essere risolutiva nelle guerre irregolari⁵. Riguardo a queste ultime, i francesi distinguono tra *asymétrie* e *dyssimétrie*. La *dyssimétrie* è descritta come uno squilibrio tra gli antagonisti riguardante il livello della posta in gioco e dei mezzi impiegati, ma non tanto il loro tipo ed il comportamento dei belligeranti. Da questo punto di vista, l'antagonista per il quale la posta è meno importante è svantaggiato, poiché non è disposto a pagare un prezzo alto per conseguire la vittoria. In una «guerra di liberazione», i «combattenti per la libertà» sacrificano tutto, perché la loro posta è più alta rispetto a quella della Potenza straniera che controlla il loro territorio, che ha altri interessi altrove. Si ha *asymétrie* quando il comportamento, l'etica, le modalità di azione e gli strumenti impiegati dai belligeranti sono radicalmente differenti⁶. La superiorità tecnologica può avere un ruolo chiave nel caso della *dyssimétrie*, ma non è risolutiva in quello della *asymétrie*.

Nella guerra del Vietnam si vide la combinazione tra «illusione tecnologica» e debolezza etico-politica che portò gli Stati Uniti alla sconfitta. La guerra già allora iper-tecnologica combattuta dagli americani spesso contrastava con l'obiettivo di «vincere i cuori e le menti»: un villaggio distrutto dal *napalm* difficilmente era un buon viatico a tal fine. Commentando quel conflitto, uno storico ha scritto: «Il pensiero militare dell'Occidente è giunto addirittura a concepire l'utopia di una guerra in cui sia possibile far combattere, in pratica, solo le macchine, con appena qualche

³ H. J. Morgenthau, *Politica tra le nazioni: la lotta per il potere e la pace*, Bologna, 1997, p. 506.

⁴ Cfr. F. Sanfelice di Monteforte (a cura di), *La strategia. Antologia sul dibattito strategico per argomenti*, Soveria Mannelli, 2010, pp. 165-68 e 254.

⁵ Cfr. C. E. Callwell, *Small Wars. Their Principles & Practise*, Lincoln (NE), 1996 [I ed., 1906], p. XI. Sul tema cfr., in questo numero, il saggio del Gen. Antonio de Jesus Bispo.

⁶ Cfr. J. Baud, *La guerre asymétrique. Ou la défaite du vainqueur*, Parigi, 2003.

decina di uomini al loro servizio». Già in Algeria e Indocina, negli anni '50 e '60 si era vista la «crescente incapacità dei popoli dell'Occidente di fare i conti con la dimensione della fatica fisica, del sacrificio ed infine della morte, che invece è propria delle società pre-industriali»⁷. In Vietnam, soldati americani ipernutriti e super equipaggiati, bombardamenti al napalm, sensori lanciati nelle foreste, non riuscirono ad eliminare i vietcong, che vivevano con un pugno di riso, s'infiltravano attraverso il «sentiero di Ho Chi Minh» e, a differenza degli americani, erano convinti della giustezza della loro causa. Si era già allora manifestata la dicotomia tra la guerra tecnologica dell'Occidente, che vuole minimizzare i rischi per i propri uomini in divisa, e le guerre «sporche» delle tribù, delle etnie e dei gruppi politici e religiosi dell'«altro mondo» (che può essere anche in Europa, vedi Bosnia e Kosovo!), dove la vita umana conta poco e viene spesa con facilità al servizio dei propri valori o interessi, la mina antiuomo, il kalashnikov o persino il machete dominano ancora il campo di battaglia.

La prima guerra del Golfo (1991), gli interventi della NATO in Bosnia (1994), Kosovo (1999) e Libia (2011) hanno riproposto il problema, già dibattuto dopo la Seconda Guerra Mondiale⁸, se un conflitto possa essere vinto solo con l'aviazione. Valutando ad esempio la campagna per il Kosovo, storici militari (come John Keegan), esperti di studi strategici (come John Chipman) e lo stesso Generale Michael Short, comandante delle forze aeree dell'Alleanza, dibatterono sugli insegnamenti di un'operazione condotta senza impiego di truppe di terra e senza caduti tra le forze della NATO. Vi fu chi sottolineò l'aiuto dato sul terreno dai guerriglieri dell'UÇK, che forzavano i serbi ad uscire allo scoperto e ad essere così colpiti, e dalle forze speciali della NATO infiltrate sul territorio e che la decisione della Serbia di arrendersi fu fortemente influenzata dalle sempre più insistenti minacce di un'invasione da terra.

I vantaggi, ma anche alcuni possibili rischi dell'uso esclusivo del potere aereo

⁷ E. Galli della Loggia, *Il mondo contemporaneo (1945-1980)*, Bologna, 1982, pp. 266-68. Il soldato occidentale, grazie ai moderni sistemi d'arma, cerca di «non venire a contatto con gli spargimenti di sangue» (Qiao Liang-Wang Xiangsui, *Guerra senza limiti. L'arte della guerra asimmetrica fra terrorismo e globalizzazione*, Gorizia, 2001, p. 75).

⁸ Al dibattito sull'importanza del potere aereo nella Seconda Guerra Mondiale partecipò anche la *Rivista Aeronautica*, pubblicando, tra l'altro un articolo del Generale Carl Spaatz, comandante dell'aviazione dell'Esercito statunitense (come è noto, la *U. S. Air Force* autonoma nacque solo nel 1947), che sostenne la tesi del potere aereo come unico strumento di proiezione globale della forza e l'«offensiva aerea studiata e pronta» come «sola reale difesa» nell'era atomica, mentre per il suo connazionale Ammiraglio Ernest J. King, Capo delle operazioni navali durante la guerra, era invece ancora il potere marittimo a giocare un ruolo determinante: solo la Marina aveva infatti garantito il possesso delle basi per l'impiego dell'arma atomica contro il Giappone. Un altro tema di dibattito fu la valutazione dell'impatto, più o meno importante, dei bombardamenti alleati sulla Germania (cfr. M. de Leonardis, *The Debate in the Military Press and in the Public Opinion on the Lessons Learned and the Recorganization of the Italian Armed Forces after the Second World War*, in *War, Military and Media from Gutenberg to Today*, Atti del XXVIIIth International Congress of Military History, Bucarest, 2004, pp.492-502).

sono indicati nelle seguenti considerazioni: «The most publicized advantage of air power in restricting adversary countermoves is the relative invulnerability of U. S. aircrews compared with that of engaged ground forces. By reducing force vulnerability, reliance on air power can help sustain robust domestic support by lowering the likelihood of U. S. casualties. At the same time, air power's ability to conduct precision operations can reduce concerns about adversary civilian suffering (though efforts to keep air forces relatively safe may create moral and legal concerns if doing so places civilians at much greater risk)»⁹.

L'uso dell'aviazione consente di ridurre le proprie perdite ed il progresso tecnologico (sistemi di puntamento, bombe "intelligenti", aerei senza pilota) dovrebbe altresì permettere di evitare il più possibile di colpire obiettivi civili e provocare vittime tra la popolazione. Tuttavia il raggiungimento del primo obiettivo può essere inversamente proporzionale al conseguimento del secondo: la maggiore altitudine di volo salvaguarda di più gli equipaggi, ma aumenta il rischio di errori (i "danni collaterali").

La riduzione delle perdite tra i propri militari viene incontro alle esigenze di quella che Edward Luttwak ha definito la «guerra post-eroica», tipica oggi di tutte le nazioni post-industriali, con un tasso zero di crescita demografica, che sono «in effetti demilitarizzate o quasi»¹⁰. Le vittime civili possono tuttavia creare reazioni politicamente pericolose presso le opinioni pubbliche. All'epoca della guerra del Kosovo l'ex segretario di Stato Zbigniew Brzezinski ammise che per il resto del mondo «la guerra all'americana sa di razzismo *high tech*. La sua premessa occulta è che la vita di un solo nostro soldato vale di più di quella di migliaia di kosovari»¹¹ ed un politologo francese rilevò una «asimmetria insopportabile tra i militari protetti dell'Alleanza e i civili infinitamente vulnerabili che i militari sono venuti a salvare»¹².

Nel corso del secolo XX si è progressivamente ribaltata la proporzione tra vittime civili e militari nei conflitti armati. All'inizio del '900 la proporzione tra vittime militari e civili era di otto ad uno; già nella Seconda Guerra Mondiale vi era parità; oggi muore un militare ogni otto civili. Il dato va raffrontato all'altro secondo il quale nel XX secolo 119 milioni di vittime sono stati causati da conflitti infrastatali e 36 da

⁹ D. L. Byman-M. C. Waxman, *Kosovo and the Great Air Power Debate*, in *International Security*, vol. 24, n. 4, Spring 2000, p. 35.

¹⁰ Cfr. E. N. Luttwak, *Where Are the Great Powers? At Home with the Kids*, e Id., *Toward Post-Heroic Warfare*, in *Foreign Affairs*, July/August 1994, pp. 23-28, May/June 1995, pp. 109-22.

¹¹ Cit. in *Corriere della Sera*, 16-6-99, p. 2.

¹² Alan Finkelkraut, intervistato in *Corriere della Sera*, 29-5-99.

conflitti interstatali¹³. Questi ultimi sono in calo e coinvolgono per lo più piccole e medie Potenze fuori dell'Occidente (ma India e Pakistan sono tutt'altro che piccoli). È ovvio che la prevalenza di conflitti infrastatali porti ad un aumento delle vittime civili, ma certamente ad esso ha contribuito anche l'avvento dell'aviazione.

Le operazioni militari in Libia, anch'esse motivate ufficialmente da ragioni "umanitarie", hanno riproposto gli stessi problemi del precedente intervento in Kosovo, del quale hanno già superato la durata con risultati scarsi e controversi (al momento in cui scriviamo, metà luglio 2011). Le bombe sono ancora più "intelligenti", ma non tanto da evitare le vittime civili e da permettere una rapida vittoria.

Gli ultimi più importanti conflitti ingaggiati dagli Stati Uniti e dai loro alleati occidentali, nel quadro della NATO o di *coalitions of the willing* e con un parziale e successivo avallo dell'ONU, contro la Serbia per il Kosovo, in Afghanistan (2001), in Iraq (2003) ed in Libia (2011), hanno mirato, più o meno esplicitamente, al *regime change* ed allo *State building*. Nell'intervento per il Kosovo l'obiettivo del mutamento di regime a Belgrado non era apertamente dichiarato, anche se implicito; comunque si voleva imporre una diversa amministrazione per la provincia del Kosovo. Il *regime change*, ancor più un vero e proprio *State building*, è stato invece lo scopo proclamato degli interventi in Afghanistan ed Iraq, in questo secondo caso con una differenza rispetto al 1991, quando la prima guerra ebbe l'obiettivo più classico di imporre il ritiro dal Kuwait degli invasori iracheni ed il presidente George Bush Sr. non volle marciare su Bagdad per abbattere il regime di Saddam Hussein. In Libia il mandato dell'ONU autorizza varie misure per l'ottenimento di una tregua e la protezione dei civili. Diversi membri della coalizione lo hanno tuttavia forzato fino a dichiarare apertamente di mirare alla sconfitta di Gheddafi, obiettivo ormai accettato pressoché da tutti. All'epoca del Kosovo l'obiettivo della destituzione di Milosevic non fu mai proclamato, ma emerse solo sulla lunga distanza.

È certo condivisibile la conclusione del già citato saggio del Prof. Corum: «Yet, in the ongoing counterinsurgency campaigns in Afghanistan since 2001 and in Iraq since 2003, the technological advantage does not play the same central role as it might in conventional war. Current conflicts against non state forces offer no strategic target set or industrial nodes whose destruction will cripple the enemy forces. If unconventional wars are the norm for the coming decades, American airmen will have a frustrating future».

La "frustrazione", se si vuole usare questo termine, comunque riguarda l'intera questione dell'uso della forza militare. Se è vero che «il potere aereo può devastare, punire e distruggere, ma non può dominare, mantenere e controllare aree terrestri o

¹³ Cfr. J.-J. Roche, *Le relazioni internazionali. Teorie a confronto*, Bologna, 2000, p. 140. Secondo altri calcoli le vittime civili furono il 10% nella Prima Guerra Mondiale, il 52% nella Seconda, il 90% nei conflitti successivi al 1945 (R. Toscano, *Il volto del nemico. La sfida dell'etica nelle relazioni internazionali*, Milano, 2000, p. 150, n. 49). Sul tema cfr. Aa. Vv., *Conflitti militari e popolazioni civili. Guerre totali, guerre limitate, guerre asimmetriche*, Atti del XXXIV Congresso della Commissione Internazionale di Storia Militare, Roma, 2009, tomi I-II.

di superficie»¹⁴ è altrettanto vero che «non esistono soluzioni militari ad un conflitto etnico o ad una guerra civile. La forza può solo creare i presupposti che rendano possibile una soluzione politica. Può poi fare talune cose, ma non altre. Può ad esempio separare due etnie ... ma non può obbligarle a vivere insieme»¹⁵.

Nelle ultime guerre «gli obiettivi politici da perseguire – cambio di regime, risoluzione dei conflitti, stabilizzazione, democratizzazione, pacificazione, ecc. – non sono conseguibili con una vittoria militare ... Mentre per il primo tipo di operazioni – quelle ad alta intensità – le forze occidentali devono essere *network*-centriche, secondo i principi cui si ispira la *Trasformation* delle Forze Armate degli Stati Uniti, per il secondo tipo devono essere *systemic*-centriche, data l'importanza che assumono gli aspetti umani, sociali e culturali ... l'approccio sistemico è coerente con la complessità in cui si deve operare. Infatti, con le Forze Armate agiscono quelle di polizia, le ONG, le imprese per la ricostruzione, le agenzie civili internazionali, le compagnie militari private ... in un contesto umano e fisico diverso da quello ipotizzato dalla RMA e dalla *network centric warfare*. Esse devono fronteggiare terroristi, criminali, insorti, guerrieri etnici e religiosi, gruppi rivali, ecc., frammischiati con la popolazione civile e generalmente in ambienti urbanizzati, che limitano l'efficacia delle nuove tecnologie»¹⁶.

In conclusione, per vincere le “nuove guerre”, il potere aereo, e più in generale la superiorità tecnologica delle Forze Armate occidentali, sono importanti, ma non sufficienti.

Potere aereo e diplomazia

Passando al secondo compito delle Forze Armate, si è dibattuta la questione se il potere aereo abbia sostituito il potere marittimo come sostegno privilegiato della diplomazia¹⁷. La Marina è sempre stata tradizionalmente considerata la Forza Armata più “diplomatica”, quella maggiormente in grado di essere strumento flessibile della politica estera; non a caso è nata l'espressione «diplomazia delle cannoniere»¹⁸. Secondo i suoi sostenitori, ad essa «non vi sono altri succedanei di appoggio militare, né aerei, né terrestri, perché il loro impiego condurrebbe sempre alla violazione delle regole internazionali sulla sovranità degli spazi, a un manifesto gesto di ostilità

¹⁴ H. W. Baldwin, *Strategy for Tomorrow*, cit. in Sanfelice di Monteforte, *op. cit.*, p. 50.

¹⁵ C. Jean, *Alleanza Atlantica. Gestione delle crisi e dei conflitti*, in *Rivista Militare*, 1995, n. 3, pp. 37-43.

¹⁶ C. Jean, *Nuove Forze Armate per nuovi interventi militari*, in M. de Leonardis-G. Pastori (a cura di), *Le nuove sfide per la forza militare e la diplomazia: il ruolo della NATO*, Bologna, 2007, pp. 70-71.

¹⁷ Va rilevato comunque che, a rigor di logica, il potere aereo ha natura esclusivamente militare ed il suo equivalente è semmai il potere navale, poiché il potere marittimo si basa, oltre che su una potente flotta militare, anche su numerosi altri fattori di carattere non militare, a cominciare da una forte marina mercantile.

¹⁸ V. Cable, *Gunboat Diplomacy*, London, 1971.

e, quindi, al peggioramento di crisi e tensioni»¹⁹. Nell'attuale momento delle relazioni internazionali, «passate dal congelato e congelante clima della *guerra fredda* a quello assai più complesso della *pace violenta*», «le Marine offrono ai governi mezzi senza eguali nel campo delle relazioni internazionali»²⁰. Altri hanno però sostenuto che il potere aereo ha largamente sostituito il potere marittimo come strumento della politica estera, in particolare «della deterrenza e della compellenza, quindi della “diplomazia coercitiva”», e che «la politica “dei cacciabombardieri” ... ha parzialmente sostituito quella “delle cannoniere”»²¹.

I vantaggi del potere aereo sono «la rapidità d'intervento, l'ampio raggio d'azione, ..., la “verticalità”, che svincola gli attacchi aerei dai condizionamenti morfologici del terreno, la possibilità di graduazione della violenza a seconda delle esigenze della politica e delle reazioni dell'avversario, la sottrazione degli attacchi aerei all'influenza pervasiva dei media prima che siano effettuati ... gli aerei garantiscono una potenza virtuale, senza schieramento di forze sul terreno o nei mari vicini al teatro di operazioni»²². Lo stesso autore appena citato rileva comunque che «la superiorità marittima, grazie alla sua ubiquità, mobilità, flessibilità e ora grazie anche alla capacità di colpire in profondità obiettivi terrestri con aerei, missili cruise imbarcati e azioni anfibe, costituisce indubbiamente uno strumento assai rilevante della diplomazia della violenza per interventi chirurgici su scala planetaria. In tale ruolo le forze navali hanno caratteristiche competitive rispetto a quelle aeree»²³. Una flotta navigante in acque internazionali può consentire ad esempio all'aviazione imbarcata di colpire i propri obiettivi senza dover ricorrere a basi in territori stranieri amici e senza richiedere ad altri Stati l'uso del loro spazio aereo²⁴.

Gli aerei, ed i missili, possono essere impiegati per eliminare “chirurgicamente” terroristi e dittatori “pazzi”, anche se nel caso di Osama Bin Laden l'operazione è stata portata a termine da un commando sbarcato a terra. Le operazioni d'interdizione aerea, imponendo *no flight zones*, condotte nei Balcani, in Iraq ed in Libia, costituiscono un complemento dei blocchi navali e sono più efficaci nei casi in cui si deb-

¹⁹ G. Giorgerini, *L'Unione Europea e la strategia marittima*, in *Affari Esteri*, a. XXVII, n. 107 (estate 1995), p. 586.

²⁰ P. P. Ramoino, in *Rivista Marittima*, a. CXXXI, novembre 1998, p. 245; cfr. Id., *Fondamenti di strategia navale*, Roma, 1999, cap. III, *Esiste ancora un ruolo politico per le marine militari? e Guerre limitate e strategia marittima*, in *Rivista Marittima*, a. CXXXI, maggio 1998, pp. 23-29.

²¹ C. M. Santoro, *Potere aereo, deterrenza e compellenza* e C. Jean, *Osservazioni sul potere aereo*, in C. M. Santoro (a cura di), *Italo Balbo: aviazione e potere aereo*, Roma, 1998, pp. 229-50 (243 e 248 per le citazioni).

²² C. Jean, *Guerra, Strategia e Sicurezza*, Roma-Bari, 1997, pp. 148-49.

²³ *Ibi*, p. 143.

²⁴ Nel 1973 in occasione della guerra dello Yom Kippur, comunque gli Stati Uniti, intervenendo in appoggio ad Israele, non chiesero agli alleati europei, tranne il Portogallo, l'uso dello spazio aereo e delle basi, forse temendo un rifiuto. L'impiego delle basi in Germania Occidentale, le uniche utilizzate oltre a quelle portoghesi, provocò il vivo risentimento del governo di Bonn, che non ne era stato informato.

bano impedire le repressioni violente di gruppi di insorti e di minoranze etniche.

Potere aereo e potere marittimo avranno sempre i loro sostenitori, convinti della maggiore importanza dell'uno o dell'altro; come si è poi rilevato, interventi militari per promuovere stabili soluzioni politiche richiedono solitamente l'uso di truppe di terra. L'uso della forza militare richiede sempre più un'ottica *joint and combined* ed è anche preferibile goda di un ampio consenso della comunità internazionale, poiché nessuno Stato (almeno dell'Occidente) ha più da solo le risorse materiali ed etico-politiche per interventi solitari.

MASSIMO DE LEONARDIS*

Aviation and Technological Superiority between New Conflicts and Diplomacy

The essays collected in this issue of the *International review of military history/Revue internationale d'histoire militaire* testify the importance of the subject of Airpower and the interest it raised among many of the scholars who, through the National Commissions, belong to the *International Commission of Military History/Commission Internationale d'Histoire militaire*. Some of these essays deal with the subject from the general point of view of the doctrines of Airpower; others consider some specific military campaign of particular significance.

Accepting the kind invitation to write a short presentation, as Vice President of the ICMH and Secretary General of the Italian Commission, which edits this issue, rather than try a difficult synthesis of the various topics, I consider more opportune to dwell upon some aspects which are of specific interest for the Historians of International Relations, as the present writer, who are particularly attentive to the links between foreign and military policy and between diplomacy and strategy.

Aviation and Technological Superiority in the "New Conflicts"

International relations are always under «the shadow of war»: in the Westphalian system the States, which no longer accept any superior authority (*superiorem non recognoscentes*), as a means of last resort (*ultima ratio regum*) settle their disputes appealing to arms; the State's highest prerogative «is the right and duty to determine who are the "enemies": those against whom only there will be a legitimate war»¹. As Raymond Aron points out, «the "diplomat" and the "soldier" are the two symbolic figures acting on the international scene, representing the State in the two crucial moments of negotiation and armed struggle»². Diplomacy has three instruments:

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¹ G. Miglio, *Le regolarità della politica. Scritti scelti raccolti e pubblicati dagli allievi*, vol. II, Milano, 1988, pp. 766-67.

² R. Aron, *La politica, la guerra, la storia*, Bologna, 1992, p. 72.

«persuasion, negotiations, and threat of force»³; according to a telling metaphor of Frederic II King of Prussia «negotiations without weapons have little impact, as scores without instruments». Therefore Armed Forces have the task to fight wars, but are also means of pressure to avoid their outbreak, through dissuasion, deterrence and a limited use of force.

Considering the first task, strategists following the «realist model», stress the importance of technological progress and underrate historical, ethic and political factors, and look for the *silver bullet* providing the «ultimate solution» to wars⁴. This attitude is particularly dominant in the United States. As Prof. Corum remarks here in his essay, «from the very beginning of American military aviation, the central idea behind American airpower doctrine and theory has been to employ airpower with decisive, war-winning effect. For almost a century, the U. S. Air Force has maintained its strategic focus and has built a force with a strong common belief that decisive victory in war could be achieved by airpower, with a minimal contribution by other forces. While the technologies and tactics have changed, the core doctrinal principles have remained constant».

Nevertheless technological superiority may not be decisive in irregular wars⁵. Considering these, the French make a distinction between *asymétrie* and *dys-simétrie*. *Dyssimétrie* is described as an unbalance between the level of the stakes and of the means employed, but not so much their type and the belligerents' behaviour. From this point of view, the antagonist for whom the stake is less important is disadvantaged, because he is not prepared to pay a high price to obtain victory. In a «war of liberation», the «freedom fighters» sacrifice everything, because their stake is higher than that of the foreign Power which controls their territory and has other interests elsewhere. We have *asymétrie* when belligerents' behaviour, ethics, rules of engagement and means employed are radically different⁶. Technological superiority may have a key role in the instance of *dyssimétrie*, but it's not decisive in that of *asymétrie*.

In the Vietnam War we saw a combination between «technological illusion» and moral and political weakness which provoked American defeat. The already super-technological war fought by the Americans often was in contrast with the purpose of «winning the hearts and minds»: a village destroyed by napalm certainly was hardly a good encouragement for that. Commenting that conflict an historian wrote: «Western military doctrine actually conceived the utopia of a war in which, practically, only machines fight, serviced by only some dozens of men». Already in

³ H. J. Morgenthau, *Politics among Nations. The Struggle for Power and Peace*, New York, 1950, p. 424.

⁴ See F. Sanfelice di Monteforte (ed.), *La strategia. Antologia sul dibattito strategico per argomenti*, Soveria Mannelli, 2010, pp. 165-68 and 254.

⁵ See. C. E. Callwell, *Small Wars. Their Principles & Practise*, Lincoln (NE), 1996 [1st ed., 1906], p. XI. On this subject see, in this issue, the essay by Gen. Antonio de Jesus Bispo.

⁶ See J. Baud, *La guerre asymétrique. Ou la défaite du vainqueur*, Parigi, 2003.

Algeria and Indochina, in the '50s and '60s we had witnessed the «growing inability of Western peoples to allow for the dimension of physical fatigue, sacrifice and finally death, which on the contrary is typical of pre-industrial societies»⁷.

In Vietnam, overfed and over equipped American soldiers, bombardments with napalm, sensors dropped in the forests, didn't manage to eliminate the Vietcong, who survived with an handful of rice, penetrated through the «Ho Chi Minh's path» and, unlike the Americans, were convinced of the righteousness of their cause. Already at that time the dichotomy was evident between the Western-type technological war, which aimed to minimize the risks for its soldiers, and the «dirty» wars of the tribes, the ethnic, political and religious groups of the «other world» (which may be located also in Europe, as in Bosnia and Kosovo!), where human life has little value and may be spent easily for one's values and interests, anti-personnel mines, the Kalashnikov or even the machete still dominate the battlefield.

The first Gulf War (1991), NATO interventions in Bosnia (1994), Kosovo (1999) and Libya (2011) reposed the question, already debated after the Second World War⁸, if Aviation alone may win a conflict. Evaluating for example the Kosovo campaign, military historians (as John Keegan), scholars of strategy (as John Chipman) and General Michael Short himself, commander of the Alliance's air forces, discussed the lessons learned from an operation performed without employing land troops and without casualties for NATO forces. Some stressed the support given in the field by UÇK guerrillas, who forced the Serbs to come into the open and then be hit and by NATO, and by special forces infiltrated in the territory and also that Serbia's decision to surrender was heavily influenced by the increasing threat of a land invasion.

The advantages, but also some possible risks of the exclusive employment of Airpower are indicated in the following remarks: «The most publicized advantage of air power in restricting adversary countermoves is the relative invulnerability of U.

⁷ E. Galli della Loggia, *Il mondo contemporaneo (1945-1980)*, Bologna, 1982, pp. 266-68. The Western soldiers, through modern weapons, try «not to contact bloodshed» (Qiao Liang-Wang Xiangsui, *Guerra senza limiti. L'arte della guerra asimmetrica fra terrorismo e globalizzazione*, Gorizia, 2001, p. 75).

⁸ Also the Italian magazine *Rivista Aeronautica* entered the debate on the importance of Airpower in the Second World War, publishing, among others, an article by General Carl Spaatz, Commander of the United States Army Air Force (as we know, the *U. S. Air Force* was created as an autonomous service only in 1947), who supported the thesis of Airpower as only instrument of global power projection and the «planned and ready air offensive» as the «only real defence» in the atomic age, while according to his compatriot Admiral Ernest J. King, Chief of Naval Operations during the war, maritime power still played a determinant role, since only the Navy had actually guaranteed the control of the bases to launch the atomic attack against Japan. Another subject debated was the evaluation of the impact, more or less important, of allied bombardments against Germany (see M. de Leonardis, *The Debate in the Military Press and in the Public Opinion on the Lessons Learned and the Recorganization of the Italian Armed Forces after the Second World War*, in Aa. Vv., *War, Military and Media from Gutenberg to Today*, Acta of the XXVIIIth International Congress of Military History, Bucarest, 2004, pp. 492-502).

S. aircrews compared with that of engaged ground forces. By reducing force vulnerability, reliance on air power can help sustain robust domestic support by lowering the likelihood of U. S. casualties. At the same time, air power's ability to conduct precision operations can reduce concerns about adversary civilian suffering (though efforts to keep air forces relatively safe may create moral and legal concerns if doing so places civilians at much greater risk)⁹.

The employment of aviation allows reducing one's own casualties and technological progress (aiming systems, "intelligent" bombs, and drones) should also allow avoiding as much as possible striking civilian targets and provoking victims among the population. Yet the attainment of the former objective may be inversely proportional to the achievement of the latter: a higher flight altitude makes the crews safer, but increases the risk of mistakes (the "collateral damages").

The reduction of casualties among one's own military meets the requirements of what Edward Luttwak labelled «post-heroic warfare», which nowadays is typical of all post-industrial societies, with a low rate of demographic growth, which are «actually demilitarized or almost»¹⁰. However civilian victims may generate politically dangerous reactions among public opinions. During the Kosovo War, former secretary of State Zbigniew Brzezinski admitted that for the rest of the world «the American way of war has the flavour of high tech racism. Its hidden presupposition is that the life of a single soldier of ours has more value than that of thousands of Kosovars»¹¹ and a French scholars remarked «an intolerable asymmetry between the Alliance's protected soldiers and the extremely vulnerable civilians that the military had come to rescue»¹².

During XXth century the proportion between civilian and military casualties in armed conflicts was gradually upset. At the beginning of the century one civilian died every eight soldiers; already during the Second World War casualties were equal; today we have eight civilian casualties for every military fallen. These figures must be compared to the datum that during the XXth century 119 millions victims were provoked by conflicts within States and 36 by wars among States¹³. The latter are decreasing and involve almost little and medium States outside the Western

⁹ D. L. Byman-M. C. Waxman, *Kosovo and the Great Air Power Debate*, *International Security*, vol. 24, n° 4, Spring 2000, p. 35.

¹⁰ See E. N. Luttwak, *Where Are the Great Powers? At Home with the Kids*, and Id., *Toward Post-Heroic Warfare*, in *Foreign Affairs*, July/August 1994, pp. 23-28, May/June 1995, pp. 109-22.

¹¹ Quoted in *Corriere della Sera*, 16-6-99, p. 2.

¹² Alan Finkelkraut, interviewed in *Corriere della Sera*, 29-5-99.

¹³ See J.-J. Roche, *Le relazioni internazionali. Teorie a confronto*, Bologna, 2000, p. 140. According to other calculations, civilian victims amounted to 10% in the First World War, to 52% in the Second, to 90% in the conflicts after 1945 (R. Toscano, *Il volto del nemico. La sfida dell'etica nelle relazioni internazionali*, Milano, 2000, p. 150, n. 49). On this subject see Aa. Vv., *Military conflicts and civil populations. Total wars, limited wars, asymmetric wars*, Acta of the XXXIVth Congress of the International Commission of Military History, Roma, 2009, vols. I-II.

world (but India and Pakistan certainly are not small). Obviously the prevalence of conflicts within States brings to an increase of civilian casualties, but certainly the advent of aviation also contributed to this.

The military operations in Libya, also officially motivated by “humanitarian” reasons, reposed the same issues of the previous intervention in Kosovo; operations in Libya already lasted longer than the campaign of 1999 and brought poor and controversial results (at this moment, July 2011). Bombs are even more “intelligent”, but not enough to avoid civilian casualties and obtain a quick victory.

The most important last conflicts engaged by the United States and by their Western allies, in the framework of NATO or as *coalitions of the willing*, and with a partial and subsequent UNO mandate, against Serbia for the benefit of Kosovo, in Afghanistan (2001), in Iraq (2003) and in Libya (2011), aimed, more or less explicitly, to *regime change* and *State building*. For the intervention against Serbia the purpose of *regime change* in Beograd was not stated openly, but it was implicit; in any case NATO wished to impose a different kind of administration for the Kosovo province. *Regime change*, actually a real *State building*, was instead the declared purpose of the interventions in Afghanistan and Iraq, in this latter case with a difference in respect to 1991, when the first war had the more traditional scope of evicting Iraqi invaders from Kuwait and President George Bush Sr. didn’t want to conquer Baghdad and overturn Saddam Hussein’s regime. In Libya the UN mandate authorizes various measures to obtain a truce and to protect civilians. Yet various members of the coalition strained the mandate declaring openly their willingness to defeat Kaddafi and to force him out of power, a goal now accepted almost by everybody. At the time of Kosovo, the goal of Milosevic’s removal was never proclaimed, but emerged in the long distance.

We may certainly agree with the conclusion of Prof. Corum’s above mentioned essay: «Yet, in the ongoing counterinsurgency campaigns in Afghanistan since 2001 and in Iraq since 2003, the technological advantage does not play the same central role as it might in conventional war. Current conflicts against non state forces offer no strategic target set or industrial nodes whose destruction will cripple the enemy forces. If unconventional wars are the norm for the coming decades, American airmen will have a frustrating future».

However «frustration», if we want to use this word, affects the entire issue of using military force. If it’s true that «airpower may devastate, punish and destroy, but cannot, dominate, keep and control land or territories»¹⁴, it’s as truer that «there are no military solutions to an ethnic conflict or to a civil war. Force may only create the pre-conditions for an eventual political solution. [Force] may do some things, but not other ones. For example may separate two ethnic groups ... but cannot com-

¹⁴ H. W. Baldwin, *Strategy for Tomorrow*, quoted in Sanfelice di Monteforte, *op. cit.*, p. 50.

pel them to live together»¹⁵. In the last wars, «the political goals pursued – regime change, conflict resolution, stabilization, democratization, pacification, etc. – cannot be obtained through a military victory ... While for the first type of operations – those of high intensity – Western forces must be *network-centric*, following the principles of the U. S. Armed Forces' *Trasformation*, for this second type they must be *systemic-centric*, given the importance of the human, social and cultural aspects ... the systemic approach is coherent with the complexity of the operational field. In fact, Armed Forces operate together with police, NGO, companies for reconstruction, international civil agencies, private military contractors ... in a human and physical context different from that envisaged by the RMA [Revolution in Military Affairs] and from the *network centric warfare*. They must face terrorists, criminals, insurgents, ethnic and religious warriors, rival groups, etc., intermingled with the civil population and normally in urban areas, which limit the effectiveness of the new technologies»¹⁶.

In conclusion, to win the “new wars”, Airpower, and more in general Western Armed Forces' technological superiority are important but not sufficient.

Airpower and Diplomacy

Considering the second task of the Armed Forces, it has been discussed if Airpower has replaced Maritime Power¹⁷ as foreign policy's main support. Traditionally the Navy has always been considered the most “diplomatic” among the Services, the best equipped to be a flexible tool of foreign policy; it's not like so that the expression «gunboat diplomacy» was created¹⁸. According to its supporters, gunboat diplomacy «has no substitute as a military tool, nor the air or land forces, because their employment would always lead to the violation of the international rules governing sovereignty, to an open gesture of hostility and, therefore, to the worsening of crises and tensions»¹⁹. In the current phase of international relations, «in the transition from the frozen and freezing climate of the *Cold War* to that much more complex of the *violent peace*», «the Navies offer to the governments unequalled means in the field of international relations»²⁰. Yet others maintain that Airpower has largely replaced

¹⁵ C. Jean, *Alleanza Atlantica. Gestione delle crisi e dei conflitti*, in *Rivista Militare*, 1995, n° 3, pp. 37-43.

¹⁶ C. Jean, *Nuove Forze Armate per nuovi interventi militari*, in M. de Leonardis-G. Pastori (eds.), *Le nuove sfide per la forza militare e la diplomazia: il ruolo della NATO*, Bologna, 2007, pp. 70-71.

¹⁷ However it must be stressed that, logically speaking, Airpower has a strict military character and its counterpart is in any case naval power, because maritime power is based, besides a powerful battle fleet, also on various other non military factors, first of all a strong merchant navy.

¹⁸ V. Cable, *Gunboat Diplomacy*, London, 1971.

¹⁹ G. Giorgerini, *L'Unione Europea e la strategia marittima*, in *Affari Esteri*, a. XXVII, n° 107 (estate 1995), p. 586.

²⁰ P. P. Ramoino, in *Rivista Marittima*, a. CXXXI, novembre 1998, p. 245; see Id., *Fondamenti di strategia navale*, Roma, 1999, cap. III, *Esiste ancora un ruolo politico per le marine militari? e Guerre limitate e strategia marittima*, in *Rivista Marittima*, a. CXXXI, maggio 1998, pp. 23-29.

maritime power as a foreign policy's instrument, in particular in the field «of deterrence and compellence, therefore of “coercive diplomacy”», and that «the politics “of bombers” ... has largely replaced that “of gunboats”»²¹.

Airpower's advantages are «rapidity of intervention, the wide range of action, ..., the “verticality”, which frees air attacks from the territory's morphological constraints, the possibility of graduating violence according to the political needs and the enemy's reactions, the freeing of air attacks from the media's pervasive influence before they take place ... aircrafts guarantee a virtual power, without deploying forces in the field or in the seas near the theatre of operation»²². Yet this same author remarks that «maritime superiority, thanks to its ubiquity, mobility, flexibility and now thanks also to cruise missiles aboard and amphibious operations, is certainly a very relevant tool of the diplomacy of violence for surgical interventions worldwide. In this role naval forces have competitive assets in respects to air forces»²³. Fleets cruising international waters for example may allow naval aviation to strike its targets without recurring to bases in friendly foreign territories and without asking other States to use their airspace²⁴.

Aircrafts and missiles may be employed for the “surgical” elimination of terrorists and “mad” dictators, even if in Osama Bin Laden's case the operation was performed by a landed commando. The operations of aerial interdiction, imposing *no flight zones*, staged in the Balkans, in Iraq and in Libya, are a complement of naval blockades and are more effective when it's necessary to prevent the violent repression of insurgents and ethnic minorities.

Airpower and maritime power will always have their supporters, convinced that the former or the latter is the most important; as already remarked, military interventions to foster stable political solutions usually require land troops. The employment of military force more than ever requires a *joint and combined* approach and is also preferable that it enjoys a wide consensus by the international community, since no State (at least in the West) still possesses alone the material, ethic and political resources for solitary interventions.

²¹ C. M. Santoro, *Potere aereo, deterrenza e compellenza* e C. Jean, *Osservazioni sul potere aereo*, in C. M. Santoro (ed.), *Italo Balbo: aviazione e potere aereo*, Roma, 1998, pp. 229-50 (243 and 248 for the quotations).

²² C. Jean, *Guerra, Strategia e Sicurezza*, Roma-Bari, 1997, pp. 148-49.

²³ *Ibi*, p. 143.

²⁴ In 1973 during the Yom Kippur war, in any case the United States, for their intervention in support of Israel, didn't ask their European allies, with the exception of Portugal, the use of airspace and bases, maybe fearing a refusal. The use of bases in Western Germany, the only employed besides the Portuguese ones, aroused the annoyance of the Bonn government, which had not been informed.

GEORG HOFFMANN* - NICOLE MELANIE GOLL*

Neutraler Luftraum. Die Entwicklung und Zäsuren der Österreichischen Luftstreitkräfte in der Zeit des Kalten Krieges (1955-1990)

Im Jahr 2007 landete der erste Eurofighter „Typhoon“ in Österreich, das bisher modernste Kampfflugzeug der Österreichischen Luftstreitkräfte und leitete damit eine neue Ära ein. Der Ankauf dieses Flugzeuges sowie dessen Implementierung sorgten in Österreich für eine sehr kontrovers geführte öffentliche Debatte, die im Wesentlichen die Rolle beziehungsweise die Aufgabenfelder der Österreichischen Luftstreitkräfte im Fokus hatte.¹ Die Fragen, die dabei aufgeworfen wurden, thematisierten vor allem die Landesverteidigung im Luftraum und deren Sinnhaftigkeit in einer Zeit, in der die Bedrohungen des Kalten Krieges nicht mehr existent waren. Der Blick der Öffentlichkeit glitt dabei vielfach in die Vergangenheit zurück; zu ähnlich stark diskutierten Rüstungskäufen, nicht bewältigten Kriseneinsätzen und reformbedingten sich verändernden Strukturen. In dieser Betrachtung trat dabei ein sehr wesentlicher Punkt zutage: Die Existenz von Luftstreitkräften und deren Aufgaben im Luftraum sind in Österreich keineswegs selbstverständlich, sondern benötigen den jeweiligen Gegebenheiten „angepasste“ Definitionen und Rechtfertigungen. Dieser Umstand machte sich auch bei Ankauf und Einführung des Eurofighters bemerkbar, der von politischer Seite sehr bald den Beinamen „Neutralitätsfighter“ bekam. Es sollte dies wohl eine rhetorische Anspielung auf die Kernaufgaben sein, die dem Flugzeug zugeordnet waren – die letztlich aber eine, zu diesem Zeitpunkt noch stärker geführte Neutralitätsdiskussion anfachte.² Dennoch war mit der Verbindung von Neutralität und Luftraum ein Bereich thematisiert worden, der grundsätzlich seit 1955 keiner zufriedenstellenden Lösung zugeführt worden war, denn: *Schützt die Neutralität nun den Luftraum oder muss die Neutralität im Luftraum geschützt werden?* Für diese sehr zentrale Fragestellung gab es in der Zweiten Republik wohl

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¹ Zur Debatte rund um den Wahlkampfslogan der SPÖ „Neutralitätsfighter statt ÖVP-Kampfbomber“ vgl. u.a. *Standard-Interview: Molterer will Steuersystem umbauen*, Der Standard vom 24.08.2007.

² Vgl. u.a. *Neutralität ist nur noch ein Mythos*, Der Standard vom 01.09.2007.

immer neue Lösungsansätze, die jedoch gerade während des Kalten Krieges innerhalb und außerhalb Österreichs sehr unterschiedlich wahrgenommen, jedoch kaum umgesetzt wurden.³ Letztlich prägte aber genau diese Entwicklung in diesem Zeitabschnitt, in dem eine Bedrohung für die Bevölkerung sehr unmittelbar spür- und damit wahrnehmbar war, das Bild des Luftraumes, dessen Einordnung sowie die Entwicklung der Österreichischen Luftstreitkräfte ab 1955 äußerst nachhaltig und machte sie zu dem was sie noch heute sind. Das Verständnis für die heutige Situation ist so nur durch den Blick zurück in die Zeit des Kalten Krieges ergründbar, die den Ausgangspunkt für die nachgeordneten Entwicklungen bildet.

Im vorliegenden Artikel soll daher schwerpunktmäßig auf die Ära des Kalten Krieges eingegangen werden. Die dargestellte Zeitspanne reicht dabei von 1955 und der „Wiedergeburt eines unabhängigen Österreichs“ mit dem Abschluss des Staatsvertrages bis in das Jahr 1990. Es wird dabei untersucht, wie sich die Wahrnehmung des österreichischen Luftraumes über einzelne Zäsuren hinweg veränderte und welche Auswirkungen diese auf die Entwicklung der Österreichischen Luftstreitkräfte hatten. Die entscheidende Fragen, die hier aufgeworfen werden, sind: was prägte die Luftstreitkräfte und was formte sie strukturell aus? Welchen Zäsuren war der Luftraum unterworfen, die einen spezifischen „Austrian way“ erzeugten?

Um diese Fragestellungen beantworten zu können, wurde der vorliegende Artikel in drei Bereiche unterteilt. Im ersten Teil werden strukturelle Gliederungen und operative Aufgabenstellungen in den Fokus genommen, um dadurch einerseits die Basis darzustellen und andererseits auch Zäsuren in der Entwicklung herauszuschälen. An letzterem ausrichtend, erfolgt im zweiten Kapitel die Analyse der Einsätze der Luftstreitkräfte im genannten Untersuchungszeitraum. Es werden dabei kurzfristige, aber in der Öffentlichkeit besonders stark wahrgenommene Elemente beleuchtet und hinsichtlich ihrer Wirkung untersucht. Im letzten Kapitel erfolgt schließlich die Betrachtung langfristiger Aspekte, die Einfluss auf die Entwicklung der Luftstreitkräfte hatten, wie das Beispiel der Ausrüstung und der daraus resultierenden Rüstungsdiskussionen aufzeigen wird. Es wird dabei auf die Diskrepanz zwischen politisch/militärischer Willensbildung einerseits und einer konkreten Umsetzung andererseits eingegangen und schließlich die entsprechende Wahrnehmung in der Öffentlichkeit thematisiert.

1. Die strukturelle Entwicklung der Luftstreitkräfte

Als am 15. Mai 1955 der Staatsvertrag unterzeichnet wurde, war der Weg zur Aufstellung eines Österreichischen Bundesheeres in der Zweiten Republik geebnet, dem mit der Fixierung der Neutralität als Bundesverfassungsgesetz am 26. Okto-

³ Vgl. u.a. Róbert Széles, *Die strategischen Überlegungen des Warschauer Paktes für Mitteleuropa in den 70er Jahren und die Rolle der Neutralen*, in: Manfred Rauchensteiner/Wolfgang Etschmann/Josef Rausch (Hrsg.), *Tausend Nadelstiche. Das österreichische Bundesheer in der Reformzeit 1970–1978*, Wien 1994, S. 25ff.

ber 1955, ein grundsätzlicher sicherheitspolitischer Rahmen respektive Spielraum vorgegeben wurde.⁴ Trotz unterschiedlicher politischer Auffassungen der regierenden Parteien über die Struktur und den Umfang des Bundesheeres⁵ war zumindest in einer internen Planung eine Luftkomponente angedacht, wenngleich zunächst unklar war, in welcher Form diese tatsächlich umgesetzt werden könnte.⁶ Es gab dabei im Wesentlichen zwei Stoßrichtungen, die zum einen den Aufbau einer eigenständigen und zum anderen einer abhängigen, den Landstreitkräften zugeordneten Struktur, vorsahen. Entscheidender Faktor hierbei waren die operativen Aufgaben, die man den künftigen Luftstreitkräften übertragen wollte und die sich sehr bald in zwei Schwerpunkten ausformten: der Luftverteidigung und der Luftunterstützung. Beide Bereiche standen von Beginn an in einer Art Konkurrenzverhältnis, da sich sehr schnell abzuzeichnen begann, dass die vorhandenen finanziellen Mitteln eine gesamte Abdeckung nicht möglich machen würden. Erschwerend kamen noch die militärischen Einschränkungen des Staatsvertrages, wie etwa das „Raketenverbot“ des Artikels 13,⁷ hinzu, die vonseiten der Politik bereits bei den Verhandlungen als gegeben hingenommen und trotz der weitreichenden Auswirkungen auf die eigene Verteidigungspolitik nie zur Diskussion gestellt worden waren.⁸

Als im Juli 1955 das britische Foreign Office die österreichischen Planungen bezüglich eines Aufbaus eines Heeres respektive von Luftstreitkräften beobachtete, kam es zu folgendem Schluss: *“So far as is known, no attempt has been made to do any serious planning for a future Austrian Air Force [...] neither the Austrian Government nor the people are yet in a mood to take their defence responsibilities with real seriousness“*.⁹ So war es also vor allem die fehlende politische Willensbildung, welche die Frühphase der Luftstreitkräfte und deren sicherheits- und verteidigungspolitische Einordnung prägte. Besonders stark zeigte sich dieser Umstand anhand eines fehlenden Verteidigungskonzeptes, wodurch weitreichende Zielsetzungen nicht vorhanden waren – wie auch das britische Foreign Office bemerkte: *„[...] there is no information that Austrian Ministers have attempted to think out what Austria’s future posture of defence should be [...]“*¹⁰ Der Luftraum geriet nicht zuletzt dadurch, aber

⁴ Vgl. Gerald Stourzh, *Geschichte des Staatsvertrages 1945 – 1955. Österreichs Weg zur Neutralität*, Wien 1985, S. 255ff.

⁵ Vgl. Friedrich W. Korkisch, *Die Luftstreitkräfte der Republik Österreich 1955 bis 2005. Von der irrelevanten Waffengattung zur Teilstreitkraft: Aus der Sicht der oberen Führung*, in: Wolfgang Etschmann/Hubert Speckner (Hrsg.), *Zum Schutz der Republik Österreich... 50 Jahre Sicherheit, gestern – heute – morgen, Beiträge zur Geschichte des Österreichischen Bundesheeres*, Wien 2005, S. 286.

⁶ Vgl. Manfred Rauchensteiner, *Staatsvertrag und bewaffnete Macht. Politik um Österreichs Heer 1945 – 1955*, ÖMZ 3/1980, S. 186.

⁷ Vgl. Stourzh, *Geschichte des Staatsvertrages 1945 – 1955*, S. 255ff.

⁸ Vgl. Rudolf Hecht, *Militärische Bestimmungen in den Friedensverträgen von 1947*, in: ÖMZ 5/1979, Wien 1979, S. 382.

⁹ The National Archives Kew Gardens (TNA), Foreign Office (FO) 371/117835.

¹⁰ TNA, FO 371/117835.

auch durch das ständige Verschieben von operativen Schwerpunkten, je nach politischer Notwendigkeit, in eine jahrzehntelange Diskussion, die sich immer wieder aufs Neue entzünden sollte.

1.1. Phase 1: Aller Anfang ist schwer... (1955-1960)

Der erste Schritt der Entwicklung manifestierte sich in dem Versuch der Luftstreitkräfte, innerhalb des neu entstehenden Bundesheeres einen Platz zu finden. Mangels klarer Zielvorgaben versuchte man jedoch gerade in den ersten Planungen, möglichst das gesamte „Luftkriegsspektrum“ abzudecken und daher einen sehr umfangreichen strukturellen Rahmen zu fordern.¹¹ Genau dieser alle Teil- und Aufgabenbereiche überspannende Ansatz sollte sich letztendlich als verheerend herausstellen, da dieser kleinere Planungsschritte verhinderte. So mussten diese hochtrabenden Pläne aus dem Jahr 1955, nur ein Jahr später der Realität weichen. Österreich hatte weder Material, geschultes Personal¹² noch finanzielle Mittel, war solchermassen im Luftraum handlungsunfähig und auf Hilfe von außen angewiesen. Diese kam aus den USA, in Form des „Military Assistance Programs“ (MAP), das gleichermaßen dem gesamten im Aufbau befindlichen österreichischen Heer zuteil wurde. Für den Luftraum sah die amerikanische Hilfestellung ursprünglich einen durchwegs großen und kampfkraftigen Rahmen, in Form von „[...] *rund drei Staffeln (54 Maschinen) F-86F [Sabre] und 30 bis 40 F-84F [Thunderstreak] [...]*“¹³, vor. Mit Blick auf die UdSSR und deren Befürchtung, dass Österreich einen allzu prowestlichen Kurs einschlagen könnte, wurde dieses Angebot jedoch von politischer Seite ausgeschlagen respektive von den USA nicht mehr weiter forciert. So waren die einzigen luftspezifischen Geräte, die in den späten 1950er Jahren Österreich erreichten, sowohl sowjetische als auch amerikanische Schulflugzeuge,¹⁴ teilweise erheblich veraltete leichte und mittlere Fliegerabwehrgeschütze sowie Radaranlagen. Bis in die 1960er Jahre war man damit im Aufbau begriffen und konnte daher die luftspezifischen Aufgaben in keiner Weise erfüllen. Zudem machte den Luftstreitkräften die Typenvielfalt, die sich durch das regelrecht „Sammeln“ von Geräten und Ausrüstungen ergeben hatte, zu schaffen. Allein der fliegerische Bereich umfasste vierzehn verschiedene Flugzeug- und

¹¹ Vgl. Wolfgang Hainzl, *Die Fliegerkräfte Österreichs 1955 bis heute*, Linz 1986, S. 20f. Es ist dies der erste Entwurf einer möglichen Organisation der Luftstreitkräfte aus dem Jahr 1955 (BKA-LV, III/L-geh. 55), der sehr stark auf dem Konzept der Luftstreitkräfte aus dem Jahr 1936 basierte.

¹² Österreich war im Zeitraum von 1945 bis 1945 mit der B-Gendarmerie lediglich am Boden, nicht jedoch im Luftraum präsent gewesen, was sich besonders im Verlust von spezifischem Wissen noch aus der Zeit des Zweiten Weltkrieges manifestierte. Vgl. Walter Blasi, *Die B-Gendarmerie. Die Vorläuferorganisation des Österreichischen Bundesheeres*, in: Etschmann/Speckner (Hrsg.), *Zum Schutz der Republik Österreich...*, S. 59ff.

¹³ Korkisch, *Die Luftstreitkräfte der Republik Österreich 1955 bis 2005*, S. 287.

¹⁴ Es handelte sich dabei neben anderen vor allem um 29 Cessna L-19 „Bird Dog“, sechs De Havilland Canada L-20 „Beaver“, zehn North American LT-6G „Texan“, 17 Bell H-13H „Sioux“ amerikanischer sowie vier Yak-18 und vier Yak 11 sowjetischer Provenienz.

vier Hubschraubertypen, die unter dem Begriff „*Schmetterlingssammlung*“¹⁵ subsumiert wurden.

Die eben beschriebenen Entwicklungen hatten nun zur Folge, dass die Luftstreitkräfte sich vor allem in der Frühphase in keinem spezifischen Bereich etablieren konnten, sondern stattdessen auf ein äußerst niedriges Niveau beschränkt worden waren, dem zusätzlich jede langfristige Planung fehlte. Hier kam außerdem der oftmals angestrenzte Begriff des MAP als „Danaer-Geschenk“ zum Tragen, da Österreich von Anfang an minimale finanzielle Mittel für das Bundesheer im Allgemeinen und den Luftraum sowie die Luftstreitkräfte im Besonderen aufwendete. All diese Umstände erzeugten jedoch noch eine viel weitreichendere Auswirkung: Der Luftraum blieb nicht nur mangels Mittel, sondern vor allem wegen des Fehlens eines umfassenden Verteidigungskonzeptes, in der öffentlichen Wahrnehmung fremdbestimmt und integrierte sich nicht in den Neutralitätsraum.¹⁶ Dieser Umstand zeigte sich besonders anhand der Suez-Krise 1956, der Ungarnkrise im selben Jahr und der Libanonkrise 1958, als militärische Luftfahrzeuge ungehindert den österreichischen Luftraum verletzen ja sogar passieren konnten.¹⁷ Dass dies im Lichte der jungen Neutralität und der zugespitzten internationalen Spannungen, außenpolitisch nicht mit Wohlwollen aufgenommen wurde, versteht sich von selbst. So stand am Ende der Aufbauphase die sichtlich stärker werdende politische Einflussnahme, die sich vor allem in der Verschiebung der operativen Schwerpunkte bemerkbar machen sollte.

1.1. Phase 2: Einbettungen und Teilungen (1960-1972)

Hatte sich in der ersten Phase vor allem die Frage nach dem Aufbau, der Beschaffung von Ausrüstung und der Ausbildung von Kaderpersonal gestellt, so rückten nun die Strukturen und, gemessen an den ersten Einsätzen im Luftraum, konkrete operative Fragestellungen in den Vordergrund. Alle Bereiche der im Entstehen begriffenen Luftstreitkräfte, also Flieger, Fliegerabwehr, Fliegerbodendienste und Fliegertel (als Keimzelle der späteren Luftraumüberwachung) waren seit den Jahren 1956 und 1957 dem Kommando Luftstreitkräfte unterstellt und damit zentral organisiert. Dieser Umstand begann sich ab den 1960er Jahren aufgrund sicherheitspolitischer Diskussionen langsam zu wandeln und entwickelte sich für die Luftstreitkräfte letztlich zu einer Zerreißprobe. Die Ursachen hierfür waren mannigfaltig und lagen zum einen in der gestiegenen nationalen sicherheitspolitischen Bedeutung des Luftraumes, wie etwa die Libanon-Krise 1958 gezeigt hatte,¹⁸ der, international gesehen, starken Abstützung der Kriegsführung auf die Luftstreitkräfte und nicht zuletzt auch

¹⁵ Wolfgang Hainzl, *Die Luftstreitkräfte Österreichs 1955 bis heute*, Linz 1999, S. 128ff.

¹⁶ Vgl. Die Presse vom 20.07.1958.

¹⁷ Vgl. Friedrich W. Korkisch, *Die Luftstreitkräfte der Republik Österreich bis 1978*, in: Rauchensteiner/Etschmann/Rausch (Hrsg.), *Tausend Nadelstiche*, S. 226.

¹⁸ Vgl. Hainzl, *Die Luftstreitkräfte Österreichs 1955 bis heute*, S. 38ff.

am sich entwickelnden Verteidigungskonzept des „*Schild und Schwert*“,¹⁹ in dem die Luftstreitkräfte ihre Rolle zu finden hatten. „Schild“ und „Schwert“, summarische Begriffe für eine Verteidigung mit einem statischen territorialen und einem beweglichen Element in der Tiefe,²⁰ thematisierten die grenznahe beziehungsweise die grenzunmittelbare Verteidigung im Ernstfall. Dieser Ansatz, wenngleich nie in einer Verteidigungsdoktrin festgehalten, musste Auswirkungen auf den Luftraum vor allem hinsichtlich des operativen Schwerpunktes haben. Allenfalls hatten ab diesem Zeitpunkt all jene Aufwind, die Luftstreitkräfte mit Luftunterstützungsaufgaben, wie etwa Lufttransport- oder Erdkampfkapazitäten, favorisierten. Daneben entwickelte sich die spezifisch österreichische Form der Luftraumverteidigung, deren Schwerpunkt eher bei der Überwachung denn der militärischen Verteidigung des Luftraumes zu suchen war – eine politische Schwerpunktsetzung infolge der krisenhaften Ereignisse der späten 1950er Jahre.²¹ Die Luftstreitkräfte unternahmen Anfang der 1960er Jahre einen letzten Versuch, einen strukturellen Rahmen zu fordern, der alle Aufgabenaspekte – und damit auch die Luftraumverteidigung – umfassen sollte.²² Das führte neben anderen Überlegungen zu einer ersten „Abfangjägerdiskussion“²³, die eine aktive Variante des Luftraumverteidigungsansatzes darstellte. Kurioserweise wurde dies nicht von einer Bewaffnungsdiskussion begleitet, die konsequenterweise das „Raketenverbot“ thematisieren hätte müssen.²⁴

Die weitere Entwicklung lief sukzessive in einzelnen rasch aufeinanderfolgenden Schritten ab. So wurde zunächst nach mehrfachen Anläufen die „Kampfflugzeug-Frage“ der Luftstreitkräfte scheinbar geklärt. Ab 1961 waren Flugzeuge des Typs Saab J-29F „Tunnan“, in Österreich als „Fliegende Tonnen“ bezeichnet, im Zulauf. Doch bereits 1959 hatte man sich politisch festgelegt, dass mit diesen lediglich „zwei Staffeln“ gebildet werden sollten, deren Kernaufgabe vor allem im Neutralitätsschutz liegen sollte. Von einer Luftraumverteidigung im Einsatzfall war in diesem Zusammenhang nicht mehr die Rede. Jedoch waren auch für den sogenannten „Abfangeinsatz“ die Grundbedingungen nicht besonders günstig. Den Maschinen fehlten neben der hierfür notwendigen Geschwindigkeit, in erster Linie die entsprechende Bewaffnung (Raketen) sowie ein Bordradar zur Abdeckung des Luftraumes

¹⁹ Horst Pleiner, *Die Entwicklung der militärstrategischen Konzeptionen des österreichischen Bundesheeres von 1955 bis 2005*, in: ÖMZ 3/2005, Wien 2005, S. 329.

²⁰ Das statische Element (Schild) sollte im Einsatzfall der Grenzschutz direkt an der Grenze bilden, während hingegen das bewegliche Element (Schwert), vor allem aus mechanisierten Kräften bestehend, als operative Reserve Gegenangriffe an bedrohten Abschnitten zu führen hatte. Vgl. ebenda.

²¹ Vgl. Hainzl, *Die Luftstreitkräfte Österreichs 1955 bis heute*, S. 44ff sowie Korkisch, *Die Luftstreitkräfte der Republik Österreich bis 1978*, S. 228.

²² In diesem Konzept plante man bis 1970 u.a. 30 Jagdflugzeuge und 180 Jagdbomber zur Verfügung zu haben. Vgl. Hainzl, *Die Luftstreitkräfte Österreichs 1955 bis heute*, S. 46.

²³ Der Begriff „Abfangjäger“ oder „Interceptor“ stellt das aktive Werkzeug der Luftraumverteidigung beziehungsweise der späteren Luftraumüberwachung dar, analog zum „Jagdflugzeug“ in der Luftverteidigung.

²⁴ Vgl. Hainzl, *Die Luftstreitkräfte Österreichs 1955 bis heute*, S. 41f.

außerhalb des optischen Bereiches des Piloten. Von einer Schnittstelle zu Radarstationen am Boden war man technologisch noch weit entfernt. Die wesentlichen Aufgaben, welche die J-29F nun im Rahmen der operativen Aufgaben der Luftstreitkräfte provisorisch übernahmen, waren jene von Aufklärern und Jagdbombern. Hierzu wurden sie in Jagdbombereinheiten beziehungsweise einem Jagdbomberverband zusammengefasst.²⁵ Das beinhaltete nun Elemente, die sich grundsätzlich auch für die Unterstützung von Landstreitkräften eigneten.

1964 wurde nicht zuletzt aufgrund dieser Entwicklung, eine „Luftraumverteidigungskommission“ im Bundesministerium für Landesverteidigung ins Leben gerufen, die über die zukünftige Gestaltung der Luftstreitkräfte beraten und das immer wieder offensichtliche Manko der Luftraumverteidigung bearbeiten sollte.²⁶ Offiziere der Luftstreitkräfte waren in dieser nur mehr in der Minderheit vertreten. Das Ergebnis dieser Kommission war – wenig überraschend –, dass die Luftstreitkräfte nicht über die qualitativen, vor allem aber quantitativen Möglichkeiten einer wirkungsvollen Luftraumverteidigung verfügten.²⁷ Die Aufteilung der Luftstreitkräfte sowohl in aufgabenmäßiger Hinsicht, als auch in struktureller Hinsicht war damit nur mehr eine Frage der Zeit. Das erste Element, das den Luftstreitkräften entfernt wurde, war die Fliegerabwehr. In einem Prozess, der bei der Heeresreform 1962 (Umsetzung 1963) seinen Anfang fand, 1963 mit der Beschaffung von Fliegerabwehrpanzern zum Begleitschutz fortgeführt wurde und schließlich 1966 mit der Ausgliederung der Fliegerabwehr aus der Struktur der Luftstreitkräfte endete, wurden die Fliegerabwehrverbände im Wesentlichen auf die mechanisierten Truppen verteilt. Dabei fand nicht nur eine, in Zeiten von Reformen nicht seltene Umstrukturierung statt, sondern eine aufgabenmäßige Neuausrichtung. Im Vordergrund stand nun der bewegliche Begleitschutz von Erdtruppen, mit gänzlich neuen Einsatzverfahren. Das bisherige Kommando Luftstreitkräfte wurde im selben Jahr auf ein Truppenkommando, im Range eines Gruppenkommandos reduziert und die Luftabteilung in das Verteidigungsministerium ausgegliedert.²⁸

Trotz aller Umgliederungen und Reduzierungen ging das Interesse an der Luftraumverteidigung nicht gänzlich verloren. In einem relativ kleinen Rahmen versuchte man, unter der Bezeichnung „Luftabwehrbrigade“, einen Luftraumverteidigungsverband aufzustellen, der neben den Resten der Fliegerabwehr – im Bereich der Luftstreitkräfte nun als „Luftabwehr“ bezeichnet – auch das Flugmelderegiment aus dem Bereich der passiven Luftraumüberwachung beinhaltete. Man ging hier hinsichtlich eines zielführenden Objektschutzes auch soweit, die Lenkwaffendiskussion anzufachen²⁹ – neuerlich ohne Ergebnis. Die Luftabwehrbrigade blieb höchst um-

²⁵ Vgl. Ebenda, S. 173ff.

²⁶ Vgl. Korkisch, *Die Luftstreitkräfte der Republik Österreich bis 1978*, S. 229.

²⁷ Vgl. Hainzl, *Die Luftstreitkräfte Österreichs 1955 bis heute*, S. 50f.

²⁸ Vgl. Ebenda, S. 58f.

²⁹ Vgl. Ebenda, S. 46.

stritten sowie ineffizient und wurde schließlich 1973, im Gedächtnis ihres ehemaligen Kaders als „*Gespensterbrigade*“³⁰ haften bleibend, wieder aufgelöst.

Den Höhepunkt dieser, für die Luftstreitkräfte negativen Entwicklung stellte wohl das Jahr 1968 und der Einsatz des Bundesheeres während der ČSSR-Krise dar. Die Krise wurde vor allem im Luftraum, durch zahlreiche Luftraumverletzungen wahrgenommen, denen die Luftstreitkräfte, aufgrund ihrer unzureichenden technischen Ausrüstung nichts entgegenzusetzen hatten. Besonders drastisch wirkte sich jedoch der fehlende politische Wille zu einer Luftraumverteidigung in einem Krisenfall, vor allem aber einem Neutralitätsschutz – für den es keine Planungen, sondern lediglich Vorstellungen gab – aus. Dem nun schlagartig, vor allem in der Öffentlichkeit, erwachten Interesse am Neutralitätsraum Luftraum konnte so keine militärisch wirksame Komponente zugeordnet werden, was entweder zu einer massiven Verbesserung oder aber zu einer endgültigen Zerschlagung dieses Systems führen musste. Letzteres war schließlich auch der Fall.

1.1. Phase 3: Raumverteidigung (1970-1989)

Das Jahr 1968, das als allgemeine Zäsur gesehen werden muss, leitete nicht nur einen Wandlungsprozess in der österreichischen Neutralitätspolitik hin zu einer stärker akzentuierten Außenpolitik ein, sondern beendete auch das Festhalten am ungeschriebenen Verteidigungskonzept „Schild und Schwert“ mit seiner starren Verteidigung des Grenzraumes. Wesentlich stärker trat nun die bewegliche, tiefgestaffelte Verteidigung in den Vordergrund, die viel eher den österreichischen geografischen Gegebenheiten und militärischen Ressourcen angepasst erschien. Diese neue Doktrin fand ihre Umsetzung ab dem Jahr 1970 unter der Bezeichnung „*Raumverteidigung*“.³¹ Dass einer der wesentlichen Faktoren für den Übergang zur Raumverteidigung die grundsätzliche Ansicht war, „(...) daß bei einem Angriff auf Österreich, der Aggressor die absolute Luftüberlegenheit, ja die Luftherrschaft besitzen würde (...)“³², zeigt den mittlerweile unbedeutenden Status der Luftstreitkräfte. Dieser Umstand wurde grundsätzlich angereichert durch die neue bewegliche Verteidigungsform, die im Verteidigungsfalle keine starre Grenzverteidigung mehr verlangte, sondern die Möglichkeit zur Preisgabe von nicht zu verteidigendem Gelände vorsah.³³ Damit war auch der Luftraum hinsichtlich seiner Rolle in neuerliche Diskussion geraten, wenngleich selbigem als Neutralitätsraum (im klar definierten Neutralitätsfall) durchwegs eine Existenzberechtigung eingeräumt wurde. Das führ-

³⁰ Georg Hoffmann/Hermann Schulz/Nicole-Melanie Goll (Hrsg.), *Österreichische Luftstreitkräfte 1955 – 2005*, Gröbming 2005, S. 268.

³¹ Pleiner, *Die Entwicklung der militärstrategischen Konzeptionen des österreichischen Bundesheeres von 1955 bis 2005*, S. 329.

³² Hainzl, *Die Luftstreitkräfte Österreichs 1955 bis heute*, S. 73.

³³ Vgl. Walter Mayer, *Das neue Konzept*, in: Rauchensteiner/Etschmann/Rausch (Hrsg.), *Tausend Nadelstiche*, S. 105ff.

te zu diametralen Entwicklungen in der luftspezifischen Struktur. Zum einen wurde die passive Luftraumüberwachungskomponente, die vor allem im Neutralitätsfall zum Zuge kommen sollte, weiter gestärkt, jedoch die Interzeptordiskussion als zugehörige aktive Komponente schlagartig beendet.³⁴ Österreich hatte bereits vor der CSSR-Krise als Nachfolger der J-29F keinen klassischen Abfangjäger, wie es lange Zeit gefordert war, angekauft, sondern hatte sich mit der Saab 105 XT (österreichische Bezeichnung: Saab 105 OE) für einen Unterschall-Düsentrainer entschieden,³⁵ der nun sowohl mit der Abfangjäger- als auch mit der Jagdbomberrolle völlig überfordert war.³⁶ Die Rolle der Luftstreitkräfte und damit des Luftraumes war damit weiter im Abstieg begriffen, was sich hinsichtlich der Aufgaben in einem Planungsdokument der „Gesamtraumverteidigung“ im Jahr 1971 manifestierte, in welchem die Luftraumverteidigung keine Kategorie mehr zu sein schien:

Im Rahmen der Gesamtraumverteidigung kommt auch den LStrKr [Anm.: *Luftstreitkräfte*] eine entsprechende Rolle zu. Der Einsatz der LStrKr wird in mancher Hinsicht von den bisherigen Planvorstellungen abweichen und daher zu überdenken sein. Grundlagen dafür wären in einem neuen Lufteinsatzkonzept festzuhalten, das vor allem die Unterstützung der Erdstreit- und Kleinkriegskräfte in den Mittelpunkt zu stellen haben wird.³⁷

Mit der nächsten Heeresgliederung im Jahr 1972 wurde das Ende dann endgültig besiegelt.³⁸ Das Kommando Luftstreitkräfte wurde aufgelöst, ein Großteil des Kaders übersiedelte in das Armeekommando, nur ein kleiner Teil verblieb in der übriggebliebenen Fliegerbrigade. Sämtliche Führungs- und Kompetenzaufgaben hinsichtlich des Luftraumes wurden nun vom Armeekommando übernommen, die restlichen Teile der Flieger wurden ab diesem Zeitpunkt als „*Heeresfliegerkräfte*“³⁹ bezeichnet. Mit der gleichzeitigen Auflösung der Luftabwehrbrigade wurden die Komponenten der passiven Luftraumüberwachung und der Luftabwehr in die Fliegerbrigade übernommen, die 1975 zur Fliegerdivision aufgewertet wurde.⁴⁰ Diese Änderung konnte jedoch nicht darüber hinwegtäuschen, dass der Luftraum in den militärischen Planungen bis zum Ende der 1980er Jahre keine Rolle mehr spielte und allenfalls aufgrund der eklatanten Schwäche in die Planungen einbezogen

³⁴ Vgl. Hainzl, *Die Luftstreitkräfte Österreichs 1955 bis heute*, S. 62ff.

³⁵ Vgl. Archiv der Republik (AdR)/Österreichisches Staatsarchiv (ÖStA), Information an den Herrn Bundesminister, 19.03.1969, o. Zl., BMfLV, Grp Org.

³⁶ Vor allem der Ankauf einer weiteren Tranche von Saab 105 XT als provisorischer Ersatz für die Interzeptionsspitze hatte weitreichende Folgen für die Luftstreitkräfte, weil so die finanziellen Mittel für den Ankauf möglicher Abfangjäger gebunden blieben. Vgl. Korkisch, *Die Luftstreitkräfte der Republik Österreich bis 1978*, S. 249ff.

³⁷ Hainzl, *Die Luftstreitkräfte Österreichs 1955 bis heute*, S. 76.

³⁸ Vgl. Franz Sailler, Die Bundesheerreformkommission, in: Rauchensteiner/Etschmann/Rausch (Hrsg.), *Tausend Nadelstiche*, S. 73ff.

³⁹ Hainzl, *Die Luftstreitkräfte Österreichs 1955 bis heute*, S. 78.

⁴⁰ Vgl. Ebenda, S. 77ff.

wurde. Einzelne Komponenten wie etwa die passive Luftraumüberwachung, für die der politische Wille gegeben war, erfuhren nach wie vor eine Aufwertung. Aber sowohl die zwischenzeitlich wieder erwachte Lenkwaffendiskussion, wie die Frage nach Überschall-Abfangjägern wurde vorerst auf Eis gelegt. Eine Sonderrolle spielte die Fliegerabwehr respektive die Luftabwehr, die größtenteils nach wie vor bei den mechanisierten Verbänden organisiert war. Nach und nach wurden über die Fliegerdivision einzelne Luftabwehrbataillone aufgebaut, welche die Kernaufgabe des Objektschutzes erhielten. Damit war die Fliegerabwehr definitiv nicht nur in ihrer grundsätzlichen Aufgabe, sondern auch in ihrer Struktur vollständig zweigeteilt, was zu einem Hemmnis in der Entwicklung der Waffengattung und einem Tauziehen bei Rüstungsbeschaffungen führte.⁴¹

Das Luftkriegswesen war Ende der 1970er Jahre auf einem so geringen Niveau, dass ein neuerlicher Aufbau kaum mehr möglich erschien. Über mehrere sogenannte „Arbeitsgemeinschaften Luftraumverteidigung“ (AG-LRV)⁴² versuchte man dennoch eine generelle Bearbeitung und Neupositionierung zu erreichen. Jedoch auch im Landesverteidigungsplan, der 1978 erstellt und 1983 verfügt wurde, fehlte die Luftraumverteidigung völlig: *„Man beschränkte sich auf die [Wahrung der] Lufthoheit im Neutralitätsfall ohne zu erklären, wie Letzteres ohne Luftverteidigungskräfte möglich sein würde.“*⁴³ Damit hatte man den Luftraum aus dem letzten, im Landesverteidigungsplan prioritär gereihten Einsatzfall, dem Verteidigungsfall, herausgenommen, gestand aber zumindest für den Krisen- und den Neutralitätsfall eine gewisse Relevanz der Bereiche Luftraumbeobachtung und Identifikation von Luftfahrzeugen ein.⁴⁴ Diese Definition war auf die Aufgaben der Luftraumüberwachung zugeschnitten. 1983 wurde das Flugmelderegiment zum Kommando Luftraumüberwachung (LRÜ), womit zumindest die passive Komponente vorhanden und im weiteren Aufbau begriffen war. Diese musste jedoch wirkungslos bleiben, da man auf keine aktiven Komponenten zurückgreifen konnte. Letztlich brachte dieser Umstand die erneute Abfangjägerdiskussion ins Rollen, die 1985 zur Beschaffung von Saab 35 OE „Draken“ führte, deren möglicher Ankauf bereits bei vorherigen Abfangjägerdiskussionen Gesprächsthema gewesen waren.⁴⁵ Die Frage nach einer den Aufgaben angepassten Bewaffnung blieb freilich ungeklärt. Das die Begrüßung der ersten Überschalljagdflugzeuge in Österreich sowohl vonseiten der Bevölkerung als auch der Politik mehr als frostig verlief, legt ein Zeugnis über die allgemeine, beinahe in

⁴¹ Im Bereich der Rüstungsbeschaffungen ergab sich im Bereich der Fliegerabwehr vor allem die Konkurrenz zwischen Fliegerabwehrpanzer- und Lenkwaffenankauf, ausgerichtet an den jeweiligen Aufgaben. Vgl. Georg Hoffmann, *Von Radar Raketen und Neutralität... Auswirkungen und Lösungen von politischen Aufgabenstellungen auf der militärischen Ebene der Waffengattung Fliegerabwehr, mit dem Schwerpunkt der Zweiten Republik von 1955 bis 2006*, unveröffentlichtes Manuskript, Graz 2007, S. 58ff.

⁴² Vgl. Korkisch, *Die Luftstreitkräfte der Republik Österreich bis 1978*, S. 230f.

⁴³ Hoffmann/Schulz/Goll (Hrsg.), *Österreichische Luftstreitkräfte 1955 – 2005*, S. 26.

⁴⁴ Vgl. Hainzl, *Die Luftstreitkräfte Österreichs 1955 bis heute*, S. 80.

⁴⁵ Vgl. Ebenda, S. 187ff.

die Bedeutungslosigkeit abgesunkene Auffassung der Wichtigkeit des Luftraumes ab. Um diese Einstellung zu ändern benötigte es einen erneuten Ernstfall, in welchem dem Luftraum eine augenscheinliche Bedeutung beigemessen werden sollte.

Als im Jahr 1991 im südlichen Nachbarland Slowenien Kampfhandlungen ausbrachen, war eine weitere Zäsur in der österreichischen Sicherheitspolitik erreicht. Der Ostblock war zerfallen und die klassische, über Jahrzehnte aufrechterhaltene Bedrohung aus dem Osten nicht mehr existent. Sie wurde durch regionale Konflikte, die sich aus der destabilisierenden Wirkung des Umbruchs ergeben hatten, verdrängt. Die verschiedenen Einsatzfälle der „Raumverteidigung“ griffen in diesen Szenarien nicht mehr, weshalb Reformen und eine völlige Neuausrichtung des Verteidigungsressorts bald im Raum standen. In der gesteigerten Bedeutung und Wahrscheinlichkeit von, nach Diktion des Landesverteidigungsplanes, regional begrenzten Krisen- und Neutralitätsfällen, konnten sich die Luftstreitkräfte und da allen voran die Luftraumüberwachung gut festsetzen, da sie auch mit den vorhandenen geringen Mitteln zu bewältigen war. So führte der Einsatz des Jahres 1991 zu einem auffallenden Meinungsumschwung innerhalb des Militärs und der Öffentlichkeit, der letztlich die Luftstreitkräfte erheblich aufwertete und die Beschaffung einer Lenkwaffenbewaffnung sowohl für die Abfangjäger als auch für die Fliegerabwehr ermöglichte. Darüber hinaus hatte der Einsatz gezeigt wie wichtig ein integriertes, alle Teile der luftspezifischen militärischen Struktur umfassendes System unter einem Kommando war. Es war dies die Geburtsstunde einer über mehrere Zwischenstufen schließlich doch erreichten, ersten „*True Austrian Air Force*“.⁴⁶

2. Die Einsätze im Luftraum am Beispiel des ČSSR-Kriseneinsatzes 1968

Betrachtet man die Entwicklung und die Bedeutung des österreichischen Luftraumes in der Zweiten Republik, so sticht vor allem dessen Wahrnehmung während der verschiedenen Einsätze der Luftstreitkräfte hervor. Einerseits wurden durch diese Mängel und Fehlentwicklungen aufgezeigt, andererseits aber auch Vorgänge und Bedrohungen im Luftraum der österreichischen Öffentlichkeit vor Augen geführt. Es wundert also nicht, dass die größten strukturellen und aufgabenbezogenen Veränderungen häufig innerhalb kürzester Zeit nach den Einsätzen erfolgten, da hier die politischen Willensbildungen am ehesten von der Öffentlichkeit wahrgenommen wurden.

Die Krisen der 1950er Jahre – allen voran der Ungarn-Aufstand 1956⁴⁷ – trafen

⁴⁶ Korkisch, *Die Luftstreitkräfte der Republik Österreich 1955 bis 2005*, S. 281.

⁴⁷ Zum Ungarnaufstand siehe u.a.: Géza Alföldy, Ungarn 1956. *Aufstand, Revolution, Freiheitskampf*, Heidelberg 1997; Eva Haraszti-Taylor (Hrsg.), *The Hungarian Revolution of 1956. A Collection of Documents from the British Foreign Office*, Nottingham 1995; Andreas Gémes, *Austria and the 1956 Hungarian revolution*, Pisa 2008.

Österreich sehr früh und damit gleichzeitig ein Bundesheer, das sich noch im Aufbau befand und eigentlich noch über keine Einsatzkapazitäten verfügte.⁴⁸ Dennoch galt es zumindest pro forma den militärischen Schutz der staatlichen Souveränität zu demonstrieren, auch wenn dieser nur provisorischer Natur sein konnte.⁴⁹ Dieser Umstand traf jedoch nicht auf den Luftraum zu, da die Luftstreitkräfte zu diesem Zeitpunkt über keine adäquate Ausrüstung und lediglich über ein Ausbildungskader verfügten, dass allenfalls infanteristisch eingesetzt werden konnte. Der Luftraum etablierte sich so in der Wahrnehmung von Anfang an nicht als Bedrohungsraum und integrierte sich daher nicht in das Neutralitätsverständnis. Gerade die USA, die im Jahr 1956 aufgrund der Tatsache, dass „[...] der [österreichische] Luftraum laufend von Flugzeugen unbekannter Nationalität überflogen [...]“⁵⁰ wurde, besorgt reagierten, zeigten wie wichtig letzteres gerade im Luftraum in geopolitischer Hinsicht war. Die Politik lehnte jedoch alle Versuche, der eigenen Überwachung des Luftraumes Impulse zu geben, rigoros ab.⁵¹

Dieser Faktor änderte sich bemerkenswerterweise nicht durch die Erkenntnis eines Mangels, sondern durch eine von außen erzeugte Drucksituation: Zwischen 16. und 17. August 1958 überflogen mehrere amerikanische Transportmaschinen während der Libanonkrise, den österreichischen Luftraum.⁵² Nach den sofortigen Reaktionen der UdSSR auf diese amerikanischen Verletzungen des österreichischen Luftraums, entschloss sich die Politik, den ersten Einsatz im Luftraum einzuleiten, der dann freilich mit der Verlegung von fünf Schulmaschinen nach Innsbruck und der Aufstellung eines Beobachtertrupps, der unter dem Kommando eines Fähnrichs den Luftraum optisch absuchte, nicht besonders effizient ausfiel.⁵³ Wesentlich

⁴⁸ Zum Aufbau und Einsatz des Bundesheeres siehe: Manfred Rauchensteiner, *Die Performance war perfekt*, in: Erwin A. Schmidl (Hrsg.), *Die Ungarnkrise 1956 und Österreich*, Wien u.a. 2003, S. 235-253; ders. *Spätherbst 1956: Die Neutralität auf dem Prüfstand*, Wien 1981; Reiner Eger, *Krisen an Österreichs Grenzen. Das Verhalten Österreichs während des Ungarnaufstandes 1956 und der tschechoslowakischen Krise 1968*, Wien u.a. 1981; Norbert Sinn, *Schutz der Grenzen. Der Sicherungseinsatz des Österreichischen Bundesheeres an der Staatsgrenze zu Ungarn im Oktober und November 1956*, Graz 1996 sowie Erwin A. Schmidl, *Erste Bewährung: Das Österreichische Bundesheer im Einsatz an der ungarischen Grenze 1956*, in: ders. (Hrsg.), *Die Ungarnkrise 1956 und Österreich*, Wien u.a. 2003, S. 253-275.

⁴⁹ Vgl. Siegbert Kreuter, *Die Sicherungseinsätze des Bundesheeres der Zweiten Republik – 1956/1968/1991*, in: Etschmann/Speckner (Hrsg.), *Zum Schutz der Republik Österreich...*, S. 651ff.

⁵⁰ Hainzl, *Die Luftstreitkräfte Österreichs 1955 bis heute*, S. 30.

⁵¹ Vgl. Ebenda, S. 30f.

⁵² Vgl. Korkisch, *Die Luftstreitkräfte der Republik Österreich 1955 bis 2005*, S. 308 bzw. Walter Blasi, *Die Libanonkrise 1958 und die US-Überflüge*, in: Erwin A. Schmidl (Hrsg.), *Österreich im frühen Kalten Krieg 1945–1958*, Wien u.a. 2000, S. 239-261.

⁵³ Zu diesem Zeitpunkt verfügten die Österreichischen Luftstreitkräfte nur über zweisitzige Düsen-trainer DE Havilland D.H. 115 Mk 55 „Vampire“ sowie Yak-11 und Yak-18 Propellermaschinen. Vgl. Blasi, *Die Libanonkrise*, S. 258 sowie Hainzl, *Die Luftstreitkräfte Österreichs 1955 bis heute*, S. 39.

stärker waren jedoch die Folgewirkungen, die diese Krise für die Österreichischen Luftstreitkräfte mit sich brachte. Zum einen nahm die österreichische Öffentlichkeit diese bemerkenswerte Sorg-, gefolgt von Machtlosigkeit im Luftraum wahr und diskutierte diese auch breit,⁵⁴ und zum anderen bot der sowjetische Verteidigungsminister Malinowski nach diesen Vorfällen an, „[...] gerne mit der Überwachung und Sicherung des Luftraumes [zu] helfen.“⁵⁵ Diese beinahe als Drohung formulierte Aussage, verfehlte ihre Wirkung nicht und erzeugte eine spezifische Sensibilität für die Überwachung des Luftraumes, die ab diesem Zeitpunkt aufgebaut, auch zu einer besonderen operativen Aufgabe der Luftstreitkräfte wurde.⁵⁶

In den 1960er befanden sich die Luftstreitkräfte bereits in einer Umbruchphase, die sich in erster Linie in Umstrukturierungen, in denen einzelne Teilbereiche den Luftstreitkräften entzogen wurden, manifestierte. Die Luftraumüberwachung – wenngleich noch im Aufbau befindlich – und die damit zusammenhängende Luftraumverteidigung waren zum Schwerpunkt der operativen Aufgaben geworden. In diesem Sinne war auch die politische Entscheidung getroffen worden, mit den J-29F „Tunnan“ die ersten Kampfflugzeuge anzukaufen, die jedoch keine adäquate Bewaffnung erhielten. Dennoch fühlte man sich zu Beginn des Jahres 1968, als sich mit den Ereignissen des „Prager Frühlings“ in der ČSSR eine Krise anzukündigen begann, gut vorbereitet. Dieser Eindruck entstand jedoch vor allem deshalb, weil man einen möglicherweise kommenden militärischen Einsatz von Truppen des Warschauer Paktes nur am Boden erwartete. Die militärischen Vorausplanungen und die Einsatzpläne sahen so etwa die Luftstreitkräfte zunächst nicht im Verteiler vor.⁵⁷

Als am 21. August 1968 Truppen des Warschauer Paktes die Grenze zur ČSSR überschritten, war die Bedrohung sofort auch in Österreich spürbar und zunächst durch sowjetische Panzer, die an den Grenzübergängen zu den österreichischen Bundesländern Oberösterreich und Niederösterreich innerhalb kürzester Zeit Stellung bezogen, dann vor allem aber durch teilweise gravierende Luftraumverletzungen, erkennbar.⁵⁸ Die Krise traf Österreich trotz der lange Zeit sichtbaren Genese dennoch unvorbereitet. Zwar wurden das Bundesheer gemäß den Einsatzplänen sofort

⁵⁴ Vgl. Die Presse vom 20.07.1958.

⁵⁵ Hainzl, *Die Luftstreitkräfte Österreichs 1955 bis heute*, S. 40.

⁵⁶ Die große Zahl an US-amerikanischen Überflügen im Zuge der Libanonkrise hatten nicht nur die österreichische Souveränität verletzt und zu Verstimmungen zwischen Wien und Washington geführt, sondern auch zu einer strengeren Auslegung der Neutralität. Gleichzeitig wurden auch die beschränkten Möglichkeiten des Österreichischen Bundesheeres, Luftraumverletzungen zu verhindern, sichtbar. Vgl. Blasi, *Die Libanonkrise 1958*, S. 239f und 256ff.

⁵⁷ Vgl. Georg Hoffmann, *Luftraum in der Krise. Österreichische Sicherheitspolitik am Beispiel des ČSSR-Einsatzes 1968*, in: Journal for Intelligence, Propaganda and Security Studies (JIPSS) 1/2009, S. 101.

⁵⁸ Vgl. Georg Hoffmann, *Der Luftraum als Krisenraum. Luftraumverletzungen und Reaktionen (21. August – 17. September 1968)*, in: Horst Pleiner/Hubert Speckner (Hrsg.), *Zur Verstärkung der nördlichen Garnisonen... Der „Einsatz“ des Österreichischen Bundesheeres während der Tschechenkrise im Jahr 1968*, Wien 2008, S. 366ff.

alarmiert, konnte jedoch durch das Zögern der Politik nicht in die Einsatzräume abrücken.⁵⁹ Als nach stundenlangen Beratungen schlussendlich eine Definition der gesamten Situation gefunden wurde und die alarmierten Heeresteile die Kasernen verließen, hatte sich die Bedrohung bereits offensichtlich entfaltet. Dieser Umstand traf in besonderer Weise auf die Luftstreitkräfte zu, da sich in deren Einflussbereich die sichtbarste Bedrohung manifestiert hatte. Auch hier zögerte die politische Seite eine konkrete Reaktion, nämlich den Einsatz der J-29F „Tunnans“, anzuordnen. Man tat dies erst, als sowjetische Flugzeuge in offensichtlicher Aufklärungsmission sogar die Hauptstadt Wien überflogen⁶⁰ und die Regierung aufgrund der Wirkung auf die Öffentlichkeit eine Reaktion setzen musste.⁶¹ Doch verband man diesen Einsatz mit etlichen Auflagen und Einschränkungen: die Piloten dürften im Ernstfall nur auf Anweisung des Bundesministers für Landesverteidigung schießen und zudem war ihnen das Überfliegen der sogenannten „30km-Zone“ untersagt.⁶² Diese war zu Beginn des Einsatzes von Regierungsseite als Verbotszone für alle Bundesheerteile gebildet worden, dass heißt das Bundesheer hatte einen Abstand von 30km zur eigenen Staatsgrenze einzuhalten, um offiziell die UdSSR nicht zu „provizieren“.⁶³ Der J-29F-Einsatz, derart reglementiert, zeigte nun schonungslos die Schwächen der österreichischen Rüstungspolitik, vor allem aber der bisherigen Auffassung der Luftraumverteidigung auf. Die J-29F stiegen von ihren Stützpunkten erst auf, als sowjetische Maschinen den österreichischen Luftraum bereits verlassen hatten. Sie hatten zudem weder ein Bordradar noch eine Verbindung zu den militärischen Radarstationen am Boden, womit der Pilot den Himmel optisch absuchen musste. Schließlich untersagte man eine für Patrouillenflüge adäquate Bewaffnung der J-29F.⁶⁴ Wie die Wahrnehmung des Luftraums in der Krise stattfand, verdeutlicht auch der Umstand, dass man sich trotz der Luftraumverletzungen nicht dazu durchringen konnte, den zivilen Flugverkehr vor allem in Wien-Schwechat einzustellen. Stattdessen ordnete man die militärischen Patrouillenflüge diesem unter. Die J-29F wurden bereits nach wenigen Tagen wieder aus dem Einsatz abgezogen.⁶⁵

⁵⁹ Vgl. Horst Pleiner/Hubert Speckner (Hrsg.), *Zur Verstärkung der nördlichen Garnisonen...*, S. 127f.

⁶⁰ Vgl. Militärgeschichtliche Forschungsabteilung des Heeresgeschichtlichen Museums Wien (MGFA)/Bestand Sicherungseinsatz 1968 (SiE 1968), Tagesmeldung, Kommando Luftstreitkräfte, Zl. 1548-geh/EZ/68, 23.08.1968.

⁶¹ Zu den diplomatischen Protesten bezüglich der sowjetischen Luftraumverletzungen siehe Peter Ruggenthaler, *Der Neutralität verpflichtet: die sowjetisch-österreichischen Beziehungen 1968*, in: Karner/u.a. (Hrsg.), *Prager Frühling. Das internationale Krisenjahr 1968. Beiträge*, Graz 2008, S. 999ff.

⁶² Vgl. Hoffmann, *Luftraum in der Krise*, S. 105.

⁶³ Vgl. MGFA/Bestand SiE 1968, *Vortrag*, Bundesministerium für Landesverteidigung, StbAbt, o. Zl., 23.08.1968.

⁶⁴ Vgl. MGFA/Bestand SiE 1968, *Gedächtnisprotokoll über die am 21. August 1968 stattgefundene Besprechung. Zeitablauf*, o. Zl., 21.08.1968.

⁶⁵ Vgl. Hoffmann, *Luftraum in der Krise*, S. 106.

Als sich am 7. September 1968 die Lage für Österreich nochmals zuzuspitzen schien, wurde eine neuerliche Alarmierung befohlen.⁶⁶ Obwohl sich nun die Bedrohungswahrnehmung direkt auf den Luftraum richtete, erfolgte kein Kampfflugzeug-Einsatz mehr. Stattdessen band man das, was von der Luftraumverteidigung noch übrig war, am Boden, indem man Fliegerabwehr- und Panzerverbänden „[...] *nicht die Bekämpfung anlandender sondern bereits angelandeter Feindteile*“⁶⁷ befahl. Insgesamt war es in der Zeit von 21. August bis 17. September laut Meldungen zu 55 Luftraumverletzungen durch insgesamt 68 Luftfahrzeuge gekommen, die Dunkelziffer dürfte jedoch weit höher liegen.⁶⁸ Diese zahlreichen Verletzungen der österreichischen Souveränität machten jedoch auch die Hilflosigkeit beziehungsweise die Ohnmacht der österreichischen Luftraumverteidigung sichtbar, denn weder Fliegerabwehr als auch Kampfflugzeuge konnten der Vielzahl an Einflügen etwas entgegenstellen.⁶⁹ So erscheint folgende Aussage des Bundesministers Georg Prader als fern jeglicher Realität:

Wir hätten sie jederzeit herunterholen können. Allerdings schießen wir nicht gleich, da sich hier sehr ernste Konsequenzen ergeben. Nur wenn trotz Protests diese Einflüge kein Ende genommen hätten, dann hätte sich die Regierung über weitere Maßnahmen Gedanken machen müssen.⁷⁰

Die Folgen des Einsatzes waren sehr weitreichend, vor allem da das bisherige Konzept der Landesverteidigung als gescheitert erschien. Obwohl der Einsatz des Bundesheeres 1968 in erster Linie auf die zögerliche, nahezu als verantwortungslos zu bezeichnende Haltung der Regierung zurückzuführen war, erhielt das Bundesheer in der öffentlichen Wahrnehmung die Schuld dafür. Für die Luftstreitkräfte traf dies in besonderer Art und Weise zu, da hier der offensichtlichsten Bedrohung am wenigsten entgegengesetzt werden konnte. Das Jahr 1968 stellte so in vielerlei Hinsicht einen Wendepunkt dar. Der mangelhaft durchgeführte Einsatz prägte, von politischer Seite unterstützt, die Einstellung der Bevölkerung gegenüber dem eigenen Heer äußerst negativ; man fühlte sich im Stich gelassen, der Gefahr schutzlos ausgesetzt. Diese von den damaligen Ereignissen stark geprägte Grundhaltung ist noch heute spürbar.⁷¹ Es zeigte zudem, dass die militärische Neutralität alleine keine Sicherheit bot, weshalb sich diese zumindest in der öffentlichen Wahrnehmung wandeln musste.

⁶⁶ Vgl. Pleiner/Speckner (Hrsg.), *Zur Verstärkung der nördlichen Garnisonen...*, S. 326ff.

⁶⁷ Aussage von Brigadier in Ruhe Erich Kober am 24. August 2006 gegenüber den Autoren.

⁶⁸ Vgl. Hoffmann, *Der Luftraum als Krisenraum*, S. 371.

⁶⁹ Vgl. Ebenda.

⁷⁰ Hainzl, *Die Luftstreitkräfte Österreichs 1955 bis heute*, S.69.

⁷¹ Zur Einstellung der österreichischen Bevölkerung zu Fragen der Landesverteidigung siehe Erich Reiter, *Die Österreicher und ihr Bundesheer. Analyse einer Untersuchung über die Einstellung zu Fragen der Landesverteidigung*, Wien 1987.

Dieser Umstand musste auch auf die Verteidigungspolitik Rückwirkungen haben.⁷² Für die Luftstreitkräfte bedeutete dies den Anfang vom Ende in der Ära des Kalten Krieges. Man versank in einen nahezu als bedeutungslos zu bezeichnenden Status, wurde strukturell zerschlagen und auf ein kleineres operatives Aufgabenspektrum reduziert. Es benötigte das Ende des Kalten Krieges und eine neuerliche Krise in Gestalt des Jugoslawienkrieges 1991 um diesen Umstand wieder zu ändern.

Betrachtet man die aufgezeigten Krisen in einer Rückschau, so bildeten sich entlang der entsprechenden Einsätze zahlreiche Probleme ab. Diese waren nun nicht nur in den strukturellen Bedingungen oder den jeweiligen operativen Schwerpunkten gegeben, sondern vor allem in der Abwicklung rüstungspolitischer Entscheidungen. Derartige Problemstellungen entwickelten sich nicht erst anhand der Krisen selbst, sondern waren Teil einer oft jahrzehntelangen Diskussion, deren Betrachtung tiefen Einblick in die österreichische Verteidigungspolitik zulässt.

3. Rüstungsdiskussionen am Beispiel der Raketen-Lenk Waffen-Frage

Rüstungs- und Materialbeschaffung sind besondere Bereiche der Landesverteidigungspolitik. Sie sind Ausdruck einer politischen wie auch gesellschaftlichen Willensbildung, dem Militär für die jeweils zugeschriebene Rolle sowie die operativen Aufgaben entsprechende Mittel in die Hände zu geben. Folglich waren und sind diese immer wieder Kristallisationspunkt einer öffentlichen Beschäftigung mit der Landesverteidigung und mündeten nicht selten in eine Diskussion über den Sinn und den Zweck derselben. In Österreich kam es gerade im Verlauf des Kalten Krieges immer wieder zu derartigen öffentlichen aber auch militärinternen Diskussionen, die meist auch Wendepunkte in der Wahrnehmung der Landesverteidigung markierten. Eine Diskussion hielt sich dabei jedoch besonders hartnäckig über vier Jahrzehnte hinweg, wo sie in unterschiedlicher Intensität immer wieder sehr kontrovers debatiert wurde: die Frage nach der Ausrüstung des Bundesheeres und hier vor allem der Luftstreitkräfte mit Raketen respektive Lenk Waffen.

Ausgelöst wurde dies durch ein offizielles Lenk Waffenverbot, festgeschrieben im Artikel 13 des Österreichischen Staatsvertrages, welches den Besitz „[...] irgendeine[r] Art von selbstgetriebenen oder gelenkten Geschossen [...]“⁷³ untersagte. Dies sorgte innerhalb des Österreichischen Bundesheeres und hier vor allem innerhalb der Luftstreitkräfte für Unmut, da dieser zu einem Zeitpunkt formuliert worden war, als Lenk Waffen vor allem eine offensive Ausrichtung hatten.⁷⁴ Gerade

⁷² Vgl. Oliver Rathkolb, *Bruno Kreisky und die Heeresreformdiskussion 1970/1971*, in: Rauchensteiner/Etschmann/Rausch (Hrsg.), *Tausend Nadelstiche*, S. 47ff.

⁷³ Stourzh, *Geschichte des Staatsvertrages 1945–1955*, S. 257f.

⁷⁴ Das Verbot von Lenk Waffen basierte im Wesentlichen auf den britischen Erfahrungen mit den sogenannten deutschen Vergeltungswaffen V1 und V2 im Zweiten Weltkrieg.

in den späten 1940er und frühen 1950er Jahren hatte sich der defensive Sektor, vor allem im Gebiet der Fliegerabwehr, aber rasant weiterentwickelt, sodass man etwa im Bereich des luftspezifischen Objektschutzes von einer effektiven Verteidigung ohne Lenkwaffen nicht mehr sprechen konnte. So muss diese im österreichischen Staatsvertrag verankerte Klausel im Lichte des globalen Wettrüstens der beiden Machtblöcke im beginnenden Kalten Krieg und des sich damit zunehmend entfaltenden Bedrohungspotentials aus der Luft gesehen werden. Im Gegensatz zu Österreich hatte Italien, dessen Friedensvertragsentwurf zunächst eine ähnliche Klausel enthielt, mit dem Argument, dass man damit „(...) *nicht mehr in der Lage* [sei], *sich zu verteidigen*“⁷⁵ eine erhebliche Abschwächung der Formulierung, die nun die Defensivlenkwaffen aus dem Verbot ausnahm, erreichen können. Ein ähnlicher Schritt wurde in Österreich von militärischer Seite zwar gefordert, jedoch von der Politik kategorisch abgelehnt: Die einzelnen Bestimmungen des Staatsvertrages sollten eingehalten und nicht interpretiert werden. Es sollte schließlich bis 1990 dauern, bis man den Artikel 13 im Zuge einer Obsoleterklärung⁷⁶ auch tatsächlich aufhob.

Die Diskussion um die Anschaffung von Lenkwaffen zog sich über einen Zeitraum von 35 Jahren über mehrere Phasen hinweg. Durch die strikte Ablehnung vonseiten der Politik, sich mit diesem Thema überhaupt zu beschäftigen, war die erste Phase vor allem militärisch geprägt und wurde in der Öffentlichkeit kaum wahrgenommen. Es war gerade die Fliegerabwehr, die sich im Ernstfall einem gänzlich übermächtigen Luftgegner entgegensustellen hatte, und daher vehement auf eine Nachrüstung mit Lenkwaffen drängte.⁷⁷ Da in der Anfangsphase der Österreichischen Luftstreitkräfte auch keine Jagdflugzeuge zur Verfügung standen, musste letztlich das gesamte obere Spektrum des Luftraumes ungesichert bleiben. Welch erhebliche Probleme diese Aufgabe des österreichischen Luftraumes aufwarf, zeigten etwa die Geschehnisse des Jahres 1958. Obwohl zu diesem Zeitpunkt Know-how am Sektor der Raketen- und Lenkwaffentechnologie⁷⁸ innerhalb der Österreichischen Luftstreitkräfte vorhanden war, konnte dieses nicht nutzbringend umgesetzt werden, weshalb man sich Anfang der 1960er Jahre vonseiten der Luftstreitkräfte eingestehen musste, den Anschluss an diese sich ständig weiterentwickelnde Technologie verloren zu haben.

Als 1959 tschechoslowakische Raketenwerfer⁷⁹ für die Artillerie beschafft und ein Jahr später auch der Ankauf von schweizerischen Panzerabwehrlenkwaffen vom Typ „Mosquito“ für die Panzerabwehr erwogen wurde, erwartete man sich Ähnliches auch am Luftsektor. Diese Vorstellungen wurden bitter enttäuscht, stattdessen wurden strukturelle Veränderungen im Aufbau der Luftstreitkräfte eingeleitet. Die

⁷⁵ Hecht, *Militärische Bestimmungen in den Friedensverträgen von 1947*, S.382.

⁷⁶ Vgl. Gerald Stourzh, *Um Einheit und Freiheit*, Wien 1998, S. 776ff.

⁷⁷ Vgl. Roland Rabenstein, *Die Fliegerabwehrtruppe*, in: Austroflug 4/1957, S. 11.

⁷⁸ In Person von Dr. Friedrich Halder, der im Zweiten Weltkrieg innerhalb des Reichsluftfahrtministerium für die Fliegerabwehrraketenforschung zuständig gewesen war.

⁷⁹ Vgl. Axel Alber, *An Sankt Barbaras gnädiger Hand... Die Geschichte der Artillerie im Österreichischen Bundesheer der Zweiten Republik*, Wien 2005, S. 30 sowie S. 94f.

zunehmende Akzentuierung der Luftunterstützung ließ die bisherige Argumentation ins Leere laufen. Für die Fliegerabwehr und ihrer nun aufgewerteten, primären Aufgabe des Begleitschutzes, erschienen Lenkwaffen nicht mehr zielführend, im Gegensatz zu Feuerleitgeräten und Kanonen.⁸⁰ Im Bereich der Flieger standen lediglich 7,5cm-Raketen, die vor allem zur Erdzielbekämpfung zu verwenden waren, zur Verfügung. Die Lenkwaffenfrage verstummte unter Einfluss der neuen Aufgabenstellung so zusehends; vor allem als die Fliegerabwehr den Luftstreitkräften endgültig entzogen und den jeweiligen Gruppenkommanden unterstellt wurde. Nur im Umfeld der Großraumradarstationen,⁸¹ die 1966 der neu geschaffenen Luftabwehrbrigade eingegliedert wurden, blieben Teile der Fliegerabwehr, deren Hauptaufgabe der Objektschutz wurde, erhalten. Zwischen 1966 und 1969 wurden zahlreiche Versuche unternommen, wieder Anschluss an die internationale Lenkwaffentechnologie zu finden.⁸² Doch der für die Luftstreitkräfte äußerst negativ verlaufende Einsatz im Zuge der ČSSR-Krise 1968 sowie die kurz danach erfolgenden Umstrukturierungen und Umorientierungen hin zur „Gesamtraumverteidigung“ und die geringen finanziellen Mittel, die den Luftstreitkräften zur Verfügung standen, ließen auch diese Vorhaben scheitern.

Mit der neuen Verteidigungsdoktrin der „Raumverteidigung“ trat die Lenkwaffendiskussion in eine neue Phase ein. Die Forderungen, die noch in der ersten Phase aus der Truppe heraus entstanden waren, schienen mit der Zerschlagung der Luftstreitkräfte keinerlei Relevanz mehr zu besitzen. Lediglich als in den 1970er Jahren die „Arbeitsgemeinschaft Luftraumverteidigung“ ins Leben gerufen wurde, entflammte für kurze Zeit wieder eine Diskussion um die Beschaffung von Lenkwaffen, die jedoch sehr bald durch die immer geringer werdenden finanziellen Mittel wieder verstummte. In den späten 1970er Jahren wurde zudem immer klarer, dass es in Hinblick auf den Luftraum zu einer Prioritätenverschiebung hin zu einer „[...] kampfkraftige[n] Luftraumüberwachung (LRÜ) – statt Luftraumverteidigung (...)“⁸³ kommen würde. Die Rüstungsfragen der Fliegerabwehr wurden so massiv zurückgedrängt und die Lenkwaffenfrage auf diesem Sektor in Richtung einer Fliegerabwehrpanzerfrage verschoben.

Mitte der 1980er Jahre entstand mit dem Kauf der ersten Überschall-Abfangjäger Saab 35 OE „Draken“, eine neuerliche Debatte, dieses Mal um die Bewaffnung dieser Flugzeuge.⁸⁴ Da Lenkwaffen als die einzig sinnvolle Variante erschienen, wurde

⁸⁰ Vgl. AdR/ÖStA, *Beschaffungsunterlagen Mittelkaliber-Fliegerabwehrwaffensystem 65*, 19.03.1965, BMFLV/Amt für Wehrtechnik/Abt. Waffen und Munition, Zl.: 506.983-WT/WM/65.

⁸¹ Zur Geschichte der Großraumradarstationen vor allem am Kolomannsberg (GRSK) siehe Hainzl, *Die Luftstreitkräfte Österreichs 1955 bis heute*, S. 211ff.

⁸² Vgl. Hainzl, *Die Fliegerkräfte Österreichs 1955 bis heute*, S. 51.

⁸³ Korkisch, *Die Luftstreitkräfte der Republik Österreich 1955 bis 2005*, S. 311.

⁸⁴ Vgl. Roland Schaffer, *Diskussionspunkt „Draken“*. *Die Beschaffung von Abfangjägern für das Österreichische Bundesheer*, in: Etschmann/Speckner (Hrsg.), *Zum Schutz der Republik Österreich...*, S. 601ff.

diese alte Diskussion – zunächst aus den Reihen des Heeres – wieder neu aufgeworfen. Sehr schnell schlossen sich andere Bereiche wie die Fliegerabwehr und letztlich die Panzerabwehr, an. Ab 1985 erlangte dieses Thema offensichtlich im Zuge der vorherigen „Draken“-Diskussion und der starken Verquickung mit Fragen der österreichischen Sicherheitspolitik, eine erhebliche Präsenz in der nationalen Medienlandschaft.⁸⁵ So bekräftigten die Befürworter der Lenkwaffen deren Notwendigkeit für den Schutz der Neutralität im Luftraum, während die Gegner einen Bruch mit den Richtlinien des Staatsvertrages sahen.⁸⁶ Damit nahm die Diskussion in dieser Phase eine ganz neue Qualität an, die sie erheblich von jener in den 1950er und 1960er Jahren geführten Debatte unterschied. 1987, kurz nach der Ernennung von Robert Lichal zum Bundesminister für Landesverteidigung, wurde eine Beschaffungskommission eingesetzt, die für alle Bereiche einen Lenkwaffenkauf planen sollte. Lichal, ein Befürworter des Ankaufs, argumentierte damit, dass „[...] *Lenkwaffen* [...] *für das Überleben unserer Soldaten von entscheidender Bedeutung* [sind], *ohne sie wären unsere Söhne schutzloses Kanonenfutter*.“⁸⁷ Mit dieser Diktion und der allgemeinen Wortschöpfung „*Abwehrlenkwaffe*“⁸⁸ sollte die neutralitätspolitische Bedeutung zusätzlich unterstrichen werden. Doch auch im endlich einsetzenden Beschaffungsvorgang kam es, nachdem bekannt wurde, dass nicht für alle Bereiche ausreichend finanzielle Mittel vorhanden waren, sehr schnell zu einem Tauziehen zwischen Heer und Luftstreitkräften, welches die Panzerabwehr für sich entscheiden konnte. Noch 1989 wurde die schwedische Panzerabwehrlenkwaffe RBS-56 „Bill“ unter der österreichischen Bezeichnung PAL 2000 beschafft; die beiden anderen Lenkwaffenbereiche gingen leer aus. Nur ein Jahr später wurde das Lenkwaffenverbot des Staatsvertrages für obsolet erklärt.⁸⁹ Die Luftstreitkräfte erschienen zu diesem Zeitpunkt als der große Verlierer, bis die Slowenienkrise 1991 die Karten neu verteilte. Mit einer zwar neuartigen, aber dafür unmittelbar greifbaren Bedrohung an der österreichischen Grenze und auch im Luftraum änderte sich die zuvor eher negative Haltung der Öffentlichkeit, die vor allem in der medialen Berichterstattung spürbar wurde.⁹⁰ Zudem deckte die Krise die erheblichen ausrüstungstechnischen Mängel auf: Die Fliegerabwehr hatte Objektschutz zu betreiben, es fehlten dazu aber die geeigneten und modernen Waffensysteme, die „Draken“ waren zwar im Luftraum präsent, je-

⁸⁵ Vgl. Hoffmann, *Von Radar Raketen und Neutralität...*, S. 96ff.

⁸⁶ In den Medien wurde fälschlicherweise immer wieder vom Bruch der Neutralität gesprochen, in der selbstverständlich nie ein Lenkwaffenverbot verankert war, was aber auch in Nachfolge der Drakenbeschaffung wesentlich emotionaler aufgefasst wurde als etwa eine Staatsvertragsdebatte. Exemplarisch vgl. Hans Saringer, *Gefasel von Raketen*, in: *Neue Zeit*, 18.06.1986.

⁸⁷ *Minister Robert Lichal in Tirol: Brauchen Lenkwaffen für die Sicherheit unserer Soldaten*, in: *Tiroler Tageszeitung*, 31.03.1987.

⁸⁸ Hannes Haas, *Konflikt statt Konsens? Die Abwehrlenkwaffen-Diskussion in den österreichischen Printmedien*, unveröffentlichtes Manuskript, Wien 1989, S. 17.

⁸⁹ Vgl. Stourzh, *Um Einheit und Freiheit*, S. 776ff.

⁹⁰ Vgl. *Der Star heißt PAL 2000, wiegt 47 Kilogramm, kann Panzer knacken*, *Der Standard* vom 03.07.1991.

doch, lediglich mit 30mm-Kanonen bewaffnet, kaum als gefechtsfähig zu bezeichnen. Die öffentliche Meinung schlug in einem erheblichen Ausmaß um, sodass noch 1991 – wohlweislich nach Ende des Kalten Krieges – innerhalb sehr kurzer Zeit der Ankauf von Luft-Luft- und Boden-Luft-Lenk Waffen beschlossen und budgetiert werden konnte.⁹¹

Mit diesem Ankauf war eine über lange Zeit hinweg, hitzig von allen Seiten geführte Rüstungsdiskussion nach 35 Jahren abgeschlossen. Sie zeigt wohl wie kein anderer Beschaffungsvorgang den Wertewandel des Luftraumes im Kalten Krieg.

4. Zusammenfassung und Ausblick

„*Austrian security will be precarious both in the short and the long-term.*“⁹² Dieser Satz, formuliert im Jahr 1955 im Hinblick auf die anfänglichen Anstrengungen Österreichs, eine eigene Luftstreitkraft aufzubauen, findet sich in den Akten des britischen Foreign Office wieder. Als Begründung für diese Einschätzung wird dabei angegeben, dass sich die militärischen Planungen, die durchwegs mit jenen der Westmächte korrelierten, nicht mit den politischen Vorstellungen des Landes deckten, und dies wohl in der Zukunft auch nicht tun würden: „[...] *the responsible Austrian leaders are not prepared to face the real issues in the military field which are the concomitant of their new political responsibilities.*“⁹³

Tatsächlich stellt genau dieser Punkt das Grundproblem in der Entwicklung der Österreichischen Luftstreitkräfte in allen Bereichen dar, das sich letztlich bis zum Ende des Kalten Krieges ziehen sollte. Die Luftstreitkräfte, die 1955 auf minimaler Basis gleichsam aus dem Nichts aufgebaut werden mussten, fanden innerhalb des neu entstehenden Bundesheeres sowie der langsam entstehenden Verteidigungspolitik, denkbar schlechte Grundvoraussetzungen vor, die zunächst nur durch ausländische Hilfslieferungen ausgeglichen werden konnten. Die jungen Luftstreitkräfte wurden von Anfang an finanziell und daraus abgeleitet strukturell derart beschränkt, dass durchwegs vorhandenen Planungen nicht umgesetzt und die operativen Kernaufgaben der Luftverteidigung und Luftunterstützung bereits im Ansatz nicht abgedeckt werden konnten. Wesentlich schwerer wog jedoch der daraus abgeleitete Umstand, dass sich der Luftraum damit nicht in die Sicherheits- und Verteidigungspolitik des Landes und damit in den Neutralitätsraum integrieren konnte. Das politische Interesse an einer Stärkung der Luftstreitkräfte beziehungsweise einer Integration des Luftraumes war zudem deshalb so minimal, da letzterer keiner gesteigerten öffentlichen Wahrnehmung unterlag. Dies änderte sich erst als Krisen und äußere Einflussnahmen auftraten und ein gewisses Bedrohungsgefühl auch im Luftraum spürbar wurde.

⁹¹ Es waren das die Luft-Luft-Lenk Waffe „Sidewinder“ und die leichte Fliegerabwehr Lenk Waffe „Mistral“. Vgl. Hoffmann, *Von Radar Raketen und Neutralität...*, S. 107.

⁹² TNA, FO 371/117835.

⁹³ TNA, FO 371/117835.

Die Krisen wurden so zu den markanten Zäsuren in der weiteren Entwicklung der Luftstreitkräfte, da auf diese mit strukturellen und aufgabenbezogenen Veränderungen unmittelbar und vor allem öffentlichkeitswirksam reagiert wurde. So änderte sich etwa noch 1958 – anlässlich der durch die Libanonkrise im österreichischen Luftraum hervorgerufenen Vorkommnisse – die Integration des Luftraumes in die Neutralität. Die von den Luftstreitkräften nicht umsetzbare operative Aufgabe der Luftverteidigung wurde vonseiten der Politik in eine Luftraumverteidigung uminterpretiert und die Strukturen danach ausgerichtet. In dieser wurde nun dem Schutz und der Wahrung der Neutralität gegenüber der Verteidigung der staatlichen Souveränität der Vorzug gegeben. Die Luftstreitkräfte sollten nun die Neutralität im Luftraum sichtbar, sie dokumentierbar machen, um so Sicherheit zu suggerieren, ohne diese jedoch im Einsatzfall auch verteidigen zu können.

Diese nicht vorhandene Verteidigungskomponente gepaart mit einer fehlenden eindeutigen Definition des „Neutralitätsfalles“, machte sich dann vor allem 1968, im Rahmen der nächsten Krise, bemerkbar und veränderte nicht nur den Zugang zur Neutralität, sondern auch die Luftstreitkräfte neuerlich äußerst nachhaltig. In einer Ära, in der nun die Landesverteidigung in eine Doktrin gebettet wurde, hatten die Luftstreitkräfte kaum mehr Bedeutung. Die fehlende Luftverteidigung sowie die Luftraumverteidigung wurden als Manko akzeptiert und als solches in den Verteidigungsplanungen als Basis vorausgesetzt. Dieser Umstand, der bis zum Ende des Kalten Krieges aufrechterhalten wurde, marginalisierte die Luftstreitkräfte, zerteilte ihre Strukturen und band sie beinahe ausschließlich in der Luftunterstützungsaufgabe.

Dieser Wandel vor allem der politischen Willensbildung rund um die Luftstreitkräfte, zeigte sich markant auch entlang langfristiger Elemente, wie etwa der Rüstungsplanung. Alles war letztlich geprägt von einer, vor allem nach außen wahrnehmbaren, neutralen Haltung, ohne Rücksicht auf die eigene Verteidigungsfähigkeit. So besaßen die Luftstreitkräfte bis zum Ende des Kalten Krieges weder ein geeignetes Interzeptionsflugzeug – „Abfangjäger“ genannt –, noch eine adäquate, moderne Bewaffnung, wie etwa Lenkwaffen. Diese Umstände änderten sich erst, als das Ende des Kalten Krieges erreicht, die äußeren Bedrohungen andere geworden waren und rüstungspolitische sowie strukturelle Anpassungen anderen Deutungsmustern unterlagen. Für einen kurzen Zeitraum entwickelten sich daraus über mehrere Zwischenschritte tatsächliche österreichische Luftstreitkräfte, die auch als solche mit eigenen Aufgaben versehen, wahrgenommen wurden. Das neue Jahrtausend, mit seinen neuen Bedrohungs- und Einsatzszenarien, verursachte jedoch wieder ein Umdenken in der politisch-militärischen Willensbildung, welches neuerlich Umstrukturierungen einleitete. So bestehen die Luftstreitkräfte heute aus keinem zentralen Verband mehr, sondern aus zwei brigadeäquivalenten Teilen, die gleichzeitig die Kernaufgaben markieren: Luftunterstützung (Kommando LuU) und Luftraumüberwachung (Kommando LRÜ). Im Licht all dieser Entwicklungen nimmt es kein Wunder, dass die verschiedenen Teile der Österreichischen Luftstreitkräfte, trotz neuester Ausrüstung, wie etwa dem Eurofighter, auf eine ungewisse Zukunft zusteuern.

MANUEL CAMBESES JÚNIOR*

As Forças Armadas brasileiras e a Política de Defesa Nacional

O Brasil é um país guiado por um sentimento de paz. Não abriga nenhuma ambição territorial, não possui litígios em suas fronteiras e, tampouco, inimigos declarados. Toda ação por ele empreendida nas esferas diplomática e militar, busca, sistematicamente, a manutenção da paz. Porém, tem interesses a defender, responsabilidades a assumir, e um papel a desempenhar, no tocante à Segurança e Defesa, em níveis hemisférico e mundial, em face de sua estatura político-estratégica no concerto das nações. O primeiro objetivo de nossa Política de Defesa, portanto, deve ser a de assegurar a defesa dos interesses vitais da Nação contra qualquer ameaça forânea. Não se pode precisar, a priori, a fronteira entre os interesses vitais e os interesses estratégicos. Os dois devem ser defendidos com ênfase e determinação. Essencialmente, os interesses estratégicos residem na manutenção da paz no continente sul-americano e nas regiões que o conformam e o rodeiam, bem como os espaços essenciais para a atividade econômica e para o livre comércio (Setentrão Oriental, Costão Andino, Cone Sul e Atlântico Sul).

Fora deste âmbito, o Brasil tem interesses que correspondem às responsabilidades assumidas nos Fóruns Internacionais e Organismos Multilaterais e ao seu status na ordem mundial. Este é conformado por uma combinação de fatores históricos, políticos, estratégicos, militares, econômicos, científicos, tecnológicos e culturais. Sem uma Defesa adequada, a Segurança Nacional e a perenidade desses interesses estarão seriamente comprometidos e, conseqüentemente, não poderão ser assegurados. Daí, ressalta-se a imperiosa necessidade de contarmos com Forças Armadas preparadas, suficientemente poderosas e aptas ao emprego imediato, capazes de desencorajar qualquer intenção de agressão militar ao país, pela capacidade de revidar que representam. Esta estratégia é enfatizada para evitar a guerra e exige, como corolário, o fortalecimento da Expressão Militar do Poder Nacional, além de impor um excelente grau de aprestamento e prontificação das Forças Armadas, desde o tempo de paz, através da realização de treinamentos, exercícios operacionais dentro de cada Força Singular, não sendo excluída a necessidade de Planejamento e do treinamento de Operações Conjuntas e Combinadas no âmbito das FFAA. O estudo da História, particularmente da História Militar de uma nação, conduz a conclusões

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e realça aspectos capazes de influir na Expressão Militar de seu Poder Nacional. O estudo das campanhas militares, com seus erros e acertos, o respeito às tradições, o culto aos heróis, etc, trazem reflexos à formulação da doutrina, ao moral e à estrutura militares.

As tradições históricas e militares constituem, ainda, fatores de influência sobre a Expressão Militar. Essas tradições, que cumpre cultivar e manter, não devem, por outro lado, apresentar obstáculos intransponíveis à evolução, ao desenvolvimento e à tecnologia militares. No equilíbrio entre essas idéias, às vezes opostas, está o acerto que revigora a Expressão Militar. Assumem, também, papel de destaque, os aspectos qualitativos dos recursos humanos; o apoio em maior ou menor grau da opinião pública nacional e mesmo internacional; a coesão interna e a vontade nacional. E, nesse contexto, ressalta a fundamental importância do Povo - expressão máxima das forças vivas da Nação -, como verdadeiro esteio das Forças Armadas, quando a elas se une, nelas se apóia e com elas se confunde. A população traduz sua indispensável solidariedade à Expressão Militar, através da opinião pública, que deve constituir, sem dúvida, preocupação constante quando se pretende manter em alto nível aquela Expressão do Poder Nacional. Nesse sentido, é imperioso o esforço para conservar integrados o homem militar e o homem civil, sem discriminações de qualquer natureza, sem privilégios, embora respeitadas suas diversas, mas naturais destinações.

O papel que caberá às Forças Armadas brasileiras, nas próximas décadas, é multifacetado e deve estar calcado em amplo debate, cujo resultado deverá ser tão satisfatório quanto maior for o desenvolvimento da sociedade. O esboço de qualquer arranjo de Defesa, em um Estado democrático, para que possa contar com recursos, deve estar respaldado por uma base de legitimidade. Entendemos que, para a consecução desses objetivos, devem ser consultadas personalidades representativas de diferentes espectros de opinião: ministros de estado, acadêmicos, analistas políticos, economistas, diplomatas, militares, jornalistas, todos com reconhecida competência na área de Defesa e alguns críticos do atual sistema de Defesa Nacional. Evidentemente, que não se trata de deixar em mãos destes pensadores a formulação de políticas e estratégias militares. Trata-se, tão-somente, de ouvi-los e de reunir novos conceitos e ideias, que permitam oxigenar antigos preceitos e identificar referenciais para a defesa do país, os quais estejam mais em sintonia com os desafios dos novos tempos e consentâneos com a realidade nacional.

Tais contribuições, depois de avaliadas, por setores competentes do Ministério da Defesa, poderão ou não ser incorporadas no planejamento estratégico. Indubitavelmente, para a consecução dessa tarefa, mister se faz uma conjunção de esforços. Nesse sentido, somam-se, num processo sinérgico, o imprescindível apoio do Presidente da República, a compreensão do Congresso Nacional, a efetiva colaboração do Ministério da Defesa e de outras áreas do Governo, a confiança e o respaldo dos Comandantes de Forças e a ativa participação de todas as forças vivas da Nação. Te-

mos plena consciência de que não se pode justificar a hipertrofia das Forças Armadas em prejuízo do processo de desenvolvimento da Nação, mas não se pode admitir, por ilógico e temerário, que a Expressão Militar do Poder Nacional seja colocada em plano inferior - vivenciando um processo gradual de sucateamento e de desmantelamento, devido à crônica insuficiência de recursos financeiros -, na falsa concepção de que a prioridade absoluta deve ser dada ao Desenvolvimento. Não existem nações desarmadas, porque nenhuma delas seria capaz de desfazer-se de sua Expressão Militar para merecer, por esse ato ingênuo, o respeito e a simpatia de todos os países. Não há fórmula miraculosa capaz de manter a paz sem ameaças de conflitos internos ou de guerra entre os povos.

Torna-se imperativo conferir mais prestígio às Forças Armadas e racionalizar, modernizar e fortalecer o aparato defensivo brasileiro. Lembremo-nos das sábias palavras do insigne Barão do Rio Branco - o Chanceler da Paz - que, de modo contumaz, enfatizava a imperiosa necessidade de possuirmos um bom sistema de armas para respaldar as nossas proposições no concerto das nações.

PETTERI JOUKO*

Inconclusive Experiment – British Air Power and the Suez Crisis, 1956. The Allied Air Campaign reassessed

Introduction

“It (The overall concept of Operation Musketeer Revise, *Author*) was dictated to the Force Commanders as a result of political limitations and was never considered by them to be a sound military operation.”¹ The quotation from the report of Air Marshall Dennis Barnett, the Air Task Commander of Operation Musketeer, the Anglo-French operation designed to capture the Suez Canal in November 1956 is revealing. The military planning of Operation Musketeer was truly coloured by political manoeuvring and indecisiveness, constant change of plans and inter-service rivalry added by the French co-operation with Israel from the very beginning of the crisis. It is also widely recognised that the operation was a political disaster for Britain. The United States took advantage of the situation to wipe out the British influence in the Middle East. Yet, the military execution of the operation cannot be judged as a total fiasco. The tactical tasks were carried out with accordance to the plans and the encountered Egyptian forces were defeated.

This article deals with one aspect of military planning: the use of air forces.² The concept of using air power³ is among the most fascinating aspects of the military planning during the crisis. The use of Anglo-French air forces established the core of the whole operational concept at one stage of the planning. In the end, however, the concept of an extensive and decisive air campaign was almost totally watered. This article seeks to explain the role of the air forces and the concept of air operations during the planning stage of the operation in the light of the contemporary Royal Air Force doctrine. So often are military operations judged without realising that the armed forces are products of their era. The military thinking is expressed in

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¹ TNA AIR 24/2426, Air Task Force/TS 287/56, 27 November 1956, Report on Operation Musketeer.

² For a comprehensive analysis of the military planning, see Petteri Jouko, *Strike Hard, Strike Sure – Operation Musketeer. British Military Planning during the Suez Crisis, 1956* (diss.) (Helsinki: Edita Prima Oy, 2007).

³ The term “air power” was quite certainly understood differently in the 1950s than today. The term, however, was used already in the *Royal Air Force Manual* in the late 1920’s, see *Royal Air Force War Manual, Operations* (AP 1300, 1928), Chapter VII.

the contemporary doctrine linking the operational peacetime principles of peacetime training and wartime action, as the *Royal Air Force War Manual* published in 1950, the contemporary doctrine of the Royal Air Force, put the matter.⁴

The article focuses almost entirely on the British part of the operation. The French participation is consciously left on the sidetrack, but not because their participation is uninteresting. On the contrary, the French possessed some extremely exiting and modern concepts worth of further research such as airborne and psychological operations or tactical employment of ultra modern *7 Division Mécanique Rapide*. However, *L'Armée de l'Air* did not have a doctrine or the resources to conduct strategic air operations that are the main focus of this article.

Strike Hard, Strike Sure – the Principles of British Air Power

“Allied Air Power was decisive in the war in Western Europe. Hindsight inevitably suggests that it might have been employed differently or better in some respects. Nevertheless it was decisive”⁵

It is no coincidence that John Slessor, Marshal of the Royal Air Force, a former Chief of Air Staff and a well known protagonist of air power, quoted the United States Strategic Bombing Survey in his 1954 book *Strategy for the West*. In the absence of missiles, Britain's forthcoming nuclear deterrence was to be based on the Royal Air Force. The RAF was to become the primary arm since it was to deliver Britain's nuclear inventory if deterrence failed.

During the Suez Crisis, air power was to play a predominant role in the Allied attack plans. To understand the background for the decisions made in these plans, it is relevant to review the ideas of aerial warfare that prevailed at the time in the United Kingdom. The tactics introduced during the Second World War still prevailed in the British Army. But did the lessons of the war provide an empirical basis also for the Royal Air Force in the mid-1950s? Had the role of air forces changed since the Second World War? What were the principles of applying air power in a Limited War?

The basic foundations of the air force doctrine originated from a holistic understanding of a country's capacity to wage war. According to the *Royal Air Force War Manual*, the war potential of the enemy consisted of various factors such as the armed forces, morale, industrial and economic capacity, scientific research and manpower. Most of the physical manifestations of these factors were located inside enemy territory. This led to the logical conclusion that “the basic weapon of the air force is the bomber and the basic strategy of Air Power must be offensive”.⁶

⁴ *Royal Air Force War Manual, Operations* (AP 1300, 1950), introduction.

⁵ John Slessor, *Strategy for the West* (London: Cassell & Co, 1954), p. 96. Originally quoted in the *United States Strategic Bombing Survey, Over-all Report (European War), September 30, 1945*, (Washington D.C: U.S. Government Printing Office, 1945), p. 107.

⁶ *Royal Air Force War Manual, Part 1, Operations* (Air Ministry, 1950), pp. 2-5, 19.

The ten principles of war were based on those introduced by Fuller in the army in the 1920s.⁷ The air doctrine followed the “Douhuetic” principle of massive air power by calling for the concentration of the greatest possible force as “THE (*sic*) cardinal principle of war”.⁸

Bomber Command had suffered horrifying casualties in the skies over Germany. When German air defences were still capable of offering resolute resistance in 1943 and early 1944, the attrition rate had risen to intolerable levels. The main cause for the losses was the German fighter defence, which had not been paralysed. The fighter defence was properly addressed only after the introduction of long-range fighter escorts.⁹ The logical conclusion of this experience was that a large-scale bomber offensive was impractical without air superiority.¹⁰ The bomber formations were not, after all, able to defend themselves from the determined defenders pressing their attacks home vigorously. The requirement for air superiority was not limited to bomber operations. Its importance was well expressed by Lord Tedder in 1947 when he defined it as “a prerequisite for all war-winning operations, whether at sea, on land or in the air”.¹¹ This was particularly true for amphibious operations as expressed in the *Manual of Combined Operations*.¹²

The necessity for air superiority and the principle of the offensive were, of course, closely interlinked. Air operations were to be extended over the hostile airspace at the earliest possible moment. In the Second World War, the Allies had won air superiority through attrition. The campaign had been a costly and time-consuming affair due to the size and skill of the German Air Force. Another solution, suggested in the *Royal Air Force Manual*, was to attempt an early aerial *coup de main* by destroying the enemy air force in its bases, especially if the opponent was weaker.¹³ There was a tempting and well-known example from the Second World War since the *Luftwaffe* annihilated the Polish Air Force in a matter of days in the opening phase of the invasion of Poland in 1939.¹⁴

The bomber force could be used in achieving air superiority, but the main aim of a bomber offensive would be the annihilation of a country’s overall capacity to wage

⁷ See, e.g. *Field Service Regulations, Operations* (London: Her Majesty’s Stationary Office, 1929), pp. 8-9.

⁸ *Royal Air Force War Manual, Part 1, Operations*, p. 16.

⁹ *The Strategic Air Offensive Against Germany 1939-1945, Vol. II: Endeavour*, by Charles Webster and Noble Frankland (London: Her Majesty’s Stationary Office, 1961), pp. 87-88.

¹⁰ Air superiority was defined as “a state in which we (the British, *author*), are able to make use of the air for our own purposes and the enemy air forces are unable to operate effectively against us”, see *Royal Air Force War Manual, Part 1, Operations*, p. 21.

¹¹ Andrew Vallance, *The Air Weapon. Doctrines of Air Power Strategy and Operational Art* (London: Macmillan Press, 1996), p. 15.

¹² *The Manual of Combined Operations*, (1950), p. 3 and *Conduct of War*, p. 13.

¹³ *Royal Air Force War Manual, Part 1, Operations*, pp. 22-24.

¹⁴ James Corum, *The Luftwaffe. Creating Operational Air War, 1918-1940* (Lawrence: University Press of Kansas, 1997), pp. 271-273.

war. The idea of bombing an enemy into submission came from the period between the world wars when strategies for air offensives were slowly taking shape in the form of the concept of strategic bombing. There was no proper doctrine however, as Scot Robertson notes in his analysis on the development of strategic bombing.¹⁵ Early in the war, the British had conducted daylight bombing raids against German military targets with unpromising results¹⁶. During the course of the war, the British bomber offensive targeted the war potential of the German cities through nightly aerial bombing. As described in a directive following the Casablanca conference, the objective was “the progressive destruction and dislocation of the German military, industrial and economic systems, and the undermining of the morale of the German people to the point where their capacity for armed resistance was fatally weakened”.¹⁷

German morale did not collapse even though the population was subjected to heavy bombing which caused severe casualties. Actually, the result was quite the opposite of the original objective. As Albert Speer, the Minister of Armaments and War Production put the subject in a post-war interrogation “the powers of resistance of the German people were underestimated and no account was taken of the fatalistic frame of mind which a civil population finally acquires after numerous air raids”.¹⁸ Instead of reducing German morale, the bombings increased the German resolution to stand firm as the killing of innocent civilians by the Allies offered excellent propaganda opportunities for the regime that had total control over domestic radio and press.¹⁹ The same trend occurred in the bombing of industry. After re-organising its production, German industry was actually able to increase its output. It is a well-known fact that German industrial production reached its peak in 1944, which was the year of the heaviest bombing in the war.²⁰

Throughout the bombing campaign, the British retained a cynical attitude towards precision bombing. This view was held by the Commander-in-Chief of Bomber Command, Air Marshall Arthur Harris in particular. Nevertheless, the official report by the British Bombing Survey Unit reveals that the British realised the importance of selecting key target categories in their post-war studies. According to the report, the oil and communications facilities were the two “target systems whose attack yielded major strategic gains.” However, the same report acknowledged that the destruction of the oil system did not paralyse the German fighting capacity due to the

¹⁵ Scot Robertson, *The Development of RAF Strategic Bombing Doctrine 1919-1939* (Praeger, 1995), pp. 158-159.

¹⁶ John Searby, *The Bomber Battle for Berlin* (London: Guild Publishing, 1991), p. 18.

¹⁷ Arthur Harris, *Despatch on War Operations* 23 February, 1942, to 8 May, 1945, ed. Sebastian Cox (London: Frank Cass, 1995), p. 33.

¹⁸ *The Strategic Air Offensive against Germany 1939-1945* ed. Sir James Butler (Naval & Military Press, 2006), p. 283.

¹⁹ Max Hastings, *Bomber Command*, p. 349

²⁰ David Divine, *The Broken Wing. A Study in the British Exercise of Air Power* (London: Hutchinson & CO, 1966), pp. 259-260.

introduction of strict rationing and reserve stocks. Moreover, German industry was able to maintain its production levels owing to the large pool of skilled labour and to a relatively adequate amount of raw materiel.²¹

The bombing report endorsed the targeting of the transportation system as the most efficient means of causing damage to war potential. The strategic bombing of the German transportation system had a two-folded effect. The survey argues that it was the main reason for the gradual collapse of the German industry involved in military production. The campaign also had a direct effect on military traffic. The railway system in France was subjected to heavy bombing for about three months before Operation Overlord and it “completely nullified the pre-arranged German organization for dealing with troops movements, reinforcements and supplies”.²²

The lessons were transferred directly to the post-war bombing doctrine. The *Royal Air Force War Manual* identified the goal of paralysing the movement of the enemy as a primary objective of a bombing campaign. Attacks on the transportation network and the fuel industry would deprive the enemy of the means to move his troops and the goods used by the civilian society.²³

The results of the bombing offensive were revealed only after the war during the extensive bombing surveys. It had been most difficult to assess the effects of a bombing campaign. This highlights the role of intelligence. Experiences in the Second World War had shown that the economic planning conducted in conjunction with a bombing campaign was dependant on assumptions. These assumptions could not always be verified during the course of the war as the enemy did his best to conceal the actual results.²⁴

According to the bombing survey, it was not the amount of intelligence material but the quality and interpretation of this material that mattered.²⁵ If hard intelligence on enemy capabilities to maintain production, to restore production, or to introduce substitutive commodities was incorrect, then the bombing campaign could be aimed at the wrong targets. The principles involved in supporting an amphibious operation and combat on the ground next to the bridgehead were expressed in an issue of the Amphibious Warfare Handbook, *The Employment of Air Forces in Amphibious Warfare*. Air support for a combined operation was broken up into three phases. The preliminary phase would be devoted to creating a favourable air and maritime

²¹ *The Strategic Air War Against Germany 1939-1945. Report of the British Bombing Survey Unit* ed. Sebastian Cox (London: Frank Cass, 1998), pp. 134, 166-167.

²² *Ibid.* pp. 118, 166-167. For the post-war analysis of the effects on the German transport system during the Second World War, see also Churchill Archives Centre, The Papers of Air Vice-Marshal Sydney Osborne Bufton, BUFT 1/39, “Lectures on Air Power in Modern War” by Lord Tedder, pp. 47-50 and diagram no. 7.

²³ *Royal Air Force War Manual, Part 1, Operations*, pp. 28-30.

²⁴ *The Strategic Air Offensive Against Germany 1939-1945, Vol. II: Endeavour*, by Charles Webster and Noble Frankland (London: Her Majesty’s Stationery Office, 1961), pp. 214-220.

²⁵ *Ibid.*

situation in the theatre of war. The principles for using offensive air power would be very similar to those mentioned earlier. Interdiction operations,²⁶ which meant constant and concentrated attacks on transportation targets, would be aimed at depriving the enemy of his freedom of movement. The intensive air offensive would limit the opponent's options for transferring strategic or tactical reserves into the combat zone. During the preparatory phase, while the invasion force was loading and at sea, the air force was to concentrate its efforts on the area around the landing area, striking targets such as the landing beaches or tactical reserves. In the final phase the main task of the air force would be to neutralise the local defences and to isolate the beachhead. The role of the air force would be emphasised during the assault phase due to the army's lack of long-range weapon systems. The air force would therefore make a general exception to the rule that aircraft should not be assigned to directly support the ground forces. In practice, this would mean using ground attack planes in close air support tasks such as neutralization of the beach defences, help for assault troops involved in close-range fighting for the bridgehead, and transport support by dropping or carrying supplies to the bridgehead.²⁷

If the landings were to take place outside the effective range of Royal Air Force bases as they partially did in 1956, the assault carrier groups would assume a more important role. The principles involved in employing carrier-borne aircraft were not radically different from those for land-based units. The concentration of air effort was the governing principle for employing carrier-borne aircraft as well. The combined force of all aircraft carriers belonging to the assault group was to be used simultaneously. However, the reason for this mainly stemmed from maritime requirements such as the protection of the carrier group, which required complex manoeuvres by the destroyers in the anti-submarine screen.²⁸

In an ideal scenario, a relatively vulnerable carrier group force would be used only after the enemy air force was depleted by a strategic air offensive. Otherwise, a Carrier Group Commander would be compelled to allocation a large proportion of his air effort to protecting the carrier force from the hostile air force. When this factor was combined with unpredictable weather and the requirement to replenish supplies approximately every five days, the carrier air effort could be significantly reduced.²⁹

The employment of Fleet Air Arm squadrons could not compensate for the

²⁶ Interdiction was defined as "the disruption of the enemy's communication system with the object of restricting his powers of movement", *A Precise of Lectures* by the Land/Air Warfare Training Team, Northern Army Group, 2nd Allied Tactical Air Force (Stationary Service RAOC, BAOR, 1953), p. 2.

²⁷ *Amphibious Warfare Handbook No.8 A, The Employment of Air Forces in Amphibious Warfare*, 1952. (Admiralty No. CB4555, 1952), pp. 2-4.

²⁸ *Amphibious Warfare Handbook No.8 A, The Employment of Air Forces in Amphibious Warfare*, pp. 8-9.

²⁹ *Amphibious Warfare Handbook No.8 A, The Employment of Air Forces in Amphibious Warfare*, pp. 10-11.

demand to establish Royal Air Force air bases in the bridgehead as soon as the general situation permitted because direct support from the carriers for a prolonged period was not economic use of force. The power of carriers lay in their manoeuvrability. As a result, the responsibility for supporting any subsequent land operations was generally allocated to the Royal Air Force squadrons. The use of air power in a ground campaign did not alter the basic requirements for an air offensive. The strategic bombing campaign would still be directed against targets that yielded long-term effects, as described earlier in this chapter. The use of bombers for direct support was considered an inappropriate diversion of resources.

The deployment of lighter forces, such as ground attack planes, was also to be directed against movement. This kind of operation, called interdiction as mentioned earlier, would follow the principle of not deploying aircraft for tasks that could be performed by artillery or armour. The firepower of aircraft should be directed at targets further from the frontline to cause long-term damage.³⁰ The principal of concentration of effort against movement was again based on empirical experience. During the war, the British had used their ground attack planes for two types of missions that were still carried out at the time of the Suez Crisis: close air support and armed reconnaissance. Both types of missions were conducted during Operation Musketeer.

Armed reconnaissance was a form of interdiction. Planes were given a specific area well behind enemy lines where they were to attack any target of tactical value.³¹ Close air support, in turn, was defined as “support given to the ground forces by air action against enemy troops actually engaged in the land battle.”³² The closest form of close air support was called CabRank, which was a patrol of ground attack planes kept in the air and ready for use against targets specified by ground controllers.³³

Experience in the Second World War had proven that armed reconnaissance was more effective than close air support when considering the number of enemy casualties caused. This experience had also shown the value of artillery. If artillery was available, it was usually more effective in destroying enemy positions than close air support because the main weapon systems of the British ground attack planes were rather unsophisticated unguided rockets or bombs. However, ground attack planes in a close air support role often had a better effect on morale than artillery.³⁴

³⁰ *Royal Air Force War Manual, Part 1, Operations*, p. 55.

³¹ Ian Gooderson, *Air Power at the Battlefront. Allied Close Air Support in Europe 1943-1945*, (London: Frank Cass, 1998), pp. 198-199.

³² KA (The National Archives of Finland), T 26890/Hla 4, RAC Centre, Tactical Wing, 1956, Tactical Note “Air Support”.

³³ *Notes from the Theatres of War, No. 20: Italy 1943/1944* (War Office, 1945), pp. 68-69 and Ian Gooderson, *Air Power at the Battlefront*, pp. XV and 2-3.

³⁴ Gooderson, pp. 192-193.

A Safe and Familiar Approach – First Plans

Egyptian nationalisation of the Suez Canal on 26 July 1956 took the British by surprise. Although the British had anticipated this option as a possibility in Limited War scenarios produced by the Joint Planning Staff only two weeks before the actual nationalisation took place, the nationalisation was a genuine *coup de main* by Nasser. The Joint Planning Staff and subsequently the Chiefs of Staff Committee concluded that some 20 squadrons of Royal Air Force would be required to neutralise the Egyptian Air Force and to support subsequent land operations including an airborne operation. A large naval task force including three aircraft carriers and all serviceable amphibious vessels would be necessary implement a maritime blockade, to destroy the Egyptian Navy and to conduct seaborne landings of sufficient size at Port Said. The army would have to concentrate three divisions, a large pool of supporting units and the sole parachute brigade group.³⁵

The Joint Planning Staff produced the first outline plan within days of the nationalisation. According to the plan the Royal Air Force was to execute two of its contingency plans to concentrate several light bomber squadrons and air defence squadrons to Cyprus. The Mediterranean Fleet was to be reinforced by two carriers and a large army element of several formations was to be assembled. Six weeks were needed to make the necessary preparations for the attack.³⁶

The Joint Planning Staff also briefly considered the feasibility of using air power only to suppress the Egyptian defences and to unseat the Egyptian Government as tasked by the Chiefs of Staff Committee.³⁷ However, according the Joint Planning Staff, “there would be a danger of not achieving the aim by bombing alone and of a hiatus occurring therefore other forces could be brought to bear against Egypt”. The plan included three phases:

1. Preliminary move of the attacking forces within striking distance of Egypt, mainly Cyprus, Malta and Libya
2. Maritime blockade and air action
3. Assault on the northern end of the Suez Canal (Port Said) and a diversionary threat against Alexandria.³⁸

The first plan did not have time to mature from a concept into a serious plan before it was rejected by the Task Force Commanders. They considered that an amphibious landing at Port Said, which is at northern entrance of the Canal, was not tactically feasible. Instead, the force was to land at Alexandria which had a much better port than Port Said. As a result, the land force –equivalent of four divisions – could be

³⁵ NA DEFE 6/36, JP (56) 125, 18 July 1956, “Forces for Limited War”.

³⁶ NA DEFE 4/89, JP (56), 29 July 1956 “Availability of Forces for Action Against Egypt”.

³⁷ NA DEFE 4/89, COS (56) 74th Meeting, 30 July 1956.

³⁸ NA DEFE 6/37, JP (56) 31 July 1956, “Action Against Egypt, Outline Plan”.

concentrated along the Desert Road leading to Cairo relatively quickly. A good port would be needed to carry out the vast maintenance plan for some 77,000 men and 11,000 vehicles.³⁹ The political advantage, of course, was that Alexandria offered an option to strike directly into the seat of Nasser's power. According to the British calculations, the Egyptians would defend their capital. By luring them into fighting a repetition of the battle of the Pyramids, the main elements of the Egyptian army could be annihilated.

The concept was refined into a plan by the end of August – the preliminary D-Day being in mid-September. The plan – that can be characterised as safe and traditional, yet in full harmony with existing amphibious doctrine – included five subsequent phases: movements, rapid neutralisation of the Egyptian Air Force, amphibious and airborne assaults to gain a bridgehead, consolidation of the bridgehead and finally operations towards Cairo.⁴⁰

The British were acquainted with the Egyptian base system – they were of course, constructed earlier by the British. The Egyptian Air Force was estimated to consist of some 300 combat planes including some 80 Mig-15 fighters and 45 IL-28 light bombers, most others being more or less obsolete types.⁴¹ According to intelligence estimates, the Egyptians were still in a transition phase with their new equipment and not able to operate them efficiently until the end of 1956. Even after that operations would be hampered because of a primitive ground control system.⁴²

Air Marshall Barnett estimated that it would take between 2-3 days to neutralise the Egyptian Air Force. Although the idea of a single surprise air attack just prior to the landings was considered amongst some planners, it was found not practicable. There were not enough planes to destroy the Egyptian Air Force on the ground and to execute and support airborne landings simultaneously.⁴³ Due to the lack of an original overall air plan for the Alexandria option, the details of consequent air operations can only be guessed. Presumably, they were directed to support the assault forces, to isolate the battle area and to destroy Egyptian military targets in depth in accordance with the doctrine.

For the active operations, the Allied order of battle included over 500 aircraft. The number of planes fluctuated during the tedious planning process but the

³⁹ NA WO 32/16320, War Office, QM (3), 17 August 1956, "Maintenance Plan for Operation Musketeer" and SHD 8 S 274, Etat-Major des Forces Armées, 1618/EMFA/3. B.T.M.A/12 Avril 1957, "Les Transports de L'opération 700".

⁴⁰ NA WO 288/91, HQ Allied Task Force, 29 August 1956, "Allied Land Force Operation Order No 1".

⁴¹ NA AIR 20/9554, HQ Air Task Force, ATF/TS.175/56, October 1956, "Overall Air Plan (Winter) for Operation Musketeer".

⁴² NA CAB 158/24, JIC (56) 33, 28 February 1956, "Egyptian Effectiveness in the Use of Soviet Aircraft".

⁴³ Imperial War Museum, Department of Books and Documents, Papers of Air Chief Marshall Sir Denis Barnett (96/10/1), Barnett to the COS-Committee, 9 August 1956 and NA AIR 20/9961, Squadron Leader Penred to Senior Air Staff Officer, AHQL 612/TS/Plans, 17 August 1956.

average amount was some 520 aircraft. The Royal Air Force, especially the Bomber Command, was to play an important role in the plan. Three squadrons of the state of the art Valiant medium bombers along with some 10 squadrons of Canberra light bombers were to be deployed. This presented a major proportion of medium and light bombers in the Bomber Command's order of battle.⁴⁴

FORCE	TYPE	BASE	NUMBER
BOMBER	Valiant (UK)	Malta	24
	Canberra B.2 (UK)	Cyprus	40
	Canberra B.6 (UK)	Malta	32
	Canberra Markers (UK)	Cyprus	20
RECON.	Canberra P.R.7 (UK)	Cyprus	7
	Meteor F.R.9 (UK)	Malta	16
	R.F. 84.F (Fr)	Cyprus	9
GROUND ATTACK	Venom 4 (UK)	Cyprus	48
	F. 84 F (Fr)	Cyprus	36
	Wyvern (UK)	Carriers	9
	Corsair (Fr)	Carriers	32
	Sea Venom (UK)	Carriers	17
	Sea Hawk (UK)	Carriers	50
MARITIME	Shackleton (UK)	Malta	16
	Avenger (Fr)	Carriers	12
	Skyraider (UK)	Carriers	8
TRANSPORT	Hastings (UK)	Cyprus	12
	Valetta (UK)	Cyprus	20
	Noratlant (Fr)	Cyprus	40
	Helicopters (UK)	Carriers	18
	Pembroke (voice) (UK)	Cyprus	1
	Avenger (Fr)	Carriers	2
AIR DEFENCE	Hunter 5 (UK)	Cyprus	25
	Meteor NF. 13 (UK)	Cyprus	8
	Hunter 4 (UK)	Malta	4

Table 1: The Composition of the Allied Air Forces⁴⁵

⁴⁴ NA AIR 8/2090, Royal Air Force Order of Battle as 1 December 1956 and NA 2081, ACAS (ops), 21 November 1956, "Deployment of Bomber Forces to the Middle East".

⁴⁵ NA AIR 20/9554, HQ Air Task Force, ATF/TS.175/56, October 1956, "Overall Air Plan (Winter) for Operation Musketeer". The table does not include aircraft of the French Air Force that were deployed at Israel for air defence and air transport.

Victory through Air – Musketeer Revise

The resolute attitude of Prime Minister Eden and his *ad hoc* war cabinet, the Egypt Committee, deteriorate slowly during late August. The public opinion, American scepticism and unavoidable involvement of the United Nations obscured the political objectives. This, in turn, reflected to military planning. The D-Day was postponed and various studies on the consequences of the postponement of operations were produced.⁴⁶

The operational plans were also scrutinised in the course of time. The plan to land at Alexandria was not without problems. The forecast of heavy civilian casualties caused by the aerial and naval bombardment and apparent inflexibility – almost a three weeks warning time was needed for the movements – impaired political expediencies. This was fully realised by General Charles Keightley, the Commander-in-Chief of the operation, who detested the Alexandria plan from the beginning. As a result, he introduced a novel idea, Musketeer Revise, probably encouraged by the Minister of Defence, Walter Moncton as early as on 17 August. According to Keightley's top secret note to Chief Air Marshall Dickson, the Chairman of the COS-committee, "the present plan should be modified by carrying out a prolonged and intensive air attack in the hope of making Nasser surrender without an assault." The Egyptian armed forces and oil were the core of the new concept.⁴⁷

The new concept was temporarily withdrawn due to the resistance of the Task Force Commanders, responsible for carrying out the tactical plans, but general Keightley had an opportunity to re-introduce the concept in the beginning of September when the D-day was postponed once more. Keightley, perhaps partially realising the new world order better than Task Force Commanders characterised the consequences of the bombardment of Alexandria as causing "damage of civilian town leaving a scar for many years". The most appealing quality of the new concept, was, however its evident feasibility as it "can be put on a short notice, and it is not affected by postponement".⁴⁸

The new concept, later to be developed in to a plan, was to include three phases:

1. Neutralisation of the Egyptian Air Force.
2. An air offensive combined with a psychological campaign aimed at destroying the Egyptian will to fight.
3. Occupation of the Canal Zone.⁴⁹

⁴⁶ NA DEFE 6/37, JP (56) 147, 26 August 1956, "Operation Musketeer – Implications of Postponement".

⁴⁷ NA DEFE 11/137, Keightley to Dickson, 19 August 1956.

⁴⁸ NA DEFE 11/138, An undated note (either 4 or 5 September) by General Keightley on Operation Musketeer.

⁴⁹ NA WO 288/91, Headquarters Allied Land Forces, 11 Oct 1956, "Operation Musketeer – the Winter Plan",

The new concept was met with mixed feelings and it divided the opinion of planners at all levels. The criticism, which continued until the execution of the operations centred on three factors:

1. How to reliably predict the collapse of the Egyptian will and moral? Would the Egyptian people rise against Nasser?
2. How long should the Allies continue the bombing offensive to achieve the breaking point?
3. Would the British and French governments withstand international pressure to cease hostilities during a prolonged air offensive?

In spite of the criticism, the concept was accepted and finally developed into a plan. It was supported at least by the Chairman of the COS-committee, Chief Air Marshall William Dickson; the Chief of Air Staff, Air Marshall Dermont Boyle and by the Minister of Defence, Walter Monckton, who had a sceptical view on the use of force throughout the autumn.⁵⁰ According to Rhodes James, the change of plan was an unpleasant surprise for Prime Minister Anthony Eden.⁵¹ He was not convinced of the new concept even after a private conference with General Keightley. Yet, he chose not to oppose his senior military advisers and the new concept was accepted by the Egypt Committee on 10 September.⁵²

The air offensive was based on an assumption that the Egyptian will would to collapse. But how to produce a reliable assessment of their morale? The British – nor the French – did not have an adequate answer to this fundamental question. The views of the service intelligence agencies were not unanimous, though the Egyptians were in general thought to be lower category opponents in the face of the modern war machine.⁵³ The Joint Intelligence Committee⁵⁴, responsible for the co-ordination of the British intelligence community, produced a surprisingly spare amount of documents during the crisis and it is not known whether the reports of the British ambassador suggesting heavy resistance were delivered to the Task Force Commanders.⁵⁵

The overall intelligence arrangements were subjected to criticism after the crisis was over. The Task Force Commanders were unsatisfied with the flow of

⁵⁰ On Monckton's views on the use of force, see, e.g., Selwyn Lloyd, *Suez 1956, A Personal Account* (London: Book Club Associates, 1978) p. 133 and Anthony Nutting, *No End of A Lesson*, (London: Constable & Company Ltd., 1967), pp. 106-107.

⁵¹ James Rhodes, Anthony Eden (London: Weidenfeld and Nicholson, 1986), pp. 508-509.

⁵² Jonathan Pearson, *Sir Anthony Eden and the Suez Crisis. Reluctant Gamble* (Basingstoke: Palgrave, 2003), pp. 68-69.

⁵³ NA ADM 116/6137, The Director of Naval Intelligence to the First Sea Lord, 25 September 1956 and WO 288/98, G(Int) HQ 2 Corps, 19 August 1956, "An Estimation of Probable Egyptian Reactions to Present Threat".

⁵⁴ For the composition and tasks of the committee, see NA CAB 158/39, JIC (57) 123, 29 November 1957.

⁵⁵ NA AIR 20/9229, JIC (ME) "Bi-Weekly Intelligence Review No 10", 27 September 1956.

information.⁵⁶ The far end of the criticism was provided by Douglas Dodds-Parker, the Chairman of the Advisory Committee on Psychological Warfare. According to his testimony, the committee was not able to produce anything useful due to the lack of intelligence.⁵⁷ The evidence points to secrecy taken to the extremes which hampered both political and military preparations. The defection of Guy Burgess and Donald McLean that shook the whole British intelligence community was still in fresh memory. According to Scott Lucas, perhaps the most renowned researcher of the Suez intelligence affairs, the situation was even more grim: MI6 was not under adequate control of the Foreign Office and pursued its own policies. The claim by Lucas might be exaggerated even though ever since the Suez Crisis we have seen several examples of the manipulation of information to serve one's political ambitions.

Targeting

The over-optimistic concept of winning the war through bombing begun to deteriorate as soon as it was accepted. The Task Force Commanders were not convinced, not even the Air Task Force Commander, of the probable outcome. As a result, the amphibious assault was re-attached to the plan. It included two options that were dependent on the results of air offensive. If the bombing proved to break the Egyptian resistance, the Canal Zone was to be occupied by rapidly deployable airborne forces and an occupation force taking advantage of fast sealift. If the Egyptians, however, continued fighting in spite of severe bombing, a traditional amphibious assault would be launched at Port Said.⁵⁸

The air plan was divided into three phases which were in harmony with the overall concept:

1. Neutralisation of the Egyptian Air Force.
2. "Attack of objectives which – in combination of psychological warfare – will lead to the collapse of the Egyptian will to resist".
3. Support of land and naval operations leading to the occupation of the Canal Zone.⁵⁹

The neutralisation of the Egyptian Air Force was to take minimum time – two days. Airfields housing IL-28 light bombers were to be primary targets due to their

⁵⁶ TNA ADM 116/6209, "Naval Report on Operations Musketeer", 15 February 1956 and WO 288/78, "2 Corps Commander's Report", Annex 1, 1 February 1956.

⁵⁷ Liddell-Hart Centre for Military Archives, Suez Oral History Project, SUEZOHP 6, interview of Sir Douglas Dodds-Parker.

⁵⁸ NA ADM 205/132, "Operation Musketeer Revise – Appreciation and Outline Plan" by the Task Force Commanders, 14 September 1956.

⁵⁹ TNA AIR 24/2426, Air Task Force/TS 287/56, 27 November 1956, "Report on Operation Musketeer".

potential to attack three congested Allied airfields at Cyprus. Operations of the Bomber Command squadrons, aimed at rendering the airfields unusable, would take place only during the night. After that ground attack planes attacking at the first light would destroy the enemy planes on the ground. The ground attack planes on the carriers would operate at maximum rates to take advantage of their relatively short distance from the targets and limited endurance of the Carrier Group.⁶⁰

Phase two was the core of the air offensive. The planners realised that “No precise estimate can be given as to the length of this phase” but preparations were made for 30 days.⁶¹ The plan was based on the destruction of oil facilities and communications. The Joint Intelligence Bureau, an agency specialised on economic intelligence, produced a study on the Egyptian oil facilities and transportation system. According to the study, the destruction of the bulk capacity would leave the Egyptians with oil only for a few weeks. Attacks on the distribution system would only enhance the effect.⁶² An earlier study produced in the beginning of August, indicated that an oil denial operation was feasible if the storage system was subjected to low level attacks by both bombers and ground attack planes.⁶³

The infrastructure of communications was well known to the British. It was based on the railway network. According to another study by the Joint Intelligence Bureau, air attacks against railways, especially against bridges, would paralyse most of the domestic cargo as well as passenger traffic.⁶⁴

The targeting was co-ordinated by a special Targets Committee chaired by General Keightley himself. By mid-September the amount of bridges in the target lists had fallen from twenty to eight. Effort to prevent the Egyptians movement was, however, to be boosted by a vigorous interdiction programme. The sites of bridges were to be subjected to strafing by ground attack planes and armed reconnaissance along major roads would accomplish the interdictions.⁶⁵ The amount of transport targets decreased and by October only two bridges remained in the target lists – eventually both of them were spared. There are at least three reasons for this. Likely, the long-term damage was considered to be too extensive. Secondly, the Anglo-French land forces advancing along the Canal could face problems if the damage to the bridges was too extensive. The third reason is practical. At the time before guided munitions, bridges were extremely hard targets to destroy. According to an estimate, the destruction of 11 bridges would take some 500 sorties by Canberra light bombers with 3-ton bomb loads if the bombing error was some 100 yards. Bombing errors

⁶⁰ TNA AIR 24/2426, Air Task Force/TS 287/56, 27 November 1956, “Report on Operation Musketeer”.

⁶¹ *Ibid.*

⁶² NA WO 288/162, JIB, 8 September 1956, “Vulnerability of Egyptian Oil”.

⁶³ NA 20/10601, “The Feasibility of Disrupting Egypt’s Oil Supplies by Bombing”, A note by the Air Ministry, 3 August 1956.

⁶⁴ NA WO 288/162, JIB, 8 September 1956, “Vulnerability of Egyptian Transportation System”.

⁶⁵ NA AIR 20/9583, SD 12, 24 September 1956, “Operation Musketeer: Outline of Air Plan”.

raising to 200 meters, due to the flak, for example, would multiply the amount of sorties by four.⁶⁶

Nasser realised the importance of radio as a means to deliver his message to the masses. The propaganda of Radio Cairo had been a nuisance for the British for some time. As a result, Radio Cairo and its substations were among primary targets for the Allied bomber effort.

The final phase of air operations was designed to support the landing and occupation of the Canal Zone. Majority of the efforts by ground attack planes would be directed to isolate the battle area, to suppress AA-defences and to provide direct support to the landing force, including an airborne landing in co-ordination with the Joint Fire Support Plan.⁶⁷

The targeting list produced by the Targeting Committee in mid-October is revealing. The amount of transportation targets had fallen to two, as mentioned previously. As a result, oil targets establish the core of the campaign designed to break the will of the Egyptians.⁶⁸

DAY	Target Category	
D – D+1	Egyptian Airfields Radio Cairo Block ships (2) Egyptian Navy	
D+2	Egyptian Airfields Army Concentrations (3) Radio Cairo (3) Oil targets (17) Transport targets (2)	If required
D+3	Egyptian Airfields Military targets (4) Oil targets (26) Coastal defences	If required

Table 2: Target categories, 11 October 1956

⁶⁶ NA AIR 20 /10217, An Appreciation by the Bomber Command, 11 October 1956.

⁶⁷ TNA AIR 24/2426, Air Task Force/TS 287/56, 27 November 1956, “Report on Operation Musket-
eer”.

⁶⁸ NA AIR 20/10215, Minutes of the 5th Meeting of the Targets Committee, 11 October 1956.

The Air Campaign that did not Take Place

The formal decision to launch Operation Musketeer took place on 25 October 1956. The decision to use force, had, however, been decided earlier – probably on 14 October when a high level French delegation paid a visit to Prime Minister Eden. Things began to happen rapidly after the visit. On 18 October the Air Ministry ordered execution of Operation Challenger, the re-deployment of Bomber Command squadrons to the Middle East (Malta and Cyprus).⁶⁹ On the next day, the French commenced the loading of transport vessels in Algiers and Marseille and the French fighter squadrons flew from Metropolitan France to Cyprus on 22 October.⁷⁰

The Royal Air Force finished the deployment of its bomber squadrons to Malta and Cyprus by 30 October.⁷¹ The first phase of air operations began on the evening of 31 October and continued for two days. The results of night bombing were ineffective. According to the report by the Operational Research Branch of the Bomber Command, there was a lot to improve especially in the high level night bombing techniques: “The bombing accuracy of the Valiant was about 1,000 yards, Malta Canberras 800 yards and the Cyprus Canberras 500 yards.” The low-lever attacks in daylight, however, annihilated the bulk of the Egyptian Air Force during the first two days as planned.⁷²

The next phase of the plan was cancelled before it was put into a practice. The Egypt Committee decided against the destruction of the Egyptian oil installations because repercussions in other Arab countries could damage the United Kingdom’s own oil interests.⁷³ According to the instructions, the bombing campaign should concentrate only on military targets.⁷⁴

The hectic timetable and the decision to abandon the destruction of the Egyptian oil installations dropped the bottom from the psychological operations. Not even Radio Cairo was silenced at the first phase of the operation despite General Keightley having placed this radio station on the list of targets that were to be attacked first.⁷⁵ The attack took place only on 2 November, but a raid by twenty Canberra-bombers

⁶⁹ AIR 20/10203 Air Ministry to Bomber Command, 2445/ACAS (ops)/TS/Oct 18 1956, “Operation Challenger”.

⁷⁰ SHD 8 S 274, Etat-Major des Forces Armées, 1618/EMFA/3. B.T.M.A/12 Avril 1957, “Les Transports de L’operation 700 » and Imperial War Museum, 96/10/1, papers of Air Chief Marshal Denis Barnett, Groupement Mixte No 1, 320/GM1/OPS/TS/27 Novembre 1956, “Rapport du General De Brigade Aerienne Brohon sur la Creation, L’ installation et L’activite du Groupement Mixte No 1 a Chypre”.

⁷¹ AIR 8/2090, A note by Wing Commander Hughes, 12 Nov 1956, “Deployment of Bomber Forces to the Middle East”.

⁷² NA AIR 14/4441, Bomber Command, Operational Research Branch, Report number 355: “Bombing and Ground Attack Operations during Operation Musketeer” and AIR 8/2111, Air Ministry, D.D. (Ops), TS 301/III, 17 February 1957, “Operation Musketeer”.

⁷³ NA CAB 134/1216, EC (56) 37th Meeting, 1 November 1956.

⁷⁴ NA AIR 8/1940, COSKEY 20, 2 November 1956.

⁷⁵ Papers of General Sir Charles Keightley, Transcripts: rear link communications Episkopi-London.

failed to destroy it. Further missions by ground attack planes were not carried out owing to the possibility of causing civilian casualties and the leaflet missions were cancelled as well.⁷⁶

Due to the abandonment of the initial timetable, there was no concentrated air effort against the Egyptian Army installations. They were subjected to bombing from 2 November. Large targets, such as Huckstep Camp and Almaza Barracks, were subjected to aerial attacks. In addition, the air campaign included an extensive number of battlefield interdiction sorties aimed at preventing reinforcements from reaching Port Said from the morning of 3 November.⁷⁷

On 4 November, the air effort was redirected because the landing sequence had been altered. According to the Air Task Force's overall plan, most of the attack sorties were directed against the defences of Port Said.⁷⁸ Most of the sorties near Port Said were flown by naval aircraft that strafed the coastal and anti-aircraft positions and other static defences throughout the day. The land-based ground attack planes were still used for interdiction.⁷⁹ The bomber force, the role of which diminished after the Egyptian Air Force was destroyed, made to raids against Huckstep Barracks and as a diversion against coastal defences near Alexandria.⁸⁰

PERIOD	PROPORTION OF TOTAL EFFORT				
	Airfields	Barracks	Armed Reconnaissance	Defences	Others
Day 1	96%	-	-	-	4%
Day 2	68%	25%	-	-	7%
Day 3	34%	16%	33%	-	17%
Day 4	22%	8%	8%	39%	22%
Day 5	19%	15%	15%	47%	10%
Day 6	11%	-	25%	60%	4%

Table 3: Allocation of air effort against different target categories

⁷⁶ See Brian Cull with David Nicolle and Shlomo Aloni, *Wings Over Suez*, pp. 237-239. For a description of the raid from the time, see NA AIR 20/9967, Bomber Wing Cyprus, "Report on Operation Musketeer, annex D", 30 December 1956.

⁷⁷ NA AIR 14/4030, Admiralty, Department of Operational Research, August 1957, Report No.34: "Carrier Operations in Support of Operation Musketeer" and Brian Cull with David Nicolle and Shlomo Aloni, *Wings Over Suez*, pp. 248-262.

⁷⁸ NA AIR 20/10206, Air Task Force Headquarters, 3 November 1956, "Operation Telescope, Overall Air Plan".

⁷⁹ ADM 116/6104, Office of the Flag Officer Aircraft Carriers, 14 December 1956, "Operation Musketeer – Reports of Proceedings – Flag Officer Aircraft Carriers", pp. 23-24.

⁸⁰ NA AIR 14/4441, Bomber Command, Operational Research Branch, Report number 355: "Bombing and Ground Attack Operations during Operation Musketeer".

Due to international pressure to bring the hostilities to a quick end, the landings at Port Said were decided to be carried out on an accelerated timetable. The main assault force was not available as it was still sailing in several convoys from Malta. It was decided to push up the parachute landings. They were to take place on the morning of 5 November, about 24 hours before the amphibious assault was to take place.⁸¹ The parachute landings took place in accordance with the plans. The emphasis of the air campaign shifted to from indirect support to direct support of the land campaign. The naval aircraft took the main burden for this phase by carrying out most of the several hundred sorties against local defences and by providing successful CabRank for the parachute force and the seaborne assault force landing on 6 November.⁸² It was not the lack of air support, but the lack of political support – feared by the Joint Planning Staff from the beginning – that halted the campaign during the same day the successful seaborne attack was carried out.

Conclusions

The concept, and subsequent plan, of destroying the Egyptian will to fight through air action creates mixed feelings. The targeting of the air offensive was done in accordance with the experiences of the Second World War. Communications and oil were found to be what would today be called “centres of gravity”. It is safe to presume that the destruction of the communications and oil would have caused severe troubles for the Egyptians. But were they the real centre of gravity? Would the mechanical destruction of means to move cause the collapse of the entire Egyptian morale? Were the fundamentals of presuming a rapid collapse of the Egyptian resistance sound? We shall never know the exact answer because the prolonged air campaign was not carried out in accordance with the original concept. Yet, the British were very well aware of the facts because of their experiences during the Second World War. The German will was never crushed by aerial bombardment and neither was the British moral destroyed during the Blitz. Was the poor performance of the Egyptian Armed Forces in the 1948 war against Israel one of the facts that lead to underestimating the Egyptians? Perhaps so, but there were also voices stressing the unity of the Egyptian people. Apparently – as this has taken place several times since the Suez Crisis – it is very easy to underestimate the morale of your opponent, especially if he does not possess your technology or way of life.

It is also apparent, that the British overestimated the capabilities of the Bomber Command. Bombing techniques as well as equipment did not enable the precision bombing required to destroy the targets, especially in the darkness. The need to

⁸¹ NA WO 288/91, Headquarters Allied Task Force, 4 November 1956, “Allied Land Force Operation Instruction No 7”.

⁸² NA AIR 14/4441, Bomber Command, Operational Research Branch, Report number 355: “Bombing and Ground Attack Operations during Operation Musketeer”.

minimise civilian casualties and the rather small amount of aircraft put the Bomber Command into a totally different situation than what it had faced during the massive areal bombings of the Second World War. On the other hand, the bomber operations, as well as the overall nature of the warfare, were in a transition phase. The role of nuclear weapons and the future of conventional bomber operations were in the melting pot both technically and doctrinally. Air Marshall Slessor, the Chief of Air Staff at the time when the *Royal Air Force War Manual* was produced, warned in his introductory note that the new technology, including nuclear weapons “may radically change the face of war in a way that no one can now forecast with any assurance”.

The failure of bombing operations was rectified by a very traditional employment of tactical air forces. In spite of the unsuccessful bomber employment, the Egyptian Air Force was annihilated in two days, the parachute landing was carried out and supported successfully and no large-scale Egyptian reinforcement arrived at Port Said to prevent or even hamper the landings. But in the end it did not matter. Unsound strategy can seldom be mended by sound tactics.

PATRICK FACON*

L'Armée de l'Air française face aux armistices de juin 1940

La croisée des chemins

« **A**près plus d'un mois de bataille ininterrompue, contre un adversaire disposant de moyens très supérieurs aux nôtres, vous avez, en toutes circonstances, fait preuve des plus belles qualités militaires, accompli héroïquement votre devoir. Par votre courage, votre dévouement, votre esprit de sacrifice, votre foi dans les destinées de la Patrie, l'armée de l'Air est devenue le symbole des plus belles qualités de l'âme française. Votre effort n'a pas été vain. Les pertes considérables que vous avez infligées à l'ennemi l'ont obligé à engager à fond toutes ses forces aériennes; vos interventions dans la lutte ont souvent ralenti ses colonnes et brisé leur élan. Je suis fier d'être à votre tête. Sans cesse en contact avec vous, partageant vos joies et vos peines de combattants, je sais que je puis entièrement compter sur vous. Je vous demande de rester pour tous un exemple. Souvenez-vous que vous n'avez pas été vaincus ». ¹ C'est en ces termes que, à la fin du mois de juin 1940, son commandant en chef, le général Vuillemin, s'adresse à l'armée de l'Air pour saluer le rôle qu'elle a joué dans l'épuisante et dure bataille qui vient de s'achever.

Le bilan d'une bataille

À la date du 25 juin 1940, l'armée de l'Air compte en effet 541 tués, 364 blessés et 105 disparus, soit 40 % de ses officiers et 20 % de ses sous-officiers et hommes de troupe navigants. Les unités de chasse engagées au combat ont subi une véritable saignée. Pour un effectif moyen d'une vingtaine de pilotes, les groupes de cette spécialité perdent, pour nombre d'entre eux, presque tout leur personnel : 6 tués et 11 blessés au I/1, 8 tués et 9 blessés au II/1, 5 tués, 13 blessés et 3 prisonniers au III/2, 11 tués, 6 blessés et 2 prisonniers au I/3, 10 tués, 8 blessés et 2 prisonniers au III/3, 10 tués, 14 blessés et 1 prisonnier au II/4, 12 tués, 13 blessés et 3 prisonniers au I/6, 9 tués, 23 blessés et 1 prisonnier au III/7, 8 tués et 6 blessés au I/8, 9 tués, 10 blessés et 6 prisonniers à la 2/13. Bon nombre de ces blessés, plus ou moins remis, regagnent même leurs formations afin d'y reprendre la lutte avant l'arrêt des hostilités. Le bombardement n'est guère mieux loti. Un rapport de fin de campagne consigne : « Dans l'ensemble, nos formations de bombardement furent très éprouvées : certai-

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¹ Ordre général du général Vuillemin aux officiers, sous-officiers et soldats des forces aériennes, 16 juin 1940, SHD/DAA 1D2.

nes perdirent plus de la moitié de leurs effectifs, dans l'impossibilité où se trouvait le commandement (...) d'assurer une protection suffisante aux expéditions ».²

Les pertes en avions sont elles aussi très importantes. Si les statistiques varient d'une source à l'autre et qu'il n'est guère possible d'en évaluer précisément le chiffre, entre 850 et 900 appareils ont été détruits, toutes causes confondues. La ventilation des dommages subis par l'aviation française est révélatrice d'un certain nombre de particularités de la lutte menée en mai-juin. Près de 400 appareils (la moitié environ du total) ont été détruits au combat, sous les coups des chasseurs et des mitrailleurs des bombardiers ennemis ou encore d'une Flak omniprésente jusqu'au bout, sans compter 240 autres dans des accidents ; mais au moins 230 (plus d'un quart) ont été écrasés sur leurs terrains mêmes par les chasseurs et les bombardiers ennemis. Ce dernier chiffre rend bien compte de la pression extrême et constante qu'ont exercée les forces aériennes allemandes sur les aérodromes alliés. Si on compare les pertes subies en six semaines avec les effectifs déployés en métropole au commencement de la bataille (1 972), ce sont 45 % des appareils français qui disparaissent dans la grande tourmente de mai-juin 1940 – et près de 70 % si on ne prend en compte que les seuls avions disponibles (1 286).³

Les forces aériennes françaises ne se sont pas pour autant évaporées lorsque survient le cessez-le-feu du 25 juin. Les pertes qu'elles ont subies ont été en partie compensées par des appareils sortis d'usine, ou encore venus tout droit de l'entrepôt de Châteaudun ou bien pris en compte par les groupes de chasse ou de bombardement sur les terrains mêmes des aviateurs. A la fin des opérations, l'armée de l'Air compte 29 groupes de chasse, 33 groupes de bombardement et 15 groupes de reconnaissance, ce qui représente des moyens non négligeables dont une partie importante est stationnée en Afrique du Nord, où elle n'a rien à redouter de la part de l'adversaire, au moins dans l'immédiat. Mieux encore, elle dispose d'imposantes réserves encore jamais utilisées. En juillet 1940, le général Redempt, directeur des services du matériel, comptabilise 4 238 avions dont 1 739 en ligne, sans compter ceux que l'entrepôt de Châteaudun a dépêchés en Algérie, au Maroc et en Tunisie. A la même époque, les éléments de première ligne sous les ordres de Vuillemin disposent de 575 chasseurs modernes, 300 bombardiers, dont 250 modernes, et 200 appareils de renseignement. Deux mois plus tard, les Allemands et les Italiens recensent plus de 2 800 chasseurs, bombardiers et avions de tous types entreposés sous leur contrôle, en zone non occupée.

De tels chiffres relativisent à l'évidence la thèse d'une armée de l'Air qui aurait purement et simplement disparu dans la tourmente de ce printemps tragique. Ce n'est pas pour autant que l'aviation française forme un ensemble vraiment cohérent,

² Historique de l'aviation de bombardement pendant la campagne de 1940, s. d., SHD/DAA 3D498.

³ Voir, à ce propos, Patrick Facon, *L'armée de l'Air dans la tourmente, La bataille de France*, Paris, Economica, 1997 et, du même auteur, *Batailles dans le ciel de France, mai-juin 1940*, Saint-Malo, Editions Pascal Galodé, 2010.

capable d'être engagé sur le champ au combat. La cohésion opérationnelle s'est largement diluée, les liens tactiques sont presque inexistants et les centaines d'avions entreposés en Afrique du Nord n'ont ni la logistique, ni la maintenance, ni les réserves qui leur permettraient de durer en cas de reprise des hostilités. Hormis quelques ateliers industriels de l'Air ou centres de montage d'avions achetés aux Etats-Unis, cette partie de l'empire ne dispose d'aucune structure industrielle aéronautique. La situation de l'aviation de chasse illustre parfaitement cette problématique et fait de l'idée selon laquelle la guerre pouvait être poursuivie depuis l'autre rive de la Méditerranée une pure spéculation de l'esprit. Certes, les groupes de cette spécialité sont théoriquement capables de prendre part à des opérations contre le territoire italien ou d'assurer la couverture des territoires sur lesquels ils stationnent. « Mais, pratiquement, sur ces quatorze groupes, dix sont très éprouvés par les pertes en personnel et en matériel subies pendant la campagne de France, explique un rapport. (...) Les pilotes survivants ont besoin d'un long repos pour se remettre des fatigues surhumaines qui leur ont été imposées pendant ces six semaines. L'effectif pilote doit être complété, en particulier par le personnel encore en traitement dans les hôpitaux. Le matériel avion a besoin d'une révision très sérieuse des moteurs et des cellules : opérations longues pour lesquelles les groupes armés de Curtiss, de Dewoitine 520 et de Bloch 152 ne disposent à peu près que des seules ressources de leur échelon roulant... »⁴ Les formations aériennes qui ont franchi la Méditerranée pour gagner l'Afrique du Nord à partir du 17 juin 1940 ont dû laisser sur place leurs échelons roulants et perdre, de ce fait, une bonne partie de leur autonomie opérationnelle.

Le rapport des forces avec l'Italie, sur laquelle Vuillemin entend engager ses forces, dans le cadre d'une vaste offensive, jusque dans les dernières heures de la bataille, est d'autant plus défavorable que les éléments de la Royal Air Force déployés en Méditerranée disposent de moyens presque inexistants, de l'ordre de 400 appareils. La Regia Aeronautica, l'aviation indépendante, en aligne entre 2 500 et 3 000 dont plus de la moitié de première ligne (ses chasseurs sont quelque peu dépassés mais ses bombardiers sont modernes), tandis que la Regia Marina (l'aéronautique navale) ne constitue guère une menace.

La grande migration en Afrique du Nord

Dès le début de la bataille de France, Vuillemin n'a cessé de redouter l'ouverture d'un second front au sud-est. Face à l'adversaire potentiel que constitue l'Italie, le commandant en chef des forces aériennes est partisan d'une politique prudente et défensive. Il n'envisage de bombardements sur le territoire ennemi que dans le seul cas où les Italiens prenaient l'initiative d'attaques aériennes contre des objectifs militaires ou civils, en précisant que la riposte devant être proportionnée à l'agression. Si la Regia Aeronautica venait à bombarder des agglomérations, l'aviation française

⁴ Historique de l'aviation de chasse pendant la campagne de 1940, s. d., SHD/DAA 3D497.

répondrait par l'attaque d'objectifs de la même catégorie, mais aussi des ports utilisés comme bases navales et des usines situées en environnement urbain. « Aucune action de riposte contre les objectifs autres que les objectifs militaires, navals et les bases aériennes ne sera entreprise sans ordre formel du général commandant en chef des forces aériennes », fait savoir le commandant en chef des forces aériennes au commencement de juin 1940.⁵

Lorsque, le 10 juin, les Italiens prennent l'initiative des hostilités, le grand quartier général aérien interdit de prendre une quelconque attitude offensive contre les Italiens, tout en demandant au commandant des forces aériennes d'AFN et d'Orient-Méditerranée de se tenir prêts à déclencher « une riposte soit sur ses ordres, soit de leur propre chef en cas d'agression aérienne ». ⁶ Moins d'une semaine plus tard, la situation étant sans issue, Vuillemin décide d'agir pour sauver ce qui peut encore l'être. La concentration d'importants moyens aériens dans la partie méridionale du pays ne va pas sans poser de problèmes aigus. Ce sont ainsi des centaines d'avions, parfois 250 à 300 par terrain, impossibles à disperser, qui sont confinés sur un nombre d'aérodromes très réduit sur lesquels la Luftwaffe peut fondre à n'importe quel moment et entraîner un désastre sans précédent (Ussel, Avord, Rochefort, Ozon, Saint-Symphorien). Redoutant la désorganisation qui ne cesse de grandir et pourrait fort bien l'empêcher d'exercer à brève échéance son contrôle sur les unités aériennes, le commandant en chef des forces aériennes est également préoccupé par le destin tragique qui attendrait ces centaines d'appareils si une capitulation ou un armistice venait à les surprendre dans de telles circonstances. Aussi, animé par le souci fondamental de sauvegarder un capital précieux pour l'armée de l'Air, se résout-il à ordonner le passage en Afrique du Nord des avions qui se montreraient capables de franchir la Méditerranée. Le 16 juin, peu avant de quitter Châtelguyon et de gagner Agen, il signe une instruction qui prévoit le transfert en Algérie, au Maroc et en Tunisie de 16 groupes de chasse et de 18 groupes de bombardement, le presque totalité des moyens en appareils modernes. Dans le même temps, il informe le général Pennès, commandant les forces aériennes d'Afrique du Nord, d'avoir à préparer l'arrivée de ces formations. Les échelons roulants reçoivent pour instruction de gagner Bordeaux et Marseille afin d'y être embarqués. Des doutes ne s'en produisent pas moins dans les unités dont les avions disposent d'un rayon d'action insuffisant: « Nos pilotes, explique l'historique de l'aviation de chasse, surtout des unités armées de Morane-Saulnier et de Bloch 152, n'envisagent pas sans une appréhension justifiée l'éventualité d'une traversée de 900 km avec des appareils dont le rayon d'action n'excède pas 800 km. Devront-ils donc se résoudre à incendier ceux de leurs avions qui ne pourraient échapper à l'ennemi ? » ⁷ Le 18, le mouvement de repli vers le sud

⁵ Instruction particulière du général Vuillemin au commandant de la zone d'opérations aériennes Alpes, 16 mai 1940, SHD/DAA 1D2.

⁶ Ordre particulier du général commandant en chef les forces aériennes, 10 juin 1940, SHD/DAA 1D2.

⁷ Historique de l'aviation de chasse pendant la campagne de 1940, s. d., SHD/DAA 3D497.

s'étend à toutes les unités non indispensables à la poursuite de la bataille. Il concerne aussi de nombreux avions modernes jamais engagés sur le front, mais capables de voler, même s'ils n'ont pas d'armement ou doivent subir d'importantes opérations de transformation.

L'exode dans lequel s'engagent les formations aériennes ne va pas sans poser de difficultés : « La préparation de ce départ, analyse le chef d'un groupe de chasse, est laborieuse et réduite d'ailleurs, faute de moyens, à sa plus simple expression. Des réservoirs d'ailes supplémentaires sont fixés aux plans des avions. Il n'existe, pour préparer cette navigation risquée que des documents assez sommaires : cartes aéronautiques à très petite échelle, cartes d'indicateurs des chemins de fer ou même atlas des écoliers du village de Saint-Laurent-la-Salanque. Les pilotes s'inspirent de ces éléments pour établir, à leur usage personnel, les croquis rudimentaires où sont reportés tant bien que mal les caps successifs de navigation. Les décollages des terrains de la Salanque s'effectuent dans des conditions très difficiles : la piste est encombrée par une quantité considérable d'avions de toute provenance, dont beaucoup sont en panne ou détruits. Un Bloch 174 qui doit servir d'avion-guide à un détachement (...) entre en collision, en roulant au sol, avec un bombardier (...) et prend feu ».⁸ Au-dessus de la Méditerranée, le guidage est assuré par des MB.174, des DB-7 ou encore des Potez 63.11 : « Mais les conditions atmosphériques, au voisinage des côtes de France, dans un rayon de 200 km environ, sont mauvaises : brume, vent violent, ou même orages locaux avec grains de pluie et de grêle. Certaines patrouilles sont déportées vers l'ouest et n'atterrissent, en Afrique, qu'assez loin de leur destination prévue. Les derniers éléments ne traverseront la mer que le 22. Plusieurs pilotes sont contraints d'atterrir, en panne sèche, au voisinage immédiat de la côte. L'un d'eux même, dont l'avion a pris feu, se pose en mer, à 50 m du rivage... ».⁹

Dans l'intervalle, la nouvelle d'une demande d'armistice s'est répandue, provoquant les réactions les plus diverses ; mais elle est accueillie « d'une manière générale avec une stupeur mêlée d'indignation, explique un officier supérieur d'aviation. Si, en effet, notre aviation de chasse a été contrainte de replier de plus en plus vers le sud ses bases de départ, ses pilotes par contre n'ont pas cessé de remplir leurs missions dans toute la mesure où les conditions atmosphériques détestables le leur permettaient, de survoler le territoire occupé par les unités terrestres ennemies et de courir (...) sus aux formations de la Luftwaffe, si nombreuses qu'elles fussent, partout où ils les rencontraient. Le moral du personnel est mis à une épreuve d'autant plus rude qu'en cette période de désarroi généralisé, les rumeurs les plus fantaisistes et les plus alarmantes circulent, bientôt démenties par les faits ou le bon sens, mais aussitôt renaissantes... ».¹⁰ Si le transfert des forces vives de l'armée de l'Air en Afrique du Nord rassérène une partie des navigants, certains envisagent déjà

⁸ *Ibidem.*

⁹ *Ibidem.*

¹⁰ *Ibidem.*

de rejoindre les Britanniques afin de poursuivre la guerre à leurs côtés. D'autant que les négociations qui ont été engagées avec les Allemands brouillent les cartes. Si Vuillemin a fait passer près d'un millier d'avions de l'autre côté de la Méditerranée, c'est certainement pour empêcher leur destruction et leur capture, mais aussi avec l'intention bien arrêtée de poursuivre le combat. Le 17 juin, le commandant en chef des forces aériennes envisage en effet « une offensive brutale et puissante sur le sud de la péninsule italienne, la Sicile et la Libye, après que les forces de bombardement nécessaires auront été concentrées en Afrique du Nord, sous les ordres du général Bouscat ».¹¹ Quelques témoins, dont le commandant Stehlin, chef du groupe de chasse III/6, mettront en doute après la guerre une telle intention et accuseront le haut commandement aérien d'avoir menti aux pilotes et aux équipages afin d'éviter qu'ils ne gagnent Gibraltar ou Malte lors de la grande migration vers l'Afrique du Nord. Cet officier écrira : « Le général Vuillemin a-t-il réellement cru, en donnant l'ordre (...) que la France pourrait continuer à faire la guerre contre l'Italie, après avoir conclu un armistice avec l'Allemagne ? J'aurais dû comprendre que le général Bergeret avait signé, pour le commandant en chef et son major général, une mesure de précaution contre la tentation d'un atterrissage à Gibraltar. J'ai toujours amèrement regretté de m'être laissé tromper aussi grossièrement ». ¹² Ce jugement a posteriori manque sans doute de mesure et le général Mendigal, un des collaborateurs les plus proches de Vuillemin, le rejettera totalement quand il apportera son témoignage, vers la fin de sa vie.

S'il est un fait avéré, c'est qu'aucun accord n'a été conclu avec l'Allemagne lorsque le mouvement commence, le 18 juin. Deux jours plus tard, le colonel Heurtaux, un grand as de la guerre 1914-1918, successeur du général d'Harcourt à l'inspection de la chasse, dont l'honnêteté et le patriotisme ne peuvent être contestés, informe des pilotes réunis à Ussel que la lutte va continuer sur l'autre rive de la Méditerranée, au moins pour l'aviation. En vérité, c'est ce même jour, alors qu'il apprend la teneur des discussions préliminaires à l'armistice avec les Allemands, que l'opinion de Vuillemin évolue. Le commandant en chef fait alors savoir que, dans le cas où l'arrêt des combats inclurait l'Afrique du Nord, il faudrait respecter avec la plus grande rigueur les clauses imposées par l'ennemi. « La rupture, du fait de l'armée de l'Air, des clauses d'un armistice, précise-t-il, entraînerait inévitablement la reprise des hostilités, l'occupation totale du territoire français, la disparition de l'armature gouvernementale et, finalement, de la Nation française. Il est inutile d'insister sur les conséquences d'une telle hypothèse : elle équivaldrait en fait pour la France à un véritable esclavage ».¹³ Une fois encore, au nom d'une logique de la sauvegarde et de la préservation de l'aviation française dont il s'est fait le défenseur zélé, Vuille-

¹¹ Ordre particulier n° 55 du général commandant en chef les forces aériennes, 17 juin 1940, SHD/DAA 1D2.

¹² Stehlin, Paul, *Témoignage pour l'histoire*, Paris, Robert Laffont, 1964, p. 274.

¹³ Instruction personnelle et secrète pour le général pour le général commandant en chef les forces aériennes et les forces terrestres antiaériennes en Afrique du Nord, 20 juin 1940, SHD/DAA 1D2.

min agit dans le sens qui lui paraît le mieux convenir. Il dépêche le général Bouscat en Afrique du Nord avec la mission de prendre toutes les mesures nécessaires pour empêcher des actes qui pourraient remettre en cause les engagements pris par les autorités françaises. Tâche difficile et ingrate au demeurant que celle qui consiste à convaincre les aviateurs repliés au Maroc, en Algérie et en Tunisie de ne pas commettre l'irréparable. Il faut faire « comprendre à chacun, avance cet officier de haut rang, la nécessité de respecter les clauses d'un armistice et la noblesse qu'il y a à faire face sans révolte au destin malheureux ».¹⁴ Les bonnes paroles ne suffisant pas, des mesures de surveillance des avions et de mise sous clé des réserves de carburant et de munitions sont décidées et appliquées.

Le 23 juin, instruit des dispositions définitives de l'armistice franco-allemand, Vuillemin ordonne aux zones d'opérations Centre et Alpes de suspendre le transfert des avions vers l'Afrique du Nord et de ne plus détruire le matériel, ni les munitions et les équipements abandonnés sur les aérodromes de métropole. Il demande aussi aux navigants de ne quitter sous aucun prétexte les bases sur lesquelles ils se trouvent en vue de rejoindre un territoire étranger, soucieux de ne pas s'exposer aux représailles prévues par la convention négociée à Rethondes. Le 24, tout de suite après la signature de l'armistice de Turin, l'idée d'une grande offensive aérienne contre l'Italie est remise. A ce moment, 16 groupes de chasse, 22 groupes de bombardement et 10 groupes de reconnaissance sont en Afrique du Nord, capital en tout point important, et 12 de chasse, 10 de bombardement ainsi que 4 de reconnaissance sont restés en France. Toutes ces unités sont promises à la dissolution pure et simple et leurs avions destinés à être ferrailés sans autre forme de procès.

La reprise en main de l'Armée de l'Air

Le message adressé à ce moment par le chef de l'aviation à toute l'armée de l'Air a pour dessein de calmer les esprits, tout en laissant subsister quelque espoir : « Le commandant en chef n'ignore pas l'immensité du nouvel effort, du nouveau sacrifice qu'il demande. Mais il sait qu'il peut compter sur tous les chefs, tous les équipages, comme sur le personnel non navigant, pour que l'honneur de la France qu'ils ont si vaillamment défendue et sont prêts à défendre encore, ne soit pas terni par un manquement aux engagements qui pourraient être pris ».¹⁵ Cette prise de position est quelque peu éloignée de celle que Pierre Cot décrira depuis son exil forcé aux Etats-Unis, vers la fin de la Seconde Guerre mondiale : « En juin 1940, le général Vuillemin combattit la proposition d'armistice, il voulait que la France continuât la lutte aux colonies. (...) Je ne me suis jamais posé la question de savoir quelles étaient ses opinions politiques. Mais j'imaginerais mal ce paysan du Centre, au sourire si fin, tombant dans les grossièretés du fascisme. Ayant le tempérament

¹⁴ *Ibidem.*

¹⁵ *Ibidem.*

d'un démocrate, il en avait sûrement l'âme. Son erreur principale avant la guerre et jusqu'à l'armistice, fut de laisser faire ceux qu'on avait placés sous ses ordres, notamment les généraux Tétu et Bergeret, véritables artisans de la défaite aérienne ; ce fut ensuite de confondre le patriotisme avec la discipline en ne se révoltant pas contre le maréchal Pétain ; toute l'armée de l'Air l'aurait suivi s'il avait, dès le premier jour, imité de Gaulle. Mais par tout ce qu'il a fait depuis, le général Vuillemin a su réparer ses erreurs ». ¹⁶ Bouscat lui aussi y va de son discours lorsque, confronté aux premières désertions vers Gibraltar, il tance les aviateurs désormais oisifs sur les bases d'Afrique du Nord. L'officier général, lui aussi dans le doute, n'en hésite pas moins sur l'attitude à adopter : « En fin de compte, je pris la parole. Ma conviction ne dut pas paraître très ferme. Manifeste, par contre, fut ma gêne. Je restai dans des généralités et ne montrai pas une flamme que je n'avais pas ». ¹⁷ Parmi les pilotes et les équipages encore sous le coup des combats livrés depuis le 10 mai, le mécontentement, voire le désespoir sont en effet palpables. Le commandant Stehlin rapporte la colère qui s'empare de tous ses camarades aviateurs lorsque survient la nouvelle de l'arrêt des combats avec l'Italie et l'interdiction de prendre l'air qui s'applique aux avions déployés sur les terrains d'Afrique du Nord : « La tromperie a été en deux parties, d'abord pour nous amener en Afrique du Nord, puis nous réduire à l'immobilité, faute de carburant ». ¹⁸

Une reprise en main est d'autant plus nécessaire aux yeux des chefs qui se sont ralliés à la cause de l'armistice et à l'obéissance au pouvoir en place – Pétain est alors le président du conseil en titre – que des résistances se dessinent au sein du haut commandement aérien. Vers la mi-juin, le général d'Astier de la Vigerie, avouant son désarroi mais aussi son désir de continuer la lutte dans l'empire colonial, est convaincu que tout est encore possible. A son sens, la plupart des navigants, convaincus que l'armée de l'Air n'a pas été vaincue, sont partisans d'une poursuite du combat. « L'on répugnait à imaginer qu'une troupe au moral élevé et disposant d'un matériel important fût soumise à la dure loi d'une défaite consommée par d'autres, explique-t-il. Elle devait échapper à la reddition en se réfugiant en Afrique du Nord, d'où elle serait en mesure, avec un ravitaillement minimum, de reprendre ensuite la lutte. Encore fallait-il être assuré de la résistance de ce territoire placé sous l'autorité du général Noguès et de l'appoint essentiel apporté par notre flotte ». ¹⁹ A l'instar de tous les aviateurs, l'ancien commandant de la zone d'opérations aériennes Nord se dit certain que si l'armée de Terre a bel et bien été battue, il n'en est rien de la Marine et de l'armée de l'Air qui sont désormais des atouts de première grandeur dans l'esprit de ceux qui s'opposent à la solution d'un armistice. Les forces importantes réunies en Afrique du Nord lui semblent à la fois prêtes et capables de se battre.

¹⁶ Cot, Pierre, *Le procès de la République*, New York, 1944, pp. 231-232.

¹⁷ Bouscat, René, *De Gaulle-Giraud, dossier d'une mission*, Paris, Flammarion, 1967, p. 7.

¹⁸ Stehlin, Paul, *op. cit.*, pp. 277-278.

¹⁹ Astier de la Vigerie, François, général (d'), *Le ciel n'était pas vide*, Paris, 1952, p. 251.

Aussi s'empresse-t-il de prendre des contacts, d'abord auprès de l'amiral Darlan, qui lui assure que la flotte est prête à marcher, ensuite chez le général d'Harcourt, dont l'ascendant sur l'aviation de chasse est réel et profond, enfin Vuillemin qui ne le reçoit pas mais lui envoie Mendigal et Bergeret. Le premier lui semble résigné à l'idée d'arrêter la guerre, le second avance qu'il faudra apprendre à « ruser avec l'ennemi pour tirer le meilleur parti de la défaite ».

Du côté des hommes politiques, le fatalisme domine, hormis chez Georges Mandel, un des adversaires déclarés de l'armistice, qui paraît intéressé par son projet. Mieux, l'ancien ministre lui demande de venir à Tours afin d'en discuter : « Le 13 juin, M. Mandel me mande à Tours, où siège le gouvernement. Quand j'y arrive, le 14, le gouvernement a repris la route vers le sud ; il ne reste plus, dans cette ville déjà éprouvée par les bombardements, que les échos de conseils suprêmes tumultueux troublés par des présences indésirables. Enfin, le 15, je rejoins Mandel à Bordeaux. Dans son antichambre, je croise Jeanneney et Herriot très fermes dans leur opposition à la capitulation, Kérillis enflammé qui m'embrasse, plus loin, Jean Mistler que j'ai rencontré quelques jours auparavant, partisan déterminé de la lutte à outrance ; il me déclare aujourd'hui, avec autant de conviction, qu'il ne peut apprécier la situation militaire et s'en rapporte à l'avis du maréchal Pétain et du général Weygand. (...) Voilà Mandel dans son bureau. Il me questionne sur la situation actuelle de l'aviation et ses possibilités d'emploi en Afrique du Nord ; il me parle de la flotte sur laquelle il pense que l'on peut compter ; et puis son langage devient violent, il s'indigne des projets de capitulation ; il dénonce l'erreur commise en appelant Pétain et Weygand aux conseils du gouvernement ; ses termes sont si crus qu'il est difficile de les écrire. Quand je lui donne mon opinion dont je peux croire qu'elle reflète encore celle de la grande majorité des aviateurs et le conjure de continuer la lutte en Afrique du Nord, son ton change et c'est avec une pointe de découragement qu'il ajoute : « Je ne peux rien tout seul ; un Juif ne peut pas prendre en main, aujourd'hui, les affaires de la France. Quant à Reynaud, le fera-t-il ? Je n'en suis pas sûr ».²⁰

Aussitôt, le général Vuillemin lui adresse des remontrances, craignant sans doute qu'une ligne de faille se produise au sein de l'armée de l'Air, avec toutes les conséquences tragiques qui pourraient en résulter. Les sanctions ne tardent pas à tomber puisque La Vigerie est relevé de son commandement par le général Pujo, ministre de l'Air du cabinet Pétain récemment constitué, et éloigné à la tête des forces aériennes au Maroc. « Mon incertitude ne devait pas être de longue durée ; convoqué au ministère, je m'y rendis le 20 juin. Le ministre Pujo me fait recevoir par le chef d'état-major général Picard que je connais de longue date. Celui-ci m'annonce ma nomination au commandement de la région aérienne du Maroc. Ma visite à Mandel a troublé certains membres du gouvernement et on m'éloigne ; en termes amicaux mais formels. Picard me conseille de rejoindre mon poste le plus tôt possible et de me garder à carreau car il a été sérieusement question de m'arrêter. Si je peux garder

²⁰ *Ibidem*, p. 253.

un doute sur la portée de cet avertissement, il va être vite dissipé ! En quittant le bureau du chef d'état-major, je traverse la salle des pas perdus où sont réunis, par petits groupes, une centaine d'officiers 'des arrières, administration centrale, services, organismes territoriaux ; tous, sur mon passage, se détournent avec affectation. C'est bien la disgrâce. (...) Aux yeux de ces aviateurs d'antichambre, je suis devenu l'aventurier ».²¹

En réalité, l'heure est partout à la résignation et à l'obéissance. La logique de la soumission aux instructions des autorités en place et de la survie l'a emporté sur toute velléité de continuer la lutte. Peut-on en l'occurrence parler de logique ? Ne vaut-il pas mieux évoquer le terme de devoir ? A ce propos, les cadres exhortent leurs hommes à ne pas écouter les bruits et les rumeurs qui circulent, à rester unis, à ne pas imiter les Tchèques et les Polonais qui embarquent à bord des bâtiments prêts à appareiller pour l'Angleterre depuis les ports de l'Atlantique ou de la Méditerranée. Le 25 juin, alors que l'armistice entre en vigueur, un aviateur note dans le journal de marche de son groupe de bombardement : « On doit rendre les avions indisponibles pour que personne ne puisse partir à Gibraltar et aller continuer à combattre les Allemands aux côtés de nos alliés. Beaucoup parlent de le faire, il faut attendre... »²² Un autre rapporte : « Beaucoup se demandent où est leur devoir ; plusieurs envisagent de gagner et certains gagnent en fait, par la voie des airs, la zone britannique pour pouvoir continuer la lutte aux côtés de nos alliés ».²³ C'est ainsi que se dessinent les choix fondamentaux et les destinées si lourdes de conséquences qui attendront ceux qui choisiront un chemin ou l'autre. Le grand schisme de l'an 1940 est déjà en marche.

²¹ *Ibidem*, p. 254.

²² Historique de l'aviation de chasse pendant la campagne de 1940, s. d., SHD/DAA 3D497.

²³ *Ibidem*.

REINER POMMERIN*

Between “Douhetism” and “Close Air Support” The German Air War Doctrine in World War II

I.

In 1921 the Italian Army General Giulio Douhet published the book “*Il Dominio dell’Aria*”, presenting his thoughts regarding the role of air forces in the war of the future, which he described more precisely in a new edition in 1927. In the event of a war, he first envisioned focus attacks on the enemy’s military airfields to be carried out by air forces equipped with heavy, long-range bombers in order to keep enemy aircraft on the ground, thus preventing them from destroying friendly territory. Then, further bombing raids against all military and defense-related targets of the enemy should be continued until the enemy population’s will of resistance was broken. Douhet requested full independence for the newly established air forces, in practice their dominance among the Services. He accepted a reduction of the number of army and naval forces in favor of an expansion of the air forces for the plain reason that the occupation of enemy territory did not seem that important to him any longer. Furthermore, the provision of direct support to combat operations of the other Services would unnecessarily withdraw important forces from the air force. The term “Douhetism”,¹ which developed after his thoughts had been published, referred to the theoretical concept of an (air) warfare that was to achieve the enemy’s surrender not by eliminating the combat power of his forces, but by conducting bombing raids against industry and the civilian population.

Although the idea of involving the population in war fighting might ex post be surprising, it was closely related with the Italian officer’s horizon of experience: In World War I, neither the major offensives of the army troops, nor the operations of the naval forces contributed to a quick decision of the war, and even turned out to be extremely costly in terms of human resources and materiel. Therefore, in the twenties and thirties of the 20th century military strategists, like Douhet, tried to avoid long wars involving heavy losses. After 1918, it was generally assumed that the wars

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¹ Cf. Karl Köhler, *Douhet und Douhetismus*, in: *Wehrwissenschaftliche Rundschau* 14 (1964), pp. 88-91.

of the future would be “total wars”, i.e. wars making use of all resources of a nation. It thus seemed only logical that not only the armed forces, but also the citizens of an enemy nation would be involved in the events of the war.² Hence also the destruction of the enemy’s economy and the shattering of his civilian morale became war aims.

The use of the third dimension, the airspace, played a new and important role in the context of “total war”. Already in year of war 1917, the British government under Prime Minister David Lloyd George created the cabinet post of a Secretary of State for Air, which was first occupied by Harold Sidney Harmsworth. In March 1918, Sir Henry Norman, a member of the Privy Council, pointed out to him in a memorandum “that the air is definitely the only area where it would be possible to conduct operations of considerably broader scale and in accordance with the new strategic principles”.³

In 1923, Douhet succeeded in convincing the Italian government under Benito Mussolini to set up the “Regia Aeronautica”, an independent air force, which did, however, not dominate over army and naval forces, as had originally been planned in his doctrine. In Great Britain, the foundation of an air force and the development of a strategic air war doctrine took place already prior to the end of World War I. This was caused by the attacks of German Zeppelins and so-called “Riesenbomber” (giant Bomber) aircraft on the city of London. This was the first time large, all-metal aircraft, that had been produced by Junkers and were referred to as “Möbelwagen” (furniture vans) in Germany, “the “Gotha G”, with a span length of 26 meters, and the “RVI aircraft” produced in the Zeppelin works at Staaken, with a span length of 46 meters, came into operation. A total of 619 civilians lost their lives during these bombing raids, 1,650 were wounded and the material damage caused amounted to 3 million pounds.⁴ On the attackers side there were no losses caused by enemy action.⁵

With the experiences made during World War II and recent wars, the effects of those German bombs might be considered low. Nevertheless, they aroused great fear and alarm among the people of London to be subject to aerial bombing raids. This “air scare” – of all things the first German 1,000 kg bomb hit Chelsea Hospital – forced the British government to set up a commission headed by General Jan Christiaan

² Cf. Bernd Jürgen Wendt, Der »totale Krieg« der Zukunft in den Planspielen der Reichswehr, in: Führungsdenken in europäischen und nordamerikanischen Streitkräften im 19. und 20. Jahrhundert. For Militärgeschichtliches Forschungsamt, Gerhard P. Groß (ed.) (Vorträge zur Militärgeschichte, Vol. 19). Hamburg/Berlin/Bonn 2001, p. 45-39.

³ Cited in Richard J. Overy, Luftmacht im Zweiten Weltkrieg: historische Themen und Theorien, in: Luftkriegführung im Zweiten Weltkrieg. Ein internationaler Vergleich. For Militärgeschichtliches Forschungsamt, Horst Boog (ed.) (Vorträge zur Militärgeschichte, Vol. 12). Herford/Bonn 1993 p. 24.

⁴ Cf. John Terraine, Theorie und Praxis des Luftkrieges: Die Royal Air Force, in: Boog, Luftkriegführung im Zweiten Weltkrieg (see Note 3), p. 537.

⁵ Cf. John H. Morrow, Die deutsche Flugzeugindustrie im Ersten und Zweiten Weltkrieg. Ein Vergleich, in: Boog, Luftkriegführung im Zweiten Weltkrieg (see Note 3), p. 73.

Smuts, which addressed general questions of air war.⁶ The commission suggested that an independent British air force be set up, and, on 18 April 1918, the Royal Air Force was founded. However, it did not yet come into action during World War I.⁷ Its future strategic orientation was already indicated in a memorandum issued by the Empire General Staff in January 1918. It contained the suggestion to systematically bomb important German cities until they were completely destroyed or at least until the morale among the workers living there was shattered. Such attacks would not only hamper industrial production on a permanent basis, but they would also sustainably undermine the public's trust and confidence.⁸

The British were already mentally oriented towards this form of bomb war due to their traditional practice of establishing sea blockades, which had always been directed against the entire enemy nation and not exclusively against its armed forces.⁹ Furthermore, there was the however unfounded idea based on the famous remark of Sir William Douglas, the later Lord Weir, that racially different nations were more sensitive to bloodshed than the British and that their morale would thus break first.¹⁰

The person who defined the British air war doctrine was Marshal of the Air Force Lord Hugh Trenchard, the commander-in-chief of the new Service.¹¹ He firmly believed that air raids "owing to its crushing moral effect on a Nation, may impress the public opinion to a point of disarming the Government and thus becoming decisive".¹² Consequently, the Royal Air Force War Manual, the British regulation on air warfare enacted in 1928, contained the statement that a nation's strength of will was the foundation for all its war efforts. After all, it was the will of the people that would empower the government to draw on the resources required for warfare. In line with Trenchard's thoughts, the manual also stated that: „A Nation is defeated once the people or the government no longer have the will to pursue its war aims“.¹³

The German air war historian Horst Boog stated in this regard that these sentences – as weird as it may sound – actually illustrated the democratic approach of the

⁶ Cf. Raymond Fredette, *The First Battle of Britain 1917-1918 and the Birth of the Royal Air Force*. London 1966, p. 233.

⁷ Cf. Henry Albert Jones, *The War in the Air*. Oxford 1937, Vol. Appendices, Appendix II, p. 8-14.

⁸ *Ibid.*, Appendix IV, p. 26.

⁹ Cf. Horst Boog, *Der anglo-amerikanische strategische Luftkrieg über Europa und die deutsche Luftverteidigung*, in: Horst Boog/Werner Rahn/Reinhard Stumpf/Bernd Wegener, *Der Globale Krieg. Die Ausweitung zum Weltkrieg und der Wechsel der Initiative 1941-1943. Militärgeschichtliches Forschungsamt* (ed.) (Das Deutsche Reich und der Zweite Weltkrieg, Vol. 6). Stuttgart 1990, p. 429.

¹⁰ Cf. Fredette, *The First Battle of Britain* (see Note 6), p. 225.

¹¹ Cf. Phillip Meilinger, »Trenchard and >Morale Bombing<: The Evolution of the Royal Air Force Doctrine before World War II«, in: *Journal of Military History* 60 (1996), p. 243-270.

¹² Jones, *The War in the Air* (see Note 7), Appendix, VII, p. 33.

¹³ Charles Webster/Noble Frankland, *The Strategic Air Offensive against Germany, 1939-1945*. London 1961, Vol. IV, Appendix 2, p. 73.

British air war doctrine, for, after all, the will of the people was given first priority in a democracy.¹⁴ However, the widespread understanding, which was in line with the then applicable state of the art of aeronautical engineering, that modern, multi-engine bombers could not be intercepted by the initially much slower single-engine fighter aircraft but by pure coincidence also played an important role.¹⁵ This expectation culminated in the well-known sentence uttered by British Prime Minister Stanley Baldwin: „The bomber will always get through“.¹⁶

Trenchard's air war doctrine, on the one hand, was designed to punish the people of an enemy nation by attacking their cities with bombers and, on the other hand, to bomb them to their senses so that they forced their political leaders to stop hostilities. The question as to whether this strategy would also work with non-democratic, totalitarian states remained unanswered.

The air war strategy of the United States of America first took a completely different turn.¹⁷ During World War I, their small army aviation branch did not enter the war in Europe until very late, supporting friendly ground forces during its few sorties. This might have contributed to the fact that, in the US Army, only General William Mitchell thought that the air war would play a decisive role in a future war. In his book published in 1925 he stated: "The influence of air power on the ability of one nation to impress its will on an other in an armed conflict will be decisive".¹⁸ Mitchell therefore did not demand an augmentation of the fighter aviation branch, which would have been hard to justify due to the geostrategic position of the USA. Instead, he advocated a strategic bomb war on enemy territory. Like Douhet and Trenchard, Mitchell also assumed that the aerial destruction of vital centers in the enemy's hinterland would break the enemy's will of resistance faster than army operations on the ground would do.

With his theses, the General set against him the rivaling Services of Army, Navy and Marine Corps in the USA, which were fighting hard for both their share in the national budget and their status. His strategic approach to an air war did not meet with great response in the USA since, at the same time, he also questioned their operational principles and efficiency. Rather, he had to stand trial for his theses in a military court and was forced to leave the US Army. Mitchell's strategic ideas were not completely lost, but until long into World War II the American attitude towards air war was characterized by the view that aircraft only had to provide combat sup-

¹⁴ Cf. Boog, *Der anglo-amerikanische strategische Luftkrieg* (see Note 9), p. 433.

¹⁵ Cf. Irving B. Holley Jr., *Die Entwicklung der Abwehrbewaffnung für die Bomber der US-Heeresstreitkräfte in den Jahren 1918 bis 1941. Eine Studie über Produktionserfolge trotz Mängeln in der Doktrin*, in: Boog, *Luftkriegführung im Zweiten Weltkrieg* (see Note 3), p. 166.

¹⁶ Maurice Dean, *The Royal Air Force and the Two World Wars*. London 1979, p. 59.

¹⁷ Cf. Tami Davis Biddle, *Rhetoric and Reality in Air Warfare: the Evolution of British and American Ideas about Strategic Bombing, 1914-1945*. Princeton 2002.

¹⁸ William Mitchell, *Winged Defense. The Development and Possibilities of Modern Air Power -Economic and Military*. New York 1925, p. 214.

port to friendly ground and naval forces. This is the reason why the air force continued to be assigned to the US Army, and the US Air Force as an independent Service was not established until after the end of World War II, on 18 September 1947.

In addition to the unwillingness of Army, Navy and Marine Corps to wage a strategic air war, there also was the moral abhorrence of major parts of the US population towards breaking the will of resistance of the enemy population by bombing them. Hence, it is true that the operational principles developed at the US Army Air Corps Tactical School since 1938 – a sort of official American air war doctrine – provided for the destruction of vital facilities of the adversary. Precision attacks – this meant bomb releases on specially selected and limited trade and industry targets – were to hit the adversary's warfaring capabilities. Shattering the morale of the population by conducting bombing raids against the civilian population, however, was not envisaged.

II.

While the victorious powers of World War I had been thinking about the future role of the air force and the significance of the air war, already during the war or immediately after the end of the war, such thoughts necessarily had to be omitted in the German *Reich* for the time being.¹⁹ Being bound by the clauses of the Treaty of Versailles, Germany was not allowed to establish a "Major General Staff", set up and support air forces and associated facilities and installations. And the *Reichswehr* was restricted to the number of 100,000 soldiers. According to the concept of the German military leadership of the post-war period, the *Reichswehr* was a sort of cadre army designed to enable a fast augmentation and rearmament of the German armed forces upon discontinuation of the restrictions imposed by the Treaty of Versailles.

The restrictions on no account prevented the German *Reich* from deliberately and, of course, secretly disregarding the clauses of the Treaty early on, although extent and efficiency of those measures remained relatively moderate.²⁰ Such illegal activities included the training of pilots within the scope of aerial sports or in the civil sector at Lufthansa, and the disguise of smaller flying units as "advertising squadrons" for advertising flights. Already since 1924 there had been a German flight center at Lipetsk as part of the cooperation with Russia in the field of military policy. Here, military aircraft were tested and fighter pilots and observers were trained.²¹

As to the development of its own air war doctrine, the *Reichswehr* was first left

¹⁹ Cf. James S. Corum, »The Development of German Air Doctrine between the Wars«, in: War in History, 3 (1996), p. 85-101.

²⁰ Cf. Wilhelm Deist, Die Aufrüstung der Wehrmacht, in: Wilhelm Deist/Manfred Messerschmidt/Hans-Erich Volkmann/Wolfram Wette, Ursachen und Voraussetzungen der deutschen Kriegspolitik. Militärgeschichtliches Forschungsamt (ed.) (Das Deutsche Reich und der Zweite Weltkrieg, Vol. 1) Stuttgart 1977, p. 402 and p. 473-496.

²¹ Cf. Wolfram Falck, Falkenjahre. Erinnerungen 1910-2003. Kurt Braatz (ed.). Moosburg 2003, p. 27-41.

with nothing but the passive acknowledgement of foreign publications on the theory of air war. Lieutenant Colonel Hilmer Freiherr v. Bülow, the advisor for aviation matters at the “*Truppenamt*” (Troop Office), which actually assumed the tasks of the forbidden “Major General Staff” within the Army Command, was responsible for this task. Therefore it does not come as a surprise that Bülow’s “*Richtlinien für die Führung des operativen Luftkriegs*” (Guidelines on the conduct of operational air war), presented in 1926, did not include his own ideas, but only reflected already published thinking on this subject, like, for example, the ideas of Douhet or Mitchell. According to these guidelines, the new opportunities provided by “operational air war” made it possible to take “the war deep down inside the political, moral, economic and military sources of power” of an enemy state, whereby the German term “*operativ*” (operational) must not simply be equated with “*strategisch*” (strategic). Conducting air attacks on the enemy’s large cities, industrial centers, armaments industry and the food basis of the enemy, friendly air forces were supposed to try to destroy “the enemy’s morale and his will to continue the war”.²²

Erhard Milch, the Lufthansa chief executive and later Field Marshal of the Air Force, remembered – ex post – that already in April 1932, on the occasion of a dinner hosted by the prominent National Socialist and well-known World War I fighter pilot, Hermann Göring, the leader of the NSDAP party, Adolf Hitler, had been talking about General Douhet’s ideas, “which attracted attention in specialist circles at that time”. Milch said that Hitler’s interest was focused on the bomb war as the best means to deter an adversary and that he maintained that Germany needed to have “a strong *Wehrmacht*, with Air Force and Army being equally important (a completely new idea at that time), if it wanted to free itself from the devastating shackles of the Treaty of Versailles”.²³

On 28 April 1933 the National Socialist government under *Reich* Chancellor Adolf Hitler set up a *Reich* Aviation Ministry, appointing Hermann Göring the *Reich* Aviation Minister. Milch became the state secretary. For him, Dr. Robert Knauss, the Lufthansa company director, wrote a memorandum entitled “*Die deutsche Luftflotte*” (The German Air Fleet), which Milch approved and submitted to Göring. It contained an armaments conception for the German Air Force, but also reflected the author’s deliberations on the air war of the future.²⁴ According to Knauss, Germany would inevitably have to face a two-front war against Poland and France to regain its position as a great power in Europe. He therefore demanded a swift build-up of a

²² Cited in Klaus A. Maier, *Totaler Krieg und operativer Luftkrieg*, in: Klaus A. Maier/Horst Rohde/Bernd Stegemann/Hans Umbreit, *Die Errichtung der Hegemonie auf dem europäischen Kontinent. Militärgeschichtliches Forschungsamt* (ed.) (Das Deutsche Reich und der Zweite Weltkrieg, Vol. 2). Stuttgart 1979, p. 44.

²³ Cited in David Irving, *Die Tragödie der Deutschen Luftwaffe. Aus den Akten und Erinnerungen von Feldmarschall Milch*. Frankfurt am Main/Berlin/Wien 1970, p. 54.

²⁴ Cf. Bernhard Heimann/Joachim Schunke, *Eine geheime Denkschrift zur Luftkriegskonzeption*, in *Zeitschrift für Militärgeschichte* 3 (1964), p. 72-86.

strong air force as an independent Service.

An air force equipped with approximately 390 long-range, four-engine bombers with a capacity of 2000 kg of explosive, incendiary and gas bombs – the latter had by the way already been demanded by Douhet – would reduce the enemy's eagerness to attack since by means of such aircraft a war could immediately be conducted in his own center. Furthermore, the memorandum read: "Inflicting bomb terror on enemy capitals or industrial areas will result in moral collapse the faster the weaker the national attitude of the people and the more the metropolitan masses are oriented towards materialism and divided by social and political conflicts". To gain Germany's air superiority in Central Europe as fast as possible, Knauss recommended that the air force be augmented at the expense of naval armaments projects; after all, an air force equipped with 400 "large bomber aircraft" could be built with the means required for the construction of two armored cruisers. In addition to bomber aircraft, Knauss also demanded reconnaissance aircraft while fighter aircraft, in his opinion, had no operational functions; he assigned them only operations in support of army and naval forces.

This was clear evidence of the influence of Douhet's doctrine, but *Reich* Minister of War Werner v. Blomberg, in a directive dating 16 August 1933, pointed out that he by no means intended to set up a "strategic air force". The aim rather was to set up an "operational air force" that in the event of a European multi-front war would have to assume operational functions as part of a comprehensive strategy, either acting on its own supported by patrol aircraft or interacting with army and naval forces.²⁵ Hence, the pendulum rather swung towards an air force designed to support the Army.

On 26 February 1935, Hitler signed the decree on the foundation of the *Reichsluftwaffe*, putting it as the third branch of the *Wehrmacht* on an equal footing with Army and Navy and placing it under the command and control of Hermann Göring as commander-in-chief.²⁶ On 09 March 1935, Hitler had Göring proclaim officially that the German *Reich* was about to build up a German Air Force. In doing so, the *Reich* was to make its contribution to peacekeeping, acting within the scope of the Air Pact, which had been suggested by the Western powers.²⁷ A few days later, during a solemn ceremony; Hitler gave the first fighter wing of the new German Air Force the name of "Jagdgeschwader Richthofen".

Despite this clear violation of the Treaty of Versailles, the Western powers had shown practically no reaction, thus encouraging Hitler to declare on 16 March 1935 that he was no longer willing to submit to the arms limitations set out by the Treaty of Versailles. At the same time, he proclaimed the reintroduction of compulsory mili-

²⁵ Cf. Deist, *Die Aufrüstung der Wehrmacht* (see Note 17), p. 484.

²⁶ Cf. Rudolf Absolon, *Die Wehrmacht im Dritten Reich*, Vol. 3, Boppard 1973, p. 177.

²⁷ Karl-Heinz Völker, *Die deutsche Luftwaffe 1933-1939. Aufbau, Führung und Rüstung der Luftwaffe und die Entwicklung der deutschen Luftkriegstheorie* (Beiträge zur Militär- und Kriegsgeschichte. Militärgeschichtliches Forschungsamt (ed.), Vol. 8). Stuttgart 1967, p. 68ff.

tary service. The following protests expressed by France, Great Britain and Italy, which decided on a mild form of protest, must have confirmed Hitler's assessment concerning the weakness of democracies. On 19 March 1935, the German Air Force showed in public for the first time: During a blackout and live air defense exercise, the "Jagdgeschwader Richthofen" appeared on the skies over Berlin.

The fact that the German translation of Douhet's book was published under the title of "Luftherrschaft" (air supremacy) in June 1935, i.e. only a few weeks after the German Air Force had been established, cannot be considered pure coincidence if one takes the efficient apparatus of Josef Goebbels, the Minister of Public Enlightenment and Propaganda into consideration. In the foreword to the book, Lieutenant Colonel Freiherr v. Bülow, who meanwhile had become the Director of the "Foreign Air Forces" division at the "Luftkommandoamt", the later general staff of the German Air Force, emphasized that the establishment of the German Air Force was a welcome point of time to present Douhet's thoughts to a broader public in Germany. Notwithstanding all of the comprehensible arguments regarding the decisive importance of Douhet's doctrine, Bülow emphasized: „we are not committed to it“.²⁸

With this, Bülow not only spoke in "pluralis maiestatis", but he reflected the basic view held by the commanders of the new German Air Force. The speech held by the then chief of the *Luftkommandoamt*, Major General Walther Wever, on the occasion of the opening of the Air War Academy at Gatow on 1 November 1935, was proof of an air war concept differing from Knauss' ideas. For Wever, operational cooperation between Air Force, Army and Navy in their fight against enemy armed forces had priority, even if he considered the bomber aircraft the decisive weapon of the air war and did not rule out its strategic use against enemy armaments industry.²⁹

Here a special feature of the German Air Force command authorities must be pointed out. Comparisons with the organization of Anglo-American command authorities reveal that there was no policy planning staff. Whereas the Anglo-American supreme command authorities planned within an overall strategic setting, across continents and for lengthy wars of attrition, irrespective of day-to-day business, the continental power of the *Reich*, if only for lacking the appropriate resources, focused on winning a war as quickly as possible by conducting rapid army operations.³⁰

As a result, the efficient support of such army operations automatically got into the center of air war considerations in the German Air Force. In a certain way, it became apparent that the entire higher officer corps of the German Air Force was composed of former army officers "who were of course first reluctant to use the wide range of operational possibilities of waging an independent air war and who, above

²⁸ Giulio Douhet, *Luftherrschaft*. Berlin 1935, p. 9.

²⁹ Maier, *Totaler Krieg und operativer Luftkrieg* (see Note 19), p. 44.

³⁰ Cf. Horst Boog, *Anglo-amerikanisches Führungsdenken im strategischen Bombenkrieg von 1939 bis 1945 in Abhängigkeit von wechselnden Kriegsbildern*, in: Groß, *Führungsdenken* (see Note 2), p. 219.

all, had no experience in commanding large flying units. Here, organizational problems occurred, which could not be solved until the beginning of the war³¹. The air war doctrines both in France³² and in the Soviet Union³³ were, however, also characterized by similar considerations that were mainly directed towards supporting own and friendly army troops.

In 1936, headquarters and agencies of the German Air Force received the result of their own considerations on a German air war doctrine in the form of German Air Force Regulation L.Dv. 16. It was entitled "Luftkriegführung"³⁴ and was divided into the following seven sections: Air war, command and control, reconnaissance, operations, deployment, ground organization and replacement/supply. The latter two sections, however, remained void for the time being. They were to be filled later on, which was, however, never done due to the beginning of the war. Instead, in the year of war 1940, an unchanged version of German Air Force Regulation L.Dv. 16 was reprinted and published.

First, the reader learned that the air warfare regulation addressed basic air war principles, which would be those acts of war "resulting from the independent appearance of the German Air Force as the third branch of the *Wehrmacht*". It was, however, expressly mentioned that the regulation would only be a suggestion, since the principles established in the regulation required verification by the field units after advanced training and correction of technical deficiencies. It was also stated in the introduction that the German Air Force would be responsible for both offensive and defensive air war operations. After a listing of what belonged to the German Air Force in terms of organization and weapons, the following sentence was to be found: "The aviation forces will take the war to enemy territory right from the very start of war. Their attacks will target the roots of both the enemy's combat power and its people's will of resistance".

This was followed by a description of the tasks of the German Air Force in an air war. The most important task of the *Wehrmacht* in a war was to break the enemy's will, the strongest expression of which were the armed forces of the enemy. Conducting the war in the air within the framework of the overall war, the German Air Force therefore had to serve the most noble war aim: To bring down the enemy forces. Fighting against the enemy air power, it would weaken the enemy forces and, at the same time, protect both its own armed forces and its own people in its

³¹ Deist, *Die Aufrüstung der Wehrmacht* (see Note 17), p. 480.

³² Cf. Thierry Vivier, *Le Douhétisme français entre Tradition et Innovation, 1933-1939*, in: *Revue historique des Armées*, 206 (1997), p. 89-99.

³³ Cf. James Sterrett, *Soviet Air Force Theory, 1918-1945*. London 2007.

³⁴ *Luftwaffendienstvorschrift (L.DV. 16) "Luftkriegführung"* in der Version vom März 1940, in: Karl-Heinz Völker, *Dokumente und Dokumentarfotos zur Geschichte der deutschen Luftwaffe*. Aus den Geheimakten des Reichswehrministeriums 1919-1933 und des Reichsluftfahrtministeriums 1933-1939 (Beiträge zur Militär- und Kriegsgeschichte, Militärgeschichtliches Forschungsamt (ed.), Vol. 9). Stuttgart 1968, p. 466-486.

Lebensraum. Engaging in the operations and combat actions on the ground and at sea, the German Air Force would provide direct support to Army and Navy. Engaging the sources of power of enemy forces and stopping the flow of enemy forces towards the front, the German Air Force would try to bring the enemy forces to a halt. The German Air Force would thus combat the enemy people and country at its most tender spots. Moreover, apologetically, so to speak, the regulation read: "These attacks might have accidental side effects which cannot be avoided". (Today, to be more diplomatic, this is defined as "collateral damage"!).

Already at the start of the war, German Air Force Regulation L.Dv. 16 provided for the offensive employment of the German Air Force against enemy air forces, if only to minimize the threat to one's own territory. A certain degree of uncertainty as to the efficiency of support to direct army and navy operations – referred to as "close air support" today – was reflected in the following sentences: "In close cooperation with the Army and the Navy, frequently the German Air Force, i.e. mainly its combat forces [this refers to bombers R.P.], will not find the targets, the engagement of which would fully utilize its offensive power and the destruction of which could entail efficient support for Army or Navy [...] Generally, air attacks on unimpaired or uncommitted ground forces that are employed at the front or in position do not promise any effects that are in keeping with the respective effort, but they will by no means be excluded in special cases".

It was considered more expedient to launch attacks on long-range targets "the destruction or elimination of which will have decisive influence on the operations or combat actions of Army or Navy [...] massive attacks, mostly in low-altitude flights, against advancing reserves or moving forces in rear areas and retreating enemy forces, [can be R.P.] of decisive importance". Following these explanatory notes concerning the situation we today refer to as interdiction, it was stated that a war could only be decided if all three branches of the *Wehrmacht* cooperated. With this, the authors of the memorandum, who originally came from the Army, wanted to counter an unnecessary build up of the Air Force in order to reduce the prejudices existing in the two other *Wehrmacht* branches against the new Service, the personnel and materiel establishment of which had, of course, been carried out at their expense.

Furthermore, the regulation focused on the engagement of the enemy's sources of power, i.e. all facilities serving the strengthening and augmentation of his fighting forces. This included attacks on enemy armaments production sites, food supplies, imports, electricity, gas and water supplies, railways and transport lines, military operations centers and the enemy's seat of government, if this was the center of the enemy's intellectual and moral resistance.

A separate chapter of the regulation was dedicated to retaliation attacks. In its introduction, it read: "Attacks on cities for the purpose of terrorizing the population must on principle be declined. Nevertheless, if the enemy launches terrorist attacks on defenseless and unprotected open cities, retaliation attacks might be the only means to divert the enemy from this brutal type of air warfare. The decision as

to when the attack would go forward will be based on a preceding enemy terrorist attack. It must definitely be clear that the attack is launched for retaliatory reasons. Retaliation attacks require a detailed knowledge and an intuitive understanding of the way of thinking and moral condition of the enemy population. Choosing the wrong time and miscalculating the desired effect on the opponent might strengthen his will of resistance instead of shaking it.³⁵

When looking at the air war doctrine of the German Air Force within the context of its planned and actually implemented armaments projects, it shows that center and pivotal point of the German air war doctrine was the support of the Army.³⁶ To conduct a strategic air war according to Douhet, Trenchard or Mitchell, the development of a strategic four-engine bomber capable of covering long distances would have been indispensable. Although Wever, in his function as the Chief of the Air Force General Staff, had tried to get this project under way before he died in a plane crash in June 1936, the project was cancelled even before the war.

In a presentation on the subject of "Basic Principles for Operational Command and Control of the Air War", delivered in October 1936, Major Paul Deichmann, Chief of the Command and Control Division at the *Luftkommandoamt*, supported attacks against the enemy's sources of power on the one hand and the generic population's "will of resistance" on the other in addition to support provided to Army and Navy operations. „The presentation illustrated, however, that in this field, too, the higher commanders held rather vague views and the systematic processing of related questions had just begun“.³⁷

In 1936, Hitler promised General Franco to support airlift operations from Spanish-Morocco to the Spanish mainland. After 15,000 Moroccan soldiers and legionaries of the Spanish Foreign Legion and a considerable amount of material had been moved with "Junkers Ju 52" aircraft, Franco was able to employ them in the Spanish Civil War. Germany extended its support of Franco by dispatching a support unit by the name of "*Legion Condor*", including various aircraft and pilots. The Spanish Civil War provided the German volunteers of the "*Legion Condor*", who had temporarily been released from the *Wehrmacht* for this, with the opportunity to fly sorties under wartime conditions, thus being able to test the training status of pilots, newly developed types of aircraft and theoretical procedures in the field of air support.³⁸ Besides existing aircraft types, for example, the new Messerschmidt Me Bf 109 fighter aircraft, the fast two-engine Heinkel He 111 bombers and the Dornier Do 17 aircraft could be employed in Spain. Wolfram v. Richthofen, the

³⁵ *Ibid.*, p. 482.

³⁶ Cf. James S. Corum, »The Luftwaffe's Army Support Doctrine, 1918-1941«, in: *Journal of Strategic Studies* 59 (1995), p. 68-90.

³⁷ Deist, *Die Aufrüstung der Wehrmacht* (see Note 17), p. 494.

³⁸ Cf. James S. Corum, »The Luftwaffe and the Coalition Air War in Spain, 1936-1939«, in: *Journal for Strategic Studies*, 18 (1995), p. 68-90.

commander of the “*Legion Condor*”, gained valuable information from this stay in Spain, which ended with the Legion’s participation in Franco’s victory parade in Barcelona on 21 February 1939. He could rely on this information later on during the attack against Poland and when cooperating with armored units in the breakthrough of the “*Panzergruppe Kleist*” to the Channel in spring 1940.³⁹ In their sorties over Spain, the fighter pilots Günther Lützow and Werner Mölders developed the loose two-aircraft formation, which is still applicable today.⁴⁰

An attack that is still remembered today is the attack on the town of Guernica conducted by the “*Legion Condor*” and Italian combat aircraft pilots. In this attack, a bridge in the suburb of Renteria and supply routes that were important for Franco’s units were to be destroyed. In practice, however, the entire town was destroyed in the attack, with Guernica becoming a synonym for air terror attacks on the civilian population.⁴¹

“The German Air Force was a torso when it reported ready for war in late summer 1939. Neither with regard to personnel, material, and training, nor with regard to air war theory, they were qualified to meet the requirements defined in the war plans of the political leaders [...] Many deficiencies and faults made by the German Air Force, most of their defeats and almost every failure experienced during World War II can be explained by the faults, inconsistencies and omissions that occurred during its establishment“.⁴²

III.

Even though the bombing of Guernica had shaken the international public, there was no internationally recognized contractual agreement restricting air warfare on 1 September 1939 when Hitler attacked Poland, sparking off World War II. Therefore US President Theodor Roosevelt sent a note to the warring factions, calling upon them to declare in public that they would not expose the civilian population and unprotected cities to aerial bombing. Hitler answered: „For my part, I’ve publicly announced in my *Reichstag* speech today that the German Air Force has been ordered to confine its combat actions to military objects“.⁴³ The next day, France and Great

³⁹ Cf. James S. Corum, Wolfram von Richthofen. Master of the German Air War. Lawrence, Kansas 2008, p. 146-151.

⁴⁰ Cf. Kurt Braatz, Gott oder ein Flugzeug. Leben und Sterben des Jagdfliegers Günther Lützow. Moosburg 2005, p. 158.

⁴¹ Cf. Klaus A. Maier, Guernica, 26.4.1937. Die deutsche Intervention in Spanien und der »Fall Guernica«. (Einzelschriften zur Militärischen Geschichte des Zweiten Weltkrieges. Militärgeschichtliches Forschungsamt (ed.) , Vol. 17). Freiburg im Breisgau, 2nd Edition 1977, p. 55f.

⁴² Völker, Die deutsche Luftwaffe (see Note 24), p. 210f.

⁴³ Akten zur Deutschen Auswärtigen Politik 1918-1945. Serie D (1937-1945), Vol. VII: Die letzten Wochen vor Kriegsausbruch, 9. August bis 3. September 1939. Baden-Baden 1956, Dok. 531, p. 423.

Britain also accepted the American recommendation, even though such a promise made by the British side seems weird in view of the Trenchard doctrine.

Hitler's reply was a lie since the first German act of war on 1 September was, by no means, the cannon fire launched from training ship "Schleswig-Holstein" on Gdansk's Westerplatte at 04:47. Seven minutes earlier, at 04:40, the citizens of the small Polish town of Wielun had woken up startled by the sound of hurling sirens and explosions, engines humming above them and screaming to be heard. Dive-bombers of the German Air Force were bombing the town that had neither a military target nor industrial plants. Seventy percent of the small town was destroyed and 1,200 of its 16,000 inhabitants were killed. This aerial attack, killing children, adolescents, women and men in their sleep, served the purpose of testing new, stronger engines and bombs. Two days later, soldiers of the German Army came to record the effects of the attack, using measuring tape on the town's building ruins.⁴⁴

The next dive-bomber attacks on Warsaw supported the fact that the German side did not really wish to spare the Polish people the air war. Explaining the aerial attacks on the Polish capital on 10 September, the Air Force General Staff stated: "The attack should be viewed as retaliation for crimes committed against German soldiers. It is important to achieve extensive destruction in the densely populated parts of town during the first attack".⁴⁵ Since admitting to having followed Douhet's or Mitchell's ideas was naturally not an option, the retaliation attack specified in German Air Force Regulation L.Dv. 16 was used as an explanation. Some days later, v. Richthofen, who had been seconded as an aviation commander for special duty to the 10th Army, requested sarcastically: „I urgently request that the last opportunity for a fire and terror attack be used as a large-scale test [...] If aviation commander for special duty is tasked accordingly, all efforts will be made to completely wipe out Warsaw, the more so as there will only be a border customs office located there in the future".⁴⁶ Though v. Richthofen was not given permission to launch such a terror attack, the Polish capital was not spared from almost complete destruction in the further course of the war. But with its area bombing of the town of Wielun right on the first day of World War II, the German Luftwaffe was the first air force of the warring factions to mount a Douhet-style terror attack, carrying out its first combat action. With this, the German Air Force actually started the bombing terror war, which returned to Germany – the party having caused it – only a few years after, sealing the fate of many German cities.

Contrary to the doubts stated in Air Force Regulation L.Dv. 16, the war against Poland generally showed that, with German air superiority, the German Air Force

⁴⁴ Cf., Größte Härte... "Verbrechen der Wehrmacht in Polen September/Oktober 1939. German Historical Institute Warsaw. Osnabrück 2005, p. 69-71.

⁴⁵ Cited in Olaf Groehler, Der strategische Luftkrieg und seine Auswirkungen auf die deutsche Zivilbevölkerung, in: Boog, Luftkriegführung im Zweiten Weltkrieg (see Note 3), p. 332.

⁴⁶ *Ibid.*, p. 334.

could be deployed efficiently in direct support of the fighting ground forces. Thus, the still fledgling air force service gained increasing acceptance in the Army, dispelling concerns as had still been uttered by the Chief of the Army General Staff, General Ludwig Beck, following an indoor exercise in 1938: „Make sure that the Air Force will not be conducting an operational war somewhere in the enemy's hinterland, with our infantry being stuck in a war of position“.⁴⁷

Despite the news about the German bomb raids on Polish towns and cities, the British and the French air forces kept in the background, playing for time. The German air fleets in the West, on the other hand, were ordered to: „clearly leave responsibility for opening air warfare to England and France“,⁴⁸ even though commanders of the German Air Force advocated an attack on British industrial sites. Hitler, however, considered crossing Belgium and Netherlands territory, neutralization of the French Air Force and the destruction of the British-French Army as a precondition for later operations of the German Air Force against other targets.

The first raids conducted by the Royal Air Force in September 1939 were directed at German maritime task forces in the German Bight. They resulted in heavy losses and the decision to wage future strategic bomb attacks mostly during the night. This, however, made “precision bombing” difficult, even though the marking tools for night target recognition were improving in the course of the war. The first German Air Force raid against England was directed against airfields of the Royal Air Force. The latter responded with an attack on the Hörnum Naval Air Force Base on the island of Sylt. Even though, for strategic considerations, the Royal Air Force would have preferred to attack the Ruhr area armaments center, the British war cabinet was opposed to this because of „the possibility that we would be accused of having started the undifferentiated bomb war, and fact that such an approach would probably result in German retaliatory strikes against England“.⁴⁹

In the context of the campaign against France, Hitler forbade the German Air Force to bomb industrial sites and such targets that would pose a high degree of threat to the civilian population during the attack on Belgium, Luxembourg and the Netherlands.⁵⁰ On the one hand, this was to avoid English retaliatory strikes against Germany that would be justified by such attacks and, on the other hand, not to hamper the later use of industrial sites in these countries unnecessarily. Nevertheless, nearly 1,000 civilians were killed in an attack of the German Air Force on Rotterdam on 14 May 1940.

⁴⁷ Horst Boog, *Die deutsche Luftwaffenführung 1935-1945. Führungsprobleme-Spitzengliederung-Generalstabsausbildung* (Beiträge zur Militär- und Kriegsgeschichte. Militärgeschichtliches Forschungsamt (ed.) , Vol. 21). Stuttgart 1982, p. 174.

⁴⁸ Cited in Maier, *Der operative Luftkrieg bis zur Luftschlacht um England* (see Note 19), p. 331.

⁴⁹ Cited in Boog, *Der anglo-amerikanische Luftkrieg* (see Note 9), p. 453.

⁵⁰ Cf. Weisung Nr. 6 für die Kriegführung, in: Walter Hubatsch, *Hitlers Weisungen für die Kriegführung 1939 -1945. Dokumente des Oberkommandos der Wehrmacht*. Frankfurt am Main 1962, p. 33.

It was, however, not the attack on Rotterdam, but the military situation that had drastically deteriorated for England due to the German occupation of the opposite channel coasts, that triggered the war cabinet's decision to start the bomb war, the concept of which had been set up long before. Quite in the spirit of the Trenchard doctrine, the Royal Air Force attacked the Ruhr area on 15 May 1940, thus beginning a strategic air war that was no longer directly associated with land or maritime operations. It was, however, not possible to much longer delay the fast collapse of France in which the German Air Force played an important role, acquiring air sovereignty and effectively supporting army operations.

In his directive of 24 May 1940, Hitler fully authorized the German Air Force "to wage war against the English motherland".⁵¹ However, this could not be equated with the permission to wage an undifferentiated air war. Starting in August 1940, the attacks of the German Air Force within the scope of the planned German invasion were initially directed against military targets and the English armaments industry. On 24 August German aircraft seemingly accidentally dropped bombs on London, which led to a British retaliatory strike on Berlin. Hitler responded by releasing London as a target, with the priority targets at first continuing to be war-essential targets and not the population. Then, there were more bombing raids against a number of English towns and cities, which were referred to as retaliatory attacks.

Bombing attacks, like for example the one on Coventry in November 1940, were aimed at eliminating industrial targets of military interest. However, due to British air defense and difficulties encountered with night target acquisition the result often was undifferentiated destruction in the target area. After the bombing of the historic town centers of Lübeck and Rostock by the Royal Air Force, the German Air Force, in 1942, turned to retaliatory attacks on historic British towns and cities and thus to undifferentiated air war. For the German towns and cities, the offensive character of Germany's own air war doctrine became a serious disadvantage in view of the ever more destructive Anglo-American bombing attacks. In particular in the Eastern regions of Germany, little attention had been paid so far to air defense and air raid protection and now it was too late.

With the attack on the Soviet Union, the German Air Force became a Service that mainly supported army operations. In this respect, it was fully in line with Adolf Hitler's view who, as Lieutenant General Alfred Jodl noted in his diary, had declared already before the war, on 27 January 1938: „For Germany, the Army is of critical importance, with the other branches of the *Wehrmacht* playing a supplementary, helping role only".⁵² Getting weaker and weaker, the German Air Force was not able to fight a strategic air war in a theater of war as geographically large as the Soviet Union, with medium-range bomber aircraft that were scarcely suited for this purpose.

⁵¹ Weisung Nr. 13, in: *Ibid.*, p. 54.

⁵² Cited in Boog, *Die deutsche Luftwaffenführung* (see Note 38), p. 130

IV.

The German air war doctrine did not provide for a strategic air war and area bombing raids aimed at terrorizing the enemy population in accordance with the considerations of Douhet, Mitchell or Trenchard. This was in line with their omission to develop and produce heavy, four-engine, large-range bomber aircraft. German air warfare during World War II was, however, shifting between “Douhetism on the one hand and complete subordination to Army operations on the other”.⁵³ For in addition to direct army support operations, the German Air Force, contrary to its air war doctrine, was also waging a strategic air war with the attacks on the cities of Bath, York and Canterbury and later with the V1 and V2 leaflet bombs, thus conducting a dehumanizing war of terror in line with the conception of a “total war”.

⁵³ Michael Forget, Die Zusammenarbeit zwischen Luftwaffe und Heer bei den französischen und deutschen Luftstreitkräften im Zweiten Weltkrieg, in: Boog, Luftkriegführung im Zweiten Weltkrieg (see Note 3), p. 490.

JOHN PEATY*

The Place of Douhet: A Reassessment

In this piece I intend to reassess the relationship between Italian General Giulio Douhet and Britain's Royal Air Force before World War II.

Bernard Brodie, in his piece "The Heritage of Douhet", declared that Douhet (author of "The Command of the Air") "possessed the largest and most original mind that has thus far addressed itself to the theory of airpower". Ironically, however, Douhet's name is certainly more widely known, and his writings are certainly more often read, today than during his own lifetime.

Our view of the extent and nature of Douhet's influence on the thinking of airmen in the 20s and 30s has changed over the years. At one time, during and immediately after WWII, it was widely believed that Douhet's influence on the air forces of the Great Powers had been pervasive and all-embracing. Hence, it was said, the faith in the bomber that was more or less common to all countries interested in the development of airpower in the inter-war years. Brodie strongly endorsed this view in his piece.

Robin Higham later challenged this view, arguing that, on the contrary, Douhet was unknown and of no consequence. Higham's seemingly definitive assessment has stifled serious debate on this question for decades.

In this piece I intend to examine critically the prevailing orthodoxy as to the extent and nature of knowledge and influence of Douhet's ideas in Britain before WWII, a view epitomised by Higham in an appendix entitled "The Place of Douhet" in his "The Military Intellectuals in Britain".

This piece is based upon research carried out some years ago at the Public Record Office, London and the Caproni Archives, Rome. At the latter I was privileged to be given access to the diaries of aircraft designer Gianni Caproni, Douhet's supporter and advocate. Inevitably, given the nature of much of the evidence, this piece will raise rather more questions than it can provide answers for. My aim in writing it has been to provoke a debate, a debate in which this subject is seriously addressed, and which will hopefully lead to a thorough examination of all the surviving evidence, both official records and private papers, both in Britain and Italy. I am confident that

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the prevailing view will eventually be replaced by a more balanced and less dogmatic assessment of "The Place of Douhet".

In "The Place of Douhet", Higham criticised Brodie and poured scorn on the idea that Douhet influenced British air strategy. He maintained that British air strategy was home-grown and dismissed the idea that the development of air theory was a homogeneous international development. Yet he was forced by the rejoinders of Brodie and Eugene Emme ("The Impact of Airpower") to admit the close similarity between Douhetian and other theories of air warfare; and was consequently reduced to describing the simultaneous emergence of strategic airpower theories in the USA, Britain and Italy as an amazing coincidence - one analogous to the formulation of the theory of evolution by natural selection independently by Darwin and Wallace. I believe, and intend to show in this piece, that Higham's thesis is inherently improbable: that considerable cross-fertilisation did in fact take place, and could hardly have been prevented.

Higham emphasised the language barrier. He asserted that there was no promulgation of Douhet's ideas in Britain before April 1936 - an article in "RAF Quarterly". He overlooked or ignored an article in the same journal three years earlier. He discounted the testimony of Robert Saundby ("Prophet of Airpower") and JM Spaight ("Air Power in the Next War"), and accepted, as do so many, John Slessor's emphatic denial of any knowledge or influence of Douhet's ideas in the RAF ("The Central Blue").

Higham's view still holds sway and has yet to be challenged directly and in detail. Indeed, in a footnote in his "History of the Second World War", Sir Basil Liddell Hart provided powerful support for the Higham view when he categorically denied that Douhet was known or influential in the RAF.

In his "British Air Strategy between the Wars", Malcolm Smith argued that Douhet's ideas were known in Britain - but only to a few, only from the late 20s, only superficially and they had no influence. In his "Strategy without Slide-Rule", Barry Powers dissented from the Higham view, citing the RAF's great interest in the Italian air force in the 20s and the close friendship between the two air ministers, Hoare and Balbo. In his "Winged Warfare", Michael Paris demonstrated that British aviation was interested in, and had contacts with, Italian aviation before WWI.

Before examining in detail the question of Caproni's relationship with British airmen during WWI, I think it is important to recall that airmen everywhere (not least in Britain) - and not only airmen - were greatly interested in, and impressed by, the strategic bombing campaign that the Italians mounted against Austria in the period 1915-18 (and in which Caproni and his bombers played a very prominent part).

The campaign's enormous impact on the airmen of the time is now largely forgotten, for national pride and the Caporetto debacle later combined to dim memories and lead to a downplaying of Italian achievements, especially in Britain and the US. And, although Boone Atkinson (in "Airpower Historian") has shown that the American concept of strategic bombardment - which originated in this period - was largely

Italian (specifically Caproni) inspired, no historian has cared to examine the possibility that the British concept of strategic bombardment was - if not Italian inspired - than Italian influenced. Indeed, the scale of the Italian bombing campaign (which was very considerable, dwarfing the British and German campaigns) is almost totally unappreciated in Britain today - despite the fact that the Italian strategic bombing campaign was the first in history.

At the end of July 1915, Douhet had proposed the creation of a force of 500 Caproni bombers to mount a sustained strategic bombing campaign against Austrian communications, ports and industries. And, although Douhet's proposal was officially turned down (despite Caproni's enthusiastic support), within three weeks the Italians had embarked on just such a campaign - albeit in a limited fashion initially. The campaign reached its height in the late summer of 1917, with repeated and devastating attacks by large numbers of Capronis on the Adriatic port of Pola, HQ of the Austrian Navy.

Italian aviation, and in particular the Italian strategic bombing campaign, were given extensive and admiring coverage in the US and British newspapers and aviation journals of the day - the bombing campaign right from its inception. During the war, all the major Italian achievements in the air were fully reported and widely discussed in Britain e.g. Laureati's epic non-stop flight from Turin to London, the daring attack on Cattaro, D'Annunzio's audacious daylight flight over Vienna and, of course, the massed raids on Pola.

During the war, the Rome correspondents of the "Times" (William McClure), the "Daily Mail" (G. Ward Price) and the "Morning Post" (William Miller) all wrote many interesting and informative articles about Italian aviation, and especially its long-range bombing operations e.g. McClure's article "Italian progress in the air" (Sept. 1917). McClure (who also had the distinction of being Chief Correspondent with the Italian armies during the war) was closely connected with Italian aviation circles, and had been ever since he had accompanied the Italian forces during the fighting in Libya. After he left the "Times" in 1920, McClure joined the British Embassy in Rome as Press Officer, and remained there until his death in 1939. Is it conceivable that McClure was not aware of Douhet's writings? And if he was aware, is it likely that he would have kept such knowledge to himself? His fellow correspondent William Miller was a close friend and adviser of Hoare during the latter's wartime service in Italy.

It is now hard to appreciate that, during WWI, Italian aviation was widely regarded, in Britain and the US especially, as leading the world - principally because of its strategic bombing campaign. FW Lanchester (a leading and influential British airpower theorist), looking back on the Italian's spectacular long-range bombing successes of summer 1917, wrote in the magazine "Flying": "The Italian Air Service was very much to the front on the question of bombing, and had been advertised the world over by the exploits of the big Caproni machine. There were many who believed that the Italians were really ahead on the strength of this".

General Ludovico has reminded us of some of the flattering things that British and US newspapers said about Italian aviation during the war. For instance, in 1917, the "Times" stated that the courage of her aviators, the perfection of her aerial instruments, the good disposition of her aviation organisation and the use which the command is able to make of it, have brought Italy to the first place among the nations powerful in the air, for she is the one that is able to gather the major fruits in this field.

At the same time as highlighting the extensive and flattering coverage of Italian aviation in the British newspapers of the day, in his book Ludovico seems to hint that the spectacular Italian bombing raids of 1917 might possibly have had some influence on the Smuts report. Whatever one's view of this, it is a fact that Smuts (along with a great many others in Britain) did admit to being very impressed by Italian aviation, that his report was written at the height of the Italian bombing campaign, and that the British press - and others - did use Italian achievements in the air to point up what they saw as British deficiencies in aerial organisation and strategy.

Not surprisingly, Caproni, his aircraft and his ideas all featured prominently in the coverage that British newspapers and aviation journals gave to Italian aviation during WWI. An interview which Caproni gave to the "Petit Parisien" was reprinted in the "Times" in Oct. 1917, under the heading "Possibilities of the Air: Aeroplane raids as a decisive factor". And another interview which Caproni gave to the "Auto" was reprinted in the "Globe" in Nov. 1917. Caproni (who was a fine linguist) was reported as saying: "Next spring we shall see a remarkable blossoming forth of Austro-German effort. The rear will suffer equally with the front. Paris, Lyon, Le Creusot, St. Etienne, St. Chamond, will be bombed with a frequency that we do not dream of now, and in the same way the Allies will carry death and desolation into the enemy's country. But they ought not to lose a single minute.....It is aviation that will bring the war to an end. Victory will go to the belligerent who first perfects his aerial army. We must therefore speed up production. The enemy is on our heels and making tremendous efforts to gain mastery of the air, without which victory in modern warfare is nothing but a myth".

In light of the above, it is not surprising that during WWI the British aeronautical community was very much interested in the bombers being made by Caproni and used against Austria. And this interest produced many close contacts between Caproni and British airmen, as is amply shown by copious references in the Caproni diaries in Rome and in records held in Britain. I only intend to detail the most significant of these contacts.

In December 1914, and on Caproni's behalf, Arturo Mercanti (a respected aviation pioneer) approached the British embassy in Rome, offering Britain the right to manufacture Caproni bombers in exchange for raw materials. The military and naval attaches informed the War Office and Admiralty respectively and Mercanti was cordially invited to London. And in January 1915 Mercanti visited the War Office, although his visit was brief and without result. (By this time the French had already applied for a licence to manufacture Caproni bombers).

However, very favourable reports about the performance of the CA30 (including one by General Delme-Radcliffe, Head of the British Military Mission to Italy, who had been present at a demonstration), as well as of its “remarkable success”, led many in British aviation to become very interested. In August 1915 Flt. Lt. Valentine (based in Paris) hastily journeyed to Italy. He was accompanied by Capt. Maurice Baring (very shortly to become Trenchard’s trusted and indispensable ADC as well as his “mentor and guide” and lifelong confidante), who had previously served at the Rome Embassy and was a fine linguist, fluent in Italian. The two men were to see the Caproni machine, to find out if it could carry the Beardmore engine (the main weakness of the Italian aircraft industry for most of the war was its poor engines, and hence the comparative slowness of many of its products), and to judge whether it was advisable to order one for the RFC. They visited Malpensa, Gallerata, Turin, Milan and Rome. Their unscheduled visit was a surprise both to a somewhat peeved British embassy and to the Italian authorities. However, they were courteously treated by Caproni and all who they met, and, although they did not get to fly in a Caproni machine, they succeeded in ordering one. It would not, however, be ready for many months. In September 1915, after urgent arrangements had been made, Caproni’s brother/partner Federico and another representative, Bugni, visited London in order to confer with the War Office and Admiralty, and to expedite matters. And in December 1915 Baring and Capt. Cooper were ordered by Trenchard to go to Italy, to take possession of the Caproni machine (which was now believed to be ready), to flight test it, and to make arrangements for its being flown back (the preferred option) or else crated and transported back. The two men visited Turin, Gallerata, Milan and Malpensa, where they were taken up in a Caproni machine. However, the plane which had been ordered was not ready to fly. There were difficulties with the engines. Nor had the aircraft’s export been cleared with the relevant authorities. Baring and Cooper therefore had no option but to come away empty-handed. In the end, Valentine (now a Captain) went out to Italy and the plane was flown to France in stages until it crashed at Dijon. (It had been planned to fly the plane to England eventually). Not surprisingly, this put paid to British interest for some time.

Interest revived in the spring of 1917, when Wing Commander John Babington (of the Admiralty Air Department) and O’Gorman (now Civil Engineer to the Director General of Military Aeronautics) visited Italy in order to fly and report upon the latest Caproni bomber. They were well received by, and had many discussions with, Caproni. However, they concluded that the Caproni machine was inferior to the Handley Page bomber, which had recently entered service. This was perhaps not unnatural, for Babington had been closely involved with the development and introduction into service of the Handley Page. It is ironic to recall that only a few months later, the US Bolling Mission, after its visit to Italy, reached the opposite conclusion; and that, moreover, by the end of 1917, a squadron of Capronis was in service with the Royal Naval Air Service.

In the summer of 1918 (because of the need for bombers on the Western Front) it

was proposed to offer Italy (via the Supreme War Council at Versailles) a considerable quantity of raw materials for its aviation industry in return for supplying Britain with large numbers of Caproni bombers, amounting to half Italy's output of the planes. In June 1918, Churchill (Minister of Munitions) asked Caproni for 50 of his planes. However, the war ended before anything came of these moves.

What precisely did Caproni and his representatives say when they came into contact with British airmen? (Unfortunately but not surprisingly, no verbatim records of any of these discussions seem to have survived). If we assume that these discussions were like so many others, and that Caproni spoke much as he wrote, we can be pretty certain as to what was said. Conclusive evidence is provided by a contemporary report on Caproni's ideas which I have discovered among the records of the old Air Historical Branch at the Public Record Office. This 700 word report, which was made at first-hand by the Belgian Military Attaché in Rome (and endorsed by the Belgian Minister of War), was with the Operations Branch of the British GHQ in France at the very beginning of 1916. The report, which is in French, is an admirably accurate and clear exposition of Caproni's ideas, as compared with more famous expressions of those ideas; in this report there are unmistakable echoes of Douhet.

It is very doubtful that any notice was taken of this particular report, either at the time or later. However, it is an important testament to Caproni's standing, to his skill as a lobbyist, as well as to both the existence and closeness of the international aeronautical community. And it raises certain questions: Is it conceivable that this report was the only report on Caproni's ideas ever to be seen by British eyes? What about his three famous and lengthy wartime memoranda - one for the Allied General Staff (1916; in English), one for the American Air Service (1917), and one for the French President (1918; in French). What about the book "Let us kill the war: let us aim at the heart of the enemy", published (in English) in 1917? This book, which was quoted in the "Times" and which was widely disseminated amongst US airmen, was written by Caproni's friend Nino Salvaneschi, although the ideas are clearly Caproni's. And, above all, did no British Attaché, or visiting British airman, likewise meet Caproni, be impressed by the man and his ideas, and disseminate those ideas among colleagues and superiors?

It is now largely forgotten that in the period 1917-18 a British Army Corps, as well as large RFC (in the north) and RNAS (in the south) contingents, served in Italy. This situation clearly provided a very great opportunity for the dissemination of the ideas of Douhet among many British airmen. The last commander of the RFC contingent was Phillip Joubert. Joubert was intimately associated with the RAF Staff College in the inter-war period, first as instructor (1922) and then as commandant (1930). Given the fact that, in 1918, Douhet was one of the heads of Italian Military Aviation, there must at least be the possibility that Joubert and members of his staff came into contact with Douhet. Undoubtedly, British and Italian airmen would have met regularly, both officially and unofficially; and it is entirely possible that members of the British air contingents became familiar with the ideas of Douhet at this

time - either at first hand, or through Italian airmen, or in written form. In any case, it would be strange indeed if British airmen serving in Italy were not greatly impressed by both the Italian's strategic bombing campaign and by the enemy bombing of Italian cities: all the evidence does in fact show that, just like the US Bolling Mission, British airmen were greatly impressed by what they saw and heard in Italy. And what of Caproni? All the evidence, not least Caproni's diaries, shows clearly that he had a very close relationship with the British air contingents in Italy; both of which participated in the Italian strategic bombing campaign. Moreover, a squadron of his giant CA42 triplanes was expressly built for, and operated by, the RNAS contingent. Caproni was later awarded the OBE by a grateful Britain in recognition of his many wartime services. In view of the above, I believe there is a need for a full examination of Joubert's role at the Staff College in the 20s and 30s. There is clear evidence that records relating both to the RFC contingent in Italy and to Italian aviation during the war were supplied by the old AHB to the Staff College in the 20s, many at Joubert's request. In 1927 the Staff College obtained an original copy of "The Command of the Air."

Joubert's adjutant in Italy was William Wedgewood Benn (later Secretary of State for Air). Benn, who spoke Italian very well, devoted a large portion of his wartime memoirs "In the Side Shows" to his service in Italy. He writes, admiringly, of the Italian's use of Caproni bombers against Austria. Referring to his strong belief in large, multi-engined aircraft of "untold possibilities", he writes: "under the influence of Caproni in Italy, this partisanship became a definite part of my aerial faith". Benn was a tireless and influential lobbyist in Parliament and in the press for the cause of independent airpower in the inter-war period. He was intimately associated with the Air Service Parliamentary Committee and was a fierce critic of the Navy's attitude towards the RAF, championing Trenchard's famous December 1919 air policy statement, and appearing before the Salisbury investigation into the RN/RAF controversy in July 1923. He revisited Italy in 1927, when he met leading Fascists.

The first commander of the RNAS contingent was Murray Sueter. (Benn had also served with the RNAS contingent in Italy; the two men were friends). During his time in Italy, Sueter was much concerned with the development of the RNAS Caproni squadron. Like Benn, after the war Sueter was a tireless and influential lobbyist in Parliament (having been elected in 1922) and in the press for the cause of independent airpower, was likewise intimately connected with the Air Service Parliamentary Committee, and also appeared before the Salisbury investigation. When serving in Italy he would no doubt have been drawn to such like-minded men as Douhet and Caproni.

The evidence presented above is crystal clear that Caproni's many and varied contacts extended to British airmen. Was Benn the only British airman influenced by him? I think it is highly improbable. I believe it is highly probable that he had some influence on a number of British airmen - directly, and not just via the French and American airmen with whom he was closely associated. (Both France and the US

built large numbers of Caproni bombers under licence and used them extensively on the Western Front. The French were interested in Caproni's designs right from the first days and obtained a licence when the CA30 was barely off the drawing board. In the winter of 1917-18, Caproni paid a long visit to Paris; and towards the end of the war, Caproni also made an extensive tour of the US. Additionally, in the period 1917-18, large French and US air contingents were based in Italy. I am not necessarily suggesting that any influence that Caproni had on British airmen could be rightly compared to his profound influence on US airmen - which is not to say that any Caproni influence on British airmen can be disregarded.

It is of course possible (though not I think probable) that Caproni did not refer to Douhet by name in his discussions with British airmen. In any case, they would have been aware of Douhet's ideas, which is the important point.

After Italy joined the Allied side in WWI, a British Military Mission was attached to the Italian Supreme Command (May 1915 to August 1919). The head of the Mission was Brig.-Gen. Sir Charles Delme-Radcliffe, who had been British Military Attaché in Rome before the war. Among the many reports he wrote during the war was one on Douhet's court-martial. The British Embassy also reported on the court-martial, a cause celebre of the day.

The most important of the British airmen and soldiers who served in Italy during WWI was undoubtedly Hoare. Samuel Hoare (Secretary of State for Air 1922-4, 1924-9 and 1940) headed the Special Intelligence Section of the British Military Mission from the early summer of 1917 to the beginning of 1919.

Most of Hoare's papers for the period 1917-19 were closed to public inspection for many years and I have not had an opportunity to study them. However, the biography of Hoare by JA Cross does provide a good deal of information about his wartime service in Italy. Suffice it to say that such evidence as he produces clearly shows that, during the years 1917-19, Hoare (in addition to his normal duties) learnt Italian and immersed himself in Italian society, with the dual aim of: 1. fostering those elements that backed the war; and 2. countering those elements that were neutralist/ pacifist/defeatist. To this end, Hoare cultivated those politicians, industrialists and journalists who supported the war and its active prosecution. For example, he became very friendly with Bissolati and he financed Mussolini.

In light of his activities, I consider it very probable that Hoare came into contact with Caproni whilst in Italy - and quite possibly with Douhet himself. Final judgement will however have to await study of Hoare's papers.

Even if we suppose, despite the evidence presented above, that Hoare did not learn of Douhet and his ideas whilst serving in Italy, we can be all but certain that he did learn of Douhet and his ideas in the 20s.

In his memoirs, Hoare testified to the great British interest in, and the especially close ties with, Italian aviation in the 20s. If the primary reason for the great interest was the growing might and reputation of the Italian air force, the closeness of the ties

was due in no small part to the personal relationship between Hoare and Balbo: the two men greatly liked and admired each other.

For his part, Hoare (following his wartime service, a convinced Italophile) was concerned not only to maintain but also to expand the long-standing ties between British and Italian aviation. Hoare visited Italy several times during the mid 20s (meeting Mussolini in 1925, who thanked him for helping the nascent Fascist Party) and again, at Balbo's invitation, in 1929. For his part, Balbo (an equally convinced Anglophile) led an Italian air delegation (which included General Guidoni, recently Air Attaché in London) on a tour of Britain in 1927. Warmly welcomed by Hoare and Trenchard, they were feted everywhere they went. They visited the Hendon air display, Cranwell, the Royal Aeronautical Society and the factories of leading aircraft manufacturers. Balbo returned to Britain in each of the three succeeding years; attending the Hendon air display in 1928 and the Schneider Trophy contest on the Solent in 1929, and visiting London in 1929.

On his visits to Britain, did Balbo (or any of his companions) never once, either in public or in private, refer to or quote Douhet - Italy's honoured son and foremost military theorist? In light of the great British interest in, and the very close ties with, Italian aviation in the 20s, I (like Powers) find it "impossible" to believe that Douhet's ideas were not known in this country at that time.

What does it matter if Hoare did know of/was influenced by Douhet? It matters a great deal. Hoare is a very important figure in the history of the RAF because, as his biographer amply demonstrates, in the difficult and crucial years of the 20s Hoare's championship of the RAF was nothing less than decisive. Cross credits Hoare with three major achievements at the Air Ministry: successfully maintaining the independence and integrity of the RAF against fierce opposition; the considerable development of military and civil aviation; and the creation of a public opinion sympathetic to airpower. If, as has often been said, Trenchard was the Father of the RAF, then Hoare could fairly be termed its favourite uncle.

I think it quite possible that Caproni had some influence on Trenchard's thinking on airpower during WWI. It is now generally accepted that Trenchard was essentially an organiser; he was not in any real sense a theorist or polemicist. He had always to rely on others. Initially, Trenchard was strongly opposed to the idea of independent airpower and strategic bombing. His conversion only came about belatedly in the last months of the war, when he was put in command of the RAF's new Independent Force and charged with the strategic bombing of Germany. Presumably, given that his past experience had only involved the tactical use of airpower, he would have been receptive to the advice and guidance of others, more experienced in the field of strategic bombing than himself.

Given Baring's intimate relationship with Trenchard, his two missions to Italy in connection with Caproni bombers, his fluency in Italian, and the world-wide standing of Italian aviation in general and Caproni in particular, it is almost inconceivable that Trenchard was not aware of Caproni's ideas.

A long detailed and highly enthusiastic report on Italian aviation, and especially its strategic bombing campaign, written by Capt.-Commandant Lebon of the Technical Branch of the Belgian Air Service, was forwarded to Trenchard in October 1917. Lebon wrote admiringly and at length of “crushing” attacks on Austrian targets by 30 and 40 Capronis at a time, enthused about the potential of the Caproni triplane, and concluded by saying that in the field of strategic bombing the Italians “are far ahead of all other nations”.

Moreover, referring to the summer of 1918, Baring later recalled (significantly I think) that: “During this period we had a great deal to do with the American, the French and the Italian aviation. The Italians had a Squadron of Caproni machines quite close to us”. And finally, Caproni - accompanied by his friend Eugenio Chiesa, the Italian Commissioner for Aviation - actually visited Trenchard at his HQ in France in 1918. Could the influence of Caproni explain both Trenchard’s insistence on the need for the bombing of enemy airfields to achieve air superiority before a strategic bombing campaign could properly begin, and also Trenchard’s insistence that the morale of the enemy civil population should be the main target of a strategic bombing campaign? (Trenchard’s insistence on those points stayed with him, undiminished, throughout his life).

Furthermore, given the testimony of Hoare, is it really likely that in the 20s Trenchard was totally unaware of Douhet’s ideas? As shown below, Trenchard was certainly aware of Douhet by 1928. Is it in fact credible that the very close similarity between the ideas of Trenchard and Douhet was (as Higham says) mere coincidence?

I consider the evidence indisputable that, right from the earliest days, a close international aeronautical community existed; and that, even in the earliest days, its members had frequent opportunities to meet each other and to exchange information and ideas. At the outset it should be remembered that, ever since the mid-nineteenth century, each major nation had serving officers attached to its Embassies abroad - including, eventually, Air Attaches. And, at the risk of stating the obvious, the primary task of such officers was to familiarise themselves with the armed forces of the country in which they were serving, and to keep the authorities back in their own country informed of any developments.

Following the Wright brother’s sensational tour of Europe in 1908-9, air displays, competitions and conferences became a regular part of the aviation scene. And by the 20s, such events had become institutionalised. Among the many air displays, the one held annually at Hendon was one of the most famous; and among the many competitions, one automatically thinks of the headline-making Schneider Trophy contests e.g. the one at Venice, hosted by Balbo and Andriani, in 1927. Of the many Aviation Congresses and Conferences, the ones held in Rome in October 1923 - presided over by our old friend Mercanti, then Italian Commissioner for Civil Aviation - and October 1927 were among the most notable.

WWI was responsible for bringing French, Italian, British and US aviation closer

together. And, in many respects, the close relationship forged during the war continued into peacetime. A Supreme War Council, consisting of Permanent Military Representatives and a multi-national Secretariat, was established at Versailles in November 1917. Various Inter-Allied Committees (including an Inter-Allied Aviation Committee) were set up. The establishment of the SWC brought together officers and officials from the four Allied nations and provided a forum for the inter-change of ideas and information, both official and unofficial. Incidentally, at the third session of the IAAC (July 1918), the Italian delegation under General Luigi Bongiovanini decisively forced the issue of the creation of an Inter-Allied Airforce to mount a co-ordinated strategic bombing campaign against Germany in 1919: which had first been proposed by the Americans - perhaps under Caproni's influence - in March.

Furthermore, during WWI there was a large traffic in aircraft and aviation supplies between the Allied nations, and this naturally led to the development of close contacts between Allied airmen and officials. In 1917 the Italians established an Aeronautical Commission in London. And in June 1918 the Ministry of Munitions opened an office in Rome. Also in 1918 an Inter-Allied Munitions Council came into being under the auspices of the SWC; Chiesa was one of the Italian delegates. In the late summer of 1918 a British Aeronautical Mission, led by Sir Arthur Duckham (Director-General of Aircraft Production), visited Italy. And, finally, one should not forget the frequent wartime and post-war Allied conferences - many held in Italy (e.g. Rome 1917, Rapallo 1917, Genoa 1922).

In view of the above, I do not think it would be an exaggeration to say that, particularly during the wartime and post-war years, a great many in Italian, French, British and US aviation either knew - or knew of - each other. And thus it scarcely seems credible to me that Douhet and his ideas would not be discussed by - still less be unknown to - many airmen outside Italy, especially in Britain, France and the US.

The oft-claimed "language barrier" is a red herring - in fact, there was no real problem. Suppose we ignore for a moment the existence of translators and interpreters. During WWI many British and Italian airmen and soldiers acquired first-hand knowledge of each other's language: some's knowledge even pre-dated the war. Many of the Italians spoke English - most notably Caproni and Guidoni. Many of the British spoke Italian - most notably Hoare, Baring, Sykes and Benn. Very nearly all the major figures in British and Italian aviation spoke French - the "lingua franca" indeed. Finally, one should not forget that Caproni's ideas were available in both French and English texts.

It would indeed be incredible if, in the 20s, the British Air Attaches in Rome were less interested in, or less informed about, Italian aviation, than the British Military Attaches before WWI. (The Rome Embassy in the 20s, incidentally, had a reputation for being well informed). Air Attaches were appointed in Rome and London in May 1918. It is true that during the years 1921-24 there was no British Air Attaché in Rome. However, during this period, the British Military Attaché (Major-General John Duncan) also acted as Air Attaché and he kept the Air Ministry fully

informed of Italian developments in the aerial sphere, especially those consequent upon the March on Rome - including the creation of the "Regia Aeronautica" (Royal Air Force) in March 1923. Because of the pace and scope of Italian developments in the air, by the autumn of that year the British Embassy was urgently calling for the reappointment of an Air Attaché. And in 1924 Wing-Commander John Fletcher was sent out to Rome, where he remained until 1928. During his time in Rome Fletcher wrote many detailed, accurate and frankly alarming reports on the growth and overhaul of the Italian Airforce. Fletcher was a perceptive and shrewd observer, recognising both the great strides forward the Italian Airforce was making as well as its (less obvious) shortcomings. After his return to Britain, Fletcher lectured about the Italian Airforce.

Given the British interest in Italian aviation in the 20s, would Douhet have really been unknown to the Air Ministry? For Douhet was a man who had been appointed to high office by Mussolini; a man who was proclaimed by Fascist propaganda to be one of the world's greatest military theorists; and a man whose prolific and provocative writings were published with official or semi-official backing from 1921 onwards. In particular, would his "The Command of the Air", a book that was published by the Ministry of War and distributed to all army and naval officers (and which was later reissued by the Ministry of Culture), be likely to escape the notice of the British Embassy in Rome, and therefore not be transmitted to London? I consider it to be inherently improbable. (The US Military Attaché sent two copies of the book to Washington in March 1922). Nor can I believe that the two leading Italian aviation magazines "L'Ala d'Italia" and "Rivista Aeronautica", both of which gave Douhet's ideas extensive coverage, would have escaped the British Air Attaché's attention. I cannot accept the implication of Higham and Liddell Hart that every British Air Attaché in Rome between the wars was incompetent and kept his superiors in ignorance of Douhet.

The General Staff Monthly Intelligence Summaries testify to the great British interest in, and knowledge of, Italian aviation at this time. As of course do the Air Staff Air Intelligence Reports; report no. 13 (1926) being devoted entirely to Italian aviation. This report, which is extremely, long and detailed, shows a clear understanding of Italy's Douhetian air strategy. To quote two passages from the report: "Italy firmly believes in the use of the "Armata Aerea" [the Independent Air Force, comprising the strategic bombers] for reducing the morale and "will to fight" of the enemy civil population"; "The first function of the Independent Air Force is to paralyse the enemy's air force by direct air fighting and by attacking his ground organisations". The report also highlights crowded northern Italy's vulnerability to air attack and the greatly shaken civilian morale that resulted from such attacks in WWI - two of the key elements in Douhet's thinking. The report is I believe strong, albeit circumstantial, evidence of a knowledge and understanding of Douhet's ideas.

In my judgement, it would seem that the RAF moved from a preoccupation with the French Airforce in the early 20s to a preoccupation with the Italian Airforce in

the mid/late 20s and early/mid 30s - a preoccupation which began with the restoration of amicable relations with France and with the rebirth of the Italian Airforce after the rise to power of Mussolini (and which ended with the coming of Hitler and the rebirth of the German Airforce). The fact that the Italian Airforce had become by the late 20s one of the largest, most modern, best equipped, and most powerful airforces in the world made such interest entirely natural.

In his biography of Balbo, Claudio Segré rightly reminded us of the high regard in which Italian aviation was held throughout the world in the period from the mid 20s to the mid 30s - due to the personal magnetism of the dashing Balbo; the audacity of his long-distance mass formation flights; the record-breaking successes of Italian pilots and aeroplanes (not least the Italian victories in the Schneider Trophy contests); and the great technical achievements of Italy's aircraft designers and manufacturers - most notably Caproni heavy bombers, Savoia-Marchetti flying boats and Macchi racers. (At the time of his early death, Segre was working on a full-scale biography of Douhet, which we still lack. I had shared my preliminary findings with him and he was intending to follow up my research).

One should also not forget the considerable contemporary interest in, and respect for, Fascism on the part of many soldiers and politicians outside Italy.

It is perfectly fair to ask exactly why should the RAF be not only interested in but also influenced by Italian aviation in these years? And why Italian rather than French or US aviation? Hoare provides much of the answer - the "Regia Aeronautica" was throughout this period the only other independent airforce in the world, the only other airforce that was not just in both thought and practice an auxiliary of the army and navy; and Italy was one of the very few countries where really dramatic advances were being made in the field of aviation - technically, administratively and doctrinally. One should remember that serious debates about strategic airpower did not occur in France or in the US till the early 30s - and in both cases, Douhet's ideas figured prominently.

Besides the role of the British Air Attaches in Rome, there is of course to be considered the role of the Italian Air Attaches in London. There is no reason to believe that the latter would have been in any way shy about aeronautical developments in the "new" Italy, or about Douhet, Italy's honoured son - on the contrary. Especially, as in 1926-7 the Italian Air Attaché in London was General Alessandro Guidoni. Guidoni, a world renowned aerial torpedo expert, spoke fluent English and had been friendly with British and US airmen ever since he had been the Italian technical delegate to the Inter-Allied Aviation Committee during the war. His advice had been sought by the US aviation mission under Crowell which visited Europe in 1919. He had been awarded the OBE by Britain for his war services, was greatly admired by Trenchard, and was elected an Hon. Fellow of the RAeS in 1927. A friend of both Caproni and Douhet, he had also befriended Mitchell and Charlton when he had served as Italian Air Attaché in Washington during the early 20s; he advised Mitchell on technical matters at the time of his famous bombing tests on warships.

Thanks to the work of Alfred Hurley, biographer of Billy Mitchell, we now know that when he was in Washington, Guidoni sent an Italian Aviation Journal's summary of "The Command of the Air" to Air Service HQ and to "Aviation" magazine. The editor of the magazine discussed the piece with Mitchell, published an appreciation of "The Command of the Air" by Guidoni in his magazine (Nov. 1922), and planned to publish a translation of the entire book. In a letter to Douhet, Guidoni quoted the editor as saying that Mitchell was much impressed; the editor had also compared Douhet to Mahan. When he was in London, Guidoni certainly passed over Italian aviation publications to the Air Ministry. Did he, or any of his predecessors, supply information on Douhet to British Aviation journals like "Flight" or "The Aeroplane", both of which gave extensive coverage to the aeronautical developments taking place in Italy from the mid 20s? Incidentally, it is possible that the British Air Attaché in Washington sent a copy of Guidoni's article in "Aviation" magazine to London when it was published, for he was writing to his superiors shortly afterwards: "the Italian Air Attaché is granted access to many new developments especially within the US Army Air Service (a point of leakage now being delicately and cautiously tapped by your attaché)".

In his famous and controversial memorandum "The War Object of an Air Force" (May 1928), in which he first openly argued the case for an independent strategy in a future war, Trenchard referred to "foreign thinkers". Two weeks later, MacNeece Foster, a prominent member of the Air Staff, was cheerfully reporting to Trenchard the "considerable effect" of his quoting "Italian sources" at a lecture which he gave at the Imperial Defence College. Later that same month, in a minute which he wrote attacking critics of Trenchard's memorandum, Foster reiterated his firm belief that some "continental nations do regard the importance of the air as something quite unique", and quoted as supporting evidence the utterances of Oronzo Andriani, a leading figure in Italian military aviation. Foster was quoting from a powerfully Douhetian speech on the subject of objectives in time of war that had been reported in Britain three years earlier; the speech had evidently made a lasting impression on at least one member of the Air Staff. It is extremely tempting to speculate that Foster had a hand in writing Trenchard's memorandum and that he utilised Andriani's speech in the writing. Foster was very knowledgeable about foreign aviation: he was the British air delegate to the League of Nations at Geneva. Foster gave lectures at the RUSI in Nov. 1925 and Dec. 1927. These lectures were Douhetian in everything but name; however, they received no criticism from within the RAF. Significantly, Foster was favourably quoted or referred to by several of the airpower propagandists, including PRC Groves and Spaight. In June 1928 the Air Staff campaign received extra ammunition in the form of a translation of a German article, in which leading airpower theorists - including Douhet - were enthusiastically quoted, and which was circulated to, among others, Spaight and Trenchard. To be sure, Douhet was not the only authority to be mobilised by the Air Staff at this time, but he does seem to have been one of the more prominently deployed.

It is a fact that there were a great many similarities in what the three great inter-war proponents of air power - Douhet, Trenchard, Mitchell - believed and advocated (there were also some differences of course). This was no doubt partly due to their ideas being the natural products of like stimuli. As Higham says, men subjected to similar influences sometimes arrive at similar conclusions, without necessarily being aware of each other's ideas. But there was as well, undeniably, considerable cross-fertilisation, as Brodie says. For, it is clear that, from the earliest days, airmen constituted a close international community; the French, Italian, American and British members of which were brought even closer together by WWI. And even in the earliest days of aviation, there were opportunities for airmen from different countries to meet each other and to exchange information and ideas; as regards British, French, Italian and US aviation, such opportunities were naturally very much greater during the war.

As Boone Atkinson has written, military men are sometimes reluctant to acknowledge debts - least of all to a country which had suffered the debacle of Caporetto. There was, it is clear, a conscious downplaying of Caproni's influence on US airmen after the fact. No doubt national pride played a large part in this; as did professional pride (Caproni being a civilian). But, of course, unlike the Americans, the British had had considerable experience of strategic bombing during WWI - both as practitioners and as victims. As a consequence, the British were undoubtedly less receptive to outside influences than the Americans. Nevertheless, the evidence presented above strongly suggests, in my judgement, that British airmen were not only interested in and informed about, but also influenced by, Italian aviation and aviation developments in Italy - directly challenging the prevailing view. I do not of course seek to deny the deep native roots of British air power theory - HG Wells, Sykes, Lord Montagu, Lanchester, Sueter, Spaight "et al". But I certainly do not think that it is unreasonable to argue that British airpower theory could have been a compound of indigenous factors and outside influences.

I am not claiming that knowledge of (still less, interest in) the ideas of Douhet permeated all levels of the RAF: in all organisations there is a division between those who make and those who implement policy and their agendas can be very different. I do claim however that certain individuals, occupying positions of power or influence, were certainly aware of - and probably influenced by - Douhet. Knowledge and influence are of course different things. Knowledge, although an essential prerequisite for influence, does not automatically lead to influence. I readily admit that to date more hard evidence of knowledge has been accumulated than of influence. The evidence of influence is in truth largely circumstantial. However, I find the evidence of influence, albeit largely circumstantial, persuasive. It is hard to accept that the RAF's awareness of Douhet's ideas - as demonstrated in this piece - and the RAF's passionate belief in strategic bombing between the wars were completely unconnected.

Those who will no doubt retort (quite rightly) that over the years the RAF has in

some degree influenced many of the world's airforces (including the Italian), thereby implicitly acknowledge the existence of an international aeronautical community - and consequently cannot logically deny the possibility that Italian ideas had some influence in Britain. Unless, that is, they are prepared to assert that influence can only ever flow in one direction.

I am convinced that there is a need for a thorough and wide-ranging investigation of this neglected subject: certainly a more comprehensive and deeper investigation than I have been able to undertake. I will be content if this piece will have played some small part in stimulating just such an investigation. I realise that at this distance of time the likelihood of finding conclusive proof (of the "smoking gun" variety) of Douhet's influence on British air policy must be considered remote. And I accept that it was in all probability largely home-grown (I am convinced that it was not entirely home-grown). But this is a very long way from saying that Douhet was unknown and of no consequence, as Higham and Liddell Hart assert - or little known and of no consequence, as Smith asserts. "Largely" allows for some exceptions and though the evidence I have unearthed is mostly circumstantial, I believe that a jury would convict. I consider the subject worthy of further research and so invite colleagues in both Britain and Italy to undertake it.

TRIANAFYLLIA KAISAROU-PANTAZOPOULOU*

Royal Hellenic Air Force (RHAF) during World War II. Organization and Operations

Warlike preparations

On May 20, 1940, the Chief of Air Staff was asked to plan the air defence which consisted of three divisions: Active Air Defence, Passive Air Defence and Early Warning System. In order to ensure the air defence in the rear, the country was divided into large geographical zones which corresponded to Athens, Larissa, Thessaloniki, Kavala, Alexandroupolis and Ioannina.

As far as the aerodromes were concerned until the outbreak of war, seven new aerodromes had been constructed (Sedes, Larissa, Dekelia, Phaliro, Eleusis, New Anchialos and Maleme, Crete) as well as 22 auxiliary airfields and 25 landing grounds ¹.

According to the mobilization plan, the RHAF was organized into Army and Naval Air Commands ².

The Army Air Command included the Bomber, Fighter and Army Co-operation Commands.

The Bomber Command was formed on August 23, 1940, in Larissa and its aim was to bomb enemy supply lines, routes of advance or retreat and other strategic objectives. The Bomber Command had three squadrons at its disposal:

No. 31 Bomber Squadron had eight serviceable Potez 633 B2 and was stationed at Niamata, Larissa. The Squadron's flying personnel consisted of 23 officers and non commissioned officers (NCOs).

No. 32 Bomber Squadron operated with 11 serviceable Bristol Blenheim Mk IV. It was based at Kazaklar airfield in Larissa. Its flying personnel consisted of 19 officers and 16 NCOs.

No. 33 Bomber Squadron had 10 serviceable Fairey Battle B.1 and was stationed at New Anchialos, Volos. Twenty- five pilots and air gunners were assigned to this Squadron.

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¹ *Hellenic Wings: An Illustrated History of the HAF and its precursors, 1908-1944*, Vol. I, published by the History Museum, HAF, Athens, December 1998, p. 82.

² *History of the Hellenic Air Force (1930- April 1941)*, Vol. III, published by the History Museum, HAF, Athens 1990, pp. 128-141.



FIGURE 1: The Polish-built P.Z.L. P.24 F/Gs were the main fighters during the Hellenic-Italian War (Archive of the History Museum, HAF).

The Fighter Command was assigned to protect the vulnerable areas, to escort the sea convoys, to protect the Bomber Air Force allies, the multi-firing of the enemy phalanges and the interceptions of enemy aircraft. The Command included four squadrons:

No. 21 Fighter Squadron was stationed at Vasiliki, near Trikala. The inventory of the Squadron consisted of 10 P.Z.L. P.24s while its flying personnel included 9 officers and 5 NCOs assisted by 150 persons with other specialties (Figure 1).

No. 22 Fighter Squadron was stationed at the auxiliary airfield of Great Mikra near Thessaloniki. The Squadron employed nine P.Z.L.s and its flying personnel consisted of 6 officers and 6 NCOs while other specialties amounted to 100.

No. 23 Fighter Squadron was based at Ambelon airfield, near Larissa. The Squadron employed 11 P.Z.L.s while 16 pilots and 26 engineers (officers and NCOs) together with 120 persons with other specialties were assigned to it.

No. 24 Fighter Squadron was stationed at Eleusis Air Base. Its inventory consisted of 9 Bloch MB. 151s. Its flying personnel consisted of 10 officers and NCOs while persons with other specialties accounted to 180.

The Army Co-operation Command was tasked to offer support to ground forces



FIGURE 2: A formation of Henschel Hs 126A-1s (Archive of the History Museum, HAF).

by carrying out reconnaissance missions and light bombing operations. Army Co-op had at its disposal four Squadrons and one Flight.

No. 1 (Army Co-op) Squadron was a training squadron and did not participate as such in actual military operations. *No. 2 (Army Co-op) Squadron* was based near Kozani at the Petrana auxiliary airfield. It was equipped with 10 serviceable Bréguet Bré 19s. Flying personnel included 10 officers and 16 NCOs while persons with other specialties accounted to 160.

No. 3 (Army Co-op) Squadron was divided into two flights based at Veroia and Lebet airfields respectively. Each flight was equipped with 8 serviceable Henschel Hs 126 A-1s. In December 1940 these two flights merged into one. The flying personnel included 23 officers and 7 NCOs supported by 220 persons with other specialties (Figure 2).

No. 4 (Army Co-op) Squadron, was also divided in two flights, operated from the airfields of Gida and Kouklaina. The Squadron was equipped with 7 serviceable Potez Po 25s and one Avro 621 Tutor. Its strength included 12 pilots (10 officers and 2 NCOs) assisted by 137 persons with other specialties.

Independent Flight 2828 was based at the auxiliary airfield of Tanagra. The flight had 8 Bréguet Bré 19s at its disposal while flying personnel included 8 officers and 5

NCOs. Ground personnel consisted of 65 persons with other specialties.

Naval Air Command was assigned with open sea patrols, anti-submarine patrols and mine searching missions. This Command on the eve of the war was consisted of the following three squadrons:

No. 11 (Naval Co-op) Squadron was equipped with 9 Fairey III Fs and was based at Valtoudi, Magnesia. It possessed 8 pilots (officers and NCOs) while ground personnel consisted of 150-180 persons with other specialties.

No. 12 (Naval Co-op) Squadron was operating from Suda Air Base in Crete as well as from Milos, Moudros and Mytilene. Its inventory consisted of 12 Dornier Do 22Kg seaplanes. It included 15 pilots and 220 ground personnel (Figure 3).

No. 13 (Naval Co-op) Squadron was stationed at Eleusis Air Base, having at its disposal 9 Avro 652A Anson Mk I. The flying personnel included 23 officers and 16 NCOs supported by 200 persons with other specialties.

The RHAF also used, for training purposes, 6 Hawker Horsley II bombers, 6 Avia B-534 (verze III) fighter /trainers, 2 Gloster Gladiator fighters, 20 Avro 621, 22 Avro 626 Prefect and a number of Morane- Saulnier MS.230 trainers. The Breguet 19s and Potez Po 25s, were withdrawn from active service soon after the hostilities broke out while the Dornier Do 22Kg were sent to the State Aircraft Factory in order to be converted into front line combat aircraft.

On the eve of the Hellenic-Italian War, the total potential of RHAF front-line aircraft was 78 aircraft (24 P.Z.I. P.24s, 9 Bloch MB.151s, 8 Potez 633 B2s, 11 Bristol Blenheim Mk IVs, 10 Fairey Battle B.1s and 16 Henschel Hs 126s). On the other hand, the Regia Aeronautica had 225 bombers, 179 fighters and 59 reconnaissance aircraft for this campaign, summing up in a total of 463. Furthermore, RHAF aircraft were by far less capable in comparison with those of the Regia Aeronautica as far as their overall specifications and performance were concerned³.

Regarding the RHAF aerodromes, they had severe deficiencies in terms of anti-aircraft protection, wireless communications and runway conditions. Most of these airfields were covered in clover and would become soggy and nonoperational in wet weather. The Regia Aeronautica on the other hand could use a large number of airfields all along the front. As a result, the Italian aircraft could penetrate deep into the Hellenic territory even under adverse weather conditions. The RHAF, in view of these deficiencies, had to rely to a very large degree on the abilities and courage of its pilots. However, The RHAF, as a small airforce with scanty supply of modern aircraft, entered the war with high morale.

³ *Hellenic Wings, Ibid*, pp. 90-91.



FIGURE 3: Dornier Do 22 seaplane (Archive of the History Museum, HAF).

Hellenic-Italian War

The German policy, aiming at breaking up the borders all over Europe had an inevitable impact all across the Balkan peninsula. Hitler envisaged a rapid solution to the Balkan conundrum so as to have all his forces available for the “Barbarossa” operation against the Soviet Union. It seems that Hitler had entrusted the subjugation of Greece and Yugoslavia to Mussolini, so as to satisfy the Duce’s Mediterranean aspirations.

It seems that the invasion and outright annexation of Albania in April 1939 was only a stepping-stone for invading Greece. The Italian provocation reached its peak when they torpedoed frigate ELLI on the 15th of August 1940. The attack against Greece had become imminent. On October 25th, 1940, Prime Minister I. Metaxas announced that according to available information, the Italian attack would unfold sometime during the next three days. It was indeed launched at early dawn on the 28th of October 1940. Early in the morning of October 28, 1940, Patras and Athens were bombed by Regia Aeronautica.

The first engagement took place two days later over Korytsa between 3 Fiat GR. 42 Falcos and 2 RHAF reconnaissance aircrafts. The latter managed to escape. The first loss of life occurred on October 30, 1940 when 5 Italian Fiat GR. 42 fighters were involved in a dogfight with two Henschel Hs 126s. The Italians managed to damage the engine of one Henschel which was forced to land. The observer, Pilot



FIGURE 4: Pilot Officer Evangelos Giannaris (Archive of the History Museum, HAF).

Officer Evangelos Giannaris, was fatally injured⁴ and was the first officer of the Hellenic Armed Forces to be killed in action during the Hellenic – Italian War. In the course of the same incident the Italians shot down the second Hs 126 as well, causing the death of the crew (Figure 4).

On November 1, 1940, the RHAF bomber squadrons undertook their first strike. Three Blenheims attacked Korytsa Air Base. One of the planes zoomed on the target and struck it causing the death of 40 Italians and the injury of another 20. A few hours later two Italian fighters crashed on craters created by the bombing of the runway.

Early morning on November 2, 1940, one Bréguet Bré 19 of No. 2 (Army Co-op) Squadron, undertook a reconnaissance mission over the Pindos Gorge. At 07:00 hrs the

aeroplane approached what appeared to be a heavy concentration of military units along the Samarina – Distraton road. These turned out to be part of “Julia” Division which was moving towards Metsovon, infiltrating Hellenic defence lines through paths and ravines. The Kozani Command ordered the Cavalry Division to move rapidly from Thessaloniki and occupy the Metsovon Pass before the enemy could reach it. Overall, spotting the “Julia” Division was one of the most important events of the Hellenic – Italian War and played an important role in determining the outcome of the Italian invasion⁵.

In the early hours of the same day, another well-known episode of air fighting also occurred. 6 P.Z.L.s of No22 Fighter Squadron got involved with 15 Italian bombers and 7 fighters. Flying Officer Marinos Mitralaxis, having exhausted his ammunition during a harsh pursuit of an Italian three – engined bomber, instead of returning to his base, pushed his throttle and “rammed” the rudder of the bomber with his

⁴ Register of Officer and War Action Report of No3/2 Independent Flight during the period 28-10-1940 until 4-11-1940 and summary of No 3 (Army Co-op) Squadron, under Flight Lieutenant P. Mpakola, Athens, 24-7-1941, Archive of the History Museum, HAF.

⁵ War report of No2 (Army Co-op) Squadron, under Flying Officer D. Karakitsou and D. Politi, Gaza, 16-11-1942, Archive of the History Museum, HAF.

propeller, which was torn to pieces. As a result, the aeroplane dived into an uncontrollable spin and crashed. Four of the crew members baled out and landed safely on Macedonian soil, including the bomber's pilot, Pilot Officer B. Pasgualotto.

Mitrallexi's propeller had been twisted as a result of its impact with the bomber's rudder, forcing him to land his P.Z.L. close to where the bomber had crashed. Having landed safely, Mitrallexis jumped out of his cockpit with his revolver and arrested the crew of the Italian bomber, bringing them to the Army Headquarters of Thessaloniki. This incredible incident was confirmed by an interview given to the daily newspaper "Proia" by a crew-member of the Italian bomber, Pilot Officer Caribaldo Brussolo (Figure 5).



FIGURE 5: Flying Officer M. Mitrallexis (Archive of the History Museum, HAF).

Between November 3 and 13 the Italian attack was halted and the RHAF carried out many important missions, as interceptions of Italian aircraft with shooting down, striking operation against the Alpinisti and bombing of the port of Avlon and of the Korytsa airfield. A reconnaissance mission of No.21 Fighter Squadron on November 4, 1940 revealed that the Italians were retreating all along the front. The day after, the first Italian prisoners of war were sent to Athens.

On November 14, 1940 the Hellenic Army launched a general counter – attack throughout the front which lasted until January 6, 1941. The RHAF focused its action on the central front, offering valuable air support to the advancing Hellenic Army units by destroying the enemy supply and retreating routes.

The first day of the Hellenic Army counter-attack 2 Blenheims of No32 Bombing Squadron and 2 Faireys Battles of No33 attacked the southern Korytsa aerodrome destroying 10 aircraft and damaging others. During this attack one Blenheim was shot down by antiaircraft fire. Furthermore, during the bombing raid against northern Korytsa aerodrome one Italian Caproni CA 133 was destroyed on the ground. During the same day, 6 Faireys bombed the aerodrome of Argyrokastron destroying 12 Italian aircraft on the ground. The Fighter Squadrons were also heavily involved in combat during the first day of the offensive. Forty- two sorties were recorded during which the Italians lost 3 Fiat CR.42s.

During the last two weeks of November, air warfare continued all along the front. On November 18, 5 P.Z.L.S of Nos 22 and 23 Fighter Squadrons were entangled in air combat. Sergeant G. Valkanas, its only pilot with no success to his credit so far, after having exhausted his ammunition during an attack against Italian fighters, threw his aircraft onto an Italian fighter. The crash was fatal for both, yet again indicative of the determination of RHAF pilots ⁶.

On November 18, 3 aircraft of No.32 Squadron took off heading towards Argyrokastron in a scheduled bombing mission. Due to heavy fog, one of the bombers abandoned the approach and headed towards the auxiliary Italian airfield at Premeti to release its bomb-load not being aware that the Italian Army had stored large quantities of ammunition at that particular airfield. For three days and nights, the airfield was set ablaze as a result of this unplanned bombing, destroying large ammunition depots and supplies ⁷.

On November 22, 15 bombers (Potez 633s, Bristol Blenheims and Fairey Battles) in co-operation with three reconnaissance Henschel Hs 126s undertook bombing of 8km-long retreating enemy columns along the Korytsa - Maliki Lake - Pogradets route. The Hellenic aircraft attacked the Italian fighters which had scrambled to intercept them. As a result one Henschel was shot down.

On December 2nd, the RHAF received from the British government 8 Gloster Gladiators of the Mk II version. According to an Army Air Command report to the Chief of Air Staff, these aeroplanes were regarded as “extensively used”.

In early December, Argyrokastron and Premeti were occupied and the Italians were retreating towards Tepeleni. The RHAF continued the bombardment of retreating Italian units. The Italian Headquarters, in view of the unexpected successes of the Hellenic Army and the RHAF, decided to reinforce the Italian Air Command of Albania with transport aircraft as well as fighters and bombers.

The RHAF, on the other hand, was faced with problems caused by weather conditions. Landing grounds had been rendered useless due to the rain, frost and snow which made aircraft vulnerable to air strikes. Wing Commander Emmanuel Kelaidis, Chief of the Fighter Command, ordered that all P.Z.L.s should be moved to Sedes airfield near Thessaloniki within four days. Despite short notice and within the deadline set, working 24 hours per day, the personnel of the airfield and the squadron managed to dismantle the P.Z.L.s, load them on lorries and drive them to Thessaloniki ⁸.

As the Hellenic Army advanced northwards into the Albanian territory the exist-

⁶ Report on War Action of No23 Fighter Squadron during the Hellenic- Italian and Hellenic- German War 1940-1941, under the Group Captain Vet (ex Commander) G. Theodoropoulou, 3-11-1977, Archive of the History Museum, HAF.

⁷ Report of Squadron Leader G. Sakki concerning the action of No32 Bomber Squadron during the Hellenic- Italian War 1940-1941, during which he served in the Squadron as a Reserve Warrant Officer Bomber - Gunner, Archive of the History Museum, HAF.

⁸ E. Kelaidis, *Air Force Memories*, Athens 1972, p. 40.

ing airfields proved to be too far away from the theatre of operations. Moreover, adverse weather conditions had a negative effect on RHAF performance. The Hellenic-Albanian frontier is characterised by its odd climatic conditions. As a result, deep gorges and heavy fog cause strong wind currents and limited visibility, which altogether hinder air navigation. Strong rainfall covered existing roads, airfields and landing strips available for use by the RHAF.

RHAF potential of front-line aircraft in January 1941 consisted of 28 fighters (7 Gloster Gladiator Mk IIs, 2 Bloch MB. 151s and 19 P.Z.L. P. 24s) and 7 bombers (4 Bristol Blenheim Mk IVs and 3 Fairey Battle B.1.s). The Army co-operation squadrons' inventory included 4 Henschel Hs 126s and 10 Dornier Do 22s⁹.

On January 9, Army Corps captured Kleisoura, while until the end of the month it was engaged in clearing up adjacent areas. The RHAF took, as far as possible, an active role in these operations, often hindered by adverse weather conditions. On January 25, as the weather had improved, 7 Gloster Gladiators and 3 P.Z.L.s intercepted 8 Italian Fiat BR.20 M Cicogna bombers and shot down 3 of them, forcing the rest to flee.

On February 9, 1941, the RHAF operated extensively over the front. Eight P.Z.L.s of Nos.22 and 23 Fighter Squadrons and 4 Gladiators of No.21 Squadron intercepted 18 Italian SIAI S.M.79 bombers escorted by 12 Fiat G.50 and 12 Fiat CR. 42 fighters. Four enemy aircraft, and possibly 3 more, were shot down¹⁰.

From the 13th of February, II Army Corps launched an attack against Telepene. The RHAF was ordered to support this operation. A few days later, No.32 Squadron was reinforced by the arrival of another 6 Bristol Blenheim Mk IVs. These planes had no provision for emergency exit from their rear thus hindering the crew's timely evacuation in case of emergency (Figure 6).

On February 20 the Royal Hellenic Air Force resumed heavy action. Seven P.Z.L.s of No.22 Fighter Squadron in co-operation with 12 fighters from the other Fighter Squadrons were escorting heavy bombers over the front. Ten Romeo 37 and 15 Fiat G.50s Freccia fighters intercepted the formation and tried to isolate the P.Z.L.s of No.22 Squadron. Four Italian fighters were shot down, despite the fact that the Italian formation enjoyed an initial tactical advantage by flying at a higher altitude¹¹.

The most important event of March 1941 was the Italian spring attack, known as "Primavera", which had been planned by Mussolini himself, after having visited the front. On early dawn of March 9th, "Primavera" was initiated. Almost 200 aircraft (of which 70 were bombers) supported the Italian thrust.

⁹ *Hellenic Wings, Ibid*, p. 104.

¹⁰ No.21 Fighter Squadron, Operation Book from 28-10-1940 until 15-4-1941, Archive of the History Museum, HAF.

¹¹ Report on military action of No.22 Fighter Squadron from 10/28/1940 until 27/04/1941, under the Wing Commander A. Antoniou (ex Commander), Athens 16-8-1946, Archive of the History Museum, HAF.

The RHAF suffered some losses in the air during the first day of the offensive (a Fairey Battle, a Bristol Brenheim and an Avro 626 and six of their crews). On March 18 the Naval Air Command was informed about the presence of an Italian submarine outside Piraeus. No. 13 Squadron was assigned to destroy the submarine, and, judging from the large oil slick created after intense bombing, it was assumed that the U-boat had been successfully hit ¹².

Hellenic-German War

The German attack against Greece was imminent since the end of March. Therefore, the possibility of putting up effective defence was slim and German troops managed to penetrate deep into Macedonia on April 6 and 7. Many Hellenic Army forts fiercely resisted against overwhelming odds along the Eastern Macedonian frontier, until forced to surrender due to their isolation from the bulk of the Hellenic Army. Soon after, Wehrmacht captured Thessaloniki.

The expected order for the redeployment of troops along the Olympus-Servia-Aliakmon line was issued only on April 12, when the situation on the front was irreversible. Meanwhile, Prime Minister Alexandros Korizis committed suicide on April 18 in view of the desperate situation along the front and the inability to find a satisfactory solution.

Serious deficiencies of the RHAF, frequent mechanical failures of the strained aeroplanes, the worsening condition of airfields and landing grounds, together with the indisputable qualitative and quantitative superiority of the Luftwaffe turned the odds heavily against it.

The Luftwaffe had at its disposal 1.030 aircraft for the invasion, 898 of which were fighters while the rest had different roles¹³.

The RHAF during the three-week war against the Germans undertook 179 missions of all the types. On April 6 1941, P.Z.L. of No 22 Squadron and Block 151 of No 24 shot down 2 German aeroplanes, Dornier Do17 and Henschel Hs 126s.

On April 15, RHAF fighter squadrons confronted a formation of Junkers Ju87s and Messerschmitt Bf 109s. During the incident, one P.Z.L. and one Gladiator were shot down but their crew remained safe. One more pilot was killed during the Luftwaffe's raid at Trikala airfield having managed to hit two enemy bombers¹⁴. The same day a pilot of No.23 Squadron was killed after having shot down an Hs 126.

The Bombers Command executed 18 missions totally. Finally, the Dornier Do 22s of No. 12 (Naval Co-op) Squadron continued delivering sealed envelopes including important orders and carrying out search and rescue missions to the last

¹² No13 (Naval Co-op) Squadron, Squadron Action in Greece, from 28/10/1940 to 23/04/1941, Archive of the History Museum, HAF.

¹³ *Hellenic Wings*, *Ibid*, p. 113.

¹⁴ C. Shores and B. Cull, *Air war for Yugoslavia, Greece and Crete*, 1940-41, London 1987, p. 223.



FIGURE 6: Bristol Blenheim MK IV aircraft (Archive of the History Museum, HAF).

day of the invasion. Anti- aircraft artillery also contributed significantly by shooting down a considerable number of enemy aircraft.

Due to the overwhelming might of the German military machine, a retreat was deemed necessary in order to reorganise the RHAF and carry out the war from Crete and the Middle East. Nevertheless, the situation became desperate when the Early Warning System, set up in Larissa according to British standards and advice, ceased to offer information on enemy sorties. As a result, Germans could easily catch RHAF, RAF and JURV ¹⁵ aeroplanes on the ground and destroy them.

General Headquarters planning aimed at primarily ensuring the safe escape of personnel. The RHAF Flying Training Centre ¹⁶ was high up in the list of priorities and the Commanding Officer of the Centre was ordered to take every precaution during the transfer of cadets to Crete. To this end, the Royal Hellenic Navy commissioned the steamship “Alberta”, which, eventually sailed from Nafplion on early afternoon of April 20, 1941.

¹⁵ Yugoslavian Air Force.

¹⁶ The centre was established when the operation of the School of Aviation was suspended, now the Air Force Academy. Binding Law 2703/1940. Archive of the History Museum, HAF.

As far as the aircraft were concerned, the Fighter Command's aeroplanes (11 P.Z.L.s, 8 Gloster Gladiators and 2 Bloch MB.151s) were stationed at the auxiliary airfield of Amphiklia where the Germans managed to totally destroy them. A few planes managed to fly to Elefsis Air Base and Argos only to be destroyed there. The Bombing Squadrons were forced to move out to Elefsis from Tanagra, where they were destroyed by a raid of Messerschmitt BG 109s. The Army Co-operation Command at Agrinion airfield managed to save only 4 aircraft. No. 11 (Naval co-operation) Squadron on its way to Crete was forced to land at Monemvassia due to technical problems where it was destroyed by the Luftwaffe. No. 12 Squadron managed to send one of its Dornier Do 22s to Crete. Out of a total of 9 Avro Ansons of No. 13 Squadron, 5 managed to reach Crete.

The Battle of Crete was the last act of the Hellenic-German War. Soon after the occupation of the island by the Germans, the Allied Forces undertook a titanic effort for the evacuation of Crete. Instructors and cadets of the Flying Training Centre managed to leave Crete and reach Egypt.

A total of 10 RHAF aircraft eventually managed to arrive at Egypt. Five Avro Ansons of No. 13 (Naval co-op) Squadron, one Dornier Do 22 of No. 12 Squadron and 4 Avro 621 Tutors, with personnel of all ranks and specialties, formed the kernel of a reborn RHAF (Figure 7).



FIGURE 7: The Avro Anson Mk I serial no. N61 (N61) was among those which escaped to Crete and then to Egypt (Archive of the History Museum, HAF 30129).

The RHAF in the Middle East

In order to organise the gradual arrival of the RHAF personnel in Egypt, a special Reception Depot was raised in Gaza. The RHAF delivered 2 Gloster Gauntlets and one Gloster Gladiator, which together with the Avro Tutor 621s offered the possibility to the inactive aircrews to engage in some flying training activity.

The Air Ministry had been established in Cairo and Group Captain P. Vilos, DSO was assigned as a liaison officer of the RHAF with the RAF. The Hellenic community in Egypt and the Orthodox Patriarchate of Alexandria showed great interest.

The first step for the reorganisation of the RHAF in the Middle East was the formation of the Higher Air Command (HAC), temporarily based in Cairo. The organizational structure of the RHAF in the Middle East included, under the Air Ministry, the General Directorate with three Directorates (personnel, logistics and Technical Services) and the Air Force Recruiting Office, while under the HAC the Staff and the Technical Directorate¹⁷.

Given that independent training on the part of the RHAF was precluded due to lack of sufficient infrastructure, training had to be undertaken in the RAF Flying Training Schools in Africa. Staff Officers of the Air Ministry, under Wing Commander K. Platsis, DFC went to South Africa and Southern Rhodesia in order to investigate the possibility of RHAF personnel to be trained there.

The training of the RHAF flying personnel in RHAF training section in Southern Rhodesia, was organised along the lines of the Royal Air Force and included the following stages: pre-preparatory, preparatory, initial, further and advanced training. Selected trainees (aged between 18 and 31) satisfied strict criteria so far as their overall performance and physical condition were concerned. Command of English was a prerequisite for admittance and hence language courses were intensively taught in parallel with training. RHAF qualified pilots, were also required to be retrained in the new types of RAF aircraft scheduled to be delivered to the Hellenic Squadrons (Figure 8).

RHAF cadets in RHAF training section in South Africa followed identical training as their allied counterparts. They had to attain an advanced level teaching of the English language. Cadets were trained as air wireless operators/air gunners, ground wireless operators or observers. Apart from flying training, the Air Ministry arranged that ground personnel would also be trained at the RHAF Training Section in South Africa or at Aqir, at Aboukir and at Heliopolis. After graduating from the training centres, officers and NCOs were posted to Maintenance Units for specific training on the aircraft/equipment in Aboukir and in Tura¹⁸.

¹⁷ *History of the Hellenic Air Force (1941-1944)*, Vol. IV, published by the Hellenic Air Force History Museum, 1998, pp. 131-134.

¹⁸ *Ibid.*, pp. 146-164.



FIGURE 8: Pupil pilots and instructors flying in formation with North American T-6 Texan Harvards at the RHAF Training Section in Southern Rhodesia. De Havilland D.H.82A, Tiger Moths and Airspeed AS.10 Oxfords were also used as trainers at Service Flying Training Schools in South Rhodesia (Archive of the History Museum, HAF 40203).

The first fully operational Squadron to enter service in the Middle East was No.13 Light Bombing Squadron. Later on, the Fighter Squadrons 335 and 336 were formed.

No.13 Light Bombing Squadron operated under RAF No.201 Group and its primary task was to offer air cover to sea convoys and to carry out long range reconnaissance patrols, both during the day and the night. On July 14, 1941, the first anti-submarine mission was carried out from Dekheila Air Base with Avro Anson. In December 1941, the Squadron was equipped with 3 MK IV Bristol Blenheim at Mariyut airfield outside Alexandria. In January 1942, the Squadron was converted to the Bristol Blenheim Mk V.

From May to October 1942, No. 201 Group entrusted the Squadron with anti-submarine and convoy patrol missions. On July 10 the Squadron was re-stationed at the airfield of Gaza in Palestine carrying out missions over the area between Haifa, Port Said and Beirut. Four days later, a flight of 6 Blenheims was ordered to move



FIGURE 9: A No.13 Light Bombing Squadron Martin A-30 Baltimore setting course at dawn (Archive of the History Museum, HAF 40093).

to Saint Jean near Haifa. Its main task was to offer air-cover over an area extending from Cyprus and Beirut to Haifa and Tel Aviv occasionally reaching Alexandria, Mersa Matruh and even Tobruk in Libya.

On October 14 and 24, during anti-submarine patrols, the Squadron was credited with shooting up two enemy U-boats on the surface. As a result of the intensive combined allied aerial action over the Eastern Mediterranean, the Sea became relatively safe for Allied convoys. Part of the credit undeniably belongs to No. 13 Hellenic Squadron, which was warmly congratulated by the allied commanders¹⁹.

During the first months of 1943 the Squadron received new Blenheim known as “Bisley” at Landing Ground 07. The most important development during the last months of 1943 was the gradual replacement of the Bristol Blenheims by Martin A-30 Baltimores of the Mk III type, having enhanced capabilities such as increased range and heavier bomb load (Figure 9). Thus, the Squadron carried out offensive sweeps, photo-recce and bombing sorties over the Southern Aegean. Until December 12, 1943, the Squadron had completed 1.302 missions, 740 of which were convoy

¹⁹ *Ibid*, pp.189-190.



FIGURE 10: A formation of Hawker Hurricanes flying above a No.335's base in the desert (Archive of the History Museum, HAF 40103).

patrols, 494 anti-submarine sweeps, 50 offensive recces and 18 bombings.

During the first three months of 1944, problems arising from political disputes within the RHAF forced the British to hasten the procedures for the Squadron's re-stationing in Italy, which took place on April 29, 1944.

No. 335 Hellenic Fighter Squadron was raised on October 7, as No.361 (Hellenic) Squadron and almost immediately renumbered to No. 335. Based at Aqir until December 1941, the Squadron was initially equipped with Hawker Hurricane Mk Is²⁰ (Figure 10). On January 26, 1942, the Squadron was ordered to move to Landing Ground 20, east of El Daba. By February 1942, the Squadron, being fully trained and ready for action, began operations flying convoy and standing patrols over the Western Desert.

On July 26, 1942, the Squadron moved to the RAF Station at Idku under 252 Wing, charged with the protection of Alexandria. As the situation along the front stabilised No.335 moved to Dekheila, east of Alexandria, where it temporarily stopped operations in order to be trained on the new Hurricanes Mk II bs. On October 2, the Squadron moved to LG85 from Amryia. Five days later, the first reconnaissance mission over El Alamein was flown²¹. Later, it was announced that the Squadron would

²⁰ J.D.R. Rawlings, *Fighter of the RAF and their Aircraft*, Mac Donald, London 1961.

²¹ Operations Record Book, No 335 (Hellenic) Squadron, October 1942.

join No. 1 SAAF Wing covering the El Alamein front and escorting SAAF bombers. On October 23, it was re-stationed at LG37 just 75 miles from the front, in order to participate in the Battle of El Alamein.

At the second anniversary of the Italian attack against Greece was approaching (October 28th), Squadron Leader I. Kellas asked permission to “celebrate” the anniversary by carrying out a strafing operation against the Headquarters of the Italian XX Corps which was based behind the Axis lines. The attack was fierce. Twelve Hurricanes of No.335 (together with another dozen of No.274) caused significant damage to enemy lorries, tents and pillboxes²².

In November, 9 pilots of No 335 formed the basis of No.336 Hellenic Fighter Squadron. From February to January 1944 the Squadron was stabilised at Mersa Matruh in Egypt, carrying out shipping escort missions, anti-submarine patrols, offensive reconnaissance, interceptions and training sorties.

On July 23, 1943, the two Hellenic Fighter Squadrons in co-operation with Nos 74, 451, 127, 94, 213, 238 and 252 Allied Squadrons took part in operation “Thetis”, a massive ground-attack sweep on Crete²³. On November 13, 1943, the mission was successfully repeated under the code- name “Operation Sociable” and again on November 15 and 17.

In December 1943, its request of No.335 quest to be converted to the Spitfire Vb and Vc was finally met (Figure 11). In total, during 1943, the Squadron logged on more than 8.000 hours of combat and 3.400 hours of training. From March 1, 1944, the Squadron operated from the Bersis airfield in Tunisia. In September 15, No.335 headed for its new base in Canne, Italy.



FIGURE 11: Ground crew servicing the engine of a Supermarine Spitfire (Archive of the History Museum, HAF 40072).

²² Protocol No. 2620/62015/5-1-1943/Air Ministry / Air-Force Staff / 1st Office / Report on the activity of 335 Hellenic Fighter Squadron, Cairo.

²³ G. Ioannidis, *Revenge raid in Greek heroic airmen (1940-1945)*.

No. 336 Hellenic Fighter Squadron started to operate at Almasa (LG 219) on February 25, 1943. Due to the intended expansion of the theatre of operations to include Southern Europe, the Allied Command decided to raise a second Hellenic Fighter Squadron²⁴. Its personnel were mainly drawn from No.335 serving pilots. The Squadron was soon operational and the first sortie was realized on March 1, 1943.

The Squadron was strengthened with the newly graduated Warrant Officers of the Air Force Academy, who immediately began training on the Hawker Hurricane Mk IIc, which was used by the Squadron. On April 3, the Squadron was placed under No.219 Group, RAF. Moving to Sidi Barrani, No. 336 began to fly convoy patrols along the coast from Alexandria (Figure 12).

No. 336 was one of No.219 Group's Squadrons, which took the offensive with a ground-attack sweep on Crete on July 23, 1943. The aim of the mission was to destroy vital enemy positions and installations on the island including coastal ones, in order to facilitate the Allied naval operations and their disembarkation all across the Aegean. The operation was considered to be of the highest risk due to the distance between Crete and Egypt and the heavy anti-aircraft protection of the island (almost a quarter of the participating aircraft were lost)²⁵.

No. 336 continued its assigned missions from African bases all through 1943 mostly continuing to fly sweeps. To increase its strength 6 Spitfire Vcs were delivered to the Squadron on October 12, 1943. During the same month, No. 336 broke its monthly record of sorties reaching 545 in total.

November included new attacks against enemy positions in Crete²⁶. The Squadron moved from Sidi Barrani to El Adem on January 31st. In March 1944, No.336 was re-stationed at Bu Amud. During this month the conversion from Hurricanes to Spitfires was completed. In April 1944, the Squadron was again ordered to move to Mersa Matruh.

During summer it was announced that No. 336 would soon be ordered to move to European soil. On September 15, 1944, the Squadron moved to Canne, Italy.

Operations in Italy and back home

The RHAf, called from the Middle East in order to aid in the offensive in Italy, joined the action at pivotal point. By that time, due to the increased needs in the Western Front, the Allied Air Forces in Italy had been reduced by 70 per cent, thus, making the presence of the Hellenic Squadrons even more important.

On May 19, 1944, the movement of No.13 Light Bombing Squadron to Italy was completed. Its new base was at Biferno, operating under No.3 Group, SAAF.

²⁴ Protocol No.3145/25-2-1943/ Air Ministry /Order on the composition of 336 Squadron, Cairo.

²⁵ *History of the Hellenic Air Force (1941-1944)*, Vol. IV, *Ibid*, pp. 251-253.

²⁶ *Ibid*, pp. 257-258.



FIGURE 12: No.336 personnel posing in front of a Hurricane with their C.O., Flight Lieutenant S. Diamantopoulos, in the middle (Archive of the History Museum, HAF 40287).

On May 24, No.13 began operations. Light bombing included bridges, railways and enemy strongpoints and installations at Pedaso, Civitanova, Fabriano, Fossombrone, Torre and Chiaravalle. From Biferno, the Squadron, having joined 254 RAF Wing, undertook light bombing operations in Yugoslavia and Albania, despite heavy anti-aircraft fire over these countries²⁷. In total, during its stay in Italy, the Squadron successfully bombed 6 railway bridges, 9 quays, 7 railway stations, 3 high-way bridges, 4 ammunition depots, 3 factories, 8 military barracks, 7 oil/gas tanks, 5 military warehouses and 6 enemy columns. On November 4, 1944, the Squadron's personnel left from Campomarino heading to Taranto to embark on ships for Piraeus. The airplanes would arrive later together with the fighters of No 335 and 336.

On September 16, No.335 Hellenic Fighter Squadron was stationed at its new base at Nuova. The first operation took place on September 19 involving patrolling roads and transport routes around Split in Yugoslavia. On October 8th the Squadron moved to Biferno. In the afternoon of the same day, the first RHAF officers returned home, landing at Araxos, which had been liberated a few days before. On October

²⁷ E. Kartalamakis, *Flying in foreign skies*, Athens 1993, pp. 539-540 and *History of the Hellenic Air Force (1941-1944)*, *Ibid*, pp. 296-297.



FIGURE 13: From the parade of the Royal Hellenic Air Force Squadron (Archive of the History Museum, HAF 40080).

19, 1944, orders came in for the Squadron's movement to Greece²⁸. Personnel departed for Piraeus on November 5th. Aeroplanes arrived at Hassani Air Base 10 days later. From the 21st to the 24th of November the Squadron began patrolling over Crete, which was still under German occupation.

On September 17, the No.336 Hellenic Fighter Squadron's airplanes finally reached Biferno and the next day its allocated base in Nuova. No.336 operated over Yugoslavia having joined 281 Wing of the RAF Balkan Air Force. Action began immediately including armed recces and offensive patrols as well as escorts sorties to fighter-bomber Hurricanes. On October 8, a Squadron's detachment of 3 aircraft was sent to home territory to fly offensive sweeps. On October 9, the detachment's aircraft got involved in a reconnaissance mission over Cornish in co-operation with 2 Spitfires of No.335. By November 14th, all remaining aircraft of No.336 had reached Greece.

The final chapter of the RHAF participation in the World War II took place on November 20, 1944, when a glorious parade took place in Athens in honour of all those who fought for Freedom²⁹ (Figure 13).

²⁸ Operations Record Book, No 335 Hellenic Squadron, RHAF, October 1944, Archives of the History Museum, HAF.

²⁹ *Hellenic Wings*, *Ibid*, p.154.

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The Military Doctrine of the Israeli Air Force

Introduction

The State of Israel was proclaimed on the 14th of May 1948 and was immediately attacked by seven Arab countries, whose armies invaded the country in an effort to nullify the November 29th 1947 United Nations resolution partitioning Palestine, a decision that all the Arab countries did not accept. Even prior to this, immediately after the United Nations vote in 1947, hostile incidents and violence on a warlike scale broke out between the local Arabs and the Jews, with the Arabs receiving heavy aid and support from the surrounding Arab countries, and following the Declaration of Independence on 14 May 1948, these countries invaded and attacked Israel.

The Israel Defense Forces (IDF) was set up in the course of this war, a mere two weeks following the State's establishment, to defend its independence. The IDF initially consisted of the ground forces, navy and air forces, - namely the IAF. The Israel Air Force (IAF) is made up of overseas volunteers (Mahal) who comprise 90% of the pilots and navigators, most with combat experience in World War II. They previously flew fighters, bombers and transport planes and are radio-operators. The veteran pilots had trained new Israeli pilots. The IAF ground forces comprise many Israelis, quickly trained in technical skills needed to support the aircraft.



Israel was attacked by five Arab countries one day after the Declaration of Independence, on May 15th, 1948.

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The IAF's Early Operations

During its early days, the air force operated various types of light aircraft such as Pipers, R.W.D.s, and Taylorcrafts, among others, which were mainly either privately owned planes or borrowed from flying clubs. It was only in the second stage, a few weeks after the establishment of the State, that Messerschmitt fighters were purchased from Czechoslovakia, making it was possible to combat the modern aircraft of the Arab states which daily attacked the Jewish towns and settlements. Some months later, Spitfire fighters were also bought from Czechoslovakia. Egypt was awash with WW2 military surplus - Spitfire and Dakota aircrafts.

The concept of attacking the enemy aircrafts on their own airfields was already formed during the War of Independence, but could not be acted upon due to the multiple tasks imposed on the small air force defending Israel's skies.

The War of Independence ended in January 1949, and during the months that followed, cease-fire agreements were signed firstly with Egypt and then with other Arab countries with the exception of Iraq, who refused to sign such an agreement with Israel. The Israeli government believed that the cease-fire agreements would eventually lead to peace agreements, whereas the Arab countries signed the agreements with a view to renewing the hostilities and ultimately bringing about the end of the State of Israel.



After the War of Independence the concepts and perceptions of air power and its meaning began to be formed, with priority being given to defending the country's skies. In the period after the war, Israel purchased WW2 piston-engine fighter planes and several years later, purchased its first jet aircraft, the Me-

At the end of the war the IDF with the aid of the IAF liberated Eilat on the shores of the Red Sea - March 1949.

teor, from Britain in 1953. Following that, additional, more advanced jet aircrafts were purchased from France including Ouragan (1955) and Mystere (1956), and Nord Atlas transport aircraft. Due to the shortage of aircraft, the air force operated both advanced jets and old piston engine aircraft.

An aviation and technical school were opened. Candidates for pilot training courses were handpicked and accepted only after very rigorous selection. The course itself was of the highest standards, with no deviation from the standards set, and only those of impeccable qualities and abilities were accepted. The technical school trained technicians in accordance with the very high standards demanded by the air force. A school for adjutant officers was also opened thus paving the way for what has become an air force of top quality and professional standards, capable of advanced aerial manoeuvres.

The State of Israel within the borders defined after the War of Independence was considered to be a very small country with a total area of 20,000 km², surrounded by hostile countries from the north, south and east, and a sea-shore along its entire western side. Its center is only 15 km from its narrowest point in the east to the sea in the west. Due to its unsealed borders Israel suffered constantly from harassment and attacks by groups of infiltrators (called feidayiin) who crossed the border from the neighbouring countries, carried out attacks and crossed back into their own countries the same night, having received equipment and support from those states.

Development of the Aerial Concept of the Israel Air Force

At this point in time a concept was evolving vis à vis the operation of the air force and the missions it had to undertake.

From the beginning, the air force was perceived as a force that fought in the air and from the air. It was clear that in any war, the air force must defend the State from an expected aerial attack by the enemy. In addition the air force was already seen as the central force in any foreseeable future war. Principles were developed upon which the air force based its strategy:

- a. Protecting Israel's skies. A mission of top priority entailing the prevention of any possibility of an aerial attack on Israel;
- b. Air Superiority. Like every air force in the world, the idea of air supremacy had to be aimed at in any war plan. From this point of view the air supremacy idea included a very specific conception - attaining aerial supremacy in Israel's skies over and in any area in which the army is operating. In order to attain the goal of air superiority a tactic was developed to attack the enemy air force as early as possible, preferably at the very start of the war, and to destroy it while still on the ground;
- c. Participation in ground combat. Support of ground forces by attacking enemy convoys, anti-aircraft and artillery positions, strongholds and other military tar-

gets. This operation also includes attacking tanks and armoured vehicles either on their way to the front or in retreat, with the aim of paralyzing the enemy in the battle zone;

- d. Strategic bombing. Attacking bridges, fuel dumps, ports, military installations, command posts etc., behind enemy lines and in enemy territory;
- e. Transport. Delivery of special forces behind enemy lines;
- f. Supply. Carrying essential supplies to ground forces – fuel, spare parts, ammunition, food etc;
- g. Photographic reconnaissance;
- h. Evacuation and transport of wounded to medical centers;
- i. Patrols in the battle area - for purposes of up to date intelligence and support of ground troops;
- j. Transporting war materials from abroad – essential in time of war.

In accordance with these objectives, the air force developed its unique concept

based on the versatility of the aircraft, adaptability of the air crew to carry out different types of missions, and development of the principle of “Central Command”.

This concept became the underlying foundation of the air force’s policy and proved itself in all the wars and battles in which the IAF participated.



At the end of the War of Independence the borders of Israel (inside the red line) measured 20.000 km². Israel was surrounded by hostile countries, with a narrow stretch of land measuring 15 kms in the center.

The "Sinai Campaign" 1956 (called Mivza Kaddesh)

After the War of Independence, Israel turned to absorbing thousands of new immigrants, especially those survivors of the Holocaust, and also Jews persecuted in Arab countries and in other places around the world. Within a couple of years, over 2 million Jews arrived in Israel, increasing the population of the country by three times prior to the establishment of the State of Israel.

The Arab countries, headed by Egypt, did not come to terms with the existence of the State and placed Israel under an embargo and attempted an attack on the State. They trained, supported, armed and dispatched terrorists that sowed destruction and death among the civilian population. At the same time they threatened to go to war again against Israel. In order to carry out their threat, they amassed vast amounts of weapons and trained their armies for the time when they could begin their attack.

In 1955, Egypt signed an armament agreement to purchase Soviet arms from Czechoslovakia including tanks, artillery, ships and jet aircrafts, which were hoarded and concentrated in the Sinai desert on the border with Israel, and repeatedly declared its intention and threat to go to war with Israel.

At that time, Nasser, the President of Egypt, nationalized the Suez Canal Company forcing Britain to relinquish control, without any compensation as Egypt begins to collect all toll fees.

Israel was left with no choice but to fight against the Egyptian forces concentrated in Sinai. An agreement was signed between Israel, France and Great Britain – each one for its own reasons – to make a pre-emptive strike against Egypt in October 1956 (called "Suez Campaign"). At that time, all IAF pilots were Israelis trained to operational proficiency.

The IAF had detailed plans to destroy the Egyptian air force on the ground, however by agreement, the task was undertaken by the air forces of Britain and France.

The IAF took part in the war before the Anglo-French attacks and fought against enemy aircrafts trying to attack Israeli ground forces in Sinai. The IAF was successful in all its missions that were decided on prior to the attack with regard to ground support and destroying enemy convoys in Sinai. During the war of the Sinai campaign Egypt lost 7 jet aircrafts, all in air-to-air fire (dog-fight) between them and the IAF. The IAF lost 15 aircrafts, all by anti-aircrafts fire.

"The Six Day War" 1967

At the end of the Sinai Campaign, Russia and the U.S.A. forced Israel to retreat from all the conquered territories without a peace treaty with Egypt. However, Egypt agreed to allow U.N. troops to be stationed in Sinai on the border between Israel and Egypt; to make Sinai a demilitarized area; and to open the international water way in the Red Sea to Israeli ships sailing to the port of Eilat in Southern Israel.

Israel continued to develop industry and agriculture while still absorbing immigration and settling the land, at the same time continuing to organize its armed forces and prepare them for the possibility of a further conflict, due to the continued threats of war from the Arab States, headed by Egypt, and the ongoing infiltration by terrorists across the border resulting in more death and destruction.

One of the most important projects that Israel set itself was the development of the "National Water Carrier" to bring water from the Sea of Galilee in the north to the center and south thereby developing the country both agriculturally and industrially. Syria, near whose border Israel planned the building of the water carrier, started to sabotage the development work and to damage the heavy mechanical equipment. All the Arab countries supported Syria and threatened Israel with the backing of the USSR who armed and trained the armies of Egypt and Syria and supplied them with advanced modern weapons.

There were multiple clashes between the IDF and the Syrian Army. In these clashes the Syrian air force suffered losses in dog-fights with the IAF. On 7th April 1967 a large battle occurred between the Israeli air forces and the Syrian air forces not far from the Sea of Galilee, in which the Syrian had lost 6 aircrafts MiG21, without any damage to the IAF.

After the last battle on April 1967, the authorities in Damascus announced that Israel was amassing its army on the Syrian border in order to attack and overthrow the ruling Ba'athist Party. Following these untruthful statements, Egypt mobilized its army, called up reserves and again concentrated forces on the Israeli Border in Sinai; at the same time closing the international water way to Eilat; and demanded that U.N. forces be withdrawn from Sinai on the Israeli border.

This was a complete breach of all the agreements reached after the 1956 campaign. In addition, military agreements were signed between Egypt, Syria and Jordan who placed its army under Egyptian command. Later, Iraq joined this agreement. Egypt stationed commando units in Jordan in order to be able to attack Israel at the narrow point leading to the center of the Country.

Israel tried to defuse the situation by repeatedly denying any hostile intent against Syria, and tried to enlist the aid of the international community. Despite these efforts, the wave of nationalism of the Arab crowds in Cairo, Damascus, Amman, Bagdad, etc., and its demands for war, influenced the Arab leaders, especially Nasser, President of Egypt and the leader of the Arabs States. Due to this situation it became obvious to the Israelis that war was inevitable.

During this period the Arab countries purchased modern tanks, artillery and modern fighter aircrafts such as the MiG21, MiG19, MiG17 and Sukhoi7; and bomber planes such TU16 and IL28, trained in its use with the help of Russian experts.

Israel also purchased high-quality equipment, mainly from France, which included tanks and aircrafts, and more planes of the types already in its possession, together with new ones such as the Super Mystere4B, Vautour bombers, and above all, the fighter aircraft Mirage3 (1963).



The IAF attacked Egyptian armoured and armed forces on their way who were escaping the air attacks in Sinai campaign in 1956.

In accordance with its concept, the IAF had previously prepared a very detailed strategy that in the event of war, the force would carry out the first missions in order to obtain air superiority over the combined air forces of all the Arab States. The code name for the operation was “Moked” (Focus) and set out in the minutest details the attacks on the enemy airfields in order to destroy most of the planes while still on the ground.

With no other choice and with the risk that war could break out at any moment on the initiative of the Arab States, Israel carried out a pre-emptive strike on the morning of the 5th June 1967. The IAF, catching the Egyptians by complete surprise, attacked 18 Egyptian airfields, destroying hundreds of aircrafts. Later during the day, a further 5 Syrian and 2 Jordanian airfields were hit as well as the advance airfield of the Iraqi air force. In these attacks most of the enemy’s aircraft were destroyed.

Thus the IAF gained air superiority by destroying most of the enemy aircrafts, mostly MiG21s, MiG17s, Sukhoi7s, British Hunters in Jordan and Iraq. All the 30 Topulev16 heavy-bombers in Egypt had been destroyed. This was achieved in the first three hours on the first day of the war. Now the IAF could turn it’s attention to supporting the ground forces by attacking enemy convoys, gun emplacements, command posts, bunkers and camps, and at the same time repulsed any enemy aircraft that might have survived the initial attack and tried to attack the Israel ground forces. The war ended in six days after the IDF had captured the whole of Sinai up to the Suez Canal, the Golan Heights from Syria and the West Bank of the Jordan River from Jordan. In the Six Day War, the IAF attacked 26 air-bases in the Arab countries. In these attacks more than 390 aircrafts were destroyed on the ground, and in air-to-air battles they lost 60 more aircrafts. The loss of the IAF was 46 aircrafts, mostly by anti-aircraft fire.



Two MiG’s17 a/c destroyed by air attack in Kabrit, an Egyptian airfield, not far from the Suez Canal in the Six-Day War.

On the 19th of June, the Israeli government unanimously voted to withdraw from Sinai and Golan in return for a peace treaty. In addition the government approved negotiating a satisfactory border with Jordan. The Egyptian leaders and other Arab States refused to come to terms with the military debacle and started to prepare themselves for a further round of fighting. When the leaders of Israel were asked what were they waiting for? Their reply was “We are waiting for a telephone call from the Arabs”. In place of the telephone call, the Arab States came up with the famous three “No’s” in the Khartoum Conference in November 1967: “No negotiations, No recognition and No peace” with Israel.

The Six-Day War is exceptional in that the armed forces of a small country overwhelmed the armies of three states and captured territory three times that of the defending country in the short period of six days fighting. The IAF wiped out the air forces of Egypt, Syria and Jordan in three hours, a unique achievement in the annals of aerial warfare throughout the world. The concept of the IAF was proven to be correct, and air forces world-wide teach the strategy of the IAF in their military schools and colleges.

“The War of Attrition” 1967-1970

The War of Attrition is considered by the Israeli Military establishment and in the eyes of armies world-wide, as the “War of the Israeli Air Force”. The war began a few weeks after the end of the Six-Day War in 1967. The leaders of Egypt and other Arab States refused to come to terms with the military debacle and started to prepare themselves for a further round of fighting.



Two IL's14 a/c and a Mi8 helicopter destroyed by Israeli aircrafts in Bir Tmadedh airfield (note the shadow of the Vautour a/c on the background that attacked the airfield).

The USSR replaced all the military equipment lost by the Arabs in the Six-Day War with more up to date and better quality material – tanks, artillery, war ships, planes and most important of all an anti-aircraft missile system, that could close the skies against attacking aircraft. Russian advisors were sent to Egypt and Syria and trained the troops in the use of all the new weapons and both armies undertook intensive training in order to operate their new weapons.

The Suez Canal was the dividing line between the Israeli and Egyptian forces. The Egyptians started to open artillery fire and employed commandos to cross the Canal, and to set up ambushes against the Israeli troops. On the eastern front, the Jordan River was the dividing line between Jordan and Israel, and from here Palestinian groups repeatedly crossed into Israel causing losses both in lives and property. In addition, there were many clashes on the borders with Syria and Lebanon. This situation lasted from the end of the Six-Day War in 1967 until half way through 1970 causing heavy casualties in Israel, both military and civilian.

Israel reacted to these attacks with the use of artillery and tanks, and also by operating deep inside enemy territory with the aid of elite commando forces flown in by helicopters, but refrained from involving the full force of the IAF in order not to cause any escalation in the conflict.

During this period, the IAF purchased from the U.S.A. Skyhawk (1968) and Phantom (1969) aircrafts, as well as helicopters and high quality transport planes. New bases were built and new squadrons formed while the aircrews and ground crews very quickly fully absorbed the new aircrafts into the day to day running of the air force.

The situation on the borders continued to deteriorate until finally Israel was left with no choice other than to operate the air force in full strength. The Egyptians had concentrated some 1000 pieces of artillery, thousands of tanks and hundreds of thousands of troops on the Canal. The Israeli Army could not compete with this either in manpower nor equipment. The IAF made up for this inequality in numbers and was a suitable response to the firepower of the Egyptians against the Israeli Army.

The first operations of the IAF on the Egyptian border were in 20th July 1969 (“Boxer operation”) with heavy attacks on Egyptian artillery, camps and positions on the canal and above all the missile system that the Egyptians had positioned on the border.

This war, which was called the “War of Attrition”, was a static war with both sides trying to inflict maximum loss and damage to the other side without the ability to capture territory. The IAF was termed in this war “The flying artillery of the IDF” as it took on the brunt of the war – without minimizing the many actions taken by the other forces such as the artillery, navy commandos and special forces behind enemy lines. The effect of these attacks by the IAF was decisive and proved the ineffectiveness of the Egyptian army.

Even before the IAF was used along the canal, it instigated air battles with the

Egyptian air force. These dog-fights took place either in Egyptian air space south of the Canal in an area called as “Texas”, or north of the Canal over the sea and resulted in the shooting down of countless Egyptian aircraft. It was in response a sort of reprisal for the Egyptian firing on the Israeli forces on the bank of the canal, and also a way of gaining local air superiority over the battle area. These fights which lasted throughout the whole of the war proved the total superiority of the IAF, and the Egyptian air force was so heavily defeated that finally it gave up trying to combat the Israeli planes. The Egyptians lost about 100 planes in these battles, mostly due to dog-fights and others by anti-aircraft fire from the ground.

The War of Attrition was waged on all fronts against countries bordering Israel – Syria, Jordan and Lebanon, although the vast majority of the operations were on the Egyptian front. The Syrian air force also suffered heavy losses from aerial battles and ground attacks from the air.

Despite their heavy losses, the Egyptians continued their attacks along the Canal, while Israel wished to see an end to the fighting. This proved impossible and it was eventually decided to extend the field of battle and to commence air attacks into the heartland of Egypt. These attacks began in January 1970 (“Priha operation”) and lasted until April the same year, and resulting in the most severe damage to the Egyptians and perhaps most of all to their self-esteem as they were in a situation where their air space was open to the whims of the IAF with no means ways of defending themselves.

Gamal Abdel Nasser, the Egyptian leader, secretly approached the Soviet Union and asked for help in defending his country. The Russians agreed to this request and transferred to Egypt newer and better anti-aircraft missiles (SA2 and SA3), together with technicians and operators, and they also sent MiG21 interceptors together with crews of pilots, maintenance personnel and controllers.

Thus slowly but surely, the Soviets became involved in the war. At the beginning they defended Cairo, Alexandria and the Aswan dam, but later started to get involved in the actual fighting. They started with the manning of anti-aircraft missile sites, and moved onto attempting to shoot down Israeli planes. In July-August 1970 Russian-manned missile sites succeeded in destroying five Israeli Phantoms, but they did not succeed in completely stopping the attacks across the Canal. In the final stages of the war they engaged Israeli planes over “Texas” and in the fighting, five Russian-piloted MiG21 aircrafts were shot down with their Russian Pilots.

On the 7th August 1970s a truce was declared between the sides on basis of a freeze of the situation as was on that morning. That same evening, the Egyptians breached the cease-fire and advanced their missile system right up to the front-line, thereby providing an additional threat of ground-to-air missiles to the IAF freedom of flight over the front line in the event of another outbreak of fighting had been jeopardized.

From the IAF perspective the war ended in a stalemate. The IAF did not succeed

in destroying the new missile system on the Suez Canal, and the Egyptians had failed to prevent the flights of the IAF over the front line despite the losses incurred.

During the war of attrition, Egypt lost 97 aircrafts and Syria 27, most of them by air-to-air fire (dog-fight) and some by anti-aircraft fire. The IAF lost 18 fighter aircrafts.

Egypt agrees to a US brokered 90-day cease-fire on 7 August. Egypt used the truce to move missiles towards the Suez Canal. President Nasser intends renewing the War of Attrition after cessation of the truce. In this static war, Egypt with a large population, fully supported by the Soviets was able to replace its fallen soldiers and equipment. President Nasser of Egypt died before the end of the 90-day cease-fire. Vice-president, Anwar Saadat was named president of Egypt.

"The Yom Kippur War" 1973

After the cease-fire of 1970, the Arab states, lead by Egypt, continued their threats against Israel. However, the Egyptian border remained quiet and this was reflected along the other borders in the north and the east. In the next three years Syria and Egypt continued extensive arms purchases, especially anti-aircraft missile systems, including mobile ones (SA6) and their fighting units were trained by Russian troops and technicians.

The IAF also received new aircrafts and prepared for the next round of fighting. The most important mission facing it was of course to find a way of destroying the missile systems in order to gain aerial superiority. Extremely detailed tactical plans were prepared including series of attacks timed to the second. These plans were based on the assumption that in any future war, the air force would have enough time at the outset of hostilities to attack the missile sites, and only after their destruction would it turn its power to other missions such as ground support and attacking other targets to support the ground forces.

On 2pm the 6th October 1973, Egypt and Syria opened a massive offensive both from the air and on the ground against Israeli forces along the Suez Canal in the south and in the Golan Heights on the north of Israel.

This was on the holiest day in the Jewish calendar, the Day of Atonement, which is a day of fasting and prayer, and hence the name of the war ("Yom Kippur War"). There was not sufficient time to reinforce the relatively few troops stationed on the borders before the sudden attack, and these troops were unable to stop the massive attacks thrown against them. The Egyptians crossed the Suez Canal with two armies, one in the north and one in the south of the canal, setting up bridgeheads on the east bank, while the Syrians advanced all along the Golan Heights and threatened to reach the Sea of Galilee.

Due to this situation, the IAF was forced to support the ground troops by attacking the enemy forces, without having first taken out the missile batteries which gave the enemy an umbrella. As a result, the IAF lost many aircrafts in the first phase of

the war. However, in the first three days of the war, despite more losses, the IAF succeeded in aiding the ground forces preventing further advances of the enemy, especially on the Golan Heights, until the reserve forces could be called up and arrive at the front lines.

With the arrival of the reserves, the ground forces went on the offensive with massive air support. In the next four days, from the 9th to the 12th October, the Syrians were pushed back not only to the original borders before the war, but the IDF advanced to within 35 kms of Damascus.

On the Egyptian front, the enemy had managed to establish a bridgehead to a depth of 8-10 kms from the Canal. The fighting was mostly static at this stage, but on the 12th October, the Egyptians tried to advance with tanks and infantry on a large scale. Once again the IAF together with the armour units played a major part in repulsing this attack, forcing the Egyptians back to their original positions.

The change came on the 16th October, when the IDF succeeded in forcing a crossing of the Suez Canal between the two Egyptian armies and set up a bridgehead which was quickly expanded both to the north and the south. By the 22nd October, the Egyptian Third Army in the south was completely cut off from any support or supplies and its situation became critical. A cease-fire was agreed on both fronts shortly afterwards (on 24th October).

In this war, the IAF was forced to wage war differently to what had been planned, and to fight in areas protected by ground to air missiles. Despite losses, the IAF was able to intercept enemy aircraft trying to attack ground troops, to engage them in the air and to destroy in all more than 350 Egyptian and Syrian aircrafts in air-to-air battles. 50 more aircrafts were hit by anti-aircraft fire, and about 30 were destroyed in their own air-bases. At the last phase of the war the IAF attacked the Egyptian missiles and destroyed some 40 sites and 10 more were destroyed by the ground forces. By the end of the war the skies over Egypt were once again open to the IAF with no missile protection. 10 Airfields in Egypt and 8 in Syria were also attacked, forcing the air forces of the enemy to waste its attacking potential through having to be in the air to protect its own bases. In Syria, targets attacked included bases, command posts, fuel dumps, ports and other vital strategic targets in the country.

The IAF also participated in the transport of supplies and materials to the front line forces, and the evacuation of hundreds of injured to medical centers in the center of the country.

In the Yom Kippur War the IAF lost 102 aircrafts, fifty per cent of which were hit by ground-to-air missiles and 40 more by anti-air fire.

The war ended with cease-fire agreements at a stage where Israeli forces were within artillery range of the Syrian capital Damascus, and within 100 km from the Egyptian capital Cairo, with an Egyptian army of 35,000 men surrounded with no water, and with no possibility of fresh supplies.

Peace with Egypt and Jordan

Within the framework of the agreement reached with the intervention of the US, the IDF withdrew from the west bank of the Suez Canal to new positions in Sinai, with UN forces forming a buffer between the Egyptian and Israeli forces on the ground. In the next couple of years the Egyptians, especially their president Anwar Saadat, finally realized that they could not regain the territory that had been lost in the Six Day War by force, and instead turned to a peaceful solution. After wide spread diplomatic activity, the Egyptian President came to Israel in November 1977 and addressed the Israeli Parliament (The Knesset). The peace treaty between Israel and Egypt was signed in 1979 and in accordance with its terms, Israel withdrew from all of Sinai, the water way from the Red Sea to Eilat was opened, Sinai was demilitarized, and ambassadors were exchanged between the two countries.

Following this, a peace treaty was signed with Jordan in 1994, and Israel started to enjoy peace and co-operation along its two longest borders with Egypt and Jordan.

The latest fighter aircrafts 1973-1982

During this period the IAF received the very latest fighter aircrafts that were produced in the United States – the F15's and the F16's, and also the newest helicopters both for attack and ground support purposes and for transport.

Over the years, the IAF carried out many missions far from its borders which are still classified. However, two missions of this nature that have become known world wide are an indication of the IAF's abilities and performance levels.



Bombing and destruction of one of the Egyptian bridges in the north of the Suez Canal (note the Egyptian armoured vehicle enroute to the bridge).

a. Rescue of the hostages from Uganda (“Yonathan Operation”)

In the end of June 1976, an Air France plane departed from Israel on his way to France. The airplane landed in Athens, and after his departure from there it was hijacked by Arab and German terrorists, and flown with all its passengers on board to Entebbe airport in Uganda, where they were held hostage. The Jewish passengers were separated from the non-Jewish ones, who were soon released. The hijackers demanded the release of dozens of terrorists and murderers held in Israeli jails, or if their demands were not met, they would kill the hostages. Thus both humiliating Israel and forcing it to bow to the terrorist’s demands.

The Israeli government was faced with a terrible dilemma, either to give in to the terrorists’ demands, with its resulting humiliation, or military intervention. The air force came up with a plan to fly Israeli Special Forces to Entebbe and to rescue the hostages. The plan was accepted and the detailed planning and training of the troops was completed in only four days. The IAF flew the forces between the 3rd and 4th July thousands of kilometers away to Entebbe, where it gained control of the airport, freed the hostages, killed the terrorists and any Ugandan troops that had been involved in trying to stop the operation. The soldiers, airmen and hostages returned back to Israel with a tumultuous welcome that echoed around the world. One brilliant Israeli officer named Yonathan was killed in this operation. The IDF hence the name of this operation – “Yonathan”.

b. Destruction of the Iraqi Nuclear Reactor (“Opera Operation”)

Another operation carried out far from the borders of Israel which achieved world



Bombing of the Nassarieh airfield in Syria, Yom Kippur War.



Aerial attack of strategic target of oil terminal deep in Syria-Yom Kippur War.



Egyptian MiG21 burning in air combat in the Yom Kippur War.

MiG21 downed in air to air battle (note the brake-chute opens after being hit).



wide renown, occurred in June 1981. Iraq had built a nuclear reactor near Baghdad with the aim of manufacturing atomic weapons and threatening to use them against Israel. The reactor was built with the aid of France, and by the beginning of 1981 they had reached the stage of near completion and the ability to manufacture atomic weapons. Israeli authorities were extremely worried at the possibility of an enemy nation like Iraq having the ability to manufacture weapons of mass destruction. The IDF started to look for ways to combat the Iraqi threat and the IAF prepared a plan to destroy the reactor by air, started training and reached the stage of operational capability.



When the green light was given by the government, eight F16 aircraft accompanied by 6 F15 aircraft attacked the reactor with special armament and destroyed it. This was an operation of outstanding quality carried into effect by IAF personnel in an operation carried out far from the borders of Israel. Many air forces throughout the world, including the United States air force (USAF), congratulated the IAF on its exceptional achievement.

The first Israeli bridge over the Suez Canal in the Yom Kippur War (that operation changed the face of the war).



Attacking anti-aircraft missile batteries in Egypt. During the last phase of the war, all the missile anti-aircraft on the west bank of the Canal had been eliminated, both by air force and ground attacks.

The Arab refugees and their influence on events

During the War of Independence in 1948 thousands of Arabs fled their villages in areas where there was fighting, hoping to return when the Israelis were defeated. When this proved not to be the case, those Arabs became refugees, and instead of being absorbed in the countries they fled to (as were a similar number of Jewish refugees from the Arab countries), they were installed in refugee camps in the Gaza Strip, in Jordan, both on the West Bank and in Jordan proper, and in Syria and Lebanon, to be used as pawns in the power struggle between Israel and its Arab neighbors.

Both on their own initiative, and also with active backing from the Arab countries they started to cross the border and to attack Israeli villages, transports, and carrying out ambushes, causing extensive damage and much loss of life. Israel retaliated with raids on the refugee camps which gradually increased in size and culminated with the 1956 Sinai Campaign, which included the seizure of the Gaza Strip. When the Gaza Strip was returned under Egyptian control, the attacks resumed, but on a smaller scale. In 1963 the Palestine Liberation Organization (PLO) was formed to co-ordinate attacks.

After the Six-Day War, with Gaza and Sinai in Israeli hands, and Israeli forces on the Golan Heights, the only area from which the PLO could operate from was Jordan, and this border became the focal point with the terrorists crossing the Jordan River, going through the desert to reach Jerusalem and the coastal plain. From 1967 until 1970 the Jordan border became a battle ground with the Israeli army fighting not only the terrorists but also the Jordanian army which assisted them. The Jordanian side of the river became a desert as the inhabitants of the villages along it fled the fighting.

The PLO grew in power until it started to threaten the very existence of the Hashemite Kingdom and its King, Hussein. In 1970, the Jordanian monarch ordered his army to disarm the PLO, and when the PLO refused, the army drove the armed Palestinians from the refugee camps and they fled to Lebanon.

Lebanon, which forms the northern border with Israel, is a small Arab country with a mixed population of Shiite and Sunni Moslems, and various Christian sects, mainly Maronite, and Druze. The relationship between the populations was very fragile and there were often disputes and clashes between them. The refugee camps from 1948 were in the south of the country and now the new refugees from Jordan joined them. Up to this time, the northern border had been the quietest of all the borders, with only very rare incidents, even during the Six-Day War, but with the arrival of the new active PLO members from Jordan with their leader Yasser Arafat, the Lebanese border was transformed to and became the new hotbed of terrorist activity with the Israeli settlements that were right on the border becoming easy targets.

The authorities in Lebanon were not strong enough to stop the activities of the PLO, which had soon formed a “state within a state” in South Lebanon and threatened to change the entire social regime of the Country. The constant fighting and the attacks by the IAF on the refugee camps resulted in mass flights by the other inhabitants of the area and completely undermined the balance of power. The resulting internal conflict between the Moslem and Christian populations amounted to Civil War from 1976, and the Christian community requested the aid of the Syrian Government to help repel the new threat from the Moslem sects and the South. For the Syrians, who have always considered Lebanon to be part of a Greater Syria (“Grande Syrie”), this became an ideal opportunity for its army to enter Lebanon as “invited guests”.

The Lebanese wars of 1982 and 2006

This new situation, with a modern army concentrated to the north of the country was a danger to Israel. The IAF continued its flights over Lebanon and when the Syrian air force attempted to engage the IAF planes, the resulting air battles saw large numbers of Syrian planes destroyed until eventually they stopped flying over Lebanon. The skies over Lebanon remained clear for the IAF to fly for a couple of years until the Syrians stationed a large ground-to-air missile system in the Beka’a Valley in East Lebanon. thus endangering air superiority for the IAF. Israel did not accept the new situation and threatened to hit the missile sites if they were not removed.

a. The first Lebanon War 1982 (“Mivza Sheleg”)

At the same time, terrorists crossing from Lebanon into Israel carried out numerous attacks resulting in death and damage. In 1982 Israel invaded Lebanon in order to knock out the terrorist’s bases. At first Israel refrained from engaging the Syrian army in an effort to prevent escalation, but when the Syrians started to activate their

army against the Israeli ground forces, the road to all out conflict was short.

The IAF attacked and destroyed the missile system in the Beka'a Valley in a fast concentrated operation. The Syrian air force intervened in order to defend its ground forces, and in three days of air-to-air battles, the Syrians lost approximately 90 aircrafts, with no losses to the IAF. 9 more Syrian aircrafts were shot-down by anti-aircraft units, one of them was MiG25.

The war ended with a total defeat of the Syrian army and the PLO while the IDF controlled half of the country including the capital Beirut. Throughout the war, the fighting was limited to Lebanon alone, while the Golan Heights, which formed a direct border between Israel and Syria, remained totally silent.

b. "The Second Lebanon War" (2006)

The result of the First Lebanon War (1982) was the removal of the PLO with there leader Yasser Arafat from Lebanon, leading to the rise of a new terror force –



The destruction of the Iraqi nuclear reactor that had been hit by the IAF in 1981.

Hezbollah. This time made up of Lebanese Shiite Moslems supported by Syria and Iran who supplied the organization with modern ground-to-ground missiles, Katyusha rockets and other armaments. Once again, Israel found itself fighting a terrorist organization on its northern border. Despite these attacks, Israel refrained from another all out campaign, limiting itself to counter attacks mainly through use of the air force.

This situation lasted for many years with the Hezbollah growing stronger and being supplied with both medium and long-range missiles by Iran and Syria, and the Lebanese authorities being helpless against it. In the year of 2006, in an attack on an Israeli patrol on the border, the Hezbollah killed 8 soldiers and kidnapped two others. This time Israel decided to react with force against the terrorists. The IAF opened a massive attack on the long range missiles that were in the center and north of Lebanon and destroyed them in the first wave. The terrorists retaliated with a massive barrage of missiles on the north of Israel causing extensive damage and loss of life. Dozens of houses and factories were damaged and the population was forced to remain in shelters. The IAF attacked the Hezbollah and Shiite Center in Beirut with full force and totally destroyed it.

The war ended with the intervention of the UN. An agreement was reached in which the Hezbollah would no longer have bases on the Israeli border with a UN force being stationed in south Lebanon to ensure its implementation. Up to this day (2010), the northern border has remained quiet.

The Gaza War 2008 "Oferet Yetsuka Operation" (Cast Lead)

The south of the country was also not quiet considering that the terror organizations were active in the overcrowded refugee camps in the Gaza Strip. After Israel unilaterally withdrew from the Strip in August 2005, the extremist group Hamas gained control and vowed to continue the fight against Israel. When Israel built fences that prevented infiltration from the Strip, the Hamas group started to fire home made rockets against the civilian Israeli population of the towns and settlements around the Strip. This situation lasted for eight years, in which time thousands of rockets and mortars were fired from the strip, and although the loss of life and damage to property was not very serious, it resulted in trauma to all the civilian population in the south area of the country. The political decision not to attack the Gaza Strip was seen by Hamas as a sign of weakness and fear on the part of Israel.

The mortar and missile fire from the Strip, escalated in the absence of any reaction from Israel, until eventually, there was no choice other than to put a stop to it once and for all. At the end of December 2008 the IDF was activated against Hamas, the Israeli Army and the IAF attacked and destroyed numerous Hamas targets, and the result was that from that time on the border with Gaza is relatively quiet (2010).



The Israeli "Hetz"
anti-missile defense system.

Protecting Israel's Skies Using Ballistic Missiles - High Quality Weapons in the IDF

The reader of this article can understand that the threats against Israel by its enemies are very strong and real, and some of these enemies continue to stress their desire to destroy the State of Israel. They prepare their armies and arm them with the most modern weapons with the aim of attacking and destroying the Jewish State. They do not hide their intentions and continue to develop nuclear or biological weapons of mass destruction.

Syria secretly built a plan to produce nuclear weapons on the border near Turkey, which was destroyed by an air strike. The world assumes that the strike was by the IAF. Iran, in defiance of all international demands, continues to develop nuclear weapons and makes no secret of its intentions to use them against Israel.

During the Yom Kippur War in 1973, both Egypt and Syria fired land-to-land missiles against Israel - Frog missiles from Syria and Scud missiles from Egypt. Israel had to confront these newly acquired weapons that have entered the war theater. The situation deteriorated during Operation "Desert Storm" - the first Gulf War in 1991 when Iraq fired about 40 Iraqi developed "Hussein" Scud missiles into Israel. These

missiles caused both human and property damage in Israel, and in addition Israel feared they could carry chemical or nuclear war-heads. The United States transferred ground-to-air "Patriot" missiles to protect Israel from the Iraqi Scuds, but they were unable hit the incoming missiles which caused damage.

The situation in northern Israel declined even before the Second Lebanon War in 1996 when Hezbollah acquired thousands of short and medium range rockets. A similar situation occurred before "Operation Cast Lead" in 2009 when Hamas fired thousands of rockets into civilian settlements in southern Israel, causing human and property damage, disrupting the population's daily lives during an eight year period.

In the past new years, Israel has a new threat since the regime in Iran has developed nuclear capability and their leaders have threatened to destroy Israel.

A few years before the first Gulf War, Israel began, together with the USA, to develop anti-ballistic missiles to strike incoming missiles before they enter Israeli air-space.

Apart from the strength of the air force, Israel has developed with great success, anti-missile systems - the "Hetz" (Arrow) to shoot down long-range missiles. It is the only country in the world with a defense system of this type.

Israel has, together with the USA, successfully developed an advanced missile system to strike incoming ballistic missiles in project "Kipat Barzel" (Iron Dome) to protect against rockets. Israel continues working with the United States to develop additional weapons of different types for its defense against both-short and long-range missiles. In the second half of 2009, there was a joint Israeli-American multi-system defense exercise which proved the abilities of the IAF and the quality of the defense system of the United States to defend against a missile attack.

The Israeli government has decided, from the military aspect, that the Israel Air Force will operate missile systems necessary to protect the country against incoming missiles and aircraft. The Israel Air Force has high quality new aircraft, the most advanced in the world, equipped with powerful strategic weapon systems against incoming missiles. Most of the new equipment and weapons referred above are operated by the IAF.

Most of the weapons used in Israel are developed by the Israeli Aircraft industry (IAI), Israeli Military Industry (IMI) and by "Rafael" Advanced Defense System, including civilian industries. All these industries of high-tech advanced defense systems for land, sea, air and space applications.

Rescue of downed pilots

There is a specially trained unit for the rescue of downed pilots, which also operates to rescue civilians from remote places where swift and easy access is not possible.

Many injured people have had their lives saved by the IAF.

The Development of the UAV - Unmanned Aerial Vehicle

During the Yom Kippur War, Syrian missile batteries in Lebanon caused heavy damages to Israeli fighter jets. As a result, Israel developed the first modern UAV - unmanned aerial vehicle. The images provided by these UAV helped Israel to completely neutralize and destroy the Syrian Air defenses at the beginning of the 1982 Lebanon war resulting in no damage to the IAF. The IAF used again most of the UAV systems in the second Lebanon war (2006) and in the Gaza war (2008).

The UAV developed specially for surveillance purposes with the ability to carry weapons. Israel is a leader in this field and has succeeded in building short term aircraft and also long term UAV capable of staying airborne for 24 hours or more.

The Strategic Arm of the State of Israel

The Israeli air force is seen by the leaders of Israel as the strategic defense arm of the State. A large part of the defense budget is invested in the IAF, which enabled it to purchase and operate the most advanced aircrafts in the world. In it serve air crews and ground crews trained to the highest possible degree.

Over the years the IAF has participated in numerous operations (many of them are still secret), which represent a colossal contribution to the security of Israel. Many of the operations are taught in military academies world-wide and the IAF is highly rated among the most advanced air forces in the world.

The Israel air force is in a constant state of readiness 24 hours a day to defend the skies and the space of the country and its population, being able to act at very short notice to any mission that may be demanded of it.



UAV – Unmanned Aerial Vehicle –
RQ-2 developed in the Israeli Aircraft
Industry.

DAVID IVRY*

The Air Arm during the Lebanon War 1982

Background

As a preface to direct reference to the use of air power in 1982, one should understand several transformations that the Israel Air Force experienced in the field of air warfare, organization and weapons, in order to better analyze the war and its results. The destruction of air forces on the ground within a few hours during the Six Day War (1967), and the air combat achievements, were both an unprecedented achievement, which also has mixed results because it led to great expectations from the Israel Air Force.

On the other hand, the defeated air forces learned many lessons and implemented them, so it was impossible to repeat the results. Shielded shelters were built for aircraft that exceeded their number, additional runways were built and many emergency runways were prepared. All this was part of passive defense.

The anti-a/c defense got a huge leverage, guns but mainly missile. The surface-to-air missile (SAM) was a leap forward when the Soviet doctrine of operating a strenuous independent arm, the divisions of SA-2, SA-3 and SA-6 batteries were the massive foundation of the doctrine, and thousands of SA-7 missiles were available in almost any unit or military facility.

During the War of Attrition (1968-1970), this concept was leveraged and the Israel Air Force found itself in August 1970 with a cease fire treaty, when the Egyptian army had advanced its surface-to-air missiles right up to the canal, contrary to the agreement, but Israel had to restrain itself because it did not have a decisive answer to surface-to-air missiles. As part of the means that the IAF had, it developed attack methods and war doctrine, including the use of air power in the presence of surface-to-air missiles. EW methods were also acquired from the U.S., means that were developed during the Vietnam War.

We arrived at the Yom Kippur War in 1973, after improving the attack tactics and EW capability; however, we did not succeed in pushing forward the development of weapons to destroy surface-to-air missiles, thus losing the air freedom of action we were used to, and which the IDF ground forces were used to.

In the operation plans prior to the Yom Kippur War, the IAF demanded 48 hours to launch air power against surface-to-air missiles sites and air bases, thus assuring air superiority to continue fighting. The IDF staff level was sympathetic to this; however reality in the 1973 war did not enable such luxury. The IAF was required

* M.Gen., former Chief of the IDF Air Force.

to take part in containing the ground invasions from day one, so the operation plans did not come to a test.

Despite the fact that the achievements at the end of the war were impressive, the IAF felt bad. This feeling was expressed by former IAF Commander Ezer Weizmann, later minister of defense and President of Israel: "The missile bent the wing of the fighter plane".

This resulted in a certain grinding in the strong status of the IAF, which had an impact on the distribution of budget and preference in allocation of manpower; i.e., the ground forces were considerably favored.

In October 1977, I took the position of IAF Commander and replaced M/G Benny Peled – a charismatic commander who began a revolution, in the organizational structure and a more technological approach to answer operational problems.

In November 1977, President Sadat arrived in Israel for a visit to Jerusalem, the beginning of a process of strategic importance that led to the signing of a peace treaty and retreat from Sinai in March 1979.

Nevertheless, war against hostile activity continued in the north. In March 1978 we find ourselves in the midst of the Litani operation, a military operation that tried to push back terrorist presence from the border deep into Lebanon, following the killing of civilians by terrorists who penetrated from Lebanon.

After the Litani operation in March 1977, UNIFIL entered south Lebanon, but they did not prevent the terrorists from moving south and harassing the northern settlements. So we had to operate almost daily from the air against terrorist targets in south Lebanon. At the beginning interception aircraft were sent from Syria (MiG 21 and MiG 23) in order to disturb our air activity; however, after a few encounters – many of them planned by us – they suffered accumulating losses in air combat, and usually remain to patrol in Syria without penetrating Lebanon. One could say that towards the Lebanon War of 1982 we achieved full freedom of air power in Lebanon, which was very significant to the IAF pilots' esteem and air control.

The Syrians, who understood that they are not a match to the IAF in air combat, transferred three SA-2, SA-3 and SA-6 surface to air missile divisions to the Lebanon Beka'a for protection against the IAF. This narrowed somewhat the air freedom of power on the Lebanese eastern side, thus reaching 1982.

Attack on the surface-to-air missiles in the Beka'a in June 1982

On Wednesday, 9 June 1982, at 14:00, the attack on the surface-to-air missiles during the Lebanon war began. This chapter deals with one of the greatest successes in air warfare, in which the dense surface-to-air missile defense was destructed – SA-2, SA-3, SA-6 missiles that were deployed in the Lebanon Beka'a valley and along Lebanon's eastern border.

The surface-to-air missile defense was a Soviet war doctrine, with a separate

command and a lot of investment. In many times, this caused many doubts as to the effectiveness of offensive air power against such defense, when the results of the Vietnam war and Yom Kippur war left a bad taste with the air power.

Preparation for the operation itself and the possibility of confronting once again the surface-to-air missile defense was the role of many people, mostly air force, but also many of the R&D and defense industries.

For 9 years since the end of the Yom Kippur war, the IAF was busy developing an anti surface-to-air missile system. The lessons of the Yom Kippur war, as written in a document dated 30 January 1974, summarizes briefly the lessons and briefings of the war in all IAF units. The document had been approved by IAF Commander MG Benjamin Peled, includes in chapter 4 – weapon systems – the main requirements and efforts to implement an answer to the surface-to-air missile threat. It mentioned “surface-to-air missile operation system”, with an emphasis on “system” rather than a specific weapon. The Yom Kippur war lessons showed that one should refer to the operation of air power in modern war through the operation of combat systems that include all the elements of intelligence, command and control, communication, training and weapon systems. In other words, accurate, sophisticated, modern weapons, with new technology is not sufficient, if you cannot get the control and backing of other systems working in harmony towards success.

The IAF, with the assistance of defense industries, succeeded in making progress along the 9 years, and built many elements that gave it the opportunity to design various attack systems against surface-to-air missiles. A combination of elements created a combat system suitable for different arenas and different conditions. The surface-to-air missile arena in Lebanon was, therefore, one variant but the Lebanon option was the focus in training and simulations, including real models without releasing ammunition in the Lebanon scenario itself.

In IDF status assessments that took place prior to June 1982 and dealt with various operative planning that included penetrating Lebanon in order to banish the terrorists from southern Lebanon, there was always the dilemma of surface-to-air missile. Since these were part of the Syrian military forces, it meant entering a confrontation with the Syrians, not only the terrorists. This is why alternatives and timing were explored in combat that requires the attack on surface-to-air missiles. On the other hand, as long as Syrian surface-to-air missiles operate, the limitations of operating the Israel Air Force were being examined.

The fundamental question was, of course, whether an attack on the surface-to-air missiles in the Beka’a would deteriorate to a major war with Syria. Since the political direction was usually to avoid war with Syria, especially during the Lebanon war, the question was laid at full force on the desk of the defense establishment each day since the war started.

During the first days of the Lebanon war, my instructions were to avoid any air penetration into Syria, and even stop pursuing Syrian jets if it risked crossing the

border into Syria. Since I was in the command and control position most of the time, this was implemented indirectly by me and the policy was screened to all levels, even when I was absent. It seems that Syria understood this message very well, and there were very few attempts on their side to intercept our aircraft. It seems they used to take minimum risks and action at times it was less potential for encounters. Even the surface-to-air missiles did not create high risks to our aircrafts.

On Monday, 7 June, there were first frictions between Syrian ground forces and our ground forces in the east front. The Northern Command demanded an attack on the surface-to-air missiles on Tuesday. This was discussed at a meeting at Northern Command, with the participation of the Minister of Defense Sharon, Chief of Staff Eitan, and me. Northern Command claimed that it could reach the Beirut-Damascus road by Tuesday, thus accomplishing the goals. The attack on the surface-to-air missiles was therefore postponed without taking the chance of deteriorating the war.

My recommendation was also to postpone the attack for an additional 24 hours because we learned about upcoming changes in the Syrian air defense set up, and I wanted to be sure about the set up in order to avoid surprises while the attack was being launched, and to get a better understanding of the Syrian policy – where were they planning the center of gravity of their defense. Chief of Staff Eitan supported my recommendation and the minister approved it. On the other hand, I instructed head of operations, Col. Sela, to allocate and arm fighter planes for Tuesday in case the situation deteriorated and we could be forced to attack the surface-to-air missiles even on Tuesday. We set aside almost 100 high performance aircrafts (mostly F-4s) to be prepared for this potential situation.

During the night, the SA-6 division was transferred from the Golan Heights to the Lebanon area in order to thicken the surface-to-air missile set up, increasing their number to over 19 batteries. I was very happy we decided to postpone the attack to Wednesday. This let us understand that the Syrians were planning to restrict themselves to the Lebanon area, or else they would not have weakened their defense in the Golan, thus creating a better penetration option towards Damascus.

On Tuesday, the friction on the ground increased between the Syrian forces and the eastern command under M/G Yanush Ben Gal. Each side blamed the other for the friction. However, when both forces face each other under a lot of tension, with mutual suspicion. Even a simple test of guns could cause an eruption. It is therefore difficult to determine who initiated the friction that intensified on Tuesday.

During the night meeting on Tuesday, it seemed that the ground goals were not achieved, so there was a consensus around recommending to the government to attack the surface-to-air missiles, after assuming that deteriorating to an overall war with Syria was of minor chances due to the transferring the SA-6 division from the Golan to Lebanon.

Since the possibility of war with Syria was still an option as an output of attacking the surface-to-air missiles operated by Syrian soldiers, it was the right decision

to bring it before the government for approval. It was agreed that the minister would present it to the government on Wednesday morning, while assessing that an approval will be obtained by 10:00, and an attack could be planned for 12:00.

Chief of Staff Eitan decided to stay at the northern command for the night, and drive to Tel Aviv the following morning to join us at the IAF command post, from where we planned to conduct the fighting, and complete the preparations and briefings towards the attack.

Minister Sharon wanted someone who is familiar with the plans to attend the government meeting with him, in order to answer any professional questions that may rise. It was decided that B/G Amos Amir, who left his position as head of air division, was now free of any role, would join the minister as an expert.

The government meeting on Wednesday was lengthy. We kept in contact with Amos Amir and understood that a decision would not be made till 10:00, so I instructed the IAF to postpone the time starting the attack to 14:00 in order to operate without pressure. The government indeed gave its decision after 11:00, meaning that we had more than 2 hours for all the required actions.

After receiving the approval, there was a sense of alert and tension in the command post. The command echelon felt as if it were just before a matriculation exam. The material was learned and exercised for years, but the test page is yet to be revealed. There was concern about unexpected questions.

Personally, I began a series of phone calls with wing and base commanders, and C2I units, in order to make sure that everyone was aware of the approval and get feedback on their preparedness. I sensed that the IAF was alert and ready. This reminded me of the time before take off during “Moked” operation in the Six Day War. The crews know their goals, the “band” knows how to play in synchronism after many drills. The instruments are tuned and waiting for the conductor to give the note. In this case, it was the hands of many clocks showing 14:00. The clocks were reset at all levels of control, command, and operation.

The command cell, where we were prepared to control the special operation against the missile defense, was located in the new IAF command post, one floor under the main command center where I sat. All command cells face the control desk that gives a current air status picture. The desk and mission boards on top of it give one common language for all command cells.

The command cell for the attack on the surface-to-air missiles exercised many times in simulation with and without airborne power. We had a skilled team headed by Sela and Itzik Ben Israel, whom I knew and could count on them while I, myself, had to focus on the interception of Syrian fighter planes that could be launched to protect to SAM batteries, but also threaten our forces. This is where things can take an unexpected turn and require an immediate response. Experience in command is very significant here. In fact, I had to prevent Syrian air force from interfering with the attack on the surface-to-air missiles, so that the attack will take place without

external interference and be conducted like in peace time drill.

The surface-to-air missiles attack cell was not aware of the air combat and confrontations that took place at the same time, during which 26 Syrian jets were downed in 40 minutes after being sent to disrupt our attack.

Upon opening our attack on the surface-to-air missiles at 14:00, all airborne Syrian planes were diverted east and sent for immediate landing. In fact, within 5 minutes there was not a single Syrian aircraft in the air. The Syrian goal was obvious. Allow the surface-to-air missiles to fire freely and shoot down any aircraft in the air without having to identify it first. Until then, the Syrians used to patrol with several aircraft along the Syrian-Lebanese border on the Syrian side.

It was clear that the Syrians expected impressive achievements from its surface-to-air missiles, in light of their success during the Yom Kippur war.

However, within 20 minutes of the attack, the Syrian command suffered a great disappointment. The surface-to-air missiles were desperate for air protection in order to defend itself from the effective IAF attacks. Syrian aircraft were sent blindly on a repeating trail, 3-5 minutes between a formation in an attempt to harass and threaten our attacking aircraft and disrupt the attack.

The Syrian command center was under a lot of stress. My senses told me that the operation of the Syrian fighters was under panic, which made it a lot easier for me to control the battle. The fact that they flew the same route enabled us to ambush them in the most convenient places. We disrupted their control and communication systems with EW, which increased their panic. The Syrian command sent the aircraft into the Beka'a at relatively low altitude in order to search for our attacking aircraft. Since they could not receive guidance at such low altitude by Syrian radar, and the radars in Lebanon were destroyed earlier, the "interceptors" became targets to our aircraft that had guidance and were equipped with efficient radars.

In this case I had to restrain our controller's enthusiasm to conduct the interception without identification, which could have endangered our own planes. With the help of the controllers, I selected the our patrols with the best chances and sent them for the encounter, while others had to await their turn. On the other hand, in order to stop our aircraft from chasing Syrian aircraft into Syria, I instructed them to cease contact, so that the encounters were relatively brief, and our pilots' agility was being tested. Our pilots felt confident with the orders from the command center and total trust in the command instructions, while entering combat like hunters more than having to prove their capabilities. As things evolved, we could act with more discretion and with fewer mistakes, so we ended with a score of 26:0. In 40 minutes we downed 26 Syrian aircraft without losing one single aircraft of our own.

I dragged some of the fights into an encounter above our ground forces, leading to the capture of 9 Syrian air crew men. The idea was to get qualitative captives in order to assure a quick swap of prisoners at the end of the fighting in case we lost any of our crew men.

As already mentioned, in parallel to air combat the attack continued on the surface-to-air missiles with very good results. I could follow this by reading the Syrian side and from intelligence reports. I was also briefed by the command cell. Along this time, Chief of Staff Eitan sat as a scout in the command cell next to me. I glanced at him from time to time and saw how much he was impressed and, happy to hear the reports about Syrian aircraft being downed. He was full of admiration.

Aviem Sela came up to our floor and whispered to me that 13 batteries were totally destroyed, each received a double verification, and the remaining 6 are paralyzed with one verification of destruction each. According to intelligence, there is no life in the formation, meaning there is no electromagnetic radiation of radar, so the surface-to-air missiles were in fact destroyed. We still have armed aircraft patrolling ready to attack because we wanted to verify “the mother of destruction”. The understanding between me and Sela developed amazingly in the last year, so even before he spoke I understood that he thought there was no point to continue and endanger more airplanes. I immediately instructed to stop the attack and divert all aircraft to assist our land forces in Lebanon’s other fronts. Till this day, Sela reminds me that I instructed to stop the attack without consulting with the Chief of Staff, but I sensed that we are close to a dangerous situation that could lead to a mistake and risk shooting down our own aircraft. On the other hand, we destroyed the surface-to-air missiles and downed 26 aircraft without losing a single aircraft, so it would be better to end the attack at this point, a fast and right decision without any time to consult because each second could be critical for one of the airplanes.

The decision involved the fact that some of the airplanes in the waiting circle did not have targets, and they were forced to dump their loads into the sea in order to avoid landing fully loaded. They were very frustrated to have missed out on the celebration of surrounding and destroying the surface-to-air missiles. During the first evening, I could still hear criticizing remarks about stopping the attack, a decision that was later understood and received full backing from all levels of command and operation.

The attack on the surface-to-air missiles was planned with high factors in order to assure destruction. Each battery required two verifications for destruction in order to prevent a situation in which smoke or different angles could mislead us, finding ourselves with a partly destroyed formation.

In all fields of activity, in EW, we doubled the power and number of jammings. The amount of chaff dispersed was double than required by operations research. This helped us create a friendly environment for our aircraft, and almost total blindness to the Syrian air defense. We wanted to pass this test after the trauma of Yom Kippur with the highest score.

We deliberately published the success of the Hawk Eye E2C aircraft as a cover story for other air activity we performed. The publication was absorbed and some countries considered it to be the main reason for the success of the operation in

Lebanon. The truth is that this aircraft that was designed to operate above the sea, suffered many difficulties in land operation, we later made every effort to sell it. At the end, we received many compliments. We invited former IAF commanders to a briefing that same evening. One just criticizing remark was made, one that I contemplated a lot before the Lebanon 1982 war – the exposure of weapon systems we used could have led the other side to prepare counter measures towards the possibility of a real war. Exposure of our capabilities during a limited operation in Lebanon could expose us to many difficulties during a future real war. Criticism is of course legitimate and we did our best to conceal our means and capabilities.

We could not, of course, conceal our capability to destroy the surface-to-air missiles because this was the result of the successful attack. In a historical perspective, the achievement was very significant to Israel's element of deterrence. Since the 1982 war and up to 2010, Israel was not required to fight a real major war, some of this can be attributed to the deterrence achieved and which leads to the conflict on exposure being justified. If one decides to attack surface-to-air missiles, one must do it with the best of means and capabilities in order to achieve the best possible result, and obtain maximum deterrence. There is no doubt that such conflict will arise in the future due to the asymmetric type of war. It seems that this lesson is true in most cases.

Short story to be added: In June 1992, when I was director general of the MoD, visiting Czechoslovakia right after the Glasnost, on a formal visit and during a side meeting, the deputy Chief of Staff of the host country at the time, former commander of the anti-a/c forces, told me with enthusiasm that he was in Moscow in 1982 at the National Security College, and our achievement in destroying the surface-to-air missiles caused a shock to the Soviet defense establishment. In his opinion, it was one of the reasons that led to Glasnost. I cannot assess the contribution of our success to the development of Glasnost, but it was clear that from the military aspect, the Soviet expectations were different. They built very high self confidence with their anti a/c defense following the Vietnam war, the war of Attrition and the Yom Kippur war, and this caused a revolutionary change in their approach.

ODED EREZ*

The IAF and the UAV Era

“Say, Oded, In your flying days-In how much time did you collect 300 flying hours?” this was the question, and my answer: “Well Son, In my time, in flying fighters you made a lot of sorties but very short ones, and 300 hours would have taken about a year and a half (18 months)”. “Really?” responds the young man “I did it in 3 weeks!”

That was a real conversation between me, a retired air force veteran and my grandson, who is an active deputy squadron commander who operates UAV’s from the same IAF base that I commanded a generation ago.

And this exchange of words symbolizes one of the greatest and most significant breakthroughs in the history of the Israeli Air Force: The application and deployment of the Unmanned Aircraft.

The following brief history of UAV’s is quoted from the Internet site <http://www.ufl.edu/uav/uav>

The concept of unmanned aerial vehicles was first used in the American Civil War, when the North and the South tried to launch balloons with explosive devices that would fall into the other side’s ammunition depot and explode. Since we talk about a period in which manned flying machines were not in existence – this historical fact does not serve the issue – but it became one, when in WW2, the Japanese tried to launch balloons with incendiary and other explosives with the idea that high altitude winds would carry them to the US, where the dropping bombs would cause, at least, panic. Apparently, both these ideas were not effective. The US did use a prototype UAV called Operation Aphrodite in WW2. It was an attempt to use manned vehicles in an unmanned mode. However, at that time the US did not have the technology to launch or control the aircraft.

Today’s UAV’s owe much to the design of the cruise missiles that were used in WW2 by the US and British forces. At the close of WW2, Chance Vought Aircraft, a company with no missile experience, was contracted to develop new machines. What won them the contract was that the proposed test missile would have a landing gear, which would help save cost!

This was the beginning of the UAV.

In the 1960s, the US started to develop “drones”: unmanned vehicles built for spying and reconnaissance. This was after the losses of U-2s over Russia and Cuba. The first such drone was the “Firebee”: a jet propelled aircraft’ made by Ryan

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Aeronautical Company. They were heavily used over Communist China and major flaws, technical and operating, were discovered and corrected.

The Vietnam War was the first time that UAVs, the drones in particular, were used extensively in reconnaissance and combat roles. At first they were used for “simple” day recce missions, and later they were equipped with night recce equipment, communication and electronic intelligence.

Over the last few years, it has been Israel that was responsible for much of the development that has happened in the UAV sector. The Hunter and the Pioneer, which are used extensively by the US military and other western forces, are direct derivatives of Israeli systems.

When and why did the IAF start its UAV operation?

Right after the “6 days War” (June 1967), Israel was engaged in what is known as “the War of Attrition” (that ended on Aug. 7th 1970). At the first stages this war was around the Suez Canal and land affected mainly IDFs ground forces. In a later phase (mid 1969) the IAF became the main operator in the battle zone, and at that phase we encountered the ground to air Russian AAA and SAM systems that were deployed by the Egyptians and the Syrians.

The IAF has suffered a few aircraft (A4s, F4s, transport) losses as well as some crews, and was looking for means that would allow continuing operational activity in the very hostile environment. As usual, various techniques and tactics were developed; among them was the study of the Unmanned Aircraft, mainly for the reconnaissance missions which were quite intensive.

Being a former reconnaissance expert, with a lot of operational experience in the 1960s’ and flying actively F-4s in air/air and air/ground missions, I was no stranger to the operational atmosphere and needs, and with my engineering degree and experience in Weapon systems development, I was given the task of the IAF Program Manager for the study, implication and deployment of the UAV.

This took place in December 1970; I was a Lt. Col and had to report to Gen. Benny Peled who became the IAF CIC in mid 1973.

What we had in mind was to define and find a platform that could answer the operational need of delivering (or bringing) vertical photo images, covering enough range to answer the large areas to be monitored, being able to do various profiles: low-low, high-low-high, etc. and the *raison d’être*: a platform that does not leave p.o.w.s and widows behind, even in case of mission failure. We didn’t know very much about what’s going on in this area and learning that most of the European activity in this field is in the Aerial Targets we focused our search in the US.

Since time was very crucial, we decided that we won’t commence a development program but would rather adopt an existing platform and perform the minimum engineering changes to fit it to our operational requirements.

As published in the Wikipedia a great advance was achieved in drone technology and operational practice during the Vietnam War. A series of fast track adaptations of an existing target drone resulted in a system whose effectiveness was beyond

expectations, even with guidance technology which was extremely crude by modern standards. Our search lead us to Teledyne-Ryan Aeronautical in San Diego, Ca and a contract for 25 “birds” was signed to be delivered in a few months. The platform was based on the Teledyne SC/SD versions with some modifications: airframe, and operating that we needed as a response to our operational requirements. The “bird” was designated 124I and in Hebrew: MABAT, which has two meanings: it’s the initials of A Plane without A Pilot and the word A Look or Observation. The major significant changes involved with our program were the ground launch assisted by a RATO booster and a Mid-Air Recovery System (MARS) by Helicopter.

The first phase of the project that started in early 1971 by sending a small team of technicians, software experts and a couple of pilots – none with any experience with Unmanned vehicles to the company’s facility in San Diego – to learn and qualify in the system without flying it. The contract dictated that there won’t be any real flights in the US and that all 5 acceptance and test flights will be performed in Israel and will begin in late Aug. 1971 so that the system’s development phase (engineering), organizational preparations in picking the people to be the technical and operational nucleus, training them overseas, preparations in Israel of the infrastructure to absorb the system and performing the acceptance flights: all was planned to be done in about 10 months.

With our very little knowledge of unmanned flying systems we were quite worried of having to operate them from our AF Base in the center of the country and at the center of the populated area and having a very dense aerial traffic military and civil, so the first decision was to carry the operation, on a temporary basis to a very remote place: one of the forward airbases that we used in the Sinai Desert.

Due to hard work and super enthusiastic attitude from both our Israeli group and the Teledyne Ryan people, across all levels, we met the target date!

I have to make clear that we could advance in our program and solve whatever problems because we were considered as a project that does not interfere with the Air Force daily operations, and being self contained and not having anybody in the HQ who knew better than us, we did not even demand HQ colonels attention. On the other hand, we couldn’t do so well with the moral support and backing of Gen. Benny Peled who was a real partisan of the concept.

All 5 test-acceptance flights, in which we examined different profiles, were successful and gave us the confidence in our ability to plan and control the missions, to maintain the equipment and, in fact, to feel assured enough in order to convince our commanders that the concept of UAV as part of our Air Force is viable.

As for the organizational structure we suggested that the operating unit will be just like a “flying” squadron, and that we’ll have experienced ground crews with electronics background, and ground material-ammunition background for the launcher. The optical equipment will be looked after at the base level, and as aircrew we decided to use experienced aircrews. Either active or grounded for medical reasons. This decision was very important – the alternative suggested by the HQ was to find some of the model aircraft fans and recruit them. I insisted that as long as we fly real

plane we cannot develop the idea that it can be treated as a toy. And since we argued on a very small number and with my consent to use grounded pilots, it worked.

I mention this because a few years later, when we developed the Mini RPVs-we did use model aircraft fans in some piloting tasks.

Proving the capability and showing confidence are not enough, because we could easily stay stuck and forgotten in the remote base in the Sinai unless we convince the command that we should get the orders for operational missions. The fact that at that time (Oct. 1971).

I became a branch-commander in the Operations Division, helped the unit because I was able to convince my colleagues that they (the UAV Sqd.) should get a fair share in the reconnaissance missions.

In 1972, a small number of Northrop MQM-74 (Chucker) were bought and absorbed as a flight (sector) in the Sqd.. These were target drones and were meant to be used as decoys.

The “Yom Kippur” war (Oct.1973) put the first UAV Sqd. into full operational service. But at the end of this 3 weeks war most of the platforms were lost, performing a number of successful reconnaissance missions (see SA-2 photo) and a great number of “suicide missions” as decoys for the SAMs.

Right after the war, the Sqd. Experts have developed with the approval of the AF technical Div. a substitute for the Reconnaissance need by transforming the MQM-74 Target Drone to a recon platform. Installing in it a MiniPan camera, the “birds” were ground launched, flew by a program and had quite a nice record in bringing back the photos although their technical reliability wasn’t very high, and that’s an understatement.

I came back to the Base this time as the base commander and demanded that the AF will conduct an inquiry in every single case of loss, exactly as if it was a manned air craft – the results were very effective: first we’ve learned, after talking to USN operators in Point Mugu (Ca.) that our rate of success is similar to theirs, and that we don’t have a operating default. The involvement of the HQ technical Div made them look at and treat the system as part of the active arsenal, which was a very important step towards the future. On the operational hand, we’ve learned that most of the flights were a success, we didn’t lose birds because of AAA or SAMs, being small, fast and flying low made the penetration easier and hardly noticed, not like the larger 124I. This too was a lesson that had great implications on our future developments.

Another lesson and a very convincing one was learned: the main achievement of the introductory first years of operation was that even if a mission fails, you don’t lose your crews and don’t have widows and families to take care of, which is why we decided, back in 1970, to start the program.

A new contract for additional 124Is and Firebees was signed and at that time some of our people, of the Sqd.. And base level, officers and a few enlisted men, came out with some ideas and got permission to work, at the industry (IAI and Tadiran) on developing the idea of a much smaller RPV with real time intelligence capabilities.

The outcome was the Mini RPV, or MAZLAT in Hebrew. The industry was quite enthusiastic, understanding that the markets will be ready and willing for the renewed concept based on the operational experience and feedback of the IAF.

In fact, one of great advantages in weapon systems development, in Israel, is the fact that the country is small, a lot of people are not total strangers to each other, many of the people who work in the industry are doing their military reserve duty operating or maintaining systems that were developed in their own or a next door office. This means that “the circles are very tight” and modifications, improvements and testing of good ideas do not suffer from a long lead time and beaurocracy.

So, from the mid 1970s onward, a lot of thought and work was put in developing techniques and capabilities that will suit new operational requirements which, after the experience gathered and the operational lessons learnt aimed toward more sophisticated missions. Not just carrying a payload but being able to perform a variety of missions in a multi-role profile, of one or some birds participating in a mission.

When I was nominated the Chief of Air Force Intelligence (mid 1977) I managed, as the customer of what the Rpv's were supposed to bring, to encourage their participation in operations and to ensure the presence of more than just one squadron in the Air Force. This was the time in which I heard some of my fellow generals, questioning the budgets, manpower and priorities that the RPV systems were allocated – but it was not a real opposition – the operational results were very convincing, and the existing manned platforms had a lot of work to do, so in fact there was a well organized participation in missions that eased the competition, and beside all that the Manned A/C were used in a different type missions than the UAVs, so that each system could excel in its preferred area of operation.

An operating system, even an unmanned one, depends on the people as much as on the equipment. We started with very few people as mentioned above and have gone through a self designed on the job training in the preparations, flight planning, before flight checks, the supporting logistics and the in flight monitoring of the platform and the payload. As the missions came in and the unit became and was treated as an Air Force Squadron we had to go up a few classes from the “experimental” phase.

A major effort was done in the build-up and training of the men power. The on the job training made a big step in being transformed to an organized “school” for flying teams (operators) and ground crews, and the human resources management went well into the Air force Main Stream and was, no more, an unforeseen “burden” that had to be solved in an unordinary manner, which is normally the case with the operation of special projects and “unique” systems.

The work of the squadron and base became much easier after the Air Force High Command was convinced that there is a high dividend in the operation of the UAVs, as part of the Air Force and under the command and control of the Air Force, and that the “environmental” risks and skepticism about the “Robots that will storm the populated skies...” is very very low!

Penetration into the Air Force became smoother' due to the fact that some of the officers' who had great belief in the systems and the concept were advanced to positions in which their influence on Air Force Decisions and Planning was stronger.

A brief "History" of the RPVs /UAVs in service with the IAF is taken from the Wikipedia:

UAVs are being operated in the IAF since 1971 performing various tasks. A lot of publicity was made during the "Al Akza intiphade" due to their high involvement in intelligence collection, and target location. In past years the IAF used US made target drones and Reconnaissance platforms but in later years the IAF's UAVs are Israeli made by Israeli Defense Industries.

Now days the UAVs in service with the IAF are The Heron 1 and Hermes 450 for observation, intelligence collection, and target designation.

The Harpy is a "suicide" platform in Air defense Suppression, and as published in Aviation Week some Hermes 450 were equipped with missile-launchers.

In October 2007, the IAF made a presentation of the Heron TP which is about to enter service and a tactical Mini RPV "Skylite B" which is in use for imaging intelligence collection.

The IAF has gone a long way in the deployment of UAVs since the first steps back in 1970 – and in parallel and very dependent on the operational and experimental successes of the first systems, The Israeli Defense Industries became international leaders in developing and introducing new and updated UAV systems.

UAVs today have a very large spectrum of flight capabilities: altitude, velocity, endurance. High Survivability due to building materials, flight profiles, low noise and multi-role function due to the many various payloads.

The IAF has accepted and absorbed the concept and the systems and it now considered an important supporting pole in its overall structure.

The UAVs in the IAF have significance as proven Power Multiplier and as such have won their place in the Air Force future plans. And as I look back along the track we, the beginners walked, I can only thank the wisdom and far sight of my colleagues, in the unit and the HQ for directing us to push the concept with a constant measure of the proportions. We pushed after we've shown results and we never threatened to replace somebody "by a robot". We didn't promise a big cut in manpower when we are fully operational because we knew we'll need more or less the same figures as in a manned squadron, but even in severe mission failures, we never left a pilot or a widow behind.

BASILIO DI MARTINO*

Una storia incompiuta. Potere aereo e dottrina d'impiego in Italia dal 1923 ad oggi

La nomina di Italo Balbo a Sottosegretario di Stato per l'Aeronautica nel novembre del 1926 può essere considerata un momento cruciale nella storia della giovane Forza Armata. Il suo predecessore, il generale dell'esercito Alberto Bonzani, aveva dato alla Regia Aeronautica una solida struttura di base, definendo nel novembre 1924 i criteri per il reclutamento e l'avanzamento di un corpo ufficiali, per forza di cose quanto mai eterogeneo, e dettando nel 1925 un ordinamento che, nello stabilire la composizione e i compiti della cosiddetta armata aerea e delle aviazioni dell'esercito e della marina, cercava di fare chiarezza in una situazione ancora confusa e terreno di scontro tra visioni contrapposte. Balbo andò infatti ben oltre nel tentativo di dare all'aeronautica non solo un'anima, sforzandosi di alimentarne e cementarne lo spirito di corpo, ma anche una convinta ragion d'essere, attraverso lo strumento propagandistico delle crociere collettive e l'affermazione di una dottrina d'impiego del potere aereo di cui queste imprese venivano a essere una prima manifestazione. L'esaltazione degli aspetti tecnici e organizzativi schiudeva una dimensione che travalicava quella dell'eroismo solitario per dare concretezza al concetto di massa e alla capacità di proiettarla a grande distanza. La visione imperante era quella che, nel proporre una decisa rottura con gli schemi tradizionali nel segno della modernità e dell'innovazione, si rifaceva al pensiero del generale Giulio Douhet, visione che proprio in quegli anni giungeva alla piena maturità con la strutturazione sistematica delle idee dell'ufficiale casertano.

Il primo tentativo di verificare sul campo la praticabilità di queste teorie, al di là delle dichiarazioni ufficiali che ne ribadivano la centralità per la Regia Aeronautica, fu fatto con le grandi manovre dell'estate del 1927. Queste si svolsero in Veneto tra il 16 e il 20 settembre sotto la direzione del capo di stato maggiore, generale Armando Armani, con l'impiego delle unità da caccia, da ricognizione e da bombardamento inquadrato nella I e nella II Zona Aerea Territoriale con un totale di 207 velivoli, 114 "azzurri" e 93 "rossi". Tema dell'esercitazione era un conflitto tra Italia e Jugoslavia con i due partiti che si fronteggiavano lungo una linea che dal Passo di Resia, sul confine italo-austriaco, andava alle foci del Po attraversando il Passo della Mendola,

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Cima d'Asta, l'Altopiano di Asiago, i Monti Berici, i Colli Euganei e la città di Rovigo. Per la prima volta l'arma aerea avrebbe operato in modo prettamente autonomo rispetto alle forze di superficie, una circostanza che Armani non mancò di sottolineare nella conferenza iniziale, tenuta a Padova il 15 settembre 1927, precisando però che il concetto di autonomia andava sempre e comunque interpretato in termini di concorso, sia pure indiretto, allo sforzo comune:

... non si vuole intendere, come talvolta è accaduto in passato ed ancora oggi accade, che le operazioni dell'Armata Aerea abbiano luogo all'infuori del quadro generale, complessivo degli altri episodi della guerra terrestre e navale, ma soltanto che, giustamente inquadrato in tale complessa trama, possono svolgersi con razionale, ampia libertà d'azione, per concorrere, con la loro nuova e potente espressione, il più delle volte indirettamente, all'esito felice delle altre operazioni sulla terra e sul mare ...¹

Inoltre, dal momento che, soprattutto per la caccia e il bombardamento le direttive di impiego erano ancora in via di definizione, le manovre furono concepite come un momento di sperimentazione sul campo delle soluzioni allo studio. Come tali avrebbero quindi avuto un'impostazione diversa da quella tradizionale, proponendo non un confronto continuato nel tempo, con la proclamazione finale del partito vincitore, ma la successione di singoli momenti di guerra aerea, a sé stanti, dai quali ricavare gli insegnamenti del caso.

Le unità aeree del partito "azzurro", affidato al generale di brigata aerea Francesco Vece mentre il partito "rosso" era guidato dal parigrado Vincenzo Lombard, aprirono le ostilità con un attacco notturno alla base aerea di Aviano portato da 10 Ca.73 del 7° Stormo, prendendo l'avversario di sorpresa nonostante vi fosse il presupposto di una situazione internazionale già ai limiti della rottura, e ottenendo il risultato di rendere il campo inservibile per almeno ventiquattro ore, sia pure al prezzo di perdite non indifferenti. Verificata così l'importanza di una decisa azione di controaviazione al fine di assicurarsi un significativo vantaggio iniziale, e ribadita di contro la necessità di adottare tutti quei provvedimenti necessari a contenere l'effetto di una tale mossa, non escluso l'abbandono delle basi aeree del tempo di pace, lo scenario disegnato a tavolino prevedeva l'impiego di reparti da caccia per mantenere la superiorità aerea lungo il fronte, tema che non poté essere sviluppato nella maniera voluta per il peggiorare delle condizioni atmosferiche. Si ebbe però la conferma che alle crociere di sbarramento era preferibile un impiego concentrato nel tempo e nello spazio, alla ricerca di una superiorità aerea temporanea e localizzata nel settore di maggiore interesse ai fini dell'andamento generale delle operazioni, evitando una inutile dispersione di forze. In proposito fu verificata l'opportunità di un impiego a massa e da posizione centrale dei reparti da caccia, arrivando alla conclusione, dettata anche dall'indisponibilità

¹ Ministero dell'Aeronautica, Ufficio di Stato Maggiore, 1° Reparto Operazioni, *Relazione sulle esercitazioni aeree*, Provveditorato Generale dello Stato, Roma, settembre 1927, Archivio Ufficio Storico Stato Maggiore Esercito (AUSSME), Rep. G-28, Fasc. 73, Campi e manovre.

di mezzi adeguati per le comunicazioni terra-bordo-terra, che era più conveniente ripartirli in due nuclei distinti, da impiegare l'uno a copertura dell'obiettivo dei bombardieri avversari, l'altro per intercettarli sulla via del ritorno. Fu anche condotto con successo un esperimento di ricongiungimento in volo tra reparti da bombardamento e i reparti da caccia incaricati di scortarli, un problema al quale si era cercato di dare soluzione già nel corso della Grande Guerra con risultati spesso insoddisfacenti, e venne verificata la fattibilità di missioni di ricognizione in profondità senza scorta, ivi incluso l'impiego di ricognitori per segnalare via radio la partenza e la rotta di formazioni di bombardieri, anche in questo caso recuperando una modalità operativa già in uso nel 1918. All'ostacolo proposto dalle condizioni atmosferiche avverse si aggiunsero le difficoltà causate dall'imperfetto funzionamento degli apparati radio, ma nel complesso la direzione delle manovre ritenne che l'esperimento fosse riuscito, traendone l'indicazione che per l'esplorazione lontana erano fondamentali la velocità e la capacità di far quota dei velivoli, insieme alla disponibilità di apparecchiature a onde corte affidabili, con una portata di un migliaio di chilometri.

Armani volle anche mettere alla prova la mobilità dell'organizzazione di supporto, con il trasferimento senza preavviso dell'82^a Squadriglia Caccia, su C.R.1, da Ghedi a Padova, e il montaggio su questo campo di nove hangar già dislocati a Gardolo e Bolzano. I risultati furono soddisfacenti: le due autocolonne arrivarono a destinazione rispettivamente in 13 e in 17 ore, e il montaggio degli hangar venne completato in meno di 5. L'efficacia di uno dei più importanti "servizi di campagna", e cioè quello delle auto-sezioni hangar, poteva quindi dirsi accertata e così pure



Velivolo Ca.73.

quindi la capacità di variare all'occorrenza in tempi molto rapidi lo schieramento dei reparti, se necessario trasferendoli su campi non completamente attrezzati.

Le grandi manovre si chiusero il 20 settembre con un'esercitazione di tiro di caduta sul poligono del Vivaro, presso Aviano, in cui da quote comprese tra i 1.000 e i 2.000 metri bombardieri bimotori Ca.73 e monomotori B.R.1 sganciarono in tutto 367 bombe di peso variabile dai 15 agli 800 kg su simulacri di bersagli che rappresentavano impianti ferroviari, un campo di aviazione, un ponte, un deposito e postazioni d'artiglieria. In tutto questo non c'era molto di innovativo e, se si esclude il colpo di apertura con il bombardamento simulato di Aviano, che sottolineava la validità di un attacco preventivo alle fonti del potere aereo avversario per acquisire una superiorità che i caccia avrebbero poi potuto mantenere senza sforzo, vi si ritrovano temi già sviluppati nell'ultima fase della Grande Guerra. Lo stesso può dirsi della dimostrazione di bombardamento a volo rasente effettuata il 19 settembre da 32 B.R.1 del 13° Stormo, sempre sull'aeroporto di Aviano, durante la quale emersero difficoltà di fondo legate al profilo di volo piuttosto convenzionale seguito dagli attaccanti. Il problema non sfuggì alla direzione delle manovre che ne trasse spunto per sottolineare come il volo rasente richiedesse specifiche direttive di impiego ed anche, se non soprattutto, soluzioni appropriate per i dispositivi di puntamento e lo stesso armamento di caduta:

Questa nuova forma d'impiego trova la sua ragione di essere, e basa il suo successo, sulla sorpresa e conseguentemente sulla difficoltà, da parte della difesa antiaerea, di segnalare e colpire gli apparecchi. Un velivolo, sia pure di grosse dimensioni, che voli rasente agli



Caccia Fiat C.R.20.

ostacoli, sorvolerà così inaspettatamente e velocemente tutti gli appostamenti difensivi, da rendere molto difficoltosa l'esecuzione del tiro da parte delle mitragliatrici e specialmente dei cannoni antiaerei. Gli apparecchi del 13° stormo mantennero, invece, una quota assai pericolosa, agli effetti dell'avvistamento e del tiro avversario, allontanandosi così dai criteri, che sembrano i più sani, per l'impiego dell'aviazione a volo rasente.

Si era avuta insomma un'azione di bombardamento a bassa quota, con tutte le conseguenze del caso dal momento che i velivoli erano rimasti esposti al fuoco delle mitragliatrici della difesa. Di qui i dubbi sull'opportunità di questa forma di impiego, con la conclusione di ricorrervi per il momento solo in situazioni eccezionali e senza alcuna sistematicità, continuando però a studiare il problema.

Le grandi manovre del 1927 valsero soprattutto a verificare il livello di preparazione dei reparti e l'idoneità del materiale di volo a pochi anni dalla costituzione della Regia Aeronautica, prendendo a riferimento l'esperienza fondante della Grande Guerra. Possono quindi essere viste come il tentativo di determinare la situazione iniziale a partire dalla quale elaborare una dottrina di impiego, intendendo con questo il complesso di procedure e tattiche con cui tradurre in atto una teoria della guerra aerea che, almeno formalmente, era e rimaneva di stampo "dohuettiano". Un ulteriore passo in avanti avrebbe dovuto essere fatto nel 1928, approfondendo l'analisi delle soluzioni sperimentate l'anno precedente, ma le condizioni di efficienza dei reparti, condizionate dal cattivo stato del materiale di volo, portarono prima a limitare la portata delle manovre, cancellando la fase a partiti contrapposti e lasciando la sola fase di mobilitazione e radunata, e poi ad annullarle del tutto sostituendole con una esercitazione dei quadri.²

Il tema da sviluppare, lo stesso previsto per le esercitazioni reali poi annullate, prevedeva che i due partiti si fronteggiassero lungo una linea che attraversava l'Italia seguendo l'Appennino Tosco-Emiliano. Il partito rosso, che rappresentava lo "stato del sud" ed era guidato dal generale di brigata aerea Francesco De Pinedo, per compensare la forte inferiorità numerica avrebbe attaccato i campi d'aviazione della pianura emiliana e lombarda nella prima notte di guerra, allo scopo di impedire le operazioni di radunata, e a questa azione di controaviazione preventiva avrebbe affiancato un'operazione di interdizione non convenzionale, infiltrando con idrovoltanti dei nuclei di sabotatori con il compito di far saltare i ponti sul Po. Nei giorni successivi De Pinedo, data la manifesta superiorità della caccia avversaria, prevedeva di impiegare le sue forze da bombardamento notturno contro obiettivi selezionati, innanzitutto i terminali ferroviari ma anche i principali centri industriali, e di utilizzare i suoi reparti da caccia solo per contrastare i bombardieri diurni dell'avversario. Il partito azzurro invece, secondo l'impostazione che alla sua azione avrebbe voluto dare il generale di brigata aerea Pietro Oppizzi, puntò a sfruttare la sua superiorità

² Gianluca Gangi, *Alla ricerca di una dottrina. Le manovre della Regia Aeronautica dal 1927 al 1933*, Società Italiana di Storia Militare, Quaderno 1998.

di mezzi per attaccare con continuità e in massa, di giorno e di notte, i centri demografici e militari, nel secondo caso con specifico riferimento ai punti nodali della rete stradale e ferroviaria della Toscana, mentre alla caccia era affidato il compito di ricercare e distruggere le forze aeree avversarie.

L'analisi di queste intenzioni evidenzia da un lato l'importanza ancora una volta attribuita a un'offensiva di controaviazione preventiva, dall'altro la fiducia nelle possibilità di un impiego "contro valore" dei bombardieri, partendo dall'assunto di un dominio dell'aria già acquisito e da mantenere con l'impiego della caccia. Tanto l'una quanto l'altra impostazione erano dettate dalle caratteristiche dello strumento a disposizione, in termini sia quantitativi sia qualitativi, il che è una ulteriore dimostrazione del legame esistente, sempre e ovunque, tra tecnologia e dottrina.

Lo stato di approntamento dei reparti di volo della Regia Aeronautica e le condizioni dei materiali in dotazione condizionarono anche lo sviluppo delle attività addestrative programmate per il 1929, che proposero comunque degli scenari diversi da quelli fino ad allora considerati. L'esercitazione con i quadri organizzata tra marzo e aprile ipotizzava una guerra con la Francia, con l'apertura delle ostilità preceduta da un breve periodo di crescente tensione. In un tale quadro erano previste massicce e ripetute incursioni diurne e notturne sulle basi dell'aviazione avversaria e a seguire il bombardamento dei nodi stradali e ferroviari della regione compresa tra Lione, la valle del Rodano e la frontiera, secondo la linea di tendenza che si era manifestata l'anno precedente, mentre rimaneva esclusa qualunque forma di collaborazione con le forze di superficie, portando agli estremi limiti il concetto di autonomia dell'azione dell'aeronautica e dandogli la connotazione di un dogma indiscusso e indiscutibile. Nella realtà i vertici della forza armata erano consapevoli che i reparti da bombardamento, malamente equipaggiati e sotto organico, avrebbero trovato serie difficoltà a colpire obiettivi quali Lione, Tolone e Marsiglia, dando a questa azione la necessaria continuità, mentre l'area di Parigi, di vitale importanza in termini non solo politici ma anche industriali, rimaneva comunque al di fuori della loro portata.

In antitesi con uno dei presupposti di queste esercitazioni con i quadri, le manovre che si svolsero sulla costa toscana tra il 29 agosto e il 2 settembre del 1929 ebbero come tema la cooperazione con le altre forze armate, quasi a simboleggiare il contrasto tra due visioni opposte e la difficoltà a realizzarne una sintesi appropriata. L'ipotesi da sviluppare era il contrasto a un'operazione di sbarco che una forza navale preventivamente concentrata a Portoferraio, nell'isola d'Elba, avrebbe effettuato sulla costa toscana, nella zona di Massoncello. La Regia Aeronautica era chiamata a intervenire schierando tra La Spezia e Orbetello una brigata aerea di formazione, composta da reparti da caccia, da bombardamento notturno e da bombardamento marittimo.³ Nonostante i limiti inerenti alla struttura di questa grande unità, che non aveva reparti da bombardamento diurno equipaggiati con macchine più agili e più veloci degli idrovolanti del bombardamento marittimo, e una certa schematizzazione

³ Gianluca Gangi, op. cit.

degli eventi, che incise sulla possibilità di sfruttare al meglio la flessibilità dello strumento aereo comprimendo la libertà d'azione, l'esercitazione dimostrò quanto un intervento a massa e di sorpresa dell'arma aerea potesse essere determinante ai fini del successo della difesa, e di converso evidenziò come nessun tentativo di sbarco potesse riuscire senza un adeguato appoggio aereo.

I principi della massa e della sorpresa, e in parte anche quello della continuità dell'azione, per ciò che potevano consentire i mezzi disponibili, trovarono applicazione in tre momenti successivi: nell'attacco alla base di Portoferraio, mirato a disorganizzare il convoglio prima che uscisse in mare e avente quindi per obiettivo principale le navi, nel bombardamento notturno del convoglio stesso una volta in navigazione, e infine nell'intervento concentrato in poco più di sette minuti di oltre un centinaio tra bombardieri e caccia che si susseguirono sulla testa di ponte alternando secondo una sequenza prestabilita il bombardamento allo spezzonamento, e questi al mitragliamento e al rilascio di gas tossici. Se in merito all'efficacia degli attacchi portati alle unità in navigazione vi furono non poche perplessità, in parte mitigate dal fatto di aver accertato che anche di notte una formazione navale non era comunque immune all'offesa dall'alto, senz'altro positivo fu il giudizio sugli altri due momenti dell'esercitazione. Nel bombardamento delle navi in porto si ritenne infatti che, facendo convergere sull'obiettivo le squadriglie da direzioni diverse per disperdere la reazione contraerea, si fosse ottenuta una notevole concentrazione di capacità d'offesa nel tempo e nello spazio, a tutto vantaggio dell'efficacia dell'attacco, e ugualmente efficace fu valutato l'intervento sulle truppe ammassate e allo scoperto sulla spiaggia, con un'annotazione particolare per l'impiego degli aggressivi



Ansaldo AC.3.



Bombardieri SM.79.

chimici, da solo sufficiente ad arginare la penetrazione all'interno. Nella circostanza, anche se agli equipaggi fu ordinato di portarsi all'attacco alla minima quota possibile e sfruttando la copertura del terreno per massimizzare il fattore sorpresa, venne però persa l'occasione per sperimentare sul campo la tecnica dell'attacco a volo rasente, chiamando a prendere parte alle manovre il VII Gruppo Autonomo da Caccia del maggiore Amedeo Mecozzi che di questa modalità d'azione era l'indiscusso alfiere. Di contro l'utilizzo di nuovi modelli di macchine, come il caccia Fiat C.R.20 e il bombardiere Caproni Ca.74, per quanto ancora bisognose di messa a punto, significava che qualcosa cominciava a muoversi anche per il materiale di volo, pur restando la situazione tutt'altro che ottimale. Erano infatti ancora in linea velivoli concepiti dieci anni prima, come il B.R.2 e il B.R.3 da bombardamento diurno, mentre il bombardiere notturno Ca.74, come del resto il precedente Ca.73, lasciava molto a desiderare in termini di prestazioni e qualità di volo.

Nel 1930 non vi fu spazio per grandi manovre aeree ma la Regia Aeronautica ebbe comunque il suo momento con la prima Giornata dell'Ala, celebrata l'8 giugno sull'aeroporto romano del Littorio, oggi dell'Urbe. Questa manifestazione, voluta da Balbo come affermazione del ruolo e delle capacità della Forza Armata, fu concepita non come una successione di momenti di acrobazia, sul modello degli eventi simili organizzati dalla RAF, ma come una dimostrazione di capacità operativa, alternando l'esibizione acrobatica, interpretata soprattutto in forma collettiva, con momenti di spettacolare realismo, dalla finta caccia, all'attacco al suolo, al lancio di paracadutisti. Tutto questo era anche strumentale alla battaglia che lo stesso Balbo stava conducendo per superare l'ordinamento Bonzani e ridimensionare ruolo e consisten-

za delle aviazioni ausiliarie, a disposizione dell'esercito e della marina, portandole nel contempo sotto il controllo dell'aeronautica in aderenza alla visione dell'ultimo Douhet. Il nuovo ordinamento venne infine approvato il 6 gennaio 1931, ma la giustificata ricerca di una piena parità con le altre forze armate ebbe l'effetto deteriore di suggerire un atteggiamento di diffidenza nei confronti di qualsiasi ipotesi di collaborazione interforze, a detrimento di una visione unitaria dello strumento militare nazionale e in ultima analisi in contrasto con le idee dello stesso Douhet.

Le tesi "douhettiane", che rimanevano alla base dell'idea dell'unità organica delle forze aeree, furono oggetto delle grandi manovre del 1931, le prime e anche le sole nelle quali si cercò di dimostrarne la validità attraverso l'impiego a massa dei mezzi disponibili in uno scenario che dava concretezza alla minaccia aerochimica. Tra il 26 agosto e il 3 settembre vi furono impiegate 69 squadriglie inquadratesi in due divisioni aeree per un totale di 894 velivoli,⁴ intensificando nei mesi di preparazione le attività di costruzione e riparazione per completare in tempo utile le dotazioni dei reparti. Il quadro di riferimento vedeva l'Italia, già in guerra da pochi giorni con la Jugoslavia, attaccata a occidente dalla Francia.⁵ Di qui il compito per l'armata aerea di proteggere i centri industriali e demografici dall'aviazione avversaria, allo scopo di dare tempo alle forze di superficie di riorganizzarsi in funzione della nuova situazione, e di conseguenza la suddivisione dei reparti impegnati nelle esercitazioni in due partiti, l'uno proiettato alla conquista del dominio dell'aria e al suo sfruttamento in una prospettiva contro valore più che contro forze, l'altro impegnato a contenere e neutralizzare una tale offensiva.⁶

Il confine ideale era costituito dall'Appennino Tosco-Emiliano, tra il Passo della Cisa e le fonti del Metauro, a sud del quale si estendeva il territorio dell'ipotetico aggressore, identificato con il partito B, con capitale Roma, mentre il territorio nazionale da proteggere, affidato al partito A, era rappresentato dalla pianura padana con capitale Milano. L'importanza delle manovre era sottolineata dal fatto che lo stesso

⁴ Nel dettaglio si trattava di 288 velivoli da caccia terrestre (C.R.A., C.R.20, C.R.20 bis), 48 idrovolanti da caccia marittima (C.R.20I e M41 bis), 48 velivoli da assalto (AC.3), 120 velivoli da bombardamento notturno (Ca.73, Ca.74, Ca.74G), 120 velivoli da bombardamento diurno (B.R.2 e B.R.3), 76 idrovolanti da bombardamento marittimo (S.55), 13 velivoli da bombardamento di tipo sperimentale (Ca.102), 20 velivoli da ricognizione strategica (A.120), 153 velivoli da collegamento di vario modello. Per l'occasione furono inoltre costituiti 5 comandi di brigata e 7 comandi di stormo dando vita a un ordinamento che vedeva in tutto 2 comandi di divisione, 5 comandi di brigata, 12 comandi di stormo, 28 comandi di gruppo, 69 squadriglie (27 da caccia terrestre, 4 da caccia marittima, 12 da bombardamento diurno, 10 da bombardamento notturno, 12 da bombardamento marittimo, 2 da ricognizione strategica, 2 sperimentali).

⁵ Il conflitto con Francia e Jugoslavia alleate era stato individuato nel 1925 dal generale di corpo d'armata Pietro Badoglio, appena nominato capo di stato maggiore generale, come il caso peggiore che l'Italia avrebbe potuto trovarsi a fronteggiare. Questa ipotesi operativa sarebbe rimasta di piena attualità almeno fino alla metà degli anni Trenta.

⁶ *Grandi Manovre 1931. Relazione conclusiva*, documento dattiloscritto senza protocollo e senza data, Archivio Ufficio Storico Stato Maggiore Aeronautica (AUSSMA), Grandi manovre del 1931.

Balbo aveva voluto tenerne l'alta direzione, affidando la direzione delle operazioni al generale di divisione aerea Giuseppe Valle, con il generale di divisione aerea Oppizzi e il generale di brigata aerea Lombard a capo rispettivamente del partito A e del partito B. Altrettanto significativa era la mancanza di qualsiasi coinvolgimento delle altre due Forze Armate, a rimarcare la caratterizzazione puramente aeronautica delle grandi manovre, finalizzate a verificare la capacità dell'arma aerea di decidere l'esito del conflitto con una energica e decisa azione sviluppata nella prima settimana di operazioni. In questa prospettiva il partito A, posto dal tema stesso dell'esercitazione in una condizione di oggettiva inferiorità, dovendo rovesciare il fronte e rischiare le sue forze, impiegò i reparti da caccia in compiti di difesa aerea e i bombardieri in azioni di controaviazione, lasciando spazio soltanto al bombardamento di Firenze eseguito nella notte sul 28 agosto e il giorno successivo anche con l'impiego di gas. Il partito B attaccò invece con decisione i gangli vitali dell'avversario e in particolare la sua capitale, cercando per questa via una rapida soluzione del conflitto in assoluta coerenza con le teorie di Douhet. Milano fu quindi bombardata a più riprese, nella notte sul 30 agosto e poi ancora l'indomani con la luce del giorno, nel quadro di un'operazione articolata in più fasi che avrebbe costretto alla resa la Nazione A nell'impossibilità di completare la mobilitazione, a causa della disorganizzazione dei servizi, e con la popolazione della capitale demoralizzata e terrorizzata.

Nell'esaltare la potenza distruttiva degli attacchi contro-città, portati a quote relativamente basse e affiancando all'uso di ordigni esplosivi e incendiari l'erogazione di aggressivi chimici, l'atto conclusivo delle grandi manovre del 1931 aveva un chiaro fine propagandistico che non deve però far dimenticare lo scopo ultimo di stabilire la reale efficacia di un'azione mirata a distruggere la volontà di combattere dell'avversario. L'azione contro-città avrebbe dovuto essere preceduta da una campagna di controaviazione, coerentemente con l'affermazione secondo cui «la guerra aerea consiste e si esaurisce nella conquista del dominio dell'aria»,⁷ ma nell'impostazione dell'esercitazione questa premessa venne data per scontata, assumendo che le forze attaccanti già avessero la libertà d'azione necessaria. Ci si concentrò quindi sulla seconda fase della campagna, quella dell'attacco ai centri demografici e industriali, certo di maggiore impatto sull'opinione pubblica, tratteggiandone una possibile successione per fasi che, nel riprendere quel calcolo degli effetti così tipico di Douhet, era anche un tentativo di tradurre la teoria in dottrina di impiego:

- 1) – Azione notturna di logoramento mediante il metodico succedersi di squadriglie da bombardamento intervallate di 5 o 10 minuti contro i punti più vitali del bersaglio. [...] Tale azione preliminare, da condursi con equipaggi ben addestrati, rendendo le varie

⁷ Giulio Douhet, *Il Dominio dell'Aria, Libro Secondo*, edizione 1932 riproposta dall'Ufficio Storico Stato Maggiore Aeronautica in *Il Dominio dell'Aria e altri scritti*, a cura di Luciano Bozzo, Roma, 2002, p. 150: «La guerra aerea consiste e si esaurisce nella conquista del dominio dell'aria; conquistato il dominio dell'aria, le forze aeree devono prefiggersi l'esecuzione di offese contro la superficie intesa a spezzare la resistenza morale e materiale dell'avversario».

squadriglie indipendenti, lascia ai Comandanti l'iniziativa dell'attacco e completa libertà di manovra, e permette di colpire l'obiettivo con una densità di fuoco di 100 tonnellate per ora. In tal modo si dà una prima scossa all'intelaiatura difensiva del nemico e, con martellamento sistematico e inesorabile, si deprime la popolazione, si interrompe il funzionamento delle comunicazioni, si esaurisce la difesa contraerea che al mattino ha gli uomini stanchi e le disponibilità di munizioni fortemente intaccate.

2) – Azione di assalto a volo rasente compiuta alle prime luci dell'alba su apparecchi blindati e veloci, muniti di mitragliatrici, bombe da 1 kg esplosive e incendiarie, e gas tossici. Tale azione troverà le popolazioni in fuga verso la campagna, i comandi disorganizzati, le artiglierie contraeree inefficaci per la bassa quota. [...] la perdita di apparecchi sarebbe ben compensata dalla precisione del tiro, e dall'effetto morale e materiale raggiungibile. Circa le ostruzioni aeree, le esperienze della passata guerra ne hanno dimostrato la scarsissima efficacia e personalmente sono assai scettico al riguardo, malgrado che presso altri stati occupino un posto d'onore.

3) – Appena cessato l'attacco al suolo deve scatenarsi l'offensiva a massa con il massimo numero di apparecchi disponibile, iniziando l'assalto con una prima ondata di centinaia di apparecchi veloci da bombardamento diurno carichi alternativamente di bombe e gas tossici che avvelenano e mascherano la seconda ondata composta di apparecchi da bombardamento notturno, più lenti ma più potenti, resi meno vulnerabili dall'esaurimento dell'artiglieria contraerea. Ad ogni ondata corrisponde un lancio di almeno 200 tonnellate di materiale offensivo.

4) – Le azioni diurne sono protette da stormi da caccia divisi in squadriglie che agiscono compatte contro qualsiasi attaccante aereo, di qualsiasi entità esso sia composto. Ciò a prescindere dal fatto che gli apparecchi da bombardamento moderni, specie se agenti in formazioni compatte sono già in grado di difendersi da sé.⁸

Le grandi manovre del 1931 furono interpretate come la conferma delle teorie di Douhet e del ruolo potenzialmente decisivo della Regia Aeronautica in un contesto di assoluta autonomia delle operazioni aeree rispetto alle azioni dell'esercito e della marina ma sorprendentemente il tema dell'azione contro-città non venne più riproposto. Pesò forse la consapevolezza dell'eccezionalità dello scenario che era stato disegnato, dando per scontato il dominio dell'aria, e probabilmente incise anche una realistica valutazione dei mezzi a disposizione. Fatto sta che nel 1932 si ebbe solo la partecipazione di una aliquota delle forze aeree alle manovre navali di settembre, e anche le esercitazioni con i quadri condotte nella primavera del 1933 in relazione a un'ipotesi di conflitto che vedeva Italia e Germania schierate contro Francia e Jugoslavia ebbero un'impostazione più convenzionale, pur sempre nel rispetto dell'autonomia dell'aeronautica.

Al di là delle considerazioni che il gioco delle alleanze può suggerire sull'evoluzione della situazione europea, con la Germania per la prima volta in veste di alleato, sia pure con capacità ancora limitate, e un atteggiamento quanto meno be-

⁸ *Grandi manovre 1931. Relazione conclusiva*, AUSSMA, Esercitazioni, Fasc. 5.



Bombardieri Cant. Z.1007.

nevoles dell'Ungheria, lo scenario proposto dalla direzione delle manovre, assunta dallo stesso capo di stato maggiore, generale di squadra aerea Giuseppe Valle, nel fotografare la situazione degli strumenti aerei degli ipotetici belligeranti consegnava la superiorità numerica, in particolare per quanto riguardava la componente da bombardamento diurno, alla Francia e alla Jugoslavia, con l'aviazione di quest'ultima già pienamente efficiente e pronta all'azione avendo mobilitato per prima. In questo contesto le forze aeree italiane, mentre dovevano proteggere il territorio nazionale dalle offese che potevano provenire da molteplici direttrici, non erano in condizioni di passare a loro volta all'offensiva se non contro uno soltanto dei due avversari, e comunque nei limiti del raggio d'azione dei reparti da bombardamento, in ogni caso insufficiente per colpirne i gangli vitali.

Il generale di brigata aerea Aurelio Liotta, con una decisione non certo in linea con il pensiero di Valle, che avrebbe voluto una conferma dell'approccio "douhetiano" e dell'impatto decisivo dei colpi sferrati al morale dell'avversario, scelse di attaccare innanzitutto le più importanti infrastrutture aeronautiche, e a seguire i centri nodali delle comunicazioni stradali e ferroviarie e i centri logistici, ivi inclusi gli stabilimenti dell'industria bellica, per impedire l'alimentazione dell'esercito jugoslavo e frenarne la progressione. Data così la priorità alla controaviazione e all'interdizione strategica, non veniva tuttavia esclusa la possibilità di colpire anche i centri demografici e la stessa capitale dell'avversario, qualora per questa via fosse stato davvero possibile avere effetti risolutivi. Il moltiplicarsi delle possibilità d'azione si tradusse peraltro in una parcellizzazione delle forze disponibili, disperse tra più



Caccia Fiat C.R.42.

obiettivi senza alcuna relazione tra gli effetti desiderati e il carico bellico dei velivoli impiegati, in aperta violazione del principio della massa e con una incertezza di fondo sulla portata che queste operazioni avrebbero dovuto avere. Considerazioni analoghe possono farsi sul ruolo dell'aviazione d'assalto, vista da un lato come lo strumento ideale per colpire obiettivi puntiformi, quali ponti e centrali elettriche, dall'altro come una soluzione da utilizzare soltanto in casi particolari per i rischi associati all'attacco a volo rasente e le caratteristiche delle macchine, frutto di un compromesso tra le prestazioni richieste a un caccia e quelle proprie di un bombardiere. Il suo impiego non rappresentava quindi una reale alternativa al bombardamento, anche questo peraltro utilizzato in modo poco razionale per la tendenza a colpire simultaneamente più obiettivi invece di martellarne uno solo fino a neutralizzarlo completamente. L'intervento sul campo di battaglia, in appoggio alle forze terrestri, era infine limitato a specifiche situazioni, per concorrere allo sfruttamento del successo o, in caso contrario, per contenere la progressione delle forze avversarie, senza tuttavia disporre di un "sistema" di mezzi e procedure idoneo ad assicurare una effettiva integrazione aria-suolo.

La visione "douhettiana", ad onta delle dichiarazioni ufficiali e delle affermazioni finalizzate a ribadire l'autonomia e l'indipendenza della Regia Aeronautica, rimase sullo sfondo anche durante le grandi manovre del 1934, le più importanti del dopoguerra in quanto organizzate per dare una dimostrazione del grado di efficienza raggiunto dell'esercito dell'Italia fascista in poco più di un decennio. Concepite in una dimensione aeroterrestre, si svolsero nella seconda metà di agosto al confine tra

Toscana ed Emilia all'interno di un quadrilatero i cui vertici erano Bologna, Forlì, Serravalle, presso Pistoia, e il Monte Scalari, nell'alta valle dell'Arno. Il tema proposto era il conflitto tra due stati divisi dal crinale appenninico che avevano già una parte delle loro forze a contatto lungo la frontiera. Nella prima delle due fasi previste si sarebbero sviluppate le operazioni di radunata, con gli elementi avanzati dei due schieramenti impegnati a migliorare le loro posizioni per favorire l'intervento delle forze retrostanti, successivamente la parte che sarebbe stata in condizioni di prendere l'iniziativa avrebbe cercato di sfondare le linee dell'avversario e dilagare nelle sue retrovie. Nel frattempo, con l'obiettivo di mettere alla prova anche l'organizzazione della difesa civile, da ambo le parti le popolazioni sarebbero state esposte alle offese dal cielo e costrette quindi ad assoggettarsi alle misure precauzionali del caso.

L'alta direzione delle manovre fu affidata al generale designato d'armata Francesco Saverio Grazioli, il comando delle forze del partito azzurro, schierate a sud dell'Appennino e costituite da tre corpi d'armata e dalla Divisione Celere "Emanuele Filiberto Testa di Ferro",⁹ al generale di corpo d'armata Ottavio Zoppi, quello delle forze del partito rosso, operanti dal versante nord e comprendenti due corpi d'armata, al generale designato d'armata Pietro Ago.¹⁰ Le operazioni iniziano all'alba del 19 agosto, con le opposte aviazioni impegnate a ostacolare la radunata dei due eserciti mentre il partito rosso assaliva i passi del Giogo e della Futa e le posizioni degli azzurri fra Senio e Santerno, venendo qui contrattaccato con successo. Per fronteggiare la minaccia che si delineava alla Futa il partito azzurro decise di far entrare in azione la divisione celere. La grande unità, dopo aver urtato le avanguardie avversarie ricacciandole verso nord, vide però il suo slancio controffensivo frenato dall'intervento dell'aviazione d'assalto, lanciata in massa e di sorpresa ad attaccare a volo rasente le strade che salivano serpeggiando dalla conca del Mugello. Chiusa così la prima giornata delle manovre, l'indomani il partito rosso, sostenuto sempre dall'aviazione d'assalto, tentò di consolidare i successi iniziali e di attestarsi in po-

⁹ Nel 1930, nel tentativo di disporre di grandi unità manovriere e potenti al tempo stesso, erano state create due divisioni celeri, con due reggimenti di cavalleria, ciascuno su due gruppi squadroni a cavallo e uno squadrone mitraglieri, un reggimento bersaglieri su tre battaglioni, una compagnia motociclisti, una compagnia cannoni da 47/32, un gruppo carri L, un reggimento d'artiglieria su tre gruppi da 75/27, due motorizzati ed uno a cavallo, due batterie contraerei da 20 mm. Nell'organico della Divisione Celere «Emanuele Filiberto Testa di Ferro» figuravano i reggimenti «Lancieri di Firenze» e «Lancieri Vittorio Emanuele II», il 6° Reggimento Bersaglieri, il LVII Battaglione «Camicie Nere», un gruppo carri veloci, uno di artiglieria a cavallo, uno di artiglieria da campagna e uno di artiglieria pesante campale. Nella realtà le divisioni celeri si dimostrarono una soluzione poco efficace, dal momento che, a fronte di una buona mobilità tattica, erano molto vulnerabili e avevano una insufficiente potenza d'urto. Per dare concretezza al concetto di guerra di movimento, sostenuto dal generale di corpo d'armata Federico Baistrocchi, sottosegretario alla Guerra dal luglio 1933 e capo di stato maggiore dell'esercito nel 1934, e tra gli altri dallo stesso Grazioli, sarebbe stato necessario affrontare con ben altre risorse il processo di motorizzazione e meccanizzazione delle grandi unità.

¹⁰ Francesco Saverio Grazioli, *Le grandi manovre dell'esercito nell'Anno XII*, Unione Nazionale Ufficiali in Congedo d'Italia, Roma, 1934, AUSSME, Rep. L-13, Fondo Grazioli.

sizione dominante sulla displuviale. Nel contempo il partito azzurro si rafforzava a sua volta su tutta la fronte, non solo in corrispondenza della Futa ma anche sul Giogo e nella valle del Santerno, lanciando poi di nuovo all'attacco la divisione celere che questa volta riuscì a far arretrare l'avversario e a superare il crinale tra il Setta e il Santerno, creando le premesse per il terzo atto delle manovre. Nella giornata del 22 agosto la pressione degli azzurri venne contenuta da una difesa manovrata, intesa a logorare l'attaccante mentre si avvicinava alle posizioni sulle quali il difensore intendeva resistere a oltranza, ma il giorno dopo il partito rosso fu costretto a ripiegare dalla pressione dell'avversario, e questo nonostante la sua aviazione attaccasse gli impianti ferroviari di Firenze nel tentativo di ostacolare i rifornimenti alle truppe al fronte. L'episodio conclusivo si svolse nella mattinata del 24 agosto, quando il partito azzurro, impegnando una massa di manovra di sette battaglioni, riuscì ad avvolgere la destra dello schieramento rosso minacciando la strada della Futa. Altrettanto rapida e improvvisa fu però la reazione dei rossi, che con l'impiego tempestivo delle riserve riuscirono ad arginare lo sfondamento e a ripristinare una situazione di equilibrio prima che la direzione decidesse di porre fine alle operazioni.

Lo scopo di collaudare la nuova dottrina tattica ispirata al movimento e alla manovra poteva dirsi raggiunto, dal momento che entrambe le parti avevano basato la loro azione su questi principi, mirando a riprendere l'iniziativa non appena possibile e conducendo nel frattempo una difesa non passiva e inerte ma dinamica e manovrata. In una battaglia combattuta a colpi di divisione, mentre le divisioni ordinarie erano le pedine destinate soprattutto all'attacco di forza, le divisioni celeri erano «strumento essenzialmente di rapido movimento e di speditiva manovra», nato dalla consapevolezza dell'importanza del fattore tempo nella guerra moderna in cui l'avversario non deve avere il tempo e il modo di rafforzarsi sul terreno, come ebbe a dire Grazioli durante il gran rapporto finale.¹¹ Se in questa prospettiva la motorizzazione e la meccanizzazione delle grandi unità erano fondamentali, lo stesso poteva però dirsi dell'aviazione, intervenuta nella lotta totalizzando circa 2.000 ore di volo e sviluppando un'intensa attività di ricognizione, bombardamento e attacco al suolo, nel segno di una concomitanza degli sforzi con le truppe dei due partiti. È comunque interessante notare come, nell'analisi dell'andamento delle operazioni proposto dal generale di divisione aerea Francesco Pricolo, a cui era stata affidata la direzione della componente aeronautica, risalti lo sforzo di ribadire la priorità dell'impiego indipendente delle forze aeree contro obiettivi in profondità, determinanti ai fini della tenuta materiale e morale dell'avversario, mentre l'intervento nell'area della battaglia rimaneva una eventualità destinata a concretizzarsi solo in circostanze particolari. Pricolo si preoccupò infatti di sottolineare come la vera essenza dell'arma aerea, e la sua stessa ragion d'essere, fossero state messe in luce dalle grandi manovre dell'estate del 1931:

¹¹ *Commento alle grandi manovre pronunziato da S.E. il Generale Grazioli al gran rapporto finale, Estate 1934, Appennino Tosco-Emiliano, AUSSME, Rep. L-13, Fondo Grazioli.*



F-84G e F-104G.

Si dimostrarono allora, con l'impiego di tutta la massa dei velivoli da bombardamento e da caccia, divisa in due opposti partiti, le reali possibilità dell'aviazione indipendente, possibilità che erano ancora da molti non previste o credute. Con la lampante evidenza dei fatti venne affermato e confermato il concreto valore della nuova, ardita, italianissima dottrina d'impiego delle forze aeree, che possono e debbono essere adoperate, nel quadro generale della guerra, in poderose azioni contro gli importanti obiettivi che fino a ieri si ritenevano immuni da ogni offesa, e che, pur tuttavia, per il loro valore logistico, strategico, demografico, per la loro capacità produttiva, per la loro sensibilità nervosa, per così dire, potrebbero provocare effetti determinati di disgregazione materiale, e soprattutto morale, nella intera compagine nazionale, quando venissero colpiti con la fulminea violenza dei moderni e agguerriti reparti bombardieri. [...] si è venuto così a costituire un saldo organismo bellico che sarebbe erroneo e pericoloso impiegare in azioni di modesto raggio o contro obiettivi sulla fronte mentre bersagli di ben più grande importanza e vulnerabilità possono essere colpiti a centinaia di chilometri nell'interno della nazione nemica, con vantaggi immediati, enormemente più grandi ai fini della soluzione del conflitto. L'addestramento dei nostri reparti dell'Armata aerea è stato quindi indirizzato verso il raggiungimento di questi scopi, evitandone l'impiego in azioni frammentarie e molteplici, che tornano a tutto detrimento della capacità offensiva della massa.¹²

¹² Francesco Pricolo, *L'Armata Aerea e le grandi manovre*, in "Le vie dell'aria", n. 34-35 del 2 settembre 1934.



Satellite SICRAL

Fatta questa premessa, e a ribadire come nulla fosse cambiato rispetto a tali affermazioni di principio sul ruolo delle forze aeree, ruolo che peraltro presupponeva una disponibilità di mezzi inesistente sia dal punto di vista qualitativo sia dal punto di vista quantitativo, la partecipazione della Regia Aeronautica alle grandi manovre dell'esercito veniva ad essere un esperimento da cui trarre motivi di riflessione per il futuro. In questo scenario, mentre le azioni a grande raggio erano state limitate a un contesto di controaviazione e di interdizione, si era avuto l'impiego di una aliquota consistente delle forze aeree a diretto vantaggio dello sviluppo delle operazioni terrestri, per stroncare l'ultima resistenza dell'avversario o per contenere la portata di un insuccesso, avendone la conferma della flessibilità propria dello strumento aereo e della sua adattabilità alle più diverse circostanze:

Con tale decisione, nulla vien tolto quindi, alle prerogative della Armata Aerea; e questo impiego eccezionale di una aliquota delle sue forze è logicamente prevedibile, in simili particolari circostanze. Si può dire anzi di più: che cioè all'occorrenza, al momento di conseguire il successo definitivo o di salvare una situazione disperata, troveremmo logico che anche tutta l'Armata Aerea fosse scagliata sulla fronte e sulle immediate retrovie, così come potrebbe essere lanciata contro una base navale o contro la flotta avversaria. È questa anzi una delle caratteristiche più singolari e più importanti dell'Armata Aerea che, libera da ogni vincolo di spazio, può a volta a volta portare la sua potenza offensiva sul bersaglio giudicato più redditizio ai fini generali del conseguimento del successo.

L'analisi del contributo delle diverse specialità sottolineava l'apporto della ricognizione che, grazie a una efficiente rete di comunicazioni radio aveva permesso ai comandi di seguire con continuità l'andamento delle operazioni, costringendo nel contempo l'esercito avversario a effettuare nottetempo i movimenti più importanti, evidenziava il ruolo della caccia nel garantire alle altre specialità la necessaria libertà d'azione, mantenendo localmente un adeguato livello di superiorità aerea, anche se i collegamenti tra le diverse formazioni avevano lasciato a desiderare, e si soffermava sugli interventi dello stormo d'assalto in termini che, pur esaltando l'abilità dei piloti e l'efficacia delle loro azioni, lasciano intendere il persistere di non poche perplessità in merito a questa tipologia di impiego del mezzo aereo nell'area della battaglia:

Le azioni fulminee di mitragliamento ed ipritamento contro le truppe e i carriaggi, specialmente se ammassati o incolonnati nelle immediate retrovie si sono dimostrati efficaci. È necessario, però, realizzare al massimo grado la sorpresa, ciò che è apparso assai difficile sul terreno montano, ove gli apparecchi, benché condotti a volo rasente, possono essere avvistati a distanza, a causa dei naturali dislivelli esistenti e della impossibilità di seguire completamente col volo l'andamento del terreno. [...] In sostanza, questa particolare forma di impiego merita di essere seriamente studiata e sperimentata, con la mente scevra da qualsiasi preconcepto, al fine di stabilire se e fino a qual punto possa essere utile, tenuto conto delle prevedibili perdite in relazione alla importanza dei risultati conseguibili.

Il giudizio rimaneva dunque sospeso e il tema dell'aviazione d'assalto restava incompiuto, ad onta delle espressioni entusiastiche usate nello stesso periodico per descriverne l'azione:

Ma il più realistico e, insieme, il più terrificante quadro di ciò che sarebbe l'aviazione in caso di guerra e dei catastrofici effetti che potrebbero derivarne ad un esercito in movimento, ce lo ha offerto lo stormo d'assalto. [...] La Divisione celere procedeva bene intervallata, mandando innanzi le sue motomitragliatrici e i suoi carri veloci, e poi i bersaglieri ciclisti, la cavalleria e i suoi pezzi motorizzati, tutto insomma il suo magnifico e modernissimo complesso. Contro queste colonne si è letteralmente scatenato lo Stormo d'assalto, talvolta a non più di dieci metri d'altezza, innaffiando di piombo le truppe in movimento, seminando la via di spezzoni esplosivi. [...] Ma lo sforzo massimo, il capolavoro offensivo degli "arditi dell'aria", si è avuto tra il ponte di Ghieieto e San Piero a Sieve, ove le colonne dello Stormo d'assalto hanno trovato cavalleria, artiglieria motorizzata e carriaggi. Si sono visti i sessanta apparecchi piombare sulla preda, come rapaci. In pochi istanti, chilometri e chilometri di strada sono stati coperti da una nebbia biancastra, il veleno della guerra, e attraverso quella cortina, una sarabanda demoniaca di macchine che scagliavano bombe e scaricavano nastri di mitraglia, instancabili, fulminee, apocalittiche. [...] successivamente si è appreso che almeno un terzo delle unità colpite doveva essere considerato fuori combattimento.¹³

Al di là dell'evidente contrasto con la posizione di Pricolo, improntata a una ben

¹³ *Constatazioni, insegnamenti e conferme*, in "Le vie dell'aria", n. 34-35 del 2 settembre 1934.

maggiore cautela, contrasto che riflette la diffidenza della Forza Armata verso soluzioni non in linea con il pensiero di Douhet, colpisce in questo resoconto la naturalezza con cui si fa riferimento all'impiego di aggressivi chimici. Anche Pricolo del resto non aveva avuto remore nel ricordare l'azione di "ipritamento" condotta dallo stormo d'assalto sul cammino della divisione celere, a riprova del fatto che questo tipo di soluzione figurava ancora a pieno titolo nella dottrina di impiego delle forze aeree e non si vedeva alcuna ragione per nascondere, parlandone anzi apertamente sulle pagine di un periodico in libera vendita. Con queste premesse l'impiego di aggressivi chimici nella campagna d'Etiopia non costituisce una sorpresa e, pur rimanendo ingiustificato dal punto di vista umanitario, e anche dell'opportunità politica, sembra inserirsi in un quadro di riferimento dottrinale compiutamente definito.

Le operazioni in Africa Orientale durante la cosiddetta "guerra dei sette mesi", tra l'ottobre del 1935 e il maggio del 1936, e nel corso dei cicli operativi di polizia coloniale degli anni seguenti, videro la Regia Aeronautica operare a supporto delle forze di superficie con missioni di ricognizione, bombardamento, trasporto e collegamento in un contesto in cui mancavano del resto quegli obiettivi che avrebbero potuto giustificare soluzioni maggiormente in linea con le teorie sull'impiego indipendente e "contro valore" del potere aereo. Scartata l'idea di bombardare Addis Abeba, per ragioni di opportunità politica, nonché per i forti dubbi sull'efficacia di una tale iniziativa, si ebbe l'attivazione di un dispositivo aeroterrestre caratterizzato da una forte integrazione delle catene di comando, con le forze aeree agli ordini del comandante di scacchiere, che alla prova dei fatti si rivelò oltremodo valido.

In Etiopia, è stato osservato, la cooperazione fu perfetta perché il comando era unificato e si appoggiava a un efficiente sistema di comunicazioni, permettendo di sfruttare la superiorità assicurata dall'uso incontrastato del potere aereo in una guerra di movimento.¹⁴ Questo schema, che riproponeva in un contesto molto diverso dal punto di vista dell'ambiente e dell'entità dei mezzi soluzioni già attuate in Libia nell'ultima fase della riconquista, tra il 1927 e il 1931, non venne però ulteriormente sviluppato e rimase relegato all'ambito coloniale, proprio perché in contrasto con il dogma assoluto dell'autonomia e dell'indipendenza dell'aeronautica. Le conseguenze si sarebbero viste durante l'ormai imminente conflitto mondiale, in cui il problema dell'aerocooperazione non ebbe mai una risposta efficace, lasciando nel vago il problema del controllo tattico dei reparti aerei chiamati ad agire a supporto dell'esercito.

L'intervento in Spagna non avrebbe modificato questo stato di cose. L'appoggio aereo ravvicinato vi fu praticato largamente e con efficacia, impiegandovi velivoli robusti e maneggevoli come i C.R.32, e sperimentando velivoli specificamente concepiti per l'assalto, come il Ba.65, ma senza troppo entusiasmo e soprattutto senza sfruttare l'occasione per mettere a punto tecniche e procedure tali da realizzare un dispositivo aeroterrestre davvero integrato. Oltre alla preoccupazione per le perdite

¹⁴ Roberto Gentili, *L'aeronautica in Libia e in Etiopia*, in *L'aeronautica italiana. Una storia del Novecento* (a cura di Paolo Ferrari), Franco Angeli Storia, Milano, 2004, pp. 318-320.

che l'attacco al suolo comportava, dominava infatti il timore di trasformare l'aeronautica in un'appendice dell'esercito:

[...] in Abissinia come in Spagna, l'Aeronautica, pur conservando una parvenza di autonomia, è sempre stata messa alle dirette e complete dipendenze dei Comandi dell'Esercito, i quali, per abito mentale o anche per contingenze superiori forse alla loro stessa volontà, hanno sistematicamente impiegato l'Aviazione soltanto o principalmente nelle numerosissime attività rivolte a immediato e diretto vantaggio delle truppe terrestri.¹⁵

A differenza dell'Etiopia, il bombardamento di obiettivi al di fuori del campo di battaglia ebbe largo spazio, venendo indirizzato contro impianti ferroviari, nodi stradali, complessi industriali e aree portuali. Protagonisti di queste azioni, che per la loro valenza si proiettavano al di fuori dell'ambito tattico e certo più dell'assalto riflettevano la visione della Regia Aeronautica, furono soprattutto i "Falchi delle Baleari", che da Maiorca, allineando mai più di una trentina di velivoli, attaccarono ripetutamente le installazioni portuali di Barcellona e le navi alla fonda. Le 16 incursioni registrate tra il 10 gennaio e il 15 marzo 1938 causarono danni e vittime anche alla città, un risultato inevitabile tenuto conto della quota di sgancio, di solito prossima ai 6.000 metri, e della scarsa precisione dei dispositivi di puntamento, ma Barcellona era anche un importante centro demografico e con tutta probabilità le bombe cadute sui quartieri cittadini non erano considerate dei colpi a vuoto, potendo comunque incidere sul morale della popolazione. Questo scopo dichiarato ebbero le incursioni dei giorni 16, 17 e 18 marzo, nelle quali 44 tonnellate di bombe causarono 550 morti e 989 feriti, nell'evidente tentativo di dare concretezza alle teorie sul bombardamento strategico e sull'uso risolutivo dell'arma del terrore.¹⁶ Come nel caso dell'aviazione d'assalto gli sviluppi successivi non avrebbero portato a definire una reale dottrina d'impiego e neppure a costruire uno strumento aereo adeguato a darle concretezza. Il logoramento subito dalla Regia Aeronautica, insieme all'eccessiva fiducia riposta in soluzioni in parte scelte e in parte imposte dalla situazione dell'industria nazionale, segnò anzi l'inizio di un declino che si sarebbe fatto sempre più rapido con il passare del tempo, mentre si accentuava il ritardo tecnologico rispetto alle aeronautiche alle quali il riarmo degli anni Trenta aveva dato nuovo slancio e permesso un salto generazionale nel campo dei materiali di volo.

In un clima caratterizzato dalla mancanza di un'autentica visione interforze, in cui ogni Forza Armata riteneva non solo di dover far da sé ma anche di dover salvaguardare il suo spazio di manovra, le teorie di Mecozzi e l'idea stessa dell'aviazione d'assalto potevano essere considerate pericolose. Vi si poteva infatti vedere la riproposizione del concetto di aviazione ausiliaria, con una interpretazione restrittiva incentrata soltanto sulla cooperazione con le forze di superficie. Mancò quindi la

¹⁵ Francesco Pricolo, *La Regia Aeronautica nella Seconda Guerra Mondiale 1939-1941*, Longanesi, Milano, 1971, pp. 29-30.

¹⁶ Lucio Ceva, *L'aeronautica nella guerra civile spagnola*, in *L'aeronautica italiana. Una storia del Novecento* (a cura di Paolo Ferrari), Franco Angeli Storia, Milano, 2004, pp. 357-364.

spinta a elaborare un quadro di riferimento che permettesse all'aeronautica di sviluppare secondo precise direttrici la preparazione di uomini e mezzi. Anche la teoria del bombardamento contro-città non venne però approfondita, lasciando così irrisolta la questione dottrinale, tanto più che il pensiero di Douhet sembrò venir messo da parte, al di là delle dichiarazioni di facciata, in ragione sia della configurazione stessa dello strumento, privo di bombardieri pesanti, sia del delinearsi di una situazione strategica mediterranea in cui il bombardamento si caratterizzava sempre più come controforze. Non senza motivo si può anzi stabilire un qualche collegamento con l'evoluzione del quadro normativo, che a sua volta sembrava mettere al bando l'arma del terrore e quindi il mezzo principale per colpire il morale dell'avversario. La legge di guerra e neutralità, emanata con il R.D. n.1415 del 1938, all'articolo 42 vietava infatti il bombardamento «che abbia il solo scopo di colpire la popolazione civile o di distruggere o danneggiare i beni non aventi interesse militare», e al successivo articolo 51 proibiva «l'impiego di mezzi batteriologici, di gas asfissianti, tossici o simili, come pure di liquidi, materie o procedimenti analoghi».

L'insieme di questi fattori, pur in assenza di una formalizzazione in chiave dottrinale, contribuiva a disegnare un quadro di riferimento che aveva ben poco in comune con lo scenario delle grandi manovre del 1931, senza peraltro favorire la nascita di un approccio interforze. Un riflesso di questa situazione, a tutti gli effetti dominata da un'incertezza di fondo, si può cogliere anche negli studi sviluppati nel corso delle attività di formazione superiore destinate agli ufficiali della Regia Aeronautica, in particolare presso la Scuola di Guerra Aerea da poco istituita. Uno dei temi proposti durante la sessione del 1939 ipotizzava lo scoppio di un conflitto tra Italia e Germania da una parte e Francia a Gran Bretagna dall'altra, e nello svilupparlo uno dei frequentatori, verosimilmente in coerenza con l'impostazione generale del corso, individuò una serie di compiti che interessavano innanzitutto le categorie della controaviazione e dell'interdizione, lasciando in secondo piano non solo la cooperazione con l'esercito, ma anche il bombardamento dei centri industriali più vicini al confine, e quindi compresi nella zona di Lione, i soli del resto entro il raggio d'azione dei plurimotori della Regia Aeronautica.¹⁷

¹⁷ Scuola di Guerra Aerea, X Corso Alti Studi, *Ipotesi di guerra Italia - Germania contro Francia - Inghilterra. Studio dello schieramento delle G.U.A. italiane e ripartizione dei compiti tra le stesse*, t.col. Umberto Chiesa, 21 giugno 1939, Archivio 3° Reparto Manutenzione Velivoli (Treviso). Questo l'enunciato dei compiti individuati per l'aeronautica:

- «a) agire all'apertura delle ostilità con immediate ed intense azioni di bombardamento sugli obiettivi aeronautici avversari situati nel proprio settore, dando precedenza in ordine d'importanza alle basi, depositi carburanti e munizioni, magazzini,
- b) azioni offensive sui principali nodi ferroviari e stradali che dalla valle del Rodano attestano alla nostra frontiera,
- c) azioni offensive su obiettivi interessanti la produzione bellica con particolare riguardo ai centri industriali di Lione, St. Etienne,
- d) eventuale cooperazione con le forze dell'Esercito agenti offensivamente o a sostegno di queste nel caso che l'avversario abbia il sopravvento in qualche punto del settore,
- e) ricerca del dominio aereo nel cielo del proprio settore,
- f) difesa del proprio schieramento e del territorio nazionale fino alla linea Rapallo-Piacenza-Bergamo».



UAV Predator

L'aerocooperazione continuava a essere definita una possibilità eventuale, e soltanto a conflitto inoltrato fu fatto il tentativo di codificarne in una circolare criteri e procedure in risposta alle sempre più pressanti esigenze che venivano dal fronte, riproponendo lezioni già apprese e poi accantonate:

La guerra odierna pone in primo piano la cooperazione tra le forze terrestri ed aeree, attraverso la quale:

- si realizza nella battaglia un massimo di capacità offensiva e difensiva,
- si assicura alla manovra la continuità e l'estensione necessarie per ottenere risultati decisivi.¹⁸

L'aeronautica era chiamata a colpire gli elementi della forza nemica in atto, in potenza o in formazione entro i limiti individuati dalla distanza di sicurezza dalle truppe amiche e dal raggio d'azione dei velivoli, con la precisazione che la priorità doveva essere data a quegli obiettivi che potevano avere effetti immediati o quasi sull'efficienza delle grandi unità avversarie impegnate in combattimento o in riserva. I criteri generali di impiego erano individuati nella tempestività dell'intervento, nella sua sincronizzazione con l'azione delle forze di terra e nella sua aderenza, intesa non solo come capacità di agire a distanza di sicurezza ma anche come prontezza ad adeguarsi ai mutevoli sviluppi delle operazioni in atto. Non meno importante era la

¹⁸ Stato Maggiore Regio Esercito, Ufficio addestramento, Stato Maggiore Regia Aeronautica, IV Reparto, Circolare n. 1000/A, *L'aviazione nella battaglia terrestre*, maggio 1943.

continuità dell'azione su obiettivi che potevano essere concentramenti di truppe e di automezzi, colonne motomeccanizzate, postazioni d'artiglieria, centri di resistenza di particolare importanza, depositi e centri di rifornimento, posti di comando, punti nodali delle comunicazioni e punti di passaggio obbligato, un elenco nel quale figuravano anche le basi aeree. Queste, rientrando nella categoria della controaviazione, esulavano di solito dall'ambito di competenza del comandante delle grandi unità terrestri ma nella fase iniziale della battaglia poteva essere opportuno accantonare qualunque altro obiettivo per cercare di neutralizzare le forze aeree avversarie o almeno la loro componente più avanzata. L'intervento nella battaglia terrestre non modificava le dipendenze derivanti dall'autonomia organica dell'arma aerea, ma il comandante responsabile della condotta della campagna doveva sapere di poter contare sempre e comunque sul concorso dell'aeronautica, nei confronti della quale le sue richieste, pur vagliate dal punto di vista tecnico dal comandante delle forze aeree, avevano il valore di un ordine. Solo in scacchieri strategicamente autonomi o geograficamente isolati le unità dell'aeronautica erano però alle dirette dipendenze del comandante dell'esercito avente la responsabilità operativa dello scacchiere.

In generale le richieste di intervento non previste da un ordine di operazione dovevano essere rivolte dai comandi di grande unità del Regio Esercito, di norma tramite l'ufficiale di collegamento della Regia Aeronautica, al comando dei reparti di volo già designati ad assicurare il concorso aereo alla grande unità richiedente e in ogni altro caso indirizzate al comando della grande unità aerea competente. La richiesta doveva specificare la natura e la posizione dell'obiettivo, gli elementi che potevano facilitarne l'identificazione, il tipo di effetto atteso, la situazione delle forze amiche, le condizioni atmosferiche in zona, lasciando al comandante delle forze aeree il compito di individuare i reparti da impiegare e di definire le modalità dell'azione. Tra la richiesta e l'intervento non dovevano passare più di due ore per le specialità della caccia e dell'assalto e di tre per il bombardamento. Era prevista la costituzione di organi di collegamento, a livello di ufficiale superiore, dell'aeronautica nel primo caso, dell'esercito nell'altro, presso i comandi di gruppo di armate o di armata e presso i comandi di grande unità della Regia Aeronautica. Ufficiali dell'aeronautica erano poi distaccati presso i comandi delle grandi unità dell'esercito a favore delle quali era previsto il concorso aereo, mentre ufficiali osservatori dell'esercito erano inviati presso i reparti di volo designati ad assicurarli. Gli ufficiali di collegamento dell'aeronautica, oltre ad avere la funzione di consulenti tecnici dei comandanti di grande unità, dovevano mantenere aggiornato il quadro di situazione e assistere i velivoli durante la rotta di avvicinamento e di allontanamento, se possibile tenendosi in contatto radio.

L'attenzione per le procedure dell'aerocooperazione arrivava troppo tardi, e comunque continuava a riflettere una ossessiva preoccupazione per l'indipendenza dell'aeronautica, al punto che, come contropartita all'eventualità di porre delle unità aeree a disposizione di comandi dell'esercito, veniva ricordata la possibilità di avere, in situazioni particolari, ad esempio in regioni desertiche, reparti dell'esercito sotto il comando di ufficiali dell'aeronautica, e questo quando le condizioni che

avevano portato all'esperimento del Battaglione Sahariano erano ormai un ricordo del passato.¹⁹ Questa circolare anticipava però in qualche modo la situazione che si sarebbe creata nel dopoguerra. Svanite le ipotesi di impiego strategico, incompatibili sia con la configurazione dello strumento sia con il nuovo scenario internazionale e con la collocazione che vi aveva l'Italia, la dottrina d'impiego delle forze aeree si identificava con la dottrina aerotattica sviluppata in ambito NATO. In un contesto in cui ogni sforzo era indirizzato a padroneggiare tattiche e procedure dettate dalle regolamentazioni codificate in seno all'Alleanza Atlantica non c'era spazio per elaborazioni autonome e ogni altra ipotesi risultava velleitaria e improponibile. Così accadde ad esempio con la direttiva proposta nel 1967 da Amedeo Mecozzi, in cui al rifiuto dell'azione "contro valore", si affiancava l'esclusione dell'opzione nucleare, un'eventualità che era invece parte integrante della dottrina dell'Alleanza Atlantica.²⁰ Gli eventi epocali che segnarono il passaggio dagli anni '80 agli anni '90 hanno però alterato profondamente questo quadro, e nel demolire le rassicuranti certezze hanno rilanciato la rielaborazione dottrinale, ferme restando le caratteristiche universalmente riconosciute del potere aereo. Il processo è ancora in corso e, pur avendo un sicuro punto di riferimento nelle organizzazioni internazionali, e in primo luogo nella NATO, propone soluzioni ben diverse da quelle che per decenni sono state codificate dalle procedure dell'alleanza.

¹⁹ Il Battaglione Sahariano, creato nel 1936 su iniziativa di Balbo, all'epoca governatore della Libia, si configurava come un complesso interforze concepito e organizzato per operare nelle distese desertiche integrando una componente terrestre motorizzata e una componente aerea. Dato il ruolo fondamentale di questa, il comando del reparto era affidato a un ufficiale superiore dell'aeronautica, e capitani dell'aeronautica erano anche al comando delle sue quattro compagnie, ciascuna delle quali, nella configurazione finale, affiancava una sezione di tre velivoli da ricognizione a due plotoni motorizzati e un plotone mitraglieri. Allo scoppio della guerra la componente autoportata fu separata dalla componente aerea e, inquadrata nel Raggruppamento Maletti, sarebbe stata distrutta a Sidi el Barrani, tra l'8 e il 10 dicembre 1940. L'esperimento non venne riproposto e le nuove compagnie sahariane furono semplici unità motorizzate.

²⁰ Amedeo Mecozzi, *Direttiva per l'aviazione militare*, "I Quaderni della Rivista Aeronautica", 1/2006, pp. 20-94. Il contenuto della direttiva veniva così riassunto dallo stesso Mecozzi in una sorta di sommario:

«L'Aviazione Italiana, anche in base alla propria posizione nell'alleanza intende svolgere le proprie azioni belliche:

1 - Senza impiegare armamento atomico.

2 - Senza effettuare distruzioni nelle attività civili del nemico.

3 - Agendo in concomitanza delle operazioni dell'Esercito e della Marina

4 - Dando la preferenza agli obiettivi costituiti dalle forze armate nemiche che si trovino al di là dei campi di battaglia terrestri e degli spazi dove si svolgano combattimenti navali.

5 - Salvo intervenire nella suddetta battaglia e nel suddetto combattimento quando la necessità lo imponesse.

6 - Adoperando in prevalenza per le proprie operazioni la specialità denominata cacciabombardieri (o d'assalto).

7 - Conservando la propria unità integrale, la propria autonomia organica e il proprio ordinamento a massa».

La situazione attuale vede un ricorso sempre più diffuso alle manifestazioni più *soft* del potere aereo, strettamente collegate a quella lotta per il dominio del terreno dell'informazione che è indispensabile presupposto di qualunque operazione. Il potere aereo, attraverso la sua capacità di proiettarsi anche oltre i limiti dell'atmosfera, riconfigurandosi come potere aerospaziale, o meglio aereo-spaziale, può risultare decisivo nell'accelerare la chiusura del ciclo di Boyd, o ciclo OODA, dal nome delle sue quattro fasi, *Orient, Observe, Decide, Act*, incidendo oggi sulla fase *Observe* più ancora che sulla fase *Act*. Un capitolo a parte è quello della capacità *expeditionary*, oggetto di crescente attenzione, che sfrutta le caratteristiche proprie del potere aereo per proiettarne le capacità oltre i limiti del territorio nazionale e dell'area di tradizionale interesse dell'Alleanza Atlantica.

Gli elementi caratterizzanti questo quadro, ben più variegato dell'antico contrasto tra i sostenitori dell'impiego strategico dell'arma aerea e quelli dell'aerocooperazione, sono la prevalenza del *soft kill* rispetto all'*hard kill*, che rimane comunque un'opzione perseguibile attraverso un impiego selettivo e mirato della potenza di fuoco, la ricerca di soluzioni "net-centriche", la proiettabilità del dispositivo. Il tutto in una prospettiva di continuo e costante sviluppo che, come è stato recentemente ribadito dal suo massimo vertice, deve essere finalizzato ad avere una

Forza Armata agile, organica e ben integrata con le altre, equilibrata nelle sue componenti, di eccellente qualità e in grado di mettere in campo, attraverso l'impiego del proprio personale, tutte le Capacità Operative Fondamentali che una Forza Armata efficace ed efficiente deve assicurare, ovviamente proporzionate alle risorse disponibili.²¹

Indicazioni che a ben vedere avrebbero potuto essere valide in ogni momento della storia dell'Aeronautica Militare, in quanto il mutare dei tempi non ne altera il fine ultimo, quello di essere uno strumento efficace della politica nazionale.

²¹ *La rilevanza del Potere Aereo-Spaziale per la sicurezza nazionale*, Intervento introduttivo del Capo di Stato Maggiore dell'Aeronautica, generale di squadra aerea Giuseppe Bernardis, all'*Air Power Congress* (Firenze, 11-12 maggio 2010), Rivista Aeronautica 3/2010, pp. 12-19.

ROLF DE WINTER*

A Century of Military Aviation in the Netherlands, 1911-2011

Man's age-old desire to be able to fly and to master the airspace was finally fulfilled at the beginning of the twentieth century. In December 1903, two American bicycle repairers, Orville and Wilbur Wright, succeeded, for the first time, in carrying out a controlled and uninterrupted flight in a motorised aircraft that was "heavier than air". The flight with the *Flyer I*, which lasted twelve seconds and took off from the windy Kill Devil Hills on North Carolina's eastern seaboard, heralded the beginning of motorised aviation. After a modest start, aviation soon picked up speed and branched off into various directions. The aircraft's potential for playing a role in warfare was soon recognised in military circles. When World War I broke out, ten years after the memorable flight by the Wright brothers, virtually all belligerents had a (provisional) military air force. By the end of the war, the air arm had undergone a tempestuous development and claimed its position as an inalienable part of the armed forces. Since then, the battle for air supremacy has formed an unmistakeable factor in deciding armed conflicts.

The burgeoning aviation sector also made itself felt in the Kingdom of the Netherlands. In the small monarchy, at that time still the motherland of a vast and impressive colonial empire in Southeast Asia, developments in the field of "aeronautics" were followed with intense interest by, among others the military. This article focuses on a century of military aviation in the Netherlands, whereby the history of the Royal Netherlands Air Force (RNLAf) and its immediate predecessors serves as a guideline. The history of the RNLAf can be roughly divided into three periods:

- the period from 1911 to 1939, in which the modest Dutch air arm gained a permanent foothold in the armed forces of a (colonial) power which pursued a policy of armed neutrality;
- the period from 1940 to 1989, in which the Dutch air arm underwent its baptism of fire in World War II and, following the war, was integrated into the allied defence effort of the North Atlantic Treaty Organisation (NATO);
- the period from 1990 to 2011, in which the Royal Netherlands Air Force – as part of the Dutch armed forces which was being restructured into an expeditionary force – participated in a wide spectrum of humanitarian missions and crisis-response operations.

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Besides the RNLAf and its immediate predecessors, the Netherlands, for a long time, also had two other military air services: the Military Aviation Branch of the Royal Netherlands Indies Army (abbreviated to ML-KNIL in Dutch) and the Naval Air Arm (MLD) of the Royal Netherlands Navy. In view of the necessary limits to the size of this article and the complexity of the subject material, the history of the Dutch colonial air force and the naval air arm will not be examined in any detail.

Even though it would not be until July 1913 that the Netherlands founded its first military air service, a number of officers had for some considerable time already been exploring the military possibilities of utilising airspace. These officers played an important role in the *Nederlandse Vereeniging voor Luchtvaart* (NVvL, the Dutch Association for Aviation) that had been set up in The Hague in October 1907. Two of them, C.J. Snijders and H. Walaardt Sacré, left their mark on the pioneering phase of military aviation in the Netherlands.

From the very beginning, Major General Snijders, who was rising through the ranks rapidly, proved to be an unfaltering champion of aviation. In the summer of 1909, Snijders asked his fellow engineer officer Walaardt Sacré to look into the possibilities for using aerial vehicles for military purposes. Captain Walaardt Sacré, who was to later earn certificates for flying balloons and airships, made various trips abroad for the purpose of study and reported on them in great detail. In the interim, Snijders tried to convince the Minister of War to establish an aviation organisation in the Dutch armed forces. The minister then tasked a special committee with assessing the benefits and necessity of such an organisation. In this *Militaire Luchtvaart Commissie* (Military Aviation Committee), which Snijders was to chair for some time, Walaardt Sacré fulfilled a key role as secretary. Even before the committee had completed its final report, the Dutch army would have its first practical experience with the military deployment of aircraft.

In the large-scale army-manoeuvre exercise held in September 1911 – a first in the Netherlands, involving 20,000 military personnel – room had been made for an “aviation service”. As the Dutch armed forces did not have the required materiel, the civilian sector was called upon to provide the necessary equipment. In addition to two balloons from the NVvL and three cars, the exercise involved six privately-owned aircraft. At that time, the Dutch army did not have fully-licensed military pilots. Even though a number of regular officers had meanwhile been sent abroad to be trained as pilots, they had not yet completed their training. Still, they participated in the exercise as observers in two-seater aircraft. The aircraft were flown by civilian aviators and a number of qualified personnel on extended leave who were called up for a limited duration. The debut of the Dutch aircraft in a military role went down in history as “a happy and successful improvisation”. Notwithstanding the lack of training and experience on the part of the observers, the reconnaissance flights had provided a wealth of military information.

The experiences gained with the “flying-machines” strengthened the conviction of the members of the *Militaire Luchtvaart Commissie* that the armed forces

should have its own military air service. In its final report of April 1912, the committee recommended the purchase of aircraft, kite balloons, observation balloons and (provisions for) a motorised airship. The Minister of War adopted the recommendations in their entirety and requested that the required financial resources be allocated in the 1913 Defence budget. Parliament, however, insisted on earmarking the funds exclusively for aircraft, and a decision was made accordingly. The *Luchtvaartafdeling* (LVA or Army Air Arm) was established on 1 July 1913 and headquartered at Soesterberg Air Base. Walaardt Sacré was appointed commander



September 1911, the military debut of the aircraft in the Netherlands. Six (civilian) aviators flew in the first large-scale army-manoeuvre exercise.

and reported directly to the Chief of the General Staff, General Snijders, who would prove an important pillar in promoting the development of the air arm, which was still in its infancy. The LVA was to be equipped with a modest number of training and reconnaissance aircraft, mainly Farman biplanes purchased in France.

The start of the First World War in August 1914 thwarted the development of the LVA. Although the Netherlands was not involved in the fighting, it had to show its readiness and resolve to defend its neutrality, by force if necessary. Surrounded by countries at war, it was very difficult for the Dutch to purchase new aircraft abroad. Moreover, at the time, the Netherlands did not have its own, fully-fledged aircraft industry. Despite a number of positive factors, Soesterberg Air Base was growing into a well-equipped airfield, military auxiliary airfields in other places in the Netherlands were given limited infrastructure, and the LVA was also making good headway in terms of personnel strength (the complement had grown from over 30 men in 1913

to almost 650 in 1918) - the materiel situation remained pressing.

The situation was alleviated to some extent by the “windfall” of over a hundred aircraft of the various countries who were involved in the war being grounded on Dutch territory due to emergency landings as a result of engine failure, battle damage, fuel shortage or navigational errors. The Dutch military authorities promptly interned the foreign pilots and confiscated their planes. The LVA transported the aircraft on special trailers to Soesterberg Air Base, where they were checked by technical personnel and, if possible, repaired. The almost seventy serviceable confiscated aircraft formed a welcome addition to the Dutch air fleet. The LVA benefitted greatly by these “uninvited guests”. Dutch technical personnel were thus able to acquaint themselves with the most advanced equipment, including the latest developments in the fields of radiotelegraphy and armament. They grew into all-round experts with a wide knowledge of materiel. While it was true that the LVA pilots lacked combat experience, they were nonetheless able to familiarise themselves with practically all types of military aircraft available at the time. At the end of World War I, the pilots maintained their flying skills in a motley collection of aircraft.

The post-war years brought international détente. The Covenant of the League of Nations, concluded in 1920, contained provisions that virtually excluded another war. Many national governments estimated that the chances of preserving peace were high and therefore felt that drastic cuts in defence expenditure were justified. The Dutch armed forces were set strict financial limits during the interwar period. The same was true of the LVA, which had to make do with a decreasing budget in the 1920s. The limited financial resources had a highly debilitating effect on the development of the young air service, all the more so given the fact that technological innovations in the air industry were the order of the day. The LVA was unable to maintain a sizeable air fleet, for the simple reason that there was no money for large procurement projects.

Dutch air defence was expected to be able to repel the first air attack by an aggressor and that was as far as the military ambition went. To be able to continue fighting the Dutch armed forces would need the support of allies. At the time, three main tasks were identified for the air arm: to carry out reconnaissance flights, to eliminate enemy aircraft and to carry out bombardments. The Dutch army leadership assigned top priority to the reconnaissance task of the LVA, followed by the elimination of enemy aircraft. The carrying out of bombardments, which was considered an offensive task and therefore less suitable for the more defensively-oriented Dutch armed forces, was given the lowest priority.

The LVA tried to maintain its striking power at an acceptable level by procuring small series of modern aircraft on a regular basis. It placed its orders preferably with Dutch aircraft manufacturers such as Anthony Fokker and, some time after that, Frits Koolhoven. These manufacturers produced aircraft for both the civilian and the military market. The LVA, in the period from 1920 to 1935 always ordered with Fokker. This decision was partly motivated by employment considerations, but

also by the fear on the part of the Dutch government that, given a new war, it could once again be confronted with supply problems. After all, in the First World War, the Dutch had had frustrating experiences with foreign producers who, wholly or partly failed to honour their obligations because of the priority given to their own armed forces. Up till 1940, Fokker supplied the LVA with various series of training aircraft, reconnaissance/light bomber aircraft and fighter aircraft. Barring the odd exception, the volume of the aircraft orders generally did not exceed several dozens. From 1935 onwards, the LVA also placed a number of orders with Koolhoven.

Against a backdrop of growing international tension in the second half of the 1930s, the Dutch government decided to increase the defence budget and to order new fighters and bombers. The government now decided to place orders with foreign aircraft producers besides the customary national producers. The new equipment began coming in in the years 1938 and 1939. A number of important steps were also taken in the organisational domain. In the 1920s, due to the dearth of financial resources, the then commander of the LVA characterised his organisation as being made up of “nothing more than a hard core of personnel with technical expertise and operational readiness, a training institute”. In the 1930s, the LVA underwent a series of far-reaching reorganisations which were often accompanied by bitter disagreement between the authorities concerned.

Military aviation circles were lobbying with increasing fervour for a more independent position of the air arm. Judging by the developments in the surrounding countries, the proponents of a more independent air force concluded that other countries set great store by the air arm. The air forces in Great Britain, France, Germany and Italy had gained independent status on a par with the other Services, coming under a single command. Pleas to the military establishment for a similar approach in the Netherlands fell on deaf ears, however. It was only in 1937 that the first steps were taken towards a centrally-led air arm which was to form part of an integrated air defence command. Besides the air forces, this integrated command would also include the other air defence assets such as air defence artillery, search lights and the aircraft warning service (for detecting and reporting enemy aircraft). This integrated organisation, the *Commando Luchtverdediging* (Air Defence Command), was set up on 1 November 1938.

Following a far-reaching internal reorganisation, the military air arm as a whole came under this command. On 1 July 1939, the LVA, following a transition phase, was promoted to *Wapen der Militaire Luchtvaart* (Military Aviation Arm) and was the last of the arms to obtain independent status within the Royal Netherlands Army in addition to the infantry, cavalry, artillery and engineers. The new arm comprised a *Luchtvaartbrigade* (Aviation Brigade), which was composed of three *Luchtvaartregimenten* (Aviation Regiments) which accommodated all flying units, emergency services, depots and training institutes. Insiders considered these reorganisations and structural changes as an important foundation for the establishment of a modern, effectively-led Dutch air arm. At the same time, they also concluded that the ultimate

goal had by no means been reached yet. At the beginning of 1940, there was still no mature and well-oiled organisation in place. In addition to a number of organisational flaws, there were personnel problems, including a shortage of pilot instructors, observers and pilots, while the lack of modern aircraft equipment caused an endless list of problems.

On 10 May 1940, the German invasion of the Netherlands brought an abrupt end to the policy of neutrality and non-involvement which the Kingdom of the Netherlands had consistently pursued since its inception in 1815. After a period of more



The cradle of Dutch military aviation, Soesterberg Air Base during the interwar period.

than a century in which the Netherlands had been spared direct involvement in a war, it was now forced to tolerate a German occupation force on its soil for a period of five years. In the early days of May 1940, the Netherlands endeavoured to defend its neutrality through the use of armed force and immediately sought association with the allied forces that had taken up the hatchet against the Axis powers from September 1939. Following the Second World War, the Netherlands unequivocally decided to join the NATO treaty organisation. Its armed forces have made a concrete contribution to the Allied defence since then.



The Military Aviation Arm was only able to deploy some 125 operational aircraft to oppose the almost 1,000 German aircraft the *Luftwaffe* was able to deploy over the Netherlands in 1940. In addition to the staggering numerical superiority of the *Luftwaffe*, there was also a vast difference in quality. Most German aircraft were superior to the Dutch aircraft in terms of speed and armament. Moreover, the German pilot corps had gained a good deal of combat experience in operations over Spain, Poland and Scandinavia from 1936 onwards. In the five-day battle which was unleashed on 10 May, the *Luftwaffe* almost completely wiped out the Dutch air fleet. A number of Dutch fighter aircraft were destroyed on the ground during German surprise attacks, while the Dutch aircraft also had to concede defeat in air engagements. Despite the vast German air superiority, the personnel of the Military Aviation Arm put up a heroic struggle. Together with the other elements of the Air Defence Command, the Dutch air arm succeeded in eliminating an estimated 350 German aircraft, some 220 of which were Junkers Ju 52 transport aircraft that had been deployed in airborne operations in the west of the Netherlands. This remarkable success did not go unnoticed; within a few days of the capitulation, the Commander-in-Chief of Land and Sea Forces, General H.G. Winkelman, awarded the Military William's Order, the highest military honour for bravery in the Netherlands, to the Military Aviation Arm.

Just as the Royal Family, the Council of Ministers and a large part of the flight personnel of the Naval Air Arm, some 250 military personnel of the Military Aviation Arm flying schools succeeded in making their way to England in May 1940. Over time, this group of personnel, which mainly consisted of instructors, trainee pilots and technical personnel would largely be absorbed into the *Royal Air Force* (RAF). Later on in the war, they were joined by Dutchmen who had managed to escape from occupied territory to England in order to make a contribution to the liberation of the Netherlands from there. In addition to these so-called "Engelandvaarders", there were also Dutch nationals from neutral or unoccupied countries who offered their services. In all, the RAF was to admit around 700 Dutch personnel to its ranks, who then were assigned to various operational units in the roles of pilot, crew member or ground personnel.

Some RAF units were even predominantly Dutch. These squadrons came under British operational command. Dutch Naval Air Arm personnel formed the nucleus of 320 (Dutch) Squadron, which had been set up in June 1940 and which initially conducted convoy protection flights, later followed by high-risk bombardments of German ships. In 1943, 320 Squadron – now equipped with Mitchell bombers and augmented by personnel from the Military Aviation Arm – was to focus mainly on attacking targets on the European continent. 322 (Dutch) Squadron, which had been set up in June 1943, was equipped with Spitfires and would number more and more Dutch pilots. This squadron distinguished itself by carrying out escort flights, convoy patrols and so-called anti-Diver operations against V-1s after they had been launched. The pilots from 322 Squadron succeeded in eliminating over one hundred



A Republic F-84F *Thunderstreak* of 315 Squadron, The MDAP supplied the RNLAf with 180 *Thunderstreaks*.

of these “flying bombs”. The squadron then specialised in defensive patrols, fighter sweeps, armed reconnaissance and low-altitude attack missions on ground targets. The Dutch pilots completed many thousands of combat missions in which they suffered heavy losses. They also gained a wealth of experience that was to stand them in good stead during the reconstruction of the air force in the post-war years.

From 1943 onwards, the Dutch government in exile in London considered the organisation and (more independent) positioning of the air arm, both during and after the war. In July 1944, the various Dutch air arms were amalgamated temporarily in the *Directoraat der Nederlandse Luchtstrijdkrachten* (DNLSK, Directorate of Dutch Air Forces), which focused primarily on registration, maintenance and organisation of training. The DNLSK negotiated with the British Air Ministry about post-war assistance in the reconstruction of the Dutch air force and managed to clinch a number of comprehensive agreements on this subject. In March 1946, the DNLSK moved from London to The Hague; it was to be abolished in July 1948. The Second World War acted as a catalyst in the development of the Dutch air arm into an autonomous organisation. The war experiences, the increased strategic and tactical importance of the air forces and close Allied cooperation contributed to the air arm’s gradual development into an independent Service from 1945.

In the Cold War period from 1948 to 1989, the Netherlands did not revert to its policy of non-involvement from before 1940. In the first post-war years, the Netherlands waged a decolonisation war in the Dutch East Indies, which took up a great

deal of energy and resources, both in the political and in the military domain. Even before the ink had dried on the transfer of sovereignty to the Republic of Indonesia in December 1949, the communist expansion in Eastern Europe led to the conclusion that the Netherlands, in close cooperation with its Western allies, would have to concentrate on rebuilding its defence. The Korean War (1950-1953) was another pointer in the same direction, and confirmed the desirability and urgency of a military effort. After the Netherlands had once again reached calmer waters in 1950, following the turbulent times of the decolonisation, it was possible to focus on rebuilding the national armed forces. It was crystal clear from the start that that would only be possible in an allied context and with substantial support from the principal international partners. The Netherlands was one of the first nations to seek an alliance with like-minded Western democracies, signing the Brussels Pact in 1948. This pact, aimed at European military cooperation, was the precursor of the Western European Union. The Dutch accession to NATO in April 1949 was the logical next step. The Netherlands has always shown itself a loyal and reliable ally.

In addition to the political willingness to earmark a considerable part of public expenditure for defence (from 12.6% in 1946 to 23% in 1952), a number of profitable bilateral agreements ensured that the Dutch armed forces could be rebuilt at a brisk and steady pace. In the case of building up the air force, it was particularly the support of the United Kingdom and the United States of America that was of eminent importance. In the first post-war years, the RAF played an important role in training Dutch air force personnel. In the materiel domain – the Netherlands had virtually no equipment whatsoever – the *Target One* plan formed a good solution. The Netherlands was able to procure almost 400 aircraft from RAF surplus supplies. In addition to Spitfires and transport aircraft, these were mainly training aircraft intended for setting up flying schools in the Netherlands.

British influence on the Dutch air force in the 1940s and 1950s was considerable. The new Dutch air force uniform, for instance, including the rank insignia, was clearly inspired by the RAF uniform. The organisational model of Dutch air defence, made up of air bases with interception fighters, radar stations and an airspace monitoring service, also followed the British example. This was clear from the organisational design, whereby, on the instigation of the British, the Belgian and Dutch air defence elements were organised in a single Air Defence Group, No 69 Group. Also, in the materiel domain, it was British-made aircraft that formed the backbone of Dutch air defence right up to the 1960s. From 1948, the outdated Spitfire was replaced by the Gloster Meteor fighter jet (266 aircraft), which, in turn was replaced by the Hawker Hunter (209 aircraft) from 1956.

The Dutch accession to NATO heralded a close military cooperation with the United States, which was formalised in the *Mutual Defense Assistance Program* (MDAP). Through this bilateral military aid programme, which covered the period from 1950 to 1961, the United States made materiel available on a large scale. The lion's share was received as "grand aid", which meant that they were in-kind sup-

plies from US surplus supplies or from the production line. For the Dutch air force the MDAP would make itself felt primarily in the supply of tactical fighter bombers (187 Republic F-84E/G Thunderjets and 180 Republic F-84F Thunderstreaks), photo reconnaissance aircraft (24 Republic RF-84F Thunderflashes), night fighters (63 North American F-86K Sabres), training aircraft (28 Beechcraft T-7s and 41 Lockheed T-33As), light aircraft (155 Piper Super Cubs) and helicopters (36 Hiller OH-23 Ravens). In addition, the MDAP was also responsible for the supply of vehicles, ground equipment, ammunition and radar and communications systems. This was followed up at a later stage by the American supply of guided-weapon systems to the Netherlands.

Ultimately, the influence of the superpower America on the Dutch air force proved to be both more profound and more stable than the British influence. From the end of the 1950s, the Netherlands, as a general rule, would buy its new main weapon systems for the air force in the United States. In addition to new-generation fighter aircraft, such as the Lockheed F-104 Starfighter, the Northrop NF-5 and the General Dynamics F-16, this also involved the purchase of American guided-weapon systems, transport aircraft and helicopters. The choice for these weapon systems also meant that the Dutch air force, for decades, worked closely with the Americans in the fields of (pilot) training, procedures and logistics.

The promotion of the Dutch air arm to an autonomous Service in the Netherlands came at a relatively later time than was the case in the countries around the Netherlands. As mentioned before, the path to autonomy was a gradual one. From April 1947, the build-up of the air force was undertaken under the direction of the Chief of the Air Staff (CLS) and the *Commando Legerluchtmacht Nederland* (CLN), which formally still came under the army. The establishment of the post of CLS was the starting signal for the formation of an air force staff within the Ministry of War (renamed Ministry of Defence in 1959). Specific air force affairs were increasingly extricated from the grasp of the army and assigned to the budding air force organisation. In September 1950, the CLN was abolished in a reorganisation and a number of executive commands were set up in an intermediary role between the air force leadership and the various units. With the exception of a number of name changes and amalgamations, this command structure remained in-tact until the end of 1991. Over the years, the air force became increasingly autonomous, with a command structure matching that of the navy and the army. The development culminated in March 1953 when the air force – except for the elements that came under the navy – was granted the title “Royal”. Almost forty years after its inception, the Dutch air arm – on a par with the *Royal Netherlands Army* (RNLA) and the *Royal Netherlands Navy* (RNLN) – would go on as the third independent Service, the *Royal Netherlands Air Force* (RNLAf).

From the 1960s, the striking power of the RNLAf comprised four clusters or pillars, which operated more or less independently from each other, each making its own contribution to the NATO defence effort in Western Europe. The develop-

ment processes of these four air force pillars – combat aircraft, guided weapons, transport aircraft and helicopters – followed their own patterns. Even though the air force leadership recognised and acknowledged the individual importance and *raison d'être* of these four pillars, for a long time, they were not considered as equally important. During the Cold War, the RNLAf accorded priority to the combat aircraft and, to a lesser extent, to the guided weapons. After the fall of the Berlin Wall, the emphasis shifted more and more to air transport and helicopter operations.

Until the 1970s, the RNLAf's combat aircraft were divided over two separate commands: one of which focused on air defence, and the other on the conduct of tactical tasks, the principal ones being attacking ground targets, providing support to ground troops and conducting (photo) reconnaissance. Specific types of fighter aircraft were selected for the various tasks. The British-made air defence fighters were assigned to the *Commando Luchtverdediging*, (CLV, Air Defence Command), which had several squadrons operating from the air bases of Leeuwarden, Twenthe, Soesterberg and Ypenburg. The US-made tactical fighter bombers came under the *Commando Tactische Luchtstrijdkrachten* (CTL, Tactical Air Command); the squadrons were stationed at the air bases of Eindhoven and Volkel. The fighter aircraft of the two commands were gradually integrated into the NATO alliance. The integration of the tactical squadrons in particular proceeded smoothly; they rapidly came under Allied command and were integrated in 1952 into the multinational Second Allied Tactical Air Force, headquartered in Rheindahlen, Germany. The advent of the F-104G Starfighter in 1962 was an important step towards the standardisation of the air fleet. The F-104 fulfilled both air defence and tactical roles. Partly as a result of that, 1973 saw the amalgamation of the Air Defence Command and the Tactical Air Command into a single command for all operational combat units under the name of *Commando Tactische Luchtstrijdkrachten* (Tactical Air Command). The F-16, from the 1980s onwards, proved a worthy successor to the Starfighter, also owing to the fact that it had excellent multi-role capabilities, much more so than its predecessor. Seeing that the F-16 was also to take over the tasks of the NF-5 fighter bomber, which had been phased out at the beginning of the 1990s, the standardisation process by transfer of tasks to one fighter aircraft had been effected at the end of the Cold War period.

At the beginning of the 1960s, the Dutch armed forces were assigned six (tactical) nuclear tasks on top of its conventional tasks, as part of the NATO strategy. Two of these nuclear tasks were to be carried out by the RNLAf. 311 Squadron and 312 Squadron, which were both stationed at Volkel Air Base, were assigned a fighter bomber strike task, and so made a contribution to NATO's offensive nuclear air forces. The pilots of the two squadrons were subjected to an intensive retraining programme in order to master the techniques of launching tactical nuclear weapons. The aircraft – initially the Thunderstreak, followed by the Starfighter and finally the F-16 – were modified to be able to carry out the strike task using atom bombs.

The second nuclear air force task was of a defensive nature and was assigned to



During the Cold War the RNLAf deployed two Guided Missile Groups with Nike missiles in West Germany. These SAMs could be armed with both conventional and nuclear warheads.

the guided weapons against airborne targets (surface-to-air missiles), a new element in the RNLAf organisation that reached maturity in the 1960s. Since the RNLAf was already tasked with air defence and was better suited than the army, both from a personnel and materiel perspective, to maintain the guided weapons, which had important similarities with aircraft, the guided weapons were incorporated into the RNLAf arsenal. In addition to training capacity, the United States, through the MDAP, also provided launch installations and Nike missiles to set up and equip an air defence belt, situated in the Federal Republic of Germany (FRG) at about 150 kilometres from the Iron Curtain. Between 1961 and 1963, the RNLAf established two Guided Missile Groups (GGWs) in various locations in West Germany, manned by a total of eight squadrons and equipped with nine Nike launch installations each. The Nike missiles could be armed with both conventional and nuclear warheads and be deployed against high-altitude bomber formations. The nuclear warheads could also be used against ground targets to reinforce the army corps' nuclear artillery capacity.

To supplement the Nike belt, for countering high-altitude targets, between 1963 and 1966, NATO realised a second integrated air defence belt to counter low-altitude flying targets. This guided-weapons belt was equipped with conventional Hawk missiles. The RNLAf set up a further three Guided Missile Groups for this Hawk belt, manned with four squadrons each and stationed in the north-east of Germany. The Hawk, in contrast to the Nike system, was a fully mobile weapon system. The Guided Missile Groups had a high level of readiness and could be deployed within a short response time and under almost any weather conditions. The expansion of the guided-weapons belts enabled the number of flying air defence squadrons to be reduced. At its zenith, during the 1960s, almost 25 per cent of the RNLAf personnel complement was assigned to the Guided Missile Groups. At the end of the Cold War, the Nike system was phased out, which meant that the Guided Missile Groups lost their nuclear task. Meanwhile, the number of guided missile units had been significantly reduced. With the introduction of the Patriot system in 1986, the RNLAf acquired a new generation of guided weapons. In the early 1990s, the remaining guided missile units were withdrawn from Germany and subsequently integrated into a single Guided Missile Group stationed at De Peel Air Base in the Netherlands.

In the post-war years, the air transport task had been mainly assigned to 334 Squadron, which was carrying out a wide range of tasks, initially with a motley collection of single and twin-engine propeller aircraft. In addition to cargo and passenger transport, the squadron also carried out paratroop drops, medical evacuations, crew training, and provided assistance to crippled aircraft. In the event of natural disasters, 334 Squadron would also be deployed to fly in (medical) aid supplies and aid workers. Despite the squadron's respectable track record, its scope of action was limited by the low load capacity and the limited range of the available transport aircraft. The transition to an air transport fleet with a global range and capable of carrying large payloads would only be effected in the 1990s.

Around 1960, the outdated Douglas C-47 Dakota transport aircraft were replaced

by twelve Fokker F-27 Friendships, with a maximum range of 2,500 kilometres and a maximum payload of approximately 3,000 kilograms. In addition to these transport aircraft, Fokker also provided various series of training aircraft and built, under licence, a considerable number of fighter aircraft for the RNLAf during the Cold War period. Fokker's batch production and assembly building of, among others, the Gloster Meteor, Hawker Hunter, F-104 Starfighter and the F-16 gave an enormous boost to the post-war recovery of the domestic aircraft industry sector in the Netherlands.

With the introduction of the Hiller H-23B Raven in 1955, the helicopter made its debut in the ranks of the RNLAf. The rotary-wing aircraft were assigned to Light Aircraft Group (LAG) squadrons, an element that, until the 1970s, was also responsible for various types of fixed-wing light aircraft. Of all air force units, the LAG was the element that worked together most closely with the army. If, in peace time, the RNLAf had the operational command over the Light Aircraft Group, in war-time and during exercises, operational command switched to the commander of 1 Army Corps. The range of tasks of the LAG was gradually extended during the Cold War. Starting in the 1950s with transport and communications flights, the LAG was later tasked with carrying out reconnaissance flights and supporting army exercises. With the replacement of the Hiller in the 1960s by the Sud Aviation Alouette II and Alouette III helicopters and the advent of the MBB Bölkow Bo-105C helicopter from 1975, the deployment scope was expanded even further. From the 1970s, area surveillance, liaison missions, artillery fire control, medical evacuations and forward air control (FAC) were added to the LAG's tasks.

The end of the Cold War necessitated a fundamental "rethink" of the role of the armed forces. For the RNLAf, the new focus of the Dutch defence policy manifested itself mainly in the purchase of a new air transport fleet and the introduction of more effective helicopter weapon systems. The latter led to the procurement of light and medium-heavy transport helicopters, later followed by the influx of attack helicopters.

The fall of the Berlin Wall and the dissolution of the Warsaw Pact ushered in a period of drastic downsizing and restructuring of the Dutch armed forces. The "cashing in on the peace dividend", which was to be incorporated in the defence policy of consecutive governments of various political persuasions, also had a strong impact on the RNLAf. This coincided with a period in which the Netherlands was pursuing an active foreign policy, as a result of which the armed forces not only carried out a large number of humanitarian missions, but also made a sizeable contribution to crisis response operations in Europe, the Middle East, Africa and Asia. Thus, the armed forces were confronted with the apparent paradox of having to vastly improve its performance while being given substantially fewer resources to do so.

The reorganisations and the spending cuts, in combination with the numerous international missions in which the Netherlands participated, required the transformation of the air force into an organisation that was tailored to the new circumstances.

“Lean and mean” became the new creed and motto. In November 1991, the commands, which had performed an intermediary function at the executive level between the air force staff and the units, were disbanded, which resulted in a more horizontal organisational structure of the RNLAf. In terms of its personnel complement, the RNLAf was at its zenith in 1967, with almost 28,000 personnel (regular, reserve, conscript and civilian personnel). Around 1990, the complement had been reduced to approximately 20,000 personnel. In the mid-1990s, the government decided to suspend conscription and the last air force conscript personnel left the Service in 1996. From that time onwards, the ranks of the armed forces were to be filled exclusively by volunteer personnel. Personnel reductions were to be a recurrent phenomenon in the following years. In 2010, the total air force personnel complement numbered just under 9,000 positions.

After 1990, the number of air force elements was to be reduced strongly. This did not stop at the complete withdrawal of the Guided Missile Groups from Germany that was mentioned earlier in this article. The RNLAf also concentrated and merged virtually all its depots, workshops, (pilot) training and logistic support elements at Woensdrecht Air Base. Moreover, four air bases, Ypenburg, Deelen, Twente and Soesterberg had to close, in that order. By 2011, the striking power of the RNLAf has been concentrated at no more than five locations, namely: the fighter aircraft at Leeuwarden and Volkel Air Bases, the air transport fleet at Eindhoven Air Base, the helicopter fleet at Gilze-Rijen Air Base and the Guided Missile Group at De Peel Air Base.

In addition to the Guided Missile Groups, it was the fighter aircraft in particular that were faced with substantial reductions. The initial air fleet of 213 F-16s was gradually reduced by more than half, which meant the disbandment of various fighter aircraft squadrons. Between 1992 and 2003, however, the F-16 fleet underwent a comprehensive mid-life update (MLU) programme, which resulted in an extension of the aircraft’s operational life. This international programme included an avionics upgrade, which significantly expanded the deployment possibilities of the F-16, especially at night and in poor weather conditions. Under the MLU programme, 139 F-16s were fitted with new central on-board computers, better radars, an Advanced Identification Friend or Foe system, improved assets in the field of electronic warfare and improved armament. In 2011 the government decided to a further reduction of the F-16 fleet to a total number of 68 aircrafts. In the guided missile pillar, following in the tracks of the Nike, the Hawk was gradually taken out of the arsenal from 2005. The mobile Patriot system underwent a number of upgrades which made it better suited to engage ballistic missiles.

As mentioned before, after the Cold War, greater emphasis was placed on air transport and the helicopter fleet. From 1994, the fixed-wing air transport fleet was transformed completely. While the twelve Fokker F-27s were being phased out, the RNLAf was taking into service a mixture of light and (medium-) heavy transport aircraft. In the second half of the 1990s, the air transport fleet consisted of two KDC-10s, two C-130s, four Fokker 60s, two Fokker 50s and one Gulfstream IV business jet. In the years to follow, even greater emphasis was placed on the heavier aircraft:



Two F-16s land at Leeuwarden Air Base. The fighter Squadrons 322 and 323 have been stationed at Leeuwarden for several decades.

the Fokker 60s and 50s were replaced by two additional C-130s and one DC-10. Thanks to this transformation, the scope and range of action of the air transport fleet was substantially increased. The KDC-10, a strategic air transport aircraft, is not only capable of transporting a maximum payload of 65,000 kg over transatlantic distances, it also has air-to-air refuelling (AAR) capabilities. Owing to the KDC-10, the range of action of the Dutch F-16s increased considerably, both in (longer) training flights and in operational flights at larger distances from the Netherlands.

The helicopter fleet underwent a similar metamorphosis in the 1990s. The Alouettes and Bölkows were replaced by three Augusta Bell AB 412SPs (for the Search and Rescue task), 13 Boeing CH-47 Chinooks, 17 Eurocopter AS 532-U2 Cougars and 30 Boeing AH-64D Apaches. The new composition and the increased possibilities for deployment of the helicopter fleet necessitated a far-reaching restructuring of the organisation, which, in July 2008, would result in the establishment of the Defence Helicopter Command (DHC), an all-Services command in which all helicopters were integrated, including those of the Royal Netherlands Navy. With the arrival of the DHC, where the higher-echelon maintenance was concentrated, the armed forces had at its disposal a single central point of contact for helicopters; this was to ensure a faster and more effective deployment.

Following the fall of the Berlin Wall, the four main weapon systems used by the RNLAf were all to be deployed in peacekeeping and peace-enforcement operations.

In addition, the transport aircraft and transport helicopters were to be used frequently in humanitarian missions. The scope of this article does not allow for a full description of the international missions in which the RNLAf participated. The most prominent operations in which the RNLAf took part are therefore outlined below.

The Guided Missile Groups were to be deployed in crisis response operations even before they were withdrawn from West Germany. During the Gulf War (1990 – 1991), Turkey asked the Dutch government to provide an air defence unit to guard against possible Iraqi Scud-missile attacks. From January to March 1991, two Patriot squadrons were stationed near Diyarbakir Air Base in Southeast Turkey during operation *Wild Turkey*. The Patriot units were later to be reinforced by two Hawk squadrons. In addition, in February and March 1991, the RNLAf deployed another eight Patriot launcher stations to Israel in the context of operation *Diamond Patriot*, again to guard against the danger of Iraqi Scud attacks. The deployment to Turkey was to be repeated twelve years later in operation *Display Deterrence*. During the Second Gulf War, the Turkish government again asked the Netherlands to provide Patriot units to protect Turkey against potential Iraqi missile attacks. From February to April 2003, two Patriot batteries took up positions at Diyarbakir Air Base, while another battery took up position near the Turkish town of Batman. The units were not required to take action.

Dutch F-16 fighter aircraft did not play a role in either of the two Gulf Wars. They were, however, to make their mark over the former Republic of Yugoslavia, and afterwards over Afghanistan and Libya. From April 1993, Dutch F-16s participated in operation *Deny Flight*, which was aimed at enforcing a no-fly zone over Bosnia. Operating from the Italian air bases of Villafranca and later Amendola, between 1993 and 2001, the F-16s carried out a highly varied range of tasks. In addition to air defence (Combat Air Patrol – CAP) and reconnaissance (recce) missions, they also flew ground-support missions (Close Air Support – CAS). The Dutch fighter aircraft operated on the basis of the so-called swing-role principle, whereby they were able to carry out both offensive and defensive tasks during the same mission, depending on the specific operational requirements of that moment. The deployment over the former Yugoslavia was the first time the air force had used weapons since the decolonisation war in Indonesia. On 21 November 1994, Dutch F-16s participated in the air strike against Udbina airfield in Croatia, a precision bombardment aimed at destroying the take-off and landing strips. In September 1995, in operation *Deliberate Force*, which was aimed at forcing the Bosnian Serbs to the negotiating table, the F-16s fulfilled a wide variety of tasks. Thus, they carried out over ten per cent of the bombardments, among other things. The systematic suppression of the ethnic Albanian majority in Kosovo led to the NATO decision in March 1999 to start a phased air campaign, operation *Allied Force*, which was to last 78 days in total. The Dutch F-16s were prominently represented in this operation; as early as the first night of the campaign, a Dutch F-16 shot down a Yugoslav MiG-29 Fulcrum, followed by a large number of bombing attacks on various Serb targets later in the operation. The accelerated delivery of LANTIRN targeting pods enabled the Dutch F-16s to carry



Two Dutch AH-64D "Apaches" at Kabul International Airport. Between 2001 and 2010 the RNLAf deployed a detachment of combat helicopters to Afghanistan.

out laser-guided precision bombardments independently.

After years of operational activity over the Balkans, the F-16s departed for Afghanistan in September 2002 to take part in operation *Enduring Freedom*, operating from Manas Air Base in Kyrgyzstan. The F-16s were tasked with providing Close Air Support over Afghanistan. Dutch F-16s carried out bombardments and used their mounted guns to relieve ground troops who were under fire. As part of the *International Security and Assistance Force* (ISAF), from 2004 onwards, the F-16s operated in an international context, initially from Kabul International Airport and later from Kandahar Airfield in the south of Afghanistan. In addition to providing air support – often against mobile tactical targets – and convoy escorts, the F-16s also carried out recce missions. They were scheduled to stay in Afghanistan until the end of 2010 in order to provide convoy protection to the redeploying Dutch military personnel after the completion of their mission in Uruzgan. Later it was decided that the F-16s will take part in (the protection of) a new police training mission in the northern Afghan province of Kunduz. From March 2011 Dutch F-16's, operating from the Decimomannu Air Base on Sardinia, also help to enforce the no-fly zone over revolting Libya.

Since the Cold War, the transport aircraft of the RNLAf have carried out numerous humanitarian missions and have taken part in various peace operations. The F-27s of 334 Squadron still proved very useful in the first period after the fall of the Berlin Wall. At the end of 1989, they flew food parcels and medicines to Romania

where the Ceausescu regime had been brought down. In 1992, an F-27 detachment spent almost six months in Southeast Asia to carry out transport flights from Thailand for the UN mission in Cambodia. The F-27s were also deployed to support the F-16 detachment in Villafranca, Italy, and they carried out human relief flights and (medical) evacuations in the Balkans. From 1994, the air transport task for humanitarian missions was carried out by the C-130s, including Rwanda in 1994, Angola in 1995, the Caribbean in 1995 and 1998, and by the KDC-10s, including Iran in 1997, Afghanistan in 1998 and Central America in 2001. These new transport aircraft greatly improved the RNLAf's capabilities for providing strategic air transport and support to Dutch military missions at large distances from the Netherlands. The air-to-air refuelling capability of the two KDC-10s was another big step forward. The multifunctional tanker aircraft proved their value in the Kosovo crisis in 1999 and later during operation *Enduring Freedom* and the ISAF mission in Afghanistan.

As mentioned before in this article, helicopter operations became increasingly important to the RNLAf's international operations. In the years after 1989, this task was carried out initially by the Alouette III and the Bölkow, for instance in Iraq, Cambodia and in the Balkans. The new transport and combat helicopters took over this task at a later stage. A Chinook detachment provided humanitarian aid to the Kosovar refugees in Macedonia and Albania in 1999, and a detachment consisting of four CH-47s was deployed to the Horn of Africa from 2000 to 2001 in the context of the *United Nations Mission in Ethiopia and Eritrea* (UNMEE). Between 2001 and 2004, Cougar and Chinook detachments rotated within the framework of the *Implementation Force* (IFOR) and the *Stabilisation Force* (SFOR) in Bosnia Herzegovina. This was to be repeated between 2003 and 2005 in the context of the *Stabilisation Force Iraq* (SFIR), from Tallil Air Base in southern Iraq. This rotating system of Cougars and Chinooks was to be applied again in Afghanistan, at Kandahar Airfield between 2006 and 2010. The transport helicopters were assigned the whole of South Afghanistan as their area of operations. As had been the case with the deployment of transport helicopters, the deployment of Dutch combat helicopters was highly valued by both the Dutch ground forces and by the international coalition partners. Apache helicopters were deployed to Bosnia (1998-1999), Djibouti (2001), Iraq (2004-2005) and Afghanistan (2004-2005, 2006-2010) respectively. 1 June 2006 witnessed the first deployment in combat action of a Dutch AH-64D in Uruzgan. Since that time, the Dutch Apaches frequently used their weapon systems to support Dutch troops on the ground in combat. They demonstrated their effectiveness in providing Close Air Support. The Apaches, on various occasions, succeeded in relieving ground troops who were under fire.

In 2011, the Netherlands will boast a century of experience with the military deployment of the aircraft. Until 1940, the development of the Dutch national air arm took place, both literally and figuratively, within its own "narrow" borders. The politics of non-involvement, the generally limited (financial) resources and the views of the military establishment led to a modest position of the air arm in the Netherlands,

it was considered as an auxiliary arm on the fringes of the army. This was to change after the Second World War: from 1940 the new norm was set by more intensive international cooperation with the allies. The operational theatre of the air force was no longer restricted to Dutch territory. During the Second World War, the Dutch were active on various faraway battlefields, and following the war, the air force was integrated into the NATO defence structure. In 1953, following many foreign air forces, the Dutch air force was accorded the status of independent Service, on a par with the army and the navy. From that time onwards, the NATO treaty area was to be the theatre of operations for the Royal Netherlands Air Force. Training and exercises mainly took place outside the Netherlands and the deployment of combat aircraft was directed and coordinated from international headquarters. The guided missile units of the RNLAf were not stationed in the Netherlands, but formed an integral part of the guided missile belt in Germany along the Iron Curtain. After the Cold War, the RNLAf was streamlined into a smaller, flexible and expeditionary air force, and, with its combat aircraft, guided missiles, transport aircraft and helicopters, the RNLAf provides a contribution to humanitarian operations and peace operations across the entire spectrum of force, on the global stage and always in an international framework.

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Doctrine, Capacities, Technology and operational Environment on the Employment of the Air Power; the Case of Guerrilla Warfare

The Portuguese experience on the effective employment of airpower in actual operations, during the past century, can be resumed to the war against guerrilla in which the country has been involved in Africa for thirteen years, 1961-1974. In the two wars that ripped the world in the twentieth century, the Portuguese Air Power had no noteworthy intervention.

In fact, participation of Portuguese aviators in the First Great War took place with them being integrated into allied formations, due to material difficulties in acquiring airplanes that could make up a single national air force unit. In the Second World War Portugal maintain a neutral position and remained out of the centre of the conflict, and because of this the Portuguese action was merely limited to ensure readiness of the scarce air resources that were available then, assigning a squadron to the Azores archipelago.

Our purpose, when describing that counter guerrilla war period, in their most relevant aspects, is to match this description with the principles of air doctrine in construction in Europe and America since the twenties.

The first steps of the Portuguese Air Force

Before we get into this description, we need to devote some lines on the route of the Portuguese Air Force soon after its constitution as a Branch of the Armed Forces in 1952.

The first effort after this legal constitution resided, essentially, in the areas of organization and doctrine, development and implementation of training standards, according to the model adopted by most of the Western Air Forces.

In fact, the Portuguese Air Force lived one of its golden ages in the fifties of last century, in terms of the technological upgrading, the volume of the means that were allocated to it and for its high level of operational readiness. It flew about 55,000 flight hours per year, one quarter of this effort being the responsibility of the two squadrons of F-84G combat aircraft.

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In the middle of the decade there were plans for a restructuring of the system of air forces which included six Fighter Squadrons, two Squadrons of Maritime Patrol and Antisubmarine Warfare, a Transport and Search and Rescue Squadron, among other means, within the framework of Euro Atlantic defence and strategic air space of national interest, all of these Squadrons based in national airfields in the Portuguese mainland and insular territory.

It was an ambitious plan which had the approval of the Minister of National Defence. But as early as 1957 the concerns about the security in the Portuguese overseas territories began, which led to abandon this plan, or to redirect some of its aspects to another configuration.

In 1952 the Air Force had a strength of about 2,000 people and eleven squadrons organized into groups, with the following main types of airplanes, among other less significant: Hurricane, F-47 Thunderbolt, Spitfire, Junkers JU-52, Lysander, B-17, C-54, Curtiss Helldiver, T-6, Grumman, in a total of 375 aircraft, including in this inventory the resources that had come from the previous Military Aeronautical Service and Naval Aviation belonging to the Portuguese Army and Portuguese Navy, respectively.

In the meantime Portuguese Air Force received two Squadrons of F-84G aircrafts under the "Mutual Defence Assistance Agreement" established with the United States of America following the end of World War II, and this reception was a very important technological and operational milestone.

In 1959 the effective staff reaches the number of about 7,500 people, after the introduction of the fleet of F-86F integrated in two Squadrons, in 1958, under the same agreement, which gives an idea of the expansion that meanwhile took place.

Preparing for war

Given the international environment in general and to the Bandung Conference of 1955 in particular, a sense of fear of some instability in the overseas Portuguese territories began to grow.

Portugal, who had fought some forty years before with the sacrifice of many lives, to maintain sovereignty over those territories, enforcing its historical rights, facing up to the other European powers, did not feel threatened, in principle, by these tendencies. In the face of attacks that were directed to it at international assemblies, Portugal responded with the arguments of the specific political organization of those territories, which according to the Portuguese Constitution were considered as Portuguese provinces, and of the existence of a multi-continental and multi-racial Portuguese community. "The winds of history" were however merciless in the denial of these arguments and led the country to a relative political isolation.

However, given the international environment of those times in which the constitution and support of independence movements was fomented, and on the other hand the official Portuguese position, the conflict became inevitable and a break in

the safety of those territories was expected to occur.

Aware of this hypothetical situation, the Undersecretary of State for Aeronautical Affairs published a Directive in 1957 for the launching of the necessary facilities to support air operations in Portugal's overseas territories, in anticipation of local operation and of air deployment to the three operational theatres.

In 1958 an inspection visit to assess the situation is made by a team headed by the Air Force Chief of Staff, and in the following year the Himba operational Exercise took place.

The Himba exercise consisted of a military air transport operation to check routes and infrastructure, potential stopovers for transit and operation, and a demonstration of sovereignty, of the presence of a military force in Portuguese Africa; 14 planes were involved, namely 6 Skymaster, 2 C-47 Dakota, and 6 PV-2 Harpoon that flew to Angola from the Continental bases, using Portuguese scale airfields, along the oceanic route. In Angola, they flew over Carmona, Santo Antonio do Zaire, Cabinda, Malange, Henrique de Carvalho and Lobito; a big air show was held in Luanda with aircrafts and ground troops parading, the launching of paratroopers and real air fire display, before an enthusiastic crowd, proud of its Air Force. Other parades were held in Sá da Bandeira and Nova Lisboa. This action was of fundamental importance from the psychological standpoint with the population, in addition to the operational test that it consisted of.

The Air Force built fifteen major runways in Angola, nine in Mozambique, five in Guinea, plus major extensions and improvements to the existing ones in that date which were too few.

Towards the end of 1956 a decree had been published that created the Portuguese Air Regions, one covering the mainland, the Azores, Madeira, Cape Verde and Guinea, another that included Angola and S. Tome and Principe and the other based in Mozambique, which included, apart from this territory, the Portuguese territories in India, Macau and Timor. In each of these regions Air Bases would be formed and other classes of aerodromes to ensure full coverage of the Portuguese Overseas Territory in terms of airspace jurisdiction. It took relatively some time for the organization of these new commands and to deploy the necessary means to these remote regions. However, the legal and physical conditions were created for a quick implementation in face of developments in the political international and local environments, when more appropriated.

The onset of war in Angola

In January of 1961 a popular movement of resistance and challenge against the legitimate authority begins in Angola, in much localized areas in the North. First, in a small village named Mailundo, then in other towns or villages, whose people worked almost exclusively in the cultivation of cotton, at the service of a large company. Those people refused to work and to obey the orders of administrative authorities.

This strange situation became very tense at the site, with rumours about the creation of groups of local agitators, and the confrontation with the authorities by large masses. The positions adopted by these populations resulted from two influences, that joined forces in the end: political propaganda fostered by movements based in Congo, with a contagious effect that caused, and religious fanatics of a sect also spread in several areas in Africa; the basic ideas of these two sources merged to produce a sentiment of revolt that would lead to acts of complete paroxysm.

The ground forces available, which were scarce, immediately rushed in an attempt to impose order. The outbreaks of disorder spread in the same moulds, to other populations in an area that is designated by "Baixa do Cassange". The military reaction that followed the revolt calmed down the spirits; the agitators, of strange ethnic origins, disappeared, and the region became peaceful after about two weeks.

Until this situation was reached, the ground forces felt strongly threatened, using force and producing casualties. Not only the military forces, but certain segments of the population and police forces, felt in situations of large peril. As a result of the inevitable confrontations military forces suffered relatively small casualties, and the civilian casualties were about two hundred.

The aircraft in this scenario acted primarily through actions of reconnaissance, transportation of supplies and ammunition, as well as attack in dramatic situations, when the human masses in a trance seemed to surround civilians and military ground units. All this emergency action takes place without communications between aircraft and land forces and without patterned proceedings of air to ground cooperation and airspace management.

By the time of the events in Baixa do Cassange, the only military airfield in Angola was in Luanda. The aircraft parked there were 11 PV2, maritime patrol aircraft adapted to operations in air land environments, 7 NORDATLAS transport planes, 4 light aircraft DO-27 and 4 BROUSSARD and some T-6G (to be deployed to the NEGAGE airfield, as we will see later). In that month of January 1961, the PV2 aircraft were engaged in 38 missions and in an identical number in February, broken down by independent strike actions, attacks in close support of ground forces and populations, air recon missions and medical evacuation. The NORDATLAS conducted 19 missions in January and 34 missions in February transporting personnel and cargo.

At the end of 1960, 4 Auster light aircraft used in visual reconnaissance actions, airborne command post, cargo transportation, medical evacuation, had been deployed to Carmona, near the future airfield of Negage landing on makeshift runways. During the events at the Baixa do Cassange these four aircraft accomplished around 200 flying hours, searching for and detecting rebel movements, guiding the ground forces in an extremely primary way, given the lack of air/ground communication, providing food, ammunition and mail to the besieged forces. On the 6th February two of these aircraft are deployed to Malange for the same type of air activity.

Since mid-1960 that the Negage airfield was being built, located about 135 nautical miles east-northeast of Luanda. On 7th February 1961 the first landing of an Auster and a NORD takes place here, although the airfield facilities were concluded only in September that year. This military airfield, already legally constituted, was named as AB3 (aerodrome base number 3).

On March 15, 1961 a brutal offensive is started by human waves armed with machetes and “canhangulos” (artisanal rifle) against towns and farms in the districts of Zaire, Uige and Cuanza Norte, particularly Quibaxe, Vista Alegre, Aldeia Viçosa, Quitexe, Quicabo, New Caipemba, Nambuanguongo, Zala, Quibala, Bessa Monteiro, Madimba, Canda, M, bridge, Buela, and others. The rebels killed thousands of people, all civilians, including more than a thousand whites. Many of these places were occupied by the attackers, while the resident population escaped. Elsewhere the population was able to resist and stay, providing authentic strongholds which were permanently threatened with no possibility of escape and trying to survive. This action spread panic across the region, which led to an almost total exodus of resident population, even those who had not been threatened yet.

Light aircraft, civil and military, proceeded to the transport of fleeing terrified people, concentrating at the aerodrome of Negage, where an airlift to Luanda was organized for around 3,500 people, essentially with NORDATLAS planes.

On March 16, the first paratroopers company arrives in Luanda by airplane and is immediately deployed to the area of operations. The paratroopers had been constituted in 1956 under the Air Force, initially at battalion level (over the following years, the organization expanded to form a regiment in the mainland, battalions in three theatres of war and finally as Corps, already after the war in Africa, integrated into the structure of the Portuguese Air Force; they are currently integrated into the Army).

The military response to the chaotic situation caused by the offensive of March 15 is made with the few forces available in which the aircraft means played a relevant role in support of civilian populations and land forces, and in reconnaissance and strike flights against the rebel forces.

On April 21 the first contingent of ground forces goes to Angola which will enhance the existing units. Three days before more paratroopers had departed from Portugal to Angola by airway, and on May 8, No. 21 Paratrooper Battalion, based in Luanda, is formed.

Prior to March 15 ground forces in Angola were just two regiments, one based in Luanda, one in New Lisbon, another group of Cavalry based in Silva Porto – considering the dimensions of the territory, and in particular the area affected by actions of extreme violence, these forces were too short and were relatively displaced out of the area of operations.

The guerrilla attacks continued but not as intensely as in mid-March, now more selective or specific, such as the attack on Úcua with the massacre of 13 white, or

Quitexe on April 10, or Lucunga with massacre of civilians, among many others. The military start with the rescue operations to recover the occupied or devastated villages, suffering a few attacks such as the ambush of a column in Cólua, on April 2, where Portuguese forces suffered nine deaths, among them two officers. On April 29 a column of paratroopers drives a large group of rebels out of Mucaba in a siege on a stronghold of residents, after a fire action carried out by PV2 aircraft.

These major operations launched by ground forces, through siege and recovery of positions, as was the case with Operation Green Stone, the assault operation of Nambuanguongo, and operations in the hills of Canda and Sacandica were supported by air units of the Air Base No. 9 and the AB3 in Negage. The PV2 91st Squadron conducted 56 missions in March and 88 in April, the NORD 92nd Squadron 92 missions in March and 103 missions in April. The PV2 pilots made an average of 60 flight hours per month and the NORD pilots about 45. This flight effort would grow in a crescendo until November 1961 – in this year the PV2 flew about 3,000 flight hours, and the monthly number of missions increased to approximately a hundred (in July); the NORD reached 2600 hours (until the end of the year transported about 29,000 passengers and about three thousand five hundred tons of cargo).

In late March 4 T-6G airplanes flying from Luanda, reached the airfield of Negage. They were basic flight training aircrafts, adapted to ground attack with 7.62 m/m machine-guns, installed in outer nests, combs of 37 m/m rockets, 15 and 50 Kilos bombs, in different configurations. The armament in the external stations affected significantly the aerodynamics performance of the plane, although in parameters which were acceptable for the execution of the mission. These aircraft had radio equipment for contact with the ground forces, in FM.

On April 30 there were 4 T-6, 4 Auster and 4 DO-27 (light aircraft used for liaison and reconnaissance, capable for transport of 5 equipped military, or 440 kilos of load, and also used as close air support with nests of two 37 m/m rockets installed on the lower surface of the wings), operating in Negage by 14 pilots already in placed there.

These numbers increased gradually and at the end of the year there were 15 T-6G and 9 DO-27 in this Airfield. In the month of March the T-6 performed 22 operational missions, 72 in April and 103 in May (highest average of the year) being the majority armed recon operations. There were 11 close air support operations in April and 25 in May. The DO-27 aircraft, which in April and May were only four, performed 96 air actions in April and 161 in May, averaging about 50 hours/pilot assigned per month; and in April the DO-27 pilots there were 13, in July 18 and in November 22. The fleet of T-6G, performed 1867 hours of flight until the end of 1961, and the fleet of DO-27, a total of 3254 hours of flight in the same year. All the pilots placed on this Airfield were qualified in more than one aircraft, to support this effort of flight that the Unit was requested to make in emergency situations. These figures give a rough idea about the quick reaction to the situation, by the building up of the air power in the region. The same had occurred with other units.

The major ground operations that started in April took place at the Northern Intervention Zone (ZIN), which was established then, and included the districts of Cabinda, Zaire, Uige, Luanda, Kwanza Norte and Malange, being supported by air forces in operations of fire support, recon, logistical support including medical evacuation. In addition to these typical actions, the aircraft proceeded to interdiction operations, or independent aerial attacks, and also in air transport actions in support of the affected civilian population. All logistical support actions covered the entire territory, although the priority effort was focused on that ZIN.

Since the beginning of the deployment of the forces to Angola, an organization for joint operations was thought of. A Joint Operations Centre (CCO) was immediately proposed to be built in Luanda, at General Staff level, according to the doctrine prevailing then in NATO, manned with adequate staff personnel and equipped with communications which would allow the planning and management of joint operations. After many discussions among the General Staff and of the branches of the armed forces they reached the conclusion that this superstructure would be incompatible in face of the reality of resources available. The solution adopted was a more flexible one to establish coordination at various levels, from the Land Command and Command of the Air Region, to the air detachments placed in support of ground units - these detachments, of variable structure according to the operational situation, gave a satisfactory response to the requests of the corresponding land commands, according to the tactical, technical and logistical instructions of the Air Region Command; each detachment could not exceed the effort of flight authorized by the Air Region, which managed, obviously, the full flight hours potential.

Another initial concern was the organization of the Intelligence services, which came to be fixed by law (Law Decree of the Government of the Republic) in June 1961. The Commission for Provincial Information, the Centralization and Coordination of Information Services of Angola (SCCIA) and District Committees were created. The Provincial Committee was chaired by the Governor and included the Military Commands, the Director of SCCIA, and the Director of the Investigation Police for the Defence of the State (PIDE) in Angola. The SCCIA were the executive organization which included the research centre, the military cabinet, the political cabinet, and the civilian cabinet, the cabinet of special activities, administrative and communication services. At district level there were district sections with an equivalent composition (military, administrative, police) that were connected with the central offices above. It is important to make reference to these services, in that it reflected a global character for all the operations of war, involving not only military but also civilians - this feature was very strong in Angola at the beginning of the operations, manifested, for example, with the provision of local volunteers in defensive actions with proper armament. Initially, volunteer air forces consisting of private aircraft piloted by civilian pilots were created spontaneously and were subsequently monitored by the Regional Air Command; the civilian pilots were subject to certain military rules in nature, especially in terms of security. They constituted an

air militia and performed transport actions, recon and medical evacuation, especially of civilians.

In August two other types of aircraft come into play: the F-84G integrated in Squadron 93 and the helicopter AL II in the Transport and Reconnaissance Squadron, becoming later Squadron 94, both from Air Base No 9.

The F-84 aircraft, acquired under the “Mutual Defence Assistance Agreement”, had been put out of active service of the Portuguese Air Force in the mainland in 1961. After its phase-out it was transferred to Angola and it would be used for reconnaissance missions in the northern border and in interception missions of eventual supply convoys of the rebel forces, and detection of corridors of infiltration, interdiction missions or independent attack, or close air support to the ground forces. Apart from the internal .50 machine-guns, it displaced external stations where several types of air armament could be suspended such as 2.75 and 5 inch rocket, 50 and 200 kilos and 250, 500 and 750 pounds bombs. In August there were five planes ready for operations (transported by sea from Lisbon, but assembled in Luanda), with seven pilots assigned who flew a total of 44 missions in that month; in the following month they flew 139 missions, 66 of close air support, 14 of reconnaissance, eight border patrols in the Northern frontier, 29 of independent attack and 22 of other nature, such as demonstration flights, training or flyovers. Since October, 11 aircraft were ready. It must be highlighted the fact that the rate of readiness of the fleet was 80% in August, 77% in September, 66% in October, 82% in November and 90% in December 1961, numbers that are impressive for a fleet previously “extinct” because was reaching the end of their normal life.

Fundamentally, Squadron 93 constituted itself as an important deterrent element, both internally and internationally, apart from its relevant direct action, given its firepower. When war started in Angola news came about that foreign aviators would be available to offer their services to the guerrillas, with small aircraft that could launch attacks on major targets, escaping unscathed to sanctuaries nearby in neighbouring countries - with no air defence system to stop them, including radar coverage and interceptors, and as such aircraft would not need major infrastructures to operate, they might become powerful weapons, in particular against Air Power. This news was not confirmed in Angola, but the F84 would have been the most appropriate means to oppose, in some measure, to this menace.

The AL II was acquired by the Portuguese Air Force in 1958; on August 18, 1961 the assembly of the first two helicopters of this type was completed in Luanda, and a year later 4 more were assembled, amounting to a fleet of six aircraft until their replacement for the ALL III in July 1963. The primary mission of ALL II was medical evacuation, featuring two stretchers on the outside of the cabin - it had not a very intensive use, as compared with AL III.

One of the first concerns of the Air Force was to establish a system of communications. A fixed service in SSB was established which linked the Regional Air

Command with Negage, Maquela, Cabinda and Toto, as well as an Aeronautical HF mobile service linking the stations above with some aircraft that had this type of receivers. Air control towers operating in the VHF band were built in the airfields. All airplanes, with the exception of the F84, the NORD and C54, were equipped with VHF/FM for contact with the ground forces. The only radio aids to navigation were radio beacons installed at the main bases. A relatively obsolete radar was installed in Negage.

The operations for the recovery of the strongholds occupied by rebel forces were given as concluded by late September 1961, when the situation was considered stable with no outbreaks of lawless violence uncovered. This meant that the war would go on to have another feature, more in accordance with the classic guerrilla war paradigm.

With the completion of major operations, started in April 1961, the military had been gradually gaining control of the situation: the villages and farms were being occupied by military force, and security was being established. It was a very difficult situation, in particular because of the nature of anarchic violence. With more security, the populations were returning progressively to their homes, economic activity was returning to normal, the roads which had been cut with “abatizes” (huge tree trunks) and mines were being cleaned and bridges that had been destroyed were being rebuilt, the first being the so-called coffee road in the hills of Canda, in July. A ground forces grid was being set up, with a lot of small units in all relevant positions. Between February and late June 1961 the ground forces casualties amounted to 50 killed and over a hundred serious injuries.

Air activity continued in this period at that pace, not only in participation in these operations but also in actions of presence and logistical support to military personnel and civilians in other areas of Angola. Outside the areas where there was still no presence of Portuguese troops, the Air Force acted independently, with no need in coordinating its actions within the strategy defined by the high ranks, either through reconnaissance and patrol or by offensive actions when the objectives were considered important.

The declaration of stability towards the end of September 1961 did not obviously mean the end of military operations. The political system called the operations from that moment on, as police operations, for reasons of international political strategy, but in reality they were war operations in the form of guerrilla warfare. As noted, only the Northern Province was hit by this wave of violence that was directed from the Congo.

The fundamental difference in the military situation was in the form of action of the rebel forces: the first phase, between March and September, was characterized by massacres of civilians, with knives, machetes and “canhangulos” and the rebel forces moved in open terrain against the populations and military forces, in large fanaticized masses. It was relatively easy to detect the movements of these hordes

by aerial reconnaissance, or to detect suspicious signs of imminent attack, as it was possible to stop its advance with intimidating aerial fire. In the following stage the enemy hides in the forest and ambushes the military columns, by flogging actions against the barracks, being much more difficult to detect them; the enemy forces in presence have now a military character, with political and technical preparation, and begin using more sophisticated armament - instead of machetes and canhangulos, they start having automatic weapons, mines and shells, decreasing the attacks on the population and attacking our forces, according to the technique of hit and run, filtering through the jungle, a difficult place to penetrate by conventional military forces. However, they have other type of difficulties: the adherence of the population, estranged from ideological or political motivation, which in its majority wants peace above all, and the need of getting supplies across the border by creating corridors of infiltration with a minimum of fixed points or routes considered indispensable but detectable by air.

As mentioned, the air operations were very much oriented for visual reconnaissance, for armed reconnaissance, to attack small and very well located guerrilla targets, for close air support to ground forces, in addition to logistical support actions for the benefit of the military forces. The missions of assault with helicopters and special forces, with fire support given by the T - 6, the PV2, the F - 84, and the helicopter gunship (side fire power with 20 m/m cannon shot) were very relevant in the context of operational situation. Also the air action of tracking enemy trails, executed with helicopters and paratroopers, which consisted of discovering and tracking the infiltrators from the North, concluded by detection, arrest or attack on guerrilla groups in supplying operations was a very significant example of use of air power.

In Angola there was only one main operating air base, BA No 9, throughout all the period of war until 1975 (in Portuguese classification military airfields could be main operating airbase – BA, aerodrome bases – AB, tactical airfields – AM, and alternate or temporary airfields – AR, depending on the infrastructure, the volume of resources and the organization). There were two aerodrome bases, one in Negage, AB 3, built in 1961 as we have already seen and the other in Henrique de Carvalho, AB 4, implemented afterwards. It was yet legally established a third one aerodrome base, the AB10 in Serpa Pinto, but was never activated. In addition to these major infrastructures there were still tactical airfields (AM) and alternate airfields. Dependent on BA 9 there was the AM95 in Cabinda; AM 31 in Maquela do Zombo, AM 32 in Toto, AM 33 in Malange depended on the AB 3; dependent on AB 4 were AM 41 in Portugalia, AM 42 in Camaxilo, AM 43 in Cazombo and AM 44 in Luso. The alternate airfields were the N'Riquinha, Cuito Canavale and Gago Coutinho. From the tumultuous times of the year 1961, military operations in Angola entered a phase of routine in the Northern Intervention Zone, in that it was characterized by typical guerrilla warfare, with control of territory by the Portuguese forces.

However other movements appeared, the MPLA and UNITA, and the initial movement of UPA developed into FNLA. For political reasons, these forces moved

eastward, nearly five years after the initial operations in the North, forcing the creation by the Portuguese authorities of the Eastern Intervention Zone (ZIL) covering the districts of Lunda and Moxico. After 1966 the Portuguese forces began to confront the three movements in this ZIL, which required a redirection of effort. AB 4 was reinforced with six PV2, two of which were deployed permanently in Luso, and in 1968 it already had a Beechcraft 45 plane, 11 T-6G and 11 DO27 flying about 300 hours per month in total. The total air resources in Angola were roughly maintained, being some of them redirected to the East.

The fleet of helicopters Allouette III, which arrived in 1963, reached in 1972 its maximum number of 29 units which conducted about 4,500 flight hours per year, always attributed to BA 9 organically, but with detachments on several bases in the theatre of operations in transport actions of assault, fire support and medical evacuation.

In 1970, 5 SA-330 helicopters, PUMA, came to the theatre of operations, integrated in Squadron 94 but operating in the East; the year after the fleet is enhanced with another helicopter of this type. Until the end of 1973 they conducted on average about 1,200 flight hours per year. These helicopters were deployed in Mozambique, at AB 7, in a total of three in 1973 and five in 1974. This means a transfer of war effort along the time.

Between 1963 and 1966 a P2V5 airplane was deployed to BA 9 for air patrol, and carried out 1064 flight hours in 508 missions in the first year, 1083 flight hours in 162 missions the following year, and 200 flight hours and 39 missions in the last year of deployment (1966).

A major effort on the East front, with aircrafts diverting from other units, the introduction of the fleet of B26, in numbers of four aircraft in October 1972 and the inactivation of the F-84 the following November were the biggest differences from the start up of the theatre of operations.

The tactical airfield of Luso becomes the centre of air operations with PV2, T-6, DO27 and ALL III, stationed there or based on AB 4. The operations assumed a character of routine and the Portuguese armed forces tried to disconnect the enemy organization, which suffered many difficulties of various kinds on the ground - the first of which was the lack of unity among the three movements. The battle for development continued throughout the province, now that the necessary security measures were reached.

The war in Guinea

The war in Guinea had very different characteristics from the war in Angola, namely in the way it was initiated, in the organization of the guerrilla and in the geographical characteristics of the territory. The evidence of the existence of a rebel movement was also given by a relatively spectacular fact that was the vandalizing of the touristic infrastructure on the beach of Ponta Varela, up North, which led to the

abandonment of this enterprise. Still in 1961 an attack on S. Domingos took place which resulted in four injuries and another attack was held in Tite, opposite Bissau with a military casualty. The effort of the rebel movement was initially directed towards its internal organization, staff training of political and military leaders, for the recruitment of combatants, for its deployment on the ground, for ideological indoctrination, for military training, for the isolation of some areas cutting its access routes, with mines and abatis; in the early years of its existence, the expression of the rebel force was not very visible from the outside. The violent actions were too few. On the contrary of what happened in Angola, there was only one movement; immediately after the initial phase of rebellion, the African Party for the Independence of Guinea and Cape Verde, which initially had another name, set aside other movements with the less international support, which had meanwhile appeared, and from now on had hegemonic position.

The Portuguese air power in the province was less than rudimentary, in 1961; it consisted of a small number of T-6G and of Auster planes. In the face of potential instability, the Air Force sent to Bissau 8 F-86F aircraft and its weaponry. The “ferry” of these aircrafts, which consisted of an important operation with some risk attached to it, began on 15th August 1961, using the Spanish base of Gando, in the Canary Islands, and the airfield of Sal in Cape Verde, and was supported by P2V5, C-54 and DC-6 airplanes and by Navy vessels, in support of navigation, search and rescue and transport of support equipment. In the planning of this mission three hypotheses were considered for intermediate support points: Porto Santo – Canary Islands - Sal; Canary Islands - Sal; and in a direct flight from Montijo in mainland to Sal. For all the plans it was considered the use of four external fuel tanks, a configuration that had never been experienced earlier; the last possibility (direct flight to Sal) considered the compulsory ejection of the four external tanks during flight, after the fuel was used up, with the ultimate part of the route to be flown at 42,000 feet. At the end of the study, the latter solution was chosen, with transit through the Canaries, which was the safest solution.

These aircraft began immediately to implement actions of sovereignty with flights over the entire territory, patrol of river and land communication routes, demonstration of presence in the air, constituting themselves as a deterrent force of great importance.

In the meantime the ground forces organization was expanding, with installation of ground units, made with great caution, but with no serious difficulties during the deployment operations, besides the problems with obstacles, minefields and traps placed in their respective accesses. In a relatively small area of about 32,000 square kilometres, flat, covered with forest for the most part, cut by numerous rivers, sea inlets and channels, over eighty bases of ground forces were constituted, which number continued to increase, and over seventy air strips for the operation of light aircraft were prepared. On the contrary, the F-86F operated during its stay until mid-October 1964 (withdrawn from the theatre of war by American imposition) from

Bissau, without the existence of an alternate or emergency airfield. The Fiat G91 plane which replaced the F-86, but only in 1967, occasionally used the runway of Gabu, in the East, to extend its range of action in operations in the East and Southeast and the medium transport aircraft used regularly the air strips of Farim, Bafata and Gabu.

The first real action of air attack occurred on April 4, 1963, as an action of demonstration and intimidation, consisted in an air attack against a strip of land near a village which the enemy had isolated. The enemy hostile act that caused such action was the sail of the PAIGC flag and the shooting at an Auster airplane with light armament when overfly the tabanka (indigenous settlement) of Dar es Salaam. Immediately after this event a series of bombardments took place against targets that were very precise geographical locations where there were indications of enemy presence, selected by the General Province Government itself.

At the beginning of military operations, there was the Aerodrome Base 2 in direct dependency of Cape Verde and Guinea Air Zone (ZACVG) with headquarters at Bissau. With development of military operations, and increased air assets, this airfield gained the status of main operating air base, with the designation of BA No. 12, becoming the only base unit of the territory throughout the period of the war. Farim, Bafata, Gabu, Aldeia Formosa and Cufar were air strips with a length of approximately 700 meters. The small aviation fields had a minimum length of about 400 meters.

Given the size of the territory, the conduction of air operations was fully centralized, and only in very specific and few circumstances, temporary advanced commands as well as detachments of aircraft means were formed.

Initially, existing fleets were of T-6G and Auster, this being replaced by the DO-27 during 1964. The evolution of the fleet was in order to stabilize (1970) in the following types and quantity: 21 helicopters AL III, 24 DO-27, 3 C-47, 12 Fiat G-91, 18 T-6G, 3 NORDATLAS. The average number of pilots was around 35, each qualified in more than one type of aircraft. With this volume of means the BA 12 carried out about 30 sorties per day, with peak values higher under conditions of high frequency of military operations. For example it is noted that in 1969 BA 12 flew 17,751 hours of flight time on the performance of 5812 air actions, being about 36% air transport, 28% medical evacuation, 13% of airborne command post, 11% of pre-planned independent attack, 6% of visual reconnaissance, 3% attack in close support and 3% of surface forces covering and protection (land columns or river convoys). The plane that flew more was the DO 27 soon followed by AL III and T6; the Fiat G91 flew over 1200 flight hours per year (more than 2000 sorties), with an average flight profile of around 35 minutes. For certain periods, depending on the operational situation, a P2V5 that was in Sal in permanent deployment was sent to Bissau for bombardment activities, particularly night bombing.

The Base developed a remarkable capacity in terms of photographic recon mis-

sions, using the C-47, DO-27, and Fiat G91 equipped differently, which allowed various updated mosaics of the area of operations, according to operational needs and at a very short notice. The exploitation of information reports from Commander in Chief Headquarters upon this mosaic facilitated identification of suspect places then confirmed by visual reconnaissance. This process allowed the elaboration of a credible set of target folders and an up to date order of battle. The visual reconnaissance was, whenever possible, done systematically, following a plan, without direct association to the launching of specific operations, or it was executed in accordance with operational specific demands to confirm intelligence notices.

Beyond the reconnaissance and independent attack, the air means were used in direct support to ground forces, and in support for populations by means of transport and medical evacuation. For example the concentration of pilgrims to Mecca was made in BA12, every year, for transport from the various places of the province by military aircraft, from which they left on commercial flights.

The guerrillas, who were well armed and disciplined, and had a high operational capacity for their mission, often acted in a much concealed way through ambushes, attacks on barracks, usually at a distance with artillery, and attacks against military forces nearby and against populations that did not follow them. The most important of the guerrilla bases were located outside, near the border, constituting themselves as sanctuaries. On rare occasions the enemy acted almost in conventional form; in these circumstances they were very exposed to the air action, particularly in areas with lower forest cover.

In every theatre of operations air dominance was absolute, in the way that the guerrillas did not have air assets. However, since the beginning the guerrillas sought to counter the aerial action through anti-aircraft artillery.

In Guinea, there were several stages in the mode of anti-aircraft action. At first it was done by shooting indiscriminately against all the military airplanes (there was one case or another against civil aircraft), with individual weapons. Next came the 7.62 m/m weapons placed on a tripod. After came the guns with 12.7 m/m. The first were only effective in short distances, when the aircraft was spotted and flew at low altitude. The latter produced greater effects but were easily visible from the air, as it usually was located in clearings and firing was visible from the air with relative ease. Following this initial period when it seemed that all weapons were still pointed at aircraft, an absence of any anti-aircraft activity was noted in the whole theatre which could have been a result of general directives to avoid the detection of presence of the guerrillas on the ground. After that, the guerrillas adopted more powerful weapons, the ZPU-4 Soviet 14.5 m/m, placed in appropriate gun emplacements in areas where they intended to demonstrate its impregnability – including air space impregnability – it is unlikely that such demonstration would have produced the desired results in spite of enemy propaganda saying the opposite, since such deployment remained vulnerable, because it was easily spotted and could be subject to air attack. Along this period various aircraft were hit, including its crews but none a fatal

case. For example, in 1965 8 DO, 6 T6, 1 AL III, 2 G91 and a C47 were hit; in 1966 2 DO, 9 T6, in the 2nd semester; in 1967 5 DO, 5 T6, 3 AL III, and 2 G91; in all these cases the aircrafts were repaired at the Base. The most serious case occurred in 1968 when a G91 was gunned down and the pilot ejected successfully, leaving unharmed. The anti-aircraft guns returned again to silence at a given period, at the end of which a new offensive took place, which was followed by a new stop – from the guerrilla point of view it mattered to embarrass air activity, since it was the element of imbalance in the development of the war, but it is assumed that the use of anti-aircraft guns brought too many risks. And it is at the end of these cycles of activation / deactivation that the missile surface - air Strella arises in 1973, with very significant results within a very short time: a G91 and its pilot killed with explosion on the air, 2 G91 put down, in which pilots were ejected and were recovered, 1 DO 27 shot down with two pilots, one T6 shot down with a pilot. This version of the missile had vulnerability though: it had technical limitations in its launching, which conditioned its efficiency (at a very low altitude and distance was not very effective, and its range was around 10,000 feet), and produced a lot of smoke which allowed detection of the launching site and subsequent attack. Despite this, its introduction in the theatre of operations changed substantially the way of operating air assets and created a strong sense of insecurity.

A brief overview of the war in Mozambique

The war in Mozambique had also different characteristics from those of Angola and Guinea.

On August 24, 1964 a missionary in the Maconde plateau is murdered, stabbed to death. This action was attributed to ideological motivation and its authorship to rebellious elements of the UNA (National African Union). A month later an attack to an administrative post and to a headquarters of Mueda takes place, this time led by FRELIMO. These facts created insecurity in the Northern Province, especially in the district of Cabo Delgado, which required a specific military organization to counter this threat.

The air bases established from that time, which was progressively garnished with air assets was as follows:

- The BA No. 10 in Beira;
- The AB5 in Nacala;
- The AB6 in Nova Freixo;
- The AB7 in Tete;
- The AB8 in Lourenço Marques;
- The AM 51 in Mueda;
- The AM 52 in Nampula;

- The AM 61 in Vila Cabral;
- The AM 62 in Marrupa;
- The AM 71 in Furancungo;
- The AM 73 in Mutarara.

In 1963 there were 6 C47, 4 Nord and 4 PV2 in BA10; 9 T6, 8 DO-27 and 2 Auster in AB5.

In 1965 there were 4 Nord, 5 PV2, 2 DO-27 and 4 Auster in BA10; 5 C47, 2 DO-27 and 2 Auster in AB 8; and 21 T6, 14 DO-27 and 15 Auster in AB 5.

In the following years the AB6 was equipped with 9 DO-27, 4 Auster, 8 Fiat G91 and 8 T6; the AB 7 with 7 DO-27, 4 Auster, 8 Fiat G91 and 8 T6.

In 1967, 9 Nord, 6 C-47, 6 PV2, 24 DO-27, 16 Auster, 45 T - 6G, and 6 AL III were assigned to the 3rd Air Region, having been performed in the following year 16,368 flight hours and about 8,000 missions.

In 1970 the fleet was as follows: 35 DO, 36 T6, 25 AL III, 16 G91, 5-C 47, 8 Nord, 13 Auster, 4 Cherokee and 6 Cessna, with 102 pilots assigned. That same year 15,736 hours of flight in compliance of 10, 969 air missions were made. In 1972, 29,944 hours of flight and in 1973, 37,324 flight hours were carried out.

In 1974 there were around the theatre 5 SA-330, 27 DO, 26 T6, 31 AL III, 16 Fiat G-91, 9 Nord, 8 C47, 10 Auster, 4 Cherokee and 6 Cessna. The total number of pilots was 122, who flew a total of 25,090 hours.

These figures clearly show the trend in the allocation of resources and the progressive increment of flight effort, i.e., the intensification of the war. The allocation of aircrafts in the different bases gives also an idea about the focus of activity in all the theatre of operations.

After the start of the Cahora Bassa dam, the guerrilla crossed the Zambezi River, and established in the area of Tete, performing a series of actions which were intended to show presence, attack ground units and stops the development of the dam construction. The order of battle was thus changed and the war spread to the Western Province.

Fiat airplanes began operations in late 1968 in AB 5; a second squadron was constituted in 1970 in AB 7; detachments were deployed in AM 52, Port Amelia and AM 51 on a regular basis and they also operated in AB 6, AM 61 and BA 10.

The AL III came to achieve the total quantity of 31, which operated from AM 52, AM 51, AM 61 and BA 10, and it was the fleet that flew more in mission types identical to those of other theatres.

The Regional Air Command was based in Lourenço Marques, and subsequently the Advanced Command of Nampula was formed. There were in Mozambique 10 major civil and military airport infrastructures, (Beira-3 runways, 2400 m; Marrupa 1560 m; Mueda two runways, 2350 m; Nacala 2500 m; Nampula 2000 m; Nova

Freixo 2500 m; Porto Amelia 1800 m; Quelimane 1800 m; Tete 2500 m; Vila Cabral 2000 m), and more than 200 runways longer than 700 meters distributed throughout the territory.

The enemy had anti-aircraft artillery calibre 12.7 m/m, more concentrated in the Maconde plateau. In 1965 they hit 5 DO, 8 T6 and 1 Auster; in 1966 7 DO, 8 T6, 1 Auster, 1 Nord and 1 PV2; in 1967 they hit 14 T6, including one shot with the pilot and in 1972 5 DO-27, 11 T6 including 2 shot down, 11 AL III which resulted in the death of a pilot and a mechanic and four pilots wounded, 2 G91 and 3 Nord; in 1973 7 G-91, 3 C47 which resulted in the death of a radioman, 5 Nord, 11 DO-27, 3 T6, 10 AL III which resulted in the death of one pilot and two gunners, two pilots injured, and a C47. In the first half of 1974 they hit 11 DO-27, 3 T6, 10 AL III with death of a pilot and two gunners and two pilots injured. The acquisition of missile Strella did not produce the results obtained in Guinea, fundamentally because it was no surprise and the appropriate countermeasures had already been introduced. The worst case was that of the C-47 hit that managed to land on an emergency airfield. The aircraft was carrying foreign military attachés visiting the theatre of operations.

Air operations took place along the lines of the other theatres. The great distances between the Operational Command, the base units and areas of operations naturally hampered the coordination of air activity and cooperation with ground forces, consuming lots of flight hours in transit.

Some principles concerning the use of airpower in counter guerrilla

The preceding description aimed to support some conclusions about the use of airpower in war against guerrillas from a concrete experience.

The idea of a system, with the aircraft and the air mission in its centre, should be present in any form of employment of airpower, including counter guerrilla war. Given the continued dependency of the aircraft in infrastructures in the theatre, the first concern of those responsible for planning should be the creation of the conditions that would allow air operation in satisfactory safety conditions. The efficiency of the air power will be much dependent on the points of support in ground that will to be granted in the air operations.

The counter guerrilla war is a war of lassitude that takes so much time; it can not be solved in short term and will consume a lot of resources. As this type of war take place in remote sites, generally, the principle of sustainability should be present in a realistic view, which means availability of the necessary resources in time, readiness of operational assets, proper qualification of personnel being ready to work in the real environment, updated doctrine. In the Portuguese case a very flexible organization was put in place oriented to the concrete aspects of the mission, and some operational centres were build in the rearguard to prepare the pilots, the technicians,

the logisticians and the administrative with the necessary skills to face the situation in the overseas.

The operation and maintenance of aircraft required trained personnel to achieve the objectives imposed by the war in acceptable levels of flight safety, and not being very easy this was achieved in a satisfactory way, particularly in those units where it was possible to maintain a good framing of its staff. The roughness of the operation and maintenance required special care to avoid growing risk situations. As important as the material conditions were the psychological conditions, the psychological preparation of the combatants and the support of the Nation – the war had these two fronts, equally important.

The guerrillas cannot dispose of air power, for reasons inherent in the nature of war and because they are conspicuous, and this is one of the characteristics, among many others, that distinguishes this type of war from the conventional war. Air power, when used correctly, in this operational context, is a factor of imbalance because it explores the third dimension in an engaging form, in terms of visibility, penalty or flagellation, creating uncertainty and insecurity, and also in terms of support of populations. Competition for security of the people was one of the objectives of both parties in conflict.

The counter-guerrilla war cannot require highly sophisticated means, but most important is to maintain presence, and create insecurity to the guerrillas and populations supporting them, and at same time conquering populations through cooperative actions allowing an improvement of living conditions – in this context, air assets play an important role. It is normally said that the main objective of the guerrilla is to wear out conventional forces which is true, but the fact remains that the guerrilla also wears out if continued pressure on their forces is exerted and psychological action influences the populations cutting off support to the guerrilla, if they have an alternate way. It is also possible to degrade the will to fight on the guerrilla side, although we have to recognize that this involves remarkable costs.

The counter guerrilla demands, in a strong way, the exploitation of the characteristic of flexibility and versatility of the aerial means. For instance, in the Portuguese case, aircraft designed for maritime patrol were used as a means of ground attack, close support or medical evacuation and even transportation. Aircrafts for general transportation was leveraged for attack and recognition. Airplanes of instruction were adapted as ground attack aircraft – the T-6 was the close support airplane to the ground forces most used in all theatres, with very positive results. The tactical mobility of forces, which was achieved through helicopters, was crucial to the success of many operations; the coordination of this manoeuvre with fire support provided by conventional aircraft and jet fighters, reached levels of remarkable precision.

As demonstrated by the facts, Air Power is a factor of imbalance in guerrilla warfare, by having access to all parts of the theatre, making the creation of sanctuaries, which were indispensable to the guerrillas, very difficult, for the ability to observe,

forcing enemy to the camouflage that was never fully effective, for the inherent offensive capacity, and for the possibility of supporting populations in various domains.

In the war against guerrillas there is room for difference between joint operation and support operation, in that in the first one setting goals and conception of the manoeuvre are established by the participant forces exploring synergies resulting from the capabilities of each type of force. The support operation responds to precise requests issued by the supported units, but for this type of operation it becomes mandatory to establish performance standards that allow a better understanding of the capabilities and vulnerabilities of the air means, which results in the maximized exploration of the capabilities of the force to be in support. This difference was very important in certain conditions, despite the difficulty to be managed seamlessly.

The execution of air operations in counter guerrilla warfare placed some specific problems that can be easily overcome in our days, but there were real problems in the past. For instance, in addition to its own problems of navigation, it could be as difficult to detect enemy targets as well as the friendly forces that could be very close – with the technology available at the time this was a very difficult problem to solve, although this difficulty did not conduct to situations of fratricide fire. There were no available guided weapons, but its inexistence did not substantially affect the results of operations, given the nature of the targets, the level of training of most of the crew with very good CEP (Circular Error Probable), and the air supremacy that allowed some stability in the execution of the attack.

In counter-guerrilla warfare there is no need for very sophisticated means of combat but it is decisive to know how to exploit the potential of such resources in face of the needs of the mission.

In the Portuguese case, in the fight between the aircraft and the anti-aircraft weapons, the aircraft survived by adopting the appropriate tactics and reacting hard against the ground attackers when detected. It is said, frequently, that it was the appearance of the Stella missile that made the war end sooner. In our point of view, this analysis lacks fundamentals although it is true that the shooting of several aircraft in a very short period of time produced a very negative psychological effect, by surprise, but this did not prevent the reaction to occur which lowered drastically the initial results.

In every theatre the Air Force, in addition to participating in joint and support operations, acted independently in planning and implementation of many actions, such as was the case with systematic aerial reconnaissance in exploration of the intelligence reports, or the selective attack on the enemy positions which constituted as targets of opportunity, or in areas where it was not easy to access by land. In all theatres areas of free intervention of the Air Force were marked, where it was not required prior coordination to perform operations in accordance with high rank directives of war strategy.

The possibility of helicopter transportation of fresh troops to the scene of action, whatever was the degree of accessibility to land in that place did change the shape of warfare and was a factor in the imbalance against the guerrillas. The planning of this action required special care to achieve some surprise, and being also necessary the correspondent fire support to minimize the vulnerabilities, particularly in the moment of departure.

In the guerrilla war it is much more difficult to obtain accurate information about military targets, because the guerrilla warrior lives mixed with the population. However, this position of principle often does not correspond with reality, because as the guerrilla upgrade it creates a closer configuration to the conventional forces. And as conventional forces they become more vulnerable to the air attacks.

The war ended with the end of the political regime in Portugal, where it resulted in the formal independence of these territories, followed by a civil war for more than about twenty years in some countries. The area of cooperation that began to be developed sooner between Portugal and the new countries was precisely the military area, which seems to be relevant in a way that this had resulted from the mutual respect and recognition of the role and ethos of the warriors on both sides.

JAIME DE MONTOTO Y DE SIMÓN*

La Doctrina Aérea del Ejército del Aire hasta su integración en la OTAN

Desde antes de la creación de la Aviación Militar hasta la entrada de España en la OTAN, la Doctrina Aérea española evolucionó apareciendo ideas en diversos sentidos, según los pioneros de la Aviación consideraban que sería mejor para obtener el mayor fruto de su empleo.

La Aviación Militar nació en España por iniciativa del Cuerpo de Ingenieros. En 1.909 el Coronel de Ingenieros D. Pedro Vives Vich, acompañado por el Capitán D. Alfredo Kindelán Duany, realizó un viaje para estudiar el desarrollo de la aviación en distintas naciones europeas. De ahí surgió la creación del Servicio de Aviación el 2 de Abril de 1.910, que se integró con el de Aerostación en el Servicio de Aeronáutica Militar. Mientras tanto se habían publicado en España algunos libros sobre el particular, como *“Los aeroplanos desde el punto de vista militar”*, del Capitán de Infantería D. Celestino Bayo Lucía, en 1.910, y *“El aeroplano militar”*, del ingeniero D. Gaspar Brunet y Viadera, en 1.911. El libro del Capitán Bayo ya esbozaba sus ideas sobre la utilización de aeroplanos en la guerra.

Una Real Orden de Octubre de 1.911 permitió el reclutamiento de aviadores entre todas las Armas y Cuerpos del Ejército y la Marina. Posteriormente, el Real Decreto de 28 de Febrero de 1.913 por el que se creó el Servicio de Aeronáutica Militar ya hablaba del “Dominio del Aire” como concepto clave que justificaba la existencia de un nuevo Servicio cada vez más independiente. La adecuada reglamentación permitió que la Aviación Militar española se expandiera y desde Octubre de 1.913 pudiera enviar a las operaciones de pacificación de Marruecos una Escuadrilla operativa y luego hasta cinco unidades diferentes, desplegadas en aeródromos separados por cientos de Km. de territorio hostil.

Durante la Primera Guerra Mundial, los dos Oficiales que hasta ese momento habían encabezado las dos ramas del Servicio, el Coronel D. Pedro Vives y el Capitán D. Alfredo Kindelán, fueron sustituidos por el también Coronel de Ingenieros D. Julio Rodríguez Mourelo y el recién ascendido Comandante de Estado Mayor D. Alfonso Bayo Lucía.

Entretanto, en Italia el *Maggiore* Giulio Douhet se adelantó a su tiempo, cuando en 1.910 puso los cimientos de un pensamiento aéreo aún vigente, treinta años antes de que se hicieran realidad. Sus teorías básicas eran las siguientes: “Dominar el

* Coronel Ejército del Aire (ret).

aire significa encontrarse en condiciones de impedir volar al enemigo, conservando para sí mismo dicha facultad. Aquel que posea el dominio del aire y disponga de una fuerza ofensiva adecuada, protegerá por un lado el territorio y el mar propios de las ofensivas aéreas enemigas y negará al adversario la posibilidad de llevar a cabo cualquier tipo de acción aérea auxiliar en las operaciones de tierra y mar”.

En 1.916 el Capitán Kindelán escribió una serie de artículos en el periódico “El Heraldo de Madrid”, que luego fueron recopilados en un folleto titulado *La flota aérea española: bases para su organización*. En este mismo año se publicó “*El aeroplano en la guerra*”, del Comandante Alfonso Bayo, que abogaba por una Aviación Naval dependiente del Ministerio de Marina.

En 1.918, el Ministerio de Marina publicó *Ideas para la organización del Servicio de Aviación Naval en España*, del Comandante de Infantería de Marina D. Manuel O’Felan y Correoso. O’Felan defendía que “el servicio naval aéreo” debía ser un servicio auxiliar que dependiera exclusivamente de la Marina en todas sus partes. El 18 de Septiembre de 1.917 se creó la Aviación Naval, que a partir de Septiembre de 1.920 se llamó Aeronáutica Naval.

El 18 de Julio de 1.918 se creó la Sección y Dirección de Aeronáutica en el Ministerio de la Guerra, con lo que el Servicio ganó en autonomía y competencias. El mando del Servicio recayó en el ya General Rodríguez Mourelo. En Julio de 1.919 el General de Ingenieros D. Francisco Echagüe Santoro, relevó a Rodríguez Mourelo y se procedió a la reorganización del 17 de marzo de 1.920. Posteriormente, el Real Decreto de Marzo de 1.922 supuso un notable avance, al equiparar a la Aviación a una 5ª Arma, como defendía el Capitán D. César Gómez Lucía en su libro *Aviación* del mismo año.

El recrudecimiento de la guerra de Marruecos obligó a crear los primeros Grupos y Escuadras de Aviación. También se creó por primera vez la Escala del Aire en la cual aparecieron los distintos empleos aeronáuticos: oficial aviador, capitán de escuadrilla, comandante de grupo y jefe de escuadra, sustituyendo a las graduaciones militares que desaparecieron dentro del Servicio de Aviación.

En 1.922 un grupo de aviadores entusiastas, encabezados por el General Echagüe, el Coronel D. Jorge Soriano Escudero y el ya Teniente Coronel Kindelán, crearon la revista mensual “Aérea”, para empezar a presentar en públicos sus ideas y reflexiones sobre el mejor empleo posible de la Aeronáutica Militar. En los primeros números de “Aérea” empezaron a aparecer artículos cortos en los que los aviadores españoles pretendían extraer consecuencias doctrinales de la contienda que ellos vivían día a día en Marruecos y de las informaciones obtenidas del extranjero, empleando los términos “fuerza aérea” y “aviación independiente” y defendiendo habitualmente su empleo autónomo.

En Octubre de 1.923 se publicaron en “Aérea” dos artículos con pretensiones doctrinales. En el artículo *La Aeronáutica y el porvenir de España*, se determinaba “la cantidad y composición de las fuerzas de mar, tierra y aire” que España debía

sostener, dentro de un presupuesto compatible con nuestros medios económicos. Esta fuerza de defensa aérea era de 800 bombarderos, de los que 500 estarían con bases en la Península, 200 en Canarias y 100 en Baleares, lo que costaría menos de 100 millones de pesetas. Por esta cantidad “España, sin gran sacrificio económico y sólo por el desarrollo de su aeronáutica”, podía “convertirse en una potencia defensiva de primer orden que sea considerada con respeto por todas las naciones”.

El segundo artículo, *La Aeronáutica Italiana*, estudiaba con detalle el Decreto del 22 de Junio de 1.923 que significó la creación en Italia del *Comisariato de la Aeronáutica*, que constituía un verdadero Ministerio del Aire en todo menos en el nombre. El autor, Federico Abeilhé y Rodríguez-Fito, Comandante de Intendencia del Servicio de Aviación, proponía considerar la organización italiana como un modelo a seguir en el futuro, aunque comprendía que los medios españoles eran “relativamente escasos en cuanto a los Servicios de guerra y casi nulos en lo civil”. En Abril de 1.924, Abeilhé publicó otro artículo, titulado *La Aviación, problema nacional*, en el que explicaba sus ideas para el desarrollo de la aviación civil española y el fomento de la industria aeronáutica nacional y ponía como ejemplo las iniciativas italianas.

Douhet había escrito los primeros textos sobre el Dominio del Aire y los medios auxiliares en 1.910. En 1.921 añadía: “Hoy, después de la Gran Guerra, no tengo que modificar ninguna palabra de las que escribí hace once años: el tiempo ha confirmado mis deducciones, a pesar de que el concepto del Dominio del Aire no se haya afianzado con claridad”. En 1.923 publicó *La Defensa Nacional*, libro en el que insistía en la necesidad de crear un Ministerio de Defensa Nacional en el que la Aviación jugara el papel preponderante que le correspondía. Sus ideas fueron realizadas pocos años después, pero durante estos años, la *Regia Aeronautica* italiana había estado evolucionando y desarrollándose siguiendo las ideas de Giulio Douhet, ascendido a General, pero apartado finalmente del mando. Luego, en 1.928 se publicó la nueva edición de *El Dominio del Aire*, en la cual Douhet explicaba sin cortapisas sus ideas, después de que la historia y la evolución de la técnica hubieran empezado a darle la razón.

El 19 de Enero de 1.924 se nombró Jefe de la Aeronáutica Militar española al General D. Jorge Soriano que, como Teniente Coronel, había sido Jefe de las Fuerzas Aéreas en Marruecos.



Capitán Kindelán 1.913

El 9 de Agosto de 1.924 se convocó un curso de instrucción para formar Oficiales pilotos del Servicio de Aviación para el mando de Grupos y Escuadrillas. Como director del Curso se nombró al Teniente Coronel Kindelán, que tenía la categoría aeronáutica de Jefe de Base, máximo grado existente en la Aviación Militar española. Kindelán, fue el autor de las 24 conferencias sobre Doctrina de la Guerra Aérea, Táctica Aérea y Organización Aérea, que recogió en un libro que se editó en 1.925 y constituye el primer tratado de Doctrina y Arte Militar Aéreo redactado en España. En él proponía un plan quinquenal que elevara sustancialmente los efectivos del número de escuadrillas, desarrollara la industria nacional y produjera 250 aviones anualmente. Luego destacaba las características esenciales de la Aviación: la *universalidad* en el espacio y en el tiempo, y la *rapidez*. De ellas deducía las características de la aviación militar: *generalidad de empleo, movilidad, gran rendimiento ofensivo* en relación al coste, *utilización parcial en paz, acción política, y rapidez en la movilización*. Además Kindelán destacaba una característica especial: “*la Aviación está hecha para la defensiva estratégica*”, aunque no consideraba a la Aviación como un arma defensiva, ya que “su característica táctica es la ofensiva”. También recordaba que la Aviación era muy adecuada para la defensa del territorio nacional español, porque proporciona una economía general de fuerzas notable. Sostenía que la Aviación está hecha por naturaleza para la defensa estratégica de países como España o Italia, con largas fronteras marítimas, puesto que era idónea para el ataque por líneas exteriores y la defensa por líneas interiores. Había que crear una Aviación Independiente con misiones estratégicas propias. De aquí pasaba a defender la importancia del dominio del aire, aunque recordaba que el dominio del aire tiene limitaciones de espacio y tiempo.

Kindelán decía: “hoy nuestra potencialidad económica nos permite crear una fuerza aérea respetable y una fuerza marítima de defensa de costas suficiente para bastar a nuestra defensa. Y entonces el problema de nuestra protección de las fronteras terrestres se reduce a términos que caen dentro de nuestras posibilidades económicas”. Por otra parte, la Aviación es el arma política por excelencia, al ser la única que puede atacar en cualquier momento el corazón del territorio enemigo. Pero tampoco perdía la cabeza y recordaba que: “no se debe creer *que la Aviación es dócil instrumento para la fantasía de aquéllos que, por ignorancia o exceso de imaginación, pretenden emplear esta Arma en misiones que no la corresponden o en utopías de difícil realización*”.

Kindelán diferenciaba entre el Servicio de Aviación y el Arma Aérea: “El Servicio actúa siempre en colaboración con el resto del ejército. El Arma no; en el Arma, la aviación unas veces colabora...; otras tiene misiones autónomas, misiones que no dependen más que de la suprema dirección de la guerra, del Alto Mando en su escalón jerárquico superior, o elevándonos más todavía, del Gobierno de la Nación”. Al Arma Aérea le correspondían todas las misiones de carácter independiente, en las que “la aviación obra por su efecto destructor sobre el adversario.” Estas misiones se subdividían en “combate aéreo”, “combate aéreo terrestre” y “combate aéreo naval”.

Más adelante recordaba que el objetivo de la lucha es “la supremacía en el aire con las señaladas limitaciones de tiempo y lugar; el medio único de conseguirla: *empear sin desmayo una política ofensiva inexorable y continua contra la flota aérea enemiga, en el aire como en tierra, de noche como de día*”. Kindelán insistía en la importancia de un buen mantenimiento y una buena logística para dar continuidad a la acción aérea, ya que pueden acabar prematuramente con una campaña aérea antes de la derrota del enemigo. También recordaba que “en el aire como en el mar y la tierra, en tiempos de Aníbal como en la pasada campaña europea, la estrategia tiende a alcanzar una serie de éxitos tácticos que impongan al enemigo nuestra propia voluntad”.

Finalmente Kindelán estudiaba la organización de la Aeronáutica militar en diversas naciones (principalmente Francia, EE.UU., Rumania, Italia y Gran Bretaña) y finalizaba proponiendo la creación de un Ministerio de Defensa Nacional, que unificara los de Guerra, Marina y algunos otros servicios.

En la revista “Aérea” continuaron apareciendo colaboraciones de todo tipo sobre Arte Militar Aéreo, Doctrina Aérea y posibles organizaciones de la Aeronáutica Militar, a fin de obtener la mejor defensa nacional de España. Entre otros hay que mencionar a Vicente Balbás, Felipe Acedo, “Orellitra”, César Gómez Lucía y, muy especialmente, a Luis Manzanegue.

En Marzo de 1.926 el Capitán D. César Gómez Lucía escribió su artículo *¿Aún la Quinta Arma?*, que era un alegato en contra de la consideración de la Aviación sólo como 5ª Arma, ya que su desarrollo había sobrepasado todas las previsiones. Decía: “el aire lo envuelve todo, no puede nadie eludirle y al surgir la Aviación hay que cambiar las técnicas y decir que el dueño del aire vencerá en mar y tierra..... Ha habido pero no habrá Quinta Arma; la Aviación que antes auxilió a Infantería y Artillería ahora se les escapa. En lo sucesivo todas las Armas servirán para consolidar lo que la Aviación haya decidido...Hablar de Quinta Arma resulta un poco desfasado”.

Dos meses más tarde en “Aérea” se publicaba el juicio y condena de Mitchell en Estados Unidos y un reportaje sobre las “Maniobras de Aviación en Inglaterra” firmado por Gómez Lucía. El resultado de las maniobras demostró a los militares británicos que el primer día de guerra podía ser decisivo, y que la futura guerra se jugaría con Aviación, Supremacía Aérea y con un Ejército y una Marina expectantes, que consolidarían lo ya decidido.

En 1.926 se realizaron los tres espléndidos raids de la Aviación Militar española: el vuelo del “*Plus Ultra*”, con Ramón Franco y Julio Ruiz de Alda desde Palos (España) a Buenos Aires (Argentina); el vuelo Madrid-Manila emprendido por González Gallarza, Loriga y M. Esteve; y el de la “*Patrulla Atlántida*”, encabezada por Rafael Llorente, desde Melilla (Marruecos) a la Guinea Ecuatorial. Estos tres vuelos demostraban la capacidad que ya habían alcanzado los aviadores españoles.

Este mismo año, el Real Decreto Ley del 23 de Marzo de 1.926 producía grandes novedades en la Aviación Militar española. Se creó la Jefatura Superior Aeronáutica

dentro del Ministerio del Ejército, se establecieron las Ramas del Aire y de Tierra en el Servicio de Aviación y se creó la Escala del Servicio para los Oficiales y la Tropa; además se creó el uniforme verde oscuro de Aviación, distinto del caqui del Ejército, que llevaba en las hombreras las barras y ángulos de los distintivos de categoría aeronáutica, con las estrellas de empleos del Ejército en las bocamangas.

La nueva edición de *El Dominio del Aire* publicada en 1.928, causó verdadero impacto en las ideas y opiniones de los aviadores españoles. Esta edición fue seguida de la aparición del libro *Nociones de arte militar aéreo, esencialmente basadas en informaciones sobre Aeronáutica Militar italiana*, escrito por el Comandante de Artillería D. Carlos Martínez de Campos y Serrano, Conde de Llovera, y el Capitán de Corbeta D. Mateo Mille y García de los Reyes, agregados militar y naval respectivamente a la Embajada de España en Roma. El prólogo era del General Soriano que decía “el dominio del aire... es factor esencial para el logro de la victoria”.

En las *Nociones* se estudiaba la organización de una Aviación Militar tomando como base el modelo italiano, se analizaban tipos y características de los aviones de caza, bombardeo y reconocimiento, se trataban la doctrina y la táctica aérea, y se estudiaba la importancia de la Aeronáutica independiente que, según Douhet, ya no debía actuar como un Arma más, sino como un Ejército por separado, como el de Tierra y la Marina, concepto que los autores no aceptaban. También estudiaban detenidamente el papel de la defensa aérea y la cooperación del Ejército del Aire con el de Tierra y la Marina.

En Enero de 1.930 el Comandante de Artillería y jefe de escuadra aérea Luis Manzanque Feltrer, publicó en la revista “Aérea” un artículo titulado *La defensa nacional. La nueva doctrina de guerra*, que tuvo gran éxito. Luego, en 1.931, Manzanque publicó su gran libro *El Dominio del Aire y la Defensa nacional*, y después publicó numerosos artículos en la “Revista de Aeronáutica” de 1.932 a 1.946. En toda su obra están presentes las constantes de su pensamiento como estratega aéreo: la aparición del Arma Aérea había revolucionado la guerra, las naciones que se negaran a aceptar esta realidad lo pagarían muy caro, no era necesario efectuar grandes reducciones en el Ejército y en la Marina, pero sí era necesario crear una fuerte “Armada Aérea” como arma defensiva capaz de disuadir a los posibles enemigos de invadir España por tierra o por mar. En 1.930 llegaba a la conclusión de que se necesitaría una flota de 700 aviones: 200 “aparatos de batalla” (bombarderos estratégicos bien armados y con gran capacidad de carga y radio de acción), 300 triplazas de combate y ataque y 200 monoplazas de caza.

Todo esto debía ser posible sin desequilibrar el presupuesto nacional, “pues no hay que olvidar que la economía ha de ser el cimiento sobre el que se asiente la potencia militar de un país”. El reparto del presupuesto para la defensa “no puede ser igual para todos los países, porque la geografía, como siempre, mandará en la guerra”.

Luis Manzanque fue un “douhetista” convencido pero no extremista, que tuvo

gran éxito en la difusión de sus ideas porque sólo quería conseguir la mejor defensa nacional dentro de las posibilidades económicas de España.

Con motivo de las sublevaciones de Jaca y Cuatro Vientos contra la monarquía, el gobierno del General Berenguer deshizo la organización de la Aviación Militar. Un decreto de 8 de Enero de 1.931 suprimió la Jefatura Superior de Aviación, el uniforme verde específico de Aviación, la Escala del Servicio y sus categorías aeronáuticas, y restauró la anticuada organización de Sección y Dirección Aeronáuticas, se disolvieron las Escuadras Aéreas y se estableció como unidad orgánica superior el Batallón Aéreo.

El gobierno del Almirante Aznar mantuvo estos cambios, pero este gobierno cayó el 14 de Abril de 1.931 con la proclamación de la República, y en Julio de 1.931 se creó el Cuerpo General de Aviación, con un uniforme propio (parecido al de la Marina pero con las estrellas del Ejército), aunque no se llegó ni a la Escala única ni siquiera a la creación de la 5ª Arma, pese a las promesas del nuevo gobierno. Las dificultades del escalafonamiento fueron insuperables.

En 1.931 dejó de publicarse la revista “Aérea”, pero en 1.932 apareció la “Revista de Aeronáutica”, editada por la Jefatura de Aviación del Ministerio de la Guerra; su primer director fue el Comandante de Aviación D. Francisco Fernández y González Longoria. Éste y otros discípulos de Kindelán siguieron defendiendo sus ideas básicas: la necesidad de crear una Aviación independiente y que englobase los dos Servicios (el Militar y el Naval) que coexistían por separado, la necesidad de crear una “Armada Aérea” acorde con las ideas de Douhet – pese a que el estado de la técnica aún no había permitido la creación del bombardero estratégico tipo “Fortaleza volante”-, y la integración de la caza, la “antiaeronáutica” (artillería antiaérea, barreras de globos, etc.,...) y la defensa civil en un Sistema de Defensa Aérea. Ya en el nº 3 de la “Revista de Aeronáutica” (Junio de 1.932), un editorial titulado “*La reforma de nuestra Aviación Militar*”, pedía al gobierno que llevara a cabo la necesaria reorganización de la Aviación Militar, que incluyera “el concepto de lo que nuestra Aviación ha de ser en el conjunto de los medios defensivos de España” y que fijara “su doctrina de empleo” para, así, “decidir los efectivos y composición de nuestra arma aérea y su distribución más conveniente en el territorio nacional”.

En Septiembre de 1.931 el Capitán de Navío D. Pedro María Cardona y Prieto, ex-Director de Aeronáutica Naval, escribió en la “Revista General de Marina” su artículo *Con miras a la orgánica aeronáutica nacional. El tercer frente*, en el que atacaba a la Aviación independiente y defendía una Aviación Naval dependiente del Ministerio de Marina.

En la “Revista de Aeronáutica” de Octubre y Noviembre de 1.932 le respondió el Comandante Fernández G. Longoria desmontando todos sus argumentos en los artículos *Contestando a un ataque. Los eternos aerófobos* y *La acción aérea independiente*. Demostraba que la Aviación podía atacar “la comunicaciones marítimas con una intensidad igual o superior” que la Marina y que “la acción aérea indepen-

diente es igual o más decisiva que la naval en el aspecto de privar a una nación de elementos indispensables”. Recordaba que “la Aviación, para la misma importancia relativa, es más barata que el Ejército y mucho más barata que la Marina”. Admitía que “la Aviación en sus ataques sufrirá pérdidas; pero el efecto que sufrirá a pesar de ellas, las compensará sobradamente”. Por eso Longoria preconizaba que España pudiera disponer de una Armada Aérea eficaz como instrumento para disuadir a sus vecinos de intentar involucrarla en cualquier conflicto.

Coincidiendo con esta polémica, se publicaron los dos artículos del Capitán de Aviación D. Manuel Martínez Merino *La hidroaviación en España* (Septiembre de 1.932) y *Más sobre hidroaviones* (Febrero de 1.933), en los que recordaba que España tiene más de 3.000 Km. de costa, que “si alguna vez necesitamos el Arma Aérea, más probablemente será para combatir sobre mar que sobre tierra” y que “el Arma Aérea no debe tener sus límites en la orilla del mar”, por lo que pedía aumentar el número de hidroaviones de la Aviación Militar y señalaba que la “*Armata Aérea*” de la *Regia Aeronautica* italiana contaba con un 45% de hidroaviones.

Por otra parte, el Jefe del Servicio de Aviación, Comandante D. Ángel Pastor Velasco, pronunció el 12 de Noviembre de 1.932, en presencia del Presidente del Gobierno y Ministro de la Guerra, una conferencia en la Escuela Superior de Guerra sobre *El factor aéreo en la guerra futura*; Pastor defendió las ideas de Douhet, afirmando que “la Aviación podía llevar a cabo operaciones, con independencia absoluta, en el momento oportuno”. Luego, en Marzo de 1.933 Pastor publicó en la “Revista de Aeronáutica” su artículo *La Aviación Militar*, en el que remachaba “La Aviación es más que un Arma. ... viene a constituir una tercera fuerza armada de características tan diferenciales como las del Ejército y la Marina. ... principalmente por su capacidad para hacer la guerra aérea con independencia absoluta del resto de los elementos armados de la Nación, *operaciones que pueden conducir a la terminación de la guerra, si se cuenta con fuerzas suficientes y se emplean acertadamente*”.

A primeros de 1.933 entró en la polémica el Teniente de Navío D. Antonio Álvarez-Ossorio y de Carranza, gran piloto naval, con diversos artículos en la “Revista General de Marina” y en la “Revista de Aeronáutica”. Empezó en Enero de 1.933 con su artículo *Armada Aérea y Aviaciones Auxiliares*. Parecía que reconocía la necesidad de crear una Armada Aérea y una Aviación independiente, pero pedía una Aviación Naval, al estilo de EE.UU. y Japón. En Abril publicó su artículo *Puntualizando*, oponiéndose a lo defendido por Martínez Merino en Septiembre de 1.932 y Febrero de 1.933. Retorcía los argumentos de éste y pontificaba: “Que la Aviación naval opere en la mar o la del Ejército en la tierra es incuestionable”. Luego decía que hacía falta “el aviador marino”.

En el mismo número de la Revista le respondía Longoria en su artículo *Precisando algunos conceptos*. En él demostraba que era necesario que “el militar del aire” no fuera “el militar aviador ni el marino aviador”, sino “el aviador puro”, “que por su educación y conocimientos, por su espíritu aéreo y por su adecuada preparación estará plenamente capacitado para realizar las misiones guerreras de la Aviación

con todas las garantías de acierto”. Longoria defendía la creación de una Aviación independiente y de una Academia del Aire. Decía que “el Teniente de Navío Álvarez-Ossorio, cuya competencia, entusiasmo y cariño por la Aviación están muy por encima de lo corriente”, había llegado a conclusiones equivocadas.

En Mayo de 1.933 también Martínez Merino respondió a Álvarez-Ossorio en su artículo *Hidroaviación no es Aviación Naval*, en el que abogaba por una “Aviación de Guerra” que englobase la Armada Aérea, la Aviación para la Defensa Aérea y las Aviaciones de cooperación con el Ejército y la Marina. También recordaba que la Aviación del Ejército había empleado sus hidroaviones pilotados por Oficiales del Ejército desde la base de El Atalayón para apoyar al Ejército de Tierra en Marruecos y que “la destrucción de una escuadra en la mar es un objetivo esencialmente aéreo”. Finalmente preconizaba “el cadete aviador” “formado en una Academia o Escuela de Aviación”.



Coronel D. Manuel Martínez Merino

Álvarez-Ossorio respondía en una *Carta abierta* agradeciendo “los innmerecidos elogios de Longoria”, pero diciendo que lo expuesto por Longoria no le parecía ni atendible ni contundente, aunque terminaba “prefiero rendirle un tributo de admiración por su competencia, entusiasmo y sinceridad de sus convicciones”, ya que ambos se esforzaban “por crear un organismo útil a la defensa nacional”.

El Comandante de Aviación D. Alejandro Gómez Spencer, en sus artículos *Comentarios* de Marzo y Noviembre de 1.933 recordaba que “el dominio del aire se logra con la batalla aérea”, lo cual hacía necesario el combate en el aire y la creación de cazas de escolta de gran autonomía con depósitos adicionales lanzables. Comparando a España con Inglaterra, demostraba que necesitábamos una Fuerza Aérea mayor. También defendía la denominación “Ejército del Aire” en lugar de “Armada Aérea”, mala traducción del italiano.

En Marzo de 1.935 renació la polémica cuando el Capitán de Fragata Mateo Mille publicó en el diario “El Debate” un artículo contra la Fuerza Aérea única y Luis de Castro defendía la ineficacia del bombardeo aéreo. En Mayo Longoria publicó en la “Revista Aeronáutica” su artículo *La acción sobre el mar*; Álvarez-Ossorio

respondió en Julio con *Sobre la acción en el mar* y en el mismo número Longoria respondió con “*Contestación obligada*”, que establecía la *universalidad de empleo* de la Aviación en la guerra, ya que podía atacar los objetivos que le señalase el Mando Supremo, fuese en la mar o en tierra, con completa independencia de la Marina o del Ejército. Como Longoria decía, la experiencia demostraba que los aeroplanos podían hundir cualquier buque, luego “no hay objetivos invulnerables a los ataques aéreos” y “la aviación puede aplicarse en el mar a destruir los medios de tráfico – ya sean flotantes o situados en tierra – y atacar a las fuerzas navales organizadas y sus bases de apoyo”.

Finalmente, el Comandante Fernández Longoria escribió otros tres artículos bajo el título *Preparación de la guerra aérea*, que se publicaron en la “Revista de Aeronáutica” de Octubre a Diciembre de 1.935. En ellos detallaba ampliamente sus ideas sobre la guerra aérea, tratando de presentar una Doctrina de Empleo muy completa, en la línea de Douhet.

Durante la Guerra Civil de 1.936 a 1.939, el bando nacional escogió al General Kindelán para mandar su Aviación Militar y éste unió las Aviaciones Militar y Naval, para aprovechar dos características de la Aviación: su universalidad de empleo y su movilidad estratégica; su buen juicio y firme dirección fueron un factor decisivo en la guerra en el aire, que tuvo un influjo crucial en las operaciones de superficie. El bando gubernamental también se decidió por la unificación de los Servicios de Aviación en Julio de 1.936. Ambos bandos aplicaron la idea de una única Fuerza Aérea, que se podía dedicar a obtener el dominio del aire en una zona de operaciones, a operaciones estratégicas y al apoyo táctico a las fuerzas de superficie.

Al acabar la guerra se creó el Arma de Aviación con Escala única y, enseguida, un Ministerio y un Ejército del Aire independiente, con su propio uniforme y Academias y Escuelas propias; pero se marginó al General Kindelán, pese a que había creado el Arma Aérea unificada y la había llevado a la victoria, y se nombró, uno tras otro, a dos Ministros del Aire que no eran aviadores. Pero la doctrina era muy clara: había que constituir una Armada Aérea con capacidad para bombardear decisivamente la retaguardia enemiga, como arma disuasoria para defender la neutralidad española.

Por motivos políticos Kindelán y el Infante D. Alfonso se fueron rápidamente excluidos de la nueva cúpula aeronáutica, pero pudieron defender y difundir sus ideas.

La primera obra de Kindelán de esta época, *Mis cuadernos de Guerra*, era un relato de ésta y sus prolegómenos, pero contenía algunos detalles de doctrina, como cuando decía que la obtención del *dominio aéreo* pasaba por tres fases: “la etapa previa de *supremacía* o *preponderancia*, que no era aún el dominio, la de *adquisición* de éste y la de *ejercicio* y *conservación* del mismo”. Igualmente está clara la idea del mando único de la gran masa de Aviación. La polivalencia y la rapidez de reacción del Arma Aérea también quedan patentes en este libro.

Desde Diciembre de 1.940 hasta Marzo de 1.942, el Infante D. Alfonso escribió

en la “Revista de Aeronáutica” una serie de artículos titulada *Aeronáutica Militar. Política Aérea. Doctrina de empleo*, en el que presentaba sus ideas sobre el particular en 19 axiomas básicos. No se trata sólo de Doctrina Aérea, sino de normas de empleo del Arma Aérea, detalles de organización del Estado y del Ejército del Aire y política de personal. Los axiomas más destacables eran los siguientes:

- El Arma Aérea abre el camino a las fuerzas de superficie y las protege en marcha y en reposo.
- El territorio nacional es un vasto recinto aéreo defendido por el Ejército y la Marina que cooperan con el Arma Aérea.
- El Arma Aérea defiende el territorio nacional, ataca al enemigo en sus puntos vitales y, con la cooperación de la Marina y del Ejército, procura adquirir aeródromos mejor situados, ocupando territorios enemigos.
- Las fuerzas de superficie no pueden atacar sin supremacía aérea en la zona de operaciones.
- Todas las vías de comunicaciones son muy vulnerables por aire.
- Es más fácil bombardear un objetivo que impedir este bombardeo.
- Dentro del Arma Aérea la rama ofensiva la constituyen el bombardero y el caza de largo alcance.
- La defensa debe componerse de cuatro elementos (caza, artillería antiaérea, reflectores y red de alerta y control) bajo un solo mando.
- Las transmisiones son de vital importancia para el Arma Aérea.

Kindelán también escribió algunos artículos en la “Revista de Aeronáutica” y varios libros. En Marzo de 1.941 publicó un artículo titulado *Aeronáutica militar. Política aérea de guerra*. Luego, en Noviembre de 1.941, publicó otro artículo titulado *Aeronáutica Militar. El concepto de dominio en la guerra*. Al estudiar el Arma Aérea de otras naciones durante la guerra, decía que se habían olvidado “sus más fundamentales principios”, sobre todo el “principio de concentración”.

Para Kindelán la R.A.F. debía tener un solo objetivo primordial: la Luftwaffe. En



cuanto a la Luftwaffe, decía que “no hay aviación bastante fuerte si se dispersa su esfuerzo. Su actuación en Polonia y Noruega fue magnífica”, pero en la Batalla de Inglaterra su esfuerzo se dispersó y Kindelán preguntaba: “¿por qué no se estableció una prelación de objetivos?”; la Luftwaffe tenía que obtener: dominio del mar desde el aire, dominio de tierra desde el aire y dominio total del aire.

Luego Kindelán recordaba la importancia del dominio del aire y que ni el Ejército de Tierra ni la Marina prescindirán jamás voluntariamente del auxilio aéreo y afirmaba que “el dominio del mar puede ser ejercido desde el aire”.

Recordaba que “la Aviación tiene tres misiones de dominio: dominar el aire, dominar el mar y dominar la tierra, aunque “el dominio aéreo no es casi nunca absoluto en tiempo y espacio”. La conclusión ante la invasión de Creta era clara: antes “el intento de desembarco en una isla o archipiélago presumía el dominio del mar circundante”, pero “hoy el dominio del mar se conquista desde el aire”.

Luego, en el otoño de 1.944, Kindelán escribió su libro *La Próxima Guerra*, en el que, apoyando las ideas de Mackinder, decía: “Parece iniciarse en nuestros días la decadencia del Mar respecto a la Tierra, debido a la aparición de un nuevo instrumento bélico de incontrastable poder: el Arma Aérea”. “Con el Arma Aérea, la reacción continental ha pasado de 40 Km. de alcance a más de un millar de millas”.

Luego Kindelán insistía: “La Aviación es algo tan profundamente revolucionario que permite substituir veinte combates periféricos por una sola batalla contra el corazón del país enemigo”. “Desde que la Aviación existe no es preciso destruir el frente para vencer”.

Aceptaba los principios militares clásicos, pero advertía “Para el Ejército y la Marina de nada les sirve haberse preocupado de cuidar su *“libertad de acción”*; sin el Aire, la *“iniciativa en superficie”* no existe, la *“superioridad de elementos”* de nada sirve. Y afirmaba: “En contraposición a la dispersión en el concepto de *“Espacio”*, el desarrollo del Arma Aérea impone la concentración en el concepto de *“tiempo”*, lo cual afecta también a la *“persistencia en la acción”*. Luego presentaba su tesis básica: las guerras se ganan por una acción coordinada y armónica de Aviación, Marina y Ejército (que le parecía la tesis más razonable.)

Para Kindelán, las principales misiones del Arma Aérea eran: a) destruir la potencia aérea enemiga hasta alcanzar el pleno dominio del aire, o a lo menos marcada supremacía (la más fundamental y prioritaria). b) después proteger las industrias de guerra, los hogares y las comunicaciones contra los ataques aéreos del enemigo; cooperar con la Flota en la defensa de las rutas marítimas; cooperar con las dos Armas de Superficie en operaciones ofensivas; y atacar las industrias de guerra, transportes y bases navales y aéreas del enemigo. Kindelán añadía que, en el mar, en muchas ocasiones sólo actuaba la aviación embarcada, que obtenía victorias tácticas (con consecuencias estratégicas).

Kindelán recordaba: 1) El dominio del aire sólo puede lograrlo el Aire y es premisa indispensable de las operaciones terrestres o navales, como decía el Mariscal

Montgomery. 2) El dominio de los mares pequeños se obtiene por acción aérea. El de los océanos por acción combinada aeronaval. 3) El dominio del terreno se obtiene por la acción aeroterrestre coordinada. 4) Debido al progreso de la técnica, aumentarán la eficacia y poder decisivo del dominio aéreo.

Sobre el General Douhet, Kindelán decía “De todos los grandes doctrinarios de la postguerra, sólo él ha formulado un sistema sólidamente establecido en el conjunto y en los detalles. Su estudio es un manantial inagotable de reflexión, y su doctrina puede influir de modo decisivo sobre los acontecimientos de mañana. Profundamente clásica en sus puntos de partida y en sus métodos, llega a conclusiones revolucionarias”. Desde luego, las primeras conclusiones de Kindelán son claras y en la línea de Douhet: “a) Sobre tierra, la defensiva es aptitud fácil y económica; la ofensiva difícil y cara. b) Sobre mar sucede cosa análoga, salvo operaciones ofensivas parciales, a las que la mar se presta. c) En el aire la aptitud defensiva es imposible; la ofensiva es fácil y rinde mucho. Parece lógico adaptar las Armas (los tres Ejércitos) a las aptitudes de mayor rendimiento para cada una: la defensiva, para las Armas de superficie; la ofensiva, para la Aviación”.

Luego Kindelán precisaba otros Principios derivados:

- a) No existe más dominio indispensable que el del Aire; este dominio raramente llega a ser absoluto.
- b) La ofensiva estratégica es misión específica del Arma Aérea.
- c) El dominio del mar lo conquista y lo mantiene la Aviación.
- d) Sólo puede contrarrestarse un poder aéreo con otro aéreo.
- e) Las operaciones de bloqueo y desembarco sólo debe intentarlas quien disponga del dominio del aire.
- f) En el aire la calidad vence a la cantidad, y la precisión de efectos constituye el principal factor de eficacia.
- g) La potencia ofensiva de una Aviación varía en razón inversa a la distancia al objetivo.

Volviendo a la Batalla de Inglaterra, Kindelán decía que se desistió de cruzar el Canal de la Mancha porque se consideró que la empresa era muy arriesgada mientras no se derrotara a la R.A.F.. Además los alemanes emprendieron la batalla con un concepto erróneo y medios inadecuados, ya que consideraron que se trataba de combates accesorios para preparar la acción principal, reservada al Ejército de Tierra. Pero se trataba de la acción principal, de la “batalla decisiva”; ganada la batalla aérea, la invasión era una empresa fácil, de éxito seguro; perdida, de nada serviría la formidable máquina de guerra alemana. Le faltó a la Luftwaffe una doctrina lógica y la fe para seguirla hasta el fin. No se emplearon los aviones adecuados, ni donde era debido, ni como era debido, ni cuando era debido. Kindelán también estudiaba el desembarco en Normandía y citaba las palabras del mariscal Montgomery: “Si se logra coordinar las Fuerzas de Tierra y de Aire, nada puede resistirlas y no se puede jamás perder una batalla”.

En 1.945 se publicó un nuevo libro de Doctrina Aérea, titulado *El Arma Aérea. Empleo Táctico*. El libro estaba escrito a principios de 1.944 por el ya Coronel Mata Manzanedo, que en Marzo de 1.942 había escrito en la “Revista de Aeronáutica” un artículo titulado *¡¡Sorpresa...!! Aviación*, en el que hablaba de cómo las cualidades de la Aviación permitían la sorpresa en sus tres variantes, estratégica, táctica y técnica.

En su libro Mata presentaba entre otras conclusiones: 1º El Arma Aérea, imprime a toda batalla de importancia un carácter tridimensional. 2º La Fuerza Aérea puede alcanzar a toda la fuerza terrestre o naval, a menos que esté protegida por su propia Fuerza Aérea.

Las acciones aéreas por él enumeradas tienen por objeto *conquistar y conservar el dominio del cielo*. Para Mata, las características del avión le otorgan la *universalidad de empleo* y “su acción por excelencia es la ofensiva: a) *En el espacio*: porque todos los objetivos enemigos comprendidos en su *radio de acción militar* resultan vulnerables a sus ataques. b) *En el tiempo*: porque su acción permite al enemigo sin saber qué punto será objeto del ataque. c) *En potencia*: porque la dispersión de las bases no es obstáculo para que “formen masa” en el aire.

Para Mata, al aparecer el explosivo nuclear, con un solo avión atacante que pase es suficiente para producir efectos demoledores, de consecuencias estratégicas. Por eso “el Arma Aérea ha de emplearse en masa, empeñándose ofensivamente, desencadenando una acción potente, para producir grandes efectos en el menor plazo y, en todo caso, anticipándose a las actividades similares del enemigo”. Hay un orden de urgencia en la ejecución de las misiones del Arma: 1º Destrucción de la potencia aérea del enemigo. 2º Cooperación con las fuerzas navales para la protección de las rutas marítimas cuando el abastecimiento del país se realice fundamentalmente por estas vías. 3º Cooperación con las fuerzas terrestres y navales en sus operaciones ofensivas. 4º Ataque a los recursos de todo orden del país enemigo.

Mata consideraba que el Arma Aérea debía estar dividida en tres componentes: *Armada Aérea* o Aviación de empleo estratégico, *Aviación de cooperación con el Ejército de Tierra* y *Aviación de cooperación con la Marina*.

Al igual que el Coronel Mata, muchos discípulos y seguidores de Kindelán presentaron sus ideas en la “Revista de Aeronáutica”. Durante 1.942 y 1.943 el ya Teniente Coronel Manuel Martínez Merino expuso sus ideas sobre Doctrina y Arte Militar Aéreos. En Mayo de 1.942 publicó un artículo titulado *Estudios sobre un cadáver*, que era un análisis sobre la derrota de Francia en 1.940: después de que la Luftwaffe había sabido conquistar el Dominio del Aire sobre Francia, la *Wehrmacht* no había tenido problemas en derrotar al ejército francés y ocupar la Francia continental. El tiempo había dado la razón a los “douhetistas”.

En Octubre de 1.942 Martínez Merino publicó su artículo *Aeronáutica Militar.- Cooperación con el Ejército de Tierra*, en el que exponía sus ideas contra las tesis de los “ultra-douhetistas”, que consideraban que esta aviación debía suprimirse por

completo en beneficio de la Armada Aérea. Eso sí, cada Aviación de Cooperación tenía que estar bajo el mando de un General del Aire, que debía estar en los Cuarteles Generales del Ejército de Tierra y de la Marina respectivamente.

En Mayo de 1.943, el ya Coronel Martínez Merino publicó otro artículo titulado *Las Grandes Unidades Aéreas*, en el que fijaba las misiones de los Cuerpos de Ejército del Aire.

Poco después, en Octubre de 1.943, Martínez Merino publicó otro artículo, titulado *Aviación sobre el mar y Aviación de cooperación con la Marina*, en el que daba por sentado “la necesidad que tiene la Marina de la cooperación aérea”, y añadía: “ni aun en el supuesto de una Marina con Aviación propia, puede desentenderse el resto de la Aviación del cometido de apoyarla”, “cuanto menor sea una Marina, más necesitará el apoyo del Aire” y “para disponer del dominio del aire, necesario a la Marina como al Ejército de Tierra, será necesario acudir al Ejército del Aire”.

Finalmente, en Junio de 1.944, Martínez Merino publicó su artículo *Necesario repaso a Douhet* en el que decía: “Tan fuera de la realidad nos parecen los que esperan que las doctrinas de Douhet llegue a aplicarse al pie de la letra, como los detractores furibundos que en su fobia quieren negar a la Aviación capacidad para destruir ciudades, hundir barcos o abatir la moral de la retaguardia”. Pasaba revista a la situación de la guerra en Octubre de 1.943 diciendo que todo iba según las previsiones generales de Douhet y además recordaba que Douhet había escrito para Italia, que era un país con condicionantes específicos y que había dicho: “Si yo estuviera pensando en un conflicto entre EE.UU. y Japón, no llegaría a estas mismas conclusiones”.

Puntualizaba que Douhet había dicho: “No debemos preguntarle a Napoleón qué hizo, sino qué hubiese hecho si se encontrase en nuestros tiempos y en *nuestras circunstancias*”. También había escrito: “Se dice a menudo que el mejor medio de defenderse es atacar. En el dominio aéreo esto es cierto de una manera más absoluta. En él *el único medio* de defenderse es atacar”. Douhet también decía: “Conquistado el dominio del aire, la Armada Aérea victoriosa podrá proporcionar amplios medios auxiliares a su propio Ejército y a su propia Marina”.

En el Pacífico ya no se libraban batallas navales, sino “*batallas aéreas*” o aeronavales. Pocos días después de publicarse su artículo en la revista, el éxito de la invasión de Europa y el desembarco en Normandía bajo el “paraguas aéreo” aliado demostraron que Douhet y Martínez Merino estaban en lo cierto.

Después de la victoria aliada, la doctrina española se mantuvo con los mismos principios básicos, pero con los matices de la USAF y la R.A.F. Durante 1.946 el Coronel Martínez Merino escribió en la “Revista de Aeronáutica” varios artículos sobre cooperación bajo el epígrafe *Arma Aérea*. El primero fue *El Ejército del Aire en las batallas de superficie*, en el que enumeraba las misiones del Ejército del Aire: a) Destrucción del poder aéreo enemigo, atacándole en sus bases, en el aire o en sus fábricas, consiguiendo así el dominio del aire. b) Protección del territorio nacional contra los ataques aéreos. c) Atacar el interior del territorio enemigo. d) Cooperar

con el Ejército de Tierra en todas sus operaciones. e) Cooperar con la Marina en las operaciones navales. Todo muy douhetiano.

Hacía un estudio histórico sobre la Segunda Guerra Mundial en el que recordaba cómo “la curva de los éxitos y de los fracasos” coincidía exactamente en los dos bandos con la del dominio aéreo. Recordaba que Churchill, después del fracaso de la campaña en Noruega, reconoció que su inferioridad frente al poder aéreo enemigo había sido suficiente para justificar la retirada de la Escuadra inglesa, y que Gran Bretaña se había dedicado a desarrollar su fuerza aérea de un modo frenético, dado su retardo inicial frente a Alemania.

Por su parte los Estados Unidos habían adoptado el lema “La victoria se conseguirá en el aire”, y la Aviación Militar estadounidense, creció enormemente y desarrolló una Aviación Estratégica que realizó sus misiones sobre Europa con arreglo a las doctrinas de Douhet y de Severski, hasta conseguir aplastar a la Luftwaffe en colaboración con la R.A.F.; por otra parte creó sus Fuerzas Aéreas Tácticas para apoyar a las fuerzas de tierra.

Martínez Merino resumía la campaña del Pacífico diciendo que había sido la lucha por la ocupación de una serie de bases aéreas necesarias para llegar a poder atacar el territorio metropolitano del Japón. Se habían realizado numerosos desembarcos navales y aéreos, cuyo éxito estuvo asegurado siempre que se contó con la supremacía aérea.

En el siguiente artículo titulado *La Aviación y la guerra en el mar*, repasaba todas las acciones navales de alguna importancia. Señalaba que los ingleses habían estado a punto de perder la Batalla del Atlántico y que sólo la ganaron gracias a la mejora de la capacidad y del radio de acción de los aviones del Mando Costero de la R.A.F.. Recordaba que en el Mediterráneo no había habido grandes enfrentamientos directos entre las Flotas de batalla italiana y británica, sino golpes de la Aviación embarcada británica en Tarento y de los hombres-rana italianos en Alejandría, para reducir estas Flotas; la verdadera lucha había sido por los convoyes de abastecimiento.

Sobre la guerra en el Pacífico recordaba que no había habido grandes batallas navales, sino aeronavales. Después las fuerzas de superficie desembarcaban en una isla para adelantar el despliegue aéreo y siempre la conquistaban si contaban con la supremacía aérea. Los desembarcos en el Mediterráneo y en el Pacífico habían proporcionado una experiencia valiosísima a los aliados, que así pudieron desembarcar con éxito en Normandía y en Provenza, bajo la protección de la Fuerzas Aéreas aliadas. La experiencia de estas enormes operaciones con fuerzas de Tierra, Mar y Aire bajo un mando único, habían llevado a los Estados Unidos a crear la Junta de Jefes de Estado Mayor en Washington.

En el siguiente artículo, titulado *Intervención del Poder Aéreo en la guerra en el mar*, Martínez Merino recordaba que la aparición del Arma Aérea había producido diversas batallas aeronavales, llamadas “batallas aéreas” por los japoneses, en las que la mayoría de las flotas de combate no habían llegado al contacto balístico ni, habitualmente, al contacto visual.

Martínez Merino sacaba una conclusión clara: “la participación de la Aviación en todos los cometidos de acción sobre el mar, se ha manifestado también como resolutive” y que en el mar, como en tierra, “ninguna acción será ya posible sin la intervención aérea y sin el dominio del aire”.

Finalmente, en Diciembre de 1.946, Martínez Merino publicaba su artículo *Análisis de algunas doctrinas de guerra aérea*, publicado primero en la revista “Ejército” y reproducido en parte en el número de Junio de 1.946 de la “Military Review” estadounidense. Empezaba por definir el objeto de las doctrinas de guerra aérea, luego pasaba revista a las doctrinas aéreas que consideraba más revolucionarias y discutidas, luego veía sus aplicaciones o sus repercusiones en la última guerra y, finalmente trataba de deducir las directrices generales de las futuras doctrinas de guerra aérea.

Recalcaba que Douhet no había formulado su doctrina con carácter general, sino específicamente para Italia; detallaba las “características probables de las guerras futuras” que Douhet había predicho y los principios de doctrina que había deducido de sus observaciones. Terminaba diciendo que la historia le había dado a Douhet la razón en la mayor parte de sus puntos.

A continuación pasaba revista a las ideas del General William Mitchell. Detallaba las ideas directrices de su doctrina, y finalizaba con algunas frases muy significativas como: “La potencia aérea es el factor decisivo en nuestra defensa en el Pacífico. Sin ella, tanto cualquier intento de apoderarse de nuestras posiciones como el de proteger nuestra propia nación contra un enemigo, serán infructuosos”.

Posteriormente pasaba revista a las ideas de Alexander de Severski. Entre las frases de Severski, Martínez Merino destacaba: “si nuestra estrategia en el Pacífico se hubiese fundado en un predominio del poder aéreo, hubiéramos podido responder a la agresión del Japón lanzando inmediatamente sobre sus islas toda nuestra potencia aérea de bombarderos”. “Indudablemente nuestro dominio en el Pacífico debe estar basado en una estrategia aérea”.

Después Martínez Merino demostraba la conveniencia, desde el punto de vista económico, operativo y doctrinal, de tener toda la aviación reunida en un Ejército del Aire, aunque luego éste pudiera dedicarse al apoyo y cooperación con las fuerzas de superficie. También reiteraba la conveniencia de un mando supremo interejércitos en cada batalla o en cada teatro de operaciones, que podía ser un alto jefe del Ejército, de la Marina o del Aire, en cada caso. Douhet pedía un “Ministerio Único de las Fuerzas Armadas” y Martínez Merino citaba al Mariscal Montgomery, que decía “La victoria aérea es la clave de la victoria terrestre”.

Después Martínez Merino presentaba las organizaciones de las Fuerzas Aéreas de varios países (Alemania, Inglaterra, Estados Unidos, Rusia, Francia, Italia y Japón). Para finalizar se atrevía a establecer un nuevo concepto general: “Cada día más, el cielo será quien dé o quite la victoria”.

Finalmente, Martínez Merino publicó en 1.948 su libro *Arte Militar Aéreo*, en el

que recopilaba y desarrollaba las conferencias que había impartido en los cursos para generales en la Escuela Superior del Ejército.

En la introducción, Martínez Merino dice que “la guerra moderna ha de considerarse en su aspecto integral” y que “es indispensable la unidad de mando”. La guerra será total, ya que hasta la retaguardia será un frente de combate. Como consecuencia, “en el Arte Militar, todo ello no será sino la coronación de un cambio profundo que se venía incubando desde la aparición del aeroplano”. La guerra tridimensional crea “ese nuevo Arte Militar”, que abarca la guerra total, los tres Ejércitos integrados en una sola Fuerza, y una estrategia única.

En el capítulo *Doctrinas de Guerra Aérea*, Martínez Merino recuerda los principios fundamentales: *voluntad de vencer*, *acción de conjunto*, *libertad de acción* y *economía de fuerzas*, que considera “eternos” y “universales” y también menciona otros, menos fundamentales o derivados de los anteriores.

A continuación estudia las doctrinas de guerra aérea de Douhet, Mitchell y Severski. De Douhet, puntualiza que éste buscaba soluciones para Italia “y en el marco de los recursos y necesidades de Italia”, por lo que no se debe “tratar de aplicar íntegramente o trasplantar sus ideas a todos los países del mundo”. Luego presenta la evolución de sus escritos. Para él, Douhet había acertado plenamente en sus ideas sobre: guerra total, triunfo por el dominio del aire, posibilidad de adquirir este dominio, grandes ofensivas aéreas, destrucción total de ciudades, necesidad de crear el Ejército del Aire, unidad de acción de los tres Ejércitos, defensa aérea por el ataque aéreo y no limitación del empleo de los aviones por convenios internacionales.

Al estudiar los escritos de Mitchell, recordaba su experiencia como aviador y su demostración de que las bombas de aviación adecuadas podían hundir a un acorazado. Resumía su doctrina en: la Aviación se debía separar del Ejército y de la Marina; había que crear un verdadero poder aéreo en EE.UU. y preparar grandes Unidades de Aviación de bombardeo estratégico de gran radio de acción; y había que basar la estrategia americana, especialmente en el Pacífico, en una poderosa Aviación.

A continuación estudiaba la doctrina de Alexander de Severski, que resumía en: el Arma Aérea ha modificado profundamente los principios tácticos y estratégicos; sólo una potencia aérea puede llevar a cabo una guerra ofensiva y ganar así la guerra; la Aviación es la única de las tres Fuerzas que puede operar independientemente y además puede apoyar a las otras dos; no es posible ninguna operación importante de superficie sin apoyo aéreo; el poder aéreo debe tener la primacía en la nueva estrategia; sólo un poder aéreo puede vencer a otro poder aéreo. Además, Severski decía: “para una victoria definitiva sobre el Japón, necesitamos imponerle un bloqueo de tres dimensiones, valiéndonos del poder aéreo”.

Finalmente Martínez Merino analizaba en conjunto los puntos fuertes y los errores de las tres doctrinas. Consideraba que había, sobre todo, cinco puntos comunes a todas ellas: a) *La guerra será total*; b) *Es posible obtener el dominio del aire*; c) *El dominio del aire garantizaba el triunfo y la victoria era imposible sin el dominio*; d)

Era posible llevar a cabo grandes ofensivas aéreas y lograr la destrucción total de ciudades, centros y moral enemiga y la Aviación podía conseguir la decisión por sus medios; e) La Aviación debía formar un Ejército independiente de Tierra y Marina: el Ejército del Aire. Las aviaciones auxiliares, Naval y de Ejército, deben desaparecer.

Cuando estudiaba las diferentes organizaciones aéreas, Martínez Merino puntualizaba que, la Luftwaffe era una Aviación independiente, con su propio Ministerio del Aire, pero estaba consagrada al apoyo al Ejército de Tierra y carecía de mentalidad, doctrina y material para ser una aviación estratégica, como se había puesto de manifiesto en la Batalla de Inglaterra. En cambio la R.A.F. había aprendido a lo largo de la guerra y modificó su orgánica y su material según vió que era necesario hacerlo. En Estados Unidos la evolución había sido mayor y se había creado no sólo una Fuerza Aérea independiente, sino también un Presidente de la Junta de Jefes de Estado Mayor y un Ministerio de Defensa. Después hacía algunas predicciones sobre el futuro, bastante acertadas y prudentes.

Como vemos, la doctrina del Ejército del Aire en esta época era básicamente douhetiana, aunque se careciera de medios para ponerla en práctica. El material del Ejército del Aire estaba constituido por una especie de “museo volante” de principios del II Guerra Mundial, con aviones cada vez más anticuados y que casi no podían volar por falta de repuestos y gasolina. Básicamente contaba con el Me-109 como avión de caza y el He-111 como bombardero, y ambos remotorizados con motores británicos.

Tras los acuerdos con EE.UU. en 1.953, la Doctrina Aérea del Ejército del Aire español estuvo claramente influida por la correspondiente doctrina de la USAF, lo cual constituye un contraste con la política general de defensa del Gobierno español y con la capacidad del Ejército del Aire, que sólo podía colaborar en la defensa aérea de la OTAN en Europa, y poseía una mínima capacidad de apoyo táctico, pero seguía considerando que lo esencial de la doctrina aérea era la capacidad de destrucción del poder y el potencial aéreo enemigos.

En la *Enciclopedia de Aviación y Astronáutica*, editada en 1.972, el entonces Comandante de Aviación D. Rafael González-Granda Aguadé, decía que la base de la doctrina aérea estaba constituida por los siguientes postulados:

1. Las características más acusadas de las fuerzas aéreas son: gran radio de acción, velocidad, movilidad, flexibilidad y capacidad de penetración. Otros de sus contemporáneos destacaban la rapidez de reacción, la flexibilidad de empleo, la capacidad de penetración y la potencia.
2. Las fuerzas aéreas ejercen una influencia decisiva en todos los aspectos de las relaciones internacionales.
3. Las fuerzas aéreas son indivisibles; es decir, para que sus características se exploren al máximo, deben ser empleadas en todos los escalones como un instrumento indivisible.

4. Las fuerzas aéreas se deben emplear primordialmente para conseguir y explotar el dominio del aire.
5. En caso de guerra, la neutralización de la capacidad destructora de las fuerzas aéreas enemigas es de vital interés.
6. La existencia de fuerzas aéreas de defensa, organizadas en tiempo de paz, es indispensable para la seguridad nacional.
7. En la guerra, el dominio del aire eleva el concepto de seguridad de todas las fuerzas militares en acción.
8. Las fuerzas aéreas poseen capacidad para conducir operaciones militares contra todos los componentes del potencial enemigo.
9. El esfuerzo aéreo debe repartirse cuidadosamente entre los diversos tipos de operaciones.
10. Las fuerzas aéreas deben emplearse continuamente en la obtención de información.
11. El término *poder aéreo* comprende la total capacidad aérea de una nación y su *potencial aéreo* puede cambiar radicalmente la marcha de una guerra.

Por otra parte, la doctrina española de esta década, aplicable a los tres Ejércitos y a las acciones conjuntas, comprendía seis principios. Tres de ellos se consideraban fundamentales: Voluntad de vencer, Acción de conjunto y Sorpresa; los otros tres eran derivados de aquéllos: Libertad de acción, Aprovechamiento del éxito y Economía de fuerzas.

En los años 80 y posteriores, tras la entrada de España en la OTAN, la Doctrina Aérea del Ejército del Aire estaba constituida básicamente por la IG-00-1 sobre Doctrina Aeroespacial, que es un fiel reflejo de las siguientes publicaciones OTAN: ATP-27B (Operaciones Ofensivas de Apoyo Aéreo), ATP-33 (Doctrina Aérea Táctica), ATP-34 (Apoyo Aéreo Táctico de Operaciones Marítimas), ATP-40 (Doctrina y Procedimientos para el Control del Espacio Aéreo en la Zona de Combate) y ATP-42 (Operaciones de Superioridad Aérea), que también se desarrollan en las Normas para el Apoyo Aéreo a las Fuerzas Terrestres (NAAFT) y las Normas y Procedimientos para las Operaciones Armada-Aire (NPOAA).

Después de la integración de las Fuerzas Armadas españolas en la estructura de la OTAN, España ha cesado de tener una Doctrina Aérea propia para adoptar la de la OTAN.

En Marzo de 1.999 el Capitán de Aviación Manuel de la Chica Camúñez y el Teniente de Aviación Bayardo Abós Álvarez-Buiza formaban parte de un grupo de ataque de la OTAN, formado por más de 50 aviones aliados, dentro de la operación ALLIED FORCE sobre Kosovo. La formación aliada atacó objetivos con bombas láser de precisión, protegió con contramedidas a los caza-bombarderos, mandó cazas a hacer CAP sobre puntos de escape y coordinó reabastecimientos en vuelo. Después de varios ataques similares el gobierno serbio no dudó en modificar su actitud y

aceptar las condiciones de paz de la coalición internacional. Finalmente el Ejército del Aire español había realizado bombardeos estratégicos, alcanzando los objetivos que tradicionalmente se asignarían a una Armada Aérea: obligar a un gobierno a capitular y aceptar un cambio radical en su política. Estos ataques obtuvieron una victoria estratégica porque se disponía del personal (pilotos, mecánicos, armeros, controladores, etc.,...) perfectamente adiestrado, de un material adecuado como el F-18 (capaz de actuar como avión de ataque), y a que se hizo buen uso de las enseñanzas de los pensadores que durante más de 75 años habían defendido la correcta doctrina aérea para el Ejército del Aire.

THEAN POTGIETER* - DERMOT MOORE**

The South African Air Force: Historical Notes and Involvement in the Korean War

The South African Air Force (SAAF) has celebrated its 90th birthday in 2010, making it one of the oldest independent air forces in the world. The SAAF has a long and celebrated history, while South African pilots have build up a reputation as of the finest in the world. When the Union Defence Force (of South Africa) was created in 1912 provision was made for a flying core, called the South African Aviation Corps or Zuid-Afrikaanse Vliegenierskorps.¹ In 1913 the first ten South Africans underwent pilot training in Kimberley. Just before the outbreak of the First World War, in 1914, five of them then went on to complete pilot training at the Flying School of the Royal Flying Corps in Uphaven, Britain. During the First War South African pilots performed exemplary service in the Royal Flying Corps and in the Royal Naval Air Service. They participating in most phases of the war and served in such diverse theatres as the Western Front, Southwest and East Africa, Russia, the Western Dessert, Gallipoli and Palestine. In the process they achieved much distinction – for example Captain A.W.B. Proctor is credited with 41 kills, while C. (“Boetie”) Venter with 22 kills.²

Even before an own air force for South Africa was created, South African pilots have therefore made their mark. In the decades to follow the SAAF build up a good record during various wars and conflicts, and when South Africa experienced a process of political and military transition in the 1990s, the Air Force became a force the new nation can be proud about. The purpose of this article is to briefly narrate the history of the SAAF and to illustrate its commitment and operation proficiency with reference to a brief period during its involvement in the Korean War.

Creation and founding years

The history of the South African Air Force (SAAF) dates back to 1920. Its origin is probably in a meeting between General J.C. (Jan) Smuts (SA Prime Minister and member of the Imperial War Cabinet) and Lieutenant Colonel H.P. (Pierre) van Rynveld in London in 1919, where they discussed the need for an air force.³ The

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¹ K.A. Maxwell and J.M. Smith, *SA Air Force Golden Jubilee Book*, SAAF, 1970, p. 14.

² *Ibid.*, pp. 18-19.

³ *Ibid.*, p. 20.

new entity was created as the Air Services of the Union of South Africa Defence Force on 1 February 1920 after Britain donated about 100 First World War vintage aircraft (including 48 DH9s, 30 Avro 504s and 22 SE5s) with workshop machinery and spare parts, to South Africa. Consequently Pierre van Ryneveld (later General Sir Pierre Van Ryneveld) was appointed at its head as Director Air Services and the service was listed as a Permanent Force unit on 1 February 1923.⁴ Van Reyneveld had an outstanding career in the Royal Flying Corps during the First World War, was well respected as a leader and, amongst others, saw deployment in Egypt, Palestine and Salonika before commanding 78 Squadron (Home Defence) in Britain, one of the first night-fighter units, as well as the 11th Army Wing.

Sadly, the new air force's first operational experience was internally as it was used against striking gold miners on the Witwatersrand in 1922. When the strikes turned violent, General Jan Smuts (South African Prime Minister) declared martial law and used the air force to bomb the miners' positions. Two aircraft were shot down (killing two crew members and injuring two others). Shortly afterwards (in 1922, 1925 and 1932) it also played an important part in suppressing ethnic rebellions in the former German Southwest Africa (currently Namibia). Amongst these clashes was the infamous crushing of the Bondelswarts revolt in southern Namibia, which led to internal and international criticism for the Smuts government.

In the next challenge the SAAF had to face it came of second best. In line with the global depression of the time its budget was severely slashed in the early 1930s, which resulted in a substantial scaling down. However, as the maintenance of an air force was still regarded as important to South Africa, some progress still took place. Pilots were kept active (by even doing crop spraying) and a Central Flying School was established at Swartkop in 1932 which was the beginning of long professional tradition.⁵ After the economic recovery in 1936 government approved the creation of a reserve of 1000 pilots and 1700 mechanics to be trained over the next six years, while new bases were created in Bloemspuit, Durban, Waterkloof and Cape Town.⁶

The Second World War and its aftermath

The Second World War caught the SAAF by surprise. At its outbreak it had a mere 1500 men. Though it had 104 aircraft, only eight of these (six Hurricanes, one Fairy Battle bomber and one Blenheim bomber) were up to date.⁷ These shortcomings were quickly addressed and top priority was given to training and equipment. At the war's height in 1944 SAAF was at a peak with 45 000 members (including

⁴ L. Steyn, *A short history of the South African Air Force, 1920-2010*, Unpublished brief history, SAAF Museum, Pretoria, 2010, p. 1.

⁵ H. Heitman, *Die Suid-Afrikaanse Krygsmag*, CNA, Johannesburg, 2001, p. 53.

⁶ *Ibid.*

⁷ P. Moorcraft, *Africa's Super Power*, Sygma/Collins, Johannesburg, 1981, p. 134.

6500 Women's Auxiliaries), had 35 operational squadrons and operated 33 different aircraft types. As part of the Allied Joint Air Training Scheme, more than 33 347 pilots were trained at the 38 air schools set up around Southern Africa. Of these 12 221 flew for the SAAF while many South Africans also served in the British Royal Air Force.⁸ Operationally a high priority was awarded to control over the vital sea route around the Cape. The SAAF provided valuable assistance to naval units in keeping the strategic shipping lanes clear of Axis warships and submarines and flew more than 15 000 coastal patrol missions during the war. The SAAF first went into action against the Italians in the Horn of Africa (Abyssinia), moving from there to the Western Desert theatre in North Africa. In Abyssinia SAAF set about neutralising the Italian air force in the area (Italy was then part of the Axis Forces) flying 5000 sorties, destroying 71 enemy aircraft in combat and at least 70 in attacks on airfields, while their losses were 79 pilots and aircrew dead and 5 missing in action.⁹ South African pilots established a reputation for valour and determination and their valuable contribution to the Desert Air Force (North Africa) in 1942 can be judged from the fact that on D+1 of the El Alamein attack, No 3 Wing of the SAAF flew 133 of the 174 bomber sorties, while the four fighter squadrons flew 1 377 sorties (106 a day) between 19 and 31 October.¹⁰ In addition the SAAF also made vital contributions to the campaigns in the Mediterranean, the Balkans, Italy and flew very demanding missions, parachuting supplies to the Polish Home Army in Warsaw during August and September 1944.

As a result of the altered strategic situation after the end of the war, the Russians closed all access to West Berlin in June 1948 and the vast amounts of provisions the city required had to be provided by air. From October 1948 onwards 20 SAAF aircrews joined other air forces in the "Berlin Air Bridge" (which lasted into 1949) flying thousands of tons of food and coal into Berlin.¹¹

The Korean War

After open conflict broke out in Korea in 1950 the South African government availed 2 Squadron of the SAAF (with 49 officers and 157 airmen) to serve with the United Nations forces in Korea. The "Flying Cheetahs" as they were called, left South Africa on 27 September for the Johnson Air Force Base in Tokyo, where they converted to F-51D Mustangs before travelling on to Korea. In 1953 they traded their surviving Mustangs for the F86F Sabre.¹² During the Korean conflict the Flying Cheetahs carried out 12 405 operational flights with Mustang and Sabre aircraft while aircraft losses amounted to 79. In total 826 South Africans served in Korea, of

⁸ H. Heitman, *Suid-Afrikaanse Krygsmag*, p. 57.

⁹ K.A. Maxwell and J.M. Smith, *SA Air Force Golden Jubilee Book*, p. 42.

¹⁰ H. Heitman, *South African Armed Forces*, Buffalo Publications, Cape Town, 1990, p. 55.

¹¹ P. Moorcraft, *Africa's Super Power*, p. 138.

¹² H. Heitman, *South African Armed Forces*, p. 57.

whom 34 pilots and two ground personnel were killed and eight became prisoners of war.¹³ The South Africans could claim to the destruction of, among other things, 18 tanks, 160 artillery pieces, 120 anti-aircraft guns, 615 vehicles, 4 locomotives and 200 railway trucks. After the end of the war 2 Squadron received a United States Presidential Unit Citation, because it had displayed "... such gallantry, determination and esprit de corps in accomplishing its missions under extremely difficult and hazardous conditions as to set it apart and above other units participating in the same campaign".¹⁴

The apartheid years

The apartheid-era was a difficult period for the SAAF. Not only did it progressively suffer under various armaments boycotts due to the pariah status of South Africa, but it also had to maintain its combat readiness as South Africa was involved in a conflict in Southwest Africa (Namibia)/Angola border region.

After successfully operating Sabres in Korea, the SAAF ordered 34 of the latest version, the Sabre Mk 6. These were delivered after 1956 and SAAF 1 and 2 Squadrons now flew 16 Sabres and 12 de Havilland Vampires each. For maritime patrols the SAAF acquired the Avro Shackleton Mk3. From 1957 onwards a country-wide national air defence radar network was developed and a school for airspace, air traffic and fighter controllers established. This infrastructure is still in service, however, it has been modernised and operates fixed as well as mobile installations.¹⁵

During the 1960s and 1970s South Africa was increasingly isolated as a result of its apartheid policies. As African countries received independence from their former colonial masters, the South African state felt increasingly threatened by its Warsaw bloc-backed neighbours. This resulted in the acquisition of new fighters, bombers, transport aircraft and helicopters, as well as the development of locally manufactured air-launched ordnance. The expansion and modernisation process included the following: Sixteen Aermacchi MB326 aircraft were acquired from Italy in 1966, where after it was locally produced under licence as the Impala by Atlas Aircraft Corporation. Also in the 1960s followed the acquisition of a fleet of Mirage III and Mirage F1 fighters, Canberra and Buccaneer bombers, C130B Hercules and C160Z Transall transporters, Piaggio P166 Albatross coastal patrol aircraft, as well as additional DC-4 Skymasters and DC-3 Dakotas. In addition SAAF acquired Alouette II and III, Puma, Super Frelon and Westland Wasp helicopters.¹⁶

Due to the international condemnation of apartheid, South Africa suffered from growing economic sanctions and a variety of armaments boycotts which culminated

¹³ L. Steyn, *South African Air Force*, pp. 1-2.

¹⁴ H. Heitman, *South African Armed Forces*, p. 58.

¹⁵ L. Steyn, *South African Air Force*, p. 2.

¹⁶ P. Moorcraft, *Africa's Super Power*, pp. 138-153.

in a compulsory UN Security Council arms embargo in November 1977.¹⁷ South Africa, now embroiled in the conflict in northern Southwest Africa and southern Angola was forced to become more self-sufficient and adept high technology to local operational requirements. The local defence industry blossomed as they had to keep the defence force operational and vast amounts of public money were injected into it. Weapons, ammunition, logistics and military equipment production increased. The first prototype of a locally manufactured attack helicopter, the Alpha XH1, flew in February 1986, with the XPT-1 Experimental Test Platform being unveiled in April 1987.¹⁸ This led to the development of the Rooivalk attack helicopter. From April 1987 onwards SAAF also took delivery of its new fighter aircraft, the Cheetah (an improved and rebuilt Mirage III).

During the 1970s and 1980s the SAAF played an important role in the drawn out low-intensity conflict on the border of the then Southwest Africa (Namibia) and Angola. South African pilots displayed their characteristic “can do” mentality and were at times heavily engaged in supporting South African ground operations into Angola. After a lengthy process of negotiations and an UN-mediated settlement, South Africa and Cuba withdrew militarily from Namibia and Angola in 1989, bringing about the independence of Namibia and vast political changes for South Africa. The changing regional and domestic environment meant that the SAAF went through a process of rationalisation and scaling down after 1990. Various aircraft types were withdrawn from service and several squadrons were disbanded.

SAAF: National Air Force Of A New Democratic South Africa

The 1990s spelled change not only for South Africa, but also globally. The Cold War was no more and the domestic situation in South Africa also changed as the country’s political leaders embarked on a negotiation process that would lead to the creation of the “new” democratic South Africa in 1994. The SAAF rendered crucial support to the Independent Electoral Committee (IEC) in 1994 and in *Operation Jambu* (its biggest peacetime operation ever) it flew 820 hours in support of the electoral process. During the inauguration of President Nelson Mandela, 74 aircraft participated in the flypast.

The creation of the “rainbow nation” meant that a new South African National Defence Force (SANDF) had to be created and the SAAF had to reflect South African society. The air wings of the former tribal homelands (so-called TBVC states) as well as the non-statutory forces (MK and Apla the armed wings of the ANC and the PAC respectively) as well as the aircraft and helicopters of the TBVC states were integrated into the new SAAF. As part of the integration process pilots from the

¹⁷ T.D. Potgieter, *The Secret South African Project Team: Building Strike Craft in Israel, 1975-1977*, in *Scientia Militaria*, Vol. 32, Nr. 2, 2004, p. 133.

¹⁸ H. Heitman, *South African Arms and Armour*, Struik, Cape Town, 1988, pp. 156-158.

former Bophuthatswana Air Wing and the non-statutory forces received their wings and completed training and advanced SAAF training. Women also benefited in the new dispensation and have qualified to perform most tasks within the SAAF on an equal footing with their male counterparts.

Since 1994 the SAAF have participated in numerous search and rescue and humanitarian support missions in South Africa and in the region. SAAF helicopters and aircraft have rescued people from burning buildings, searched for and rescued lost mountaineers, mariners and have provided disaster relief in the region. Regional missions included a rescue and supply mission to Rwanda in July 1994; SAAF assistance to Mozambique during the elections in October 1994; disaster assistance to Tanzania in February 1998; and assistance to Mozambique after the massive floods in February and March 2000. During this mission more than 14 000 people were rescued and 2 647 tonnes of supplies and medical aid was flown into the worst affected areas.¹⁹

In 1998 forces from South Africa and Botswana entered Lesotho in an effort to restore order to the mountain kingdom after the Lesotho government approached the SADC for assistance. The SAAF participated in the operation (*Operation Boleas*) and a SAAF contingent was based in Maseru for its duration. During the first decade of the twenty-first century South Africa forces participated in various UN peace support operations in Africa. The SAAF played an important role during these operations as it supported SANDF units deployed in Tanzania, Burundi and the Democratic Republic of Congo with helicopter crews, by flying supply missions and by participating in support of Joint Operations.

By the end of the twentieth century the SAAF aircraft and equipment was old and outdated, mainly as a result of the arms embargo in the 1970s and 1980s. As South Africa was now a respected member of the international community, the SAAF embarked on a re-equipment programme in 1998/1999. 16 Squadron was reactivated and became the home squadron for the locally produced Denel Rooivalk Attack helicopter (at the Bloemfontein base) in October 1998. As part of the acquisitions programme the SAAF is set to receive SAAB Gripen fighters, BAE Systems Hawk Mk120 trainers, Agusta A109 helicopters and Agusta/Westland Lynx helicopters between 2005 and 2012.²⁰

Case study: SAAF in action in Korea, 22 april to 24 june 1951²¹

For more than three years the Korean War was fought on the Korean peninsula with the belligerents first being engaged in a war of rapid movement across the peninsula.

¹⁹ L. Steyn, *South African Air Force*, pp. 3-4.

²⁰ *Ibid.*, pp. 3-5.

²¹ The section on the SAAF in Korea between April and June 1951 is based on an article by D.M. (Dermot) Moore, *SAAF in Korea*, published in *Militaria*, Vol 10, Nr 4, 1980, pp. 24-34.

After North Korean invasion of South Korea, the South Korean and UN forces were pushed down to the southern extremity of the peninsula. A brilliant UN offensive and the amphibious landings at Inchon, push the North Korean forces the Chinese border in the north which resulted in a Chinese intervention. UN forces were again forced into a haphazard retreat south. By the end of June 1951, however, it seemed that the Communist forces were ready to negotiate and that the UN objectives might be in sight.²² What is however of interest is the preceding two months, the role of air power and the air offensive, together with the place of the SAAF's 2 Squadron (2 Sqn) in these events. 2 Sqn was heavily engaged in the intense air war during this critical phase of the war, and South African pilots gained a formidable reputation for getting the job done, as one US officer stated: "We always gave them the dirty or tricky jobs that no one else wanted because we knew that they would handle them".²³

The Ground Situation

The ground situation in the sixty-four days before 24 June 1951 can be divided into two periods: from 22 April to 19 May the UN forces successfully resisted the "Fifth Phase Offensive" by combined Chinese and North Korean Forces; while from 20 May to 24 June the UN forces launched an offensive that achieved the stabilization of a Main Line of Resistance (MLR) - for the most part just north of the 38th parallel. This MLR was to remain virtually static until the end of the war (see Map 1).

By 21 April 1951 the UN forces had established themselves along the Utah and Kansas Phase lines after a successful offensive.²⁴ On 22 April 1951 the Communist Forces attacked the US I and IX Corps positions in strength in an attempt to recapture Seoul.²⁵ Although they did not achieve the objective, General Van Fleet, who took over from General Ridgway on 11 April (who succeeded General MacArthur), was forced to withdraw to the No-name line by 30 April.²⁶ The Communist offensive halted and Van Fleet immediately replied with an offensive aimed at denying the enemy the opportunity to build-up for a new offensive, threatening their supply routes in the Hwachon area and the so-called "Iron Triangle". A policy of hot pursuit was proclaimed over the 38th parallel.²⁷ The UN advance achieved some success although it was slowed by rain on 27-28 May. The retreating enemy ground forces, compelled to move during the day, was exposed to air attacks and by the end of May the UN forces had re-established themselves along the Kansas line. They

²² J.W. Pratt, *A History of United States Foreign Policy*, second edition, Prentice Hall, Englewood Cliffs, 1965, p. 490.

²³ H. Heitman, *South African Armed Forces*, p. 58.

²⁴ J. Miller, O.J. Carroll & M.E. Tackley, *Korea, 1951-1953*, Office of the Chief of Military History, Washington (S.A.), pp. 20-27.

²⁵ *Ibid.*, p. 103.

²⁶ *Ibid.*, pp. 102-107.

²⁷ *Ibid.*, p. 109.

consolidated this position with barbed wire, cleared fields of fire, created minefields, constructed shelters and concentrated artillery. General Ridgway, UN Commander-in-Chief (UNCINC), authorized local advances to gain more favourable ground for defence and Van Fleet launched *Operation Piledriver* on 1 June 1951, which was to bring the US I and IX Corps to the Wyoming line by 15 June 1951. During this advance they encountered heavy enemy resistance organised in depth, as they approached the base of the "Iron Triangle".²⁸

The Air Situation

The air war during this period was characterized by two features: an intensified interdiction by the Far East Air Force (FEAF) into which SAAF, ROKAF and RAAF elements were incorporated, and the implementation of a revised air war plan by the Chinese Communist Air Force (CCAF) in mid-June. The FEAF interdiction campaign was named *Operation Strangle* and its objective was to isolate the MLR from its sources of supply in North Korea and Manchuria. A strip of territory stretching east-west across Korea, between 38° 15'N and 39° 15'N, was divided into three interdiction zones, a zone being allocated each to the 5th Air Force, the Navy and the 1st Marine Air Wing. The enemy road and rail systems were placed under 24-hour attack (see Map 1).²⁹

The revised air war plan of the CCAF was probably resulted from a conference between CCAF officers and their Soviet advisers held in Mukden in May 1951. The failure of the ground offensive was attributed to the CCAF's failure to gain air superiority over Korea and in an attempt to rectify the situation it was decided that new 'International Communist Volunteer Air Force' personnel would assist the CCAF; efforts to repair the North Korean airfields would be redoubled with the aid of cover provided by MIG-15's; nuisance raids would be conducted against the South as soon as the North Korean airfields could take light aircraft; while Ilyushin ground attack aircraft (with crews trained by Russian advisers) would support the CCAF ground forces in a new offensive.³⁰

The Combat Role of 2 Squadron

In common with other fighter-bomber squadrons of the 5th Air Force, 2 Sqn SAAF was very involved in these events and both air and ground crews had to work very hard to maintain operations. Most of the FEAF fighter-bomber effort centred on interdiction missions, while the fighter-bombers were also utilised for close support, rescue and escort missions, or were diverted while en route to interdiction targets.

²⁸ *Ibid.*, pp. 110-111.

²⁹ D. Rees, *Korea: The Limited War*, MacMillan, London, 1964, p. 376.

³⁰ R.F. Futrell, L.S. Mosley & A.F. Simpson, *The United States Air Force in Korea, 1950-1953*, Duell, Sloan and Pierce, New York, 1961, pp. 278-279.



Map 1: 2 Squadron in Korea, 22 April – 24 June 1951

- Airfields used by 2 Squadron
- Airfields attacked by 2 Squadron
- Town
- Rendezvous (RV) and orbit points, Sinuiju raid

Between 22 April and 24 June 1951 2 Sqn flew 1130 combat sorties, which could be divided into the following missions: interdiction (84,4%); close support (8,4%); rescue (3,6%); and counter-air, essentially aimed at airfields (3,6%).³¹

The squadron's interdiction effort concentrated on the Main Supply Route (MSR) with the targets being the road and the railway line between Pyongyang, Sariwon, Kaesong and the MLR. Target selection sought the destruction of the communication routes at points difficult to repair or by-pass (such as bridges, railway tunnels, cuttings, marshalling yards and routes built up through damp ground or rice paddies). Supply dumps and troops concentrations en route to the front was also selected as targets. Close support strikes were mainly in support of the US I Corps in the Western Sector. From the middle of June onwards, 2 Sqn F-51 Mustangs were also called upon to attack North Korean airfields in what essentially was a counter-air campaign.

Aircraft Armament

The standard armament per aircraft against road and railway targets was two 500lb (227,3kg) G.P. bombs, six 5 inch (127mm) high velocity aircraft rockets (HVAR) and a maximum load of .50 ammunition. For attacks on supply areas and for close support missions the G.P. bombs were usually replaced with two 110 gallon (416,35 litre) drop tanks filled with napalm and fused with modified white phosphorous grenades. Four aircraft missions sometimes consisted of two aircraft armed with napalm and two armed with G.P. bombs. After the primary target was bombed with either G.P. or napalm bombs, the secondary ordnance was available for targets of opportunity. This secondary ordnance sometimes proved useful when an interdiction mission was diverted by the Joint Operations Centre (JOC) to render close support to the ground forces.

Aircraft attacking airfields used the 500lb bombs to pothole the runways, and V.T. fused bombs and rockets for flak suppression. The use of proximity fuses was made possible by the development of an L-bracket which prevented the ordnance being carried on the external wing racks of the fighter-bombers from arming prematurely.³² The bombs could now be dropped safely from high above the bursting flak, to explode at an altitude where they caused optimum damage. Bombs with six hour delayed fuses were also placed on the airfield runways during the last raid of the day against the North Korean airfields in order to harass the repair crews operating under cover of darkness.

³¹ South African Military Archive Depot (SAMAD), War Dairies and Missions SAAF (Korea), Box 14, Debriefing Forms SAAF220, 22 Apr 1951-30 Apr 1951; Box 15, Debriefing Forms, SAAF220, 1 May 1951-31 May 1951; Box 16, Debriefing Forms, SAAF220: 1 June 1951-24 June 1951.

³² Futrell, *et al.*, *United States Air Force in Korea*, p. 331; Republic of Korea, *The History of the United Nations Forces in the Korean War*, Vol.1, Seoul, 1972, p. 422.

Airfields used by 2 Squadron

On 23 April 1951, 2 Sqn missions took-off from K-9 airfield and landed at K-10 on their return. The Squadron had been operating from K-9 since 25 March under the operational control of 35 Fighter-Interceptor Wing, while their normal base at K-10 was being rebuilt. At K-10 they functioned under the operational control of 18 Fighter-Bomber Wing.³³ On their return to K-10 the Squadron found all facilities greatly improved and "...equivalent to any permanent air station in the Union."³⁴ The great disadvantage of K-10 was its distance from the frontline, and as a result the aircraft of 18 Fighter-Bomber Wing were instructed from 2 May onwards to re-arm and re-fuel at the forward airfield K-13 (280km north of K-10). The three squadrons of the wing, 67 and 12 Squadrons (USAF) and 2 Sqn (SAAF) were each instructed to rotate their flights through K-13 in the following way: A flight of four aircraft had to be dispatched from K-10 on an operational mission landing at K-13 on a daily basis; they had to rearm and refuel at K-13 and fly two more missions from K-13 on the same day, staying at overnight K-13; and fly one more mission from K-13 the next day before returning to K-10. Twenty ground crewmembers formed the "rest and recuperation (R and R) detachment for the squadron at K-13. On 7 May this detachment was moved to K-16 where the same rotation procedure as for K-13 was applied to the aircrews (see Map 1).³⁵

In practice the rotation procedure through the forward airfields became far more demanding than the instructions contained in the original Frag Order indicated. A typical example is that of a flight consisting of Captain (Capt) G. Kotze, and Lieutenants A.B. de Wet, I. Gow, M. Frost and F.M. Bekker. Three of these pilots flew 10 successive missions over a period of five days before returning to K-10. The standard of the ground crews' work can be assessed by the fact that the same four aircraft, Nos. 334, 303, 329 and 306 were used on all these missions. In order to illustrate the rotation process, the operations for the five days (flown by the above pilots) are tabulated in Table 1 (next page).

³³ SAMAD, War Diaries (Korea), Box 3 and 4, 2 Squadron War Diary, 25 March and 23 April 1951.

³⁴ SAMAD, War Diaries (Korea), Box 4, 2 Squadron War Diary, 24 April 1951.

³⁵ SAMAD, War Diaries (Korea), Box 4, 2 Squadron War Diary, Appendix "I", Frag Order, 5-2 for 2 May 1951; and 2 Squadron War Diaries, 7 May 1951.

Table 1: SAAF rotation through the forward airfield K-16: an example³⁶

Date (Duration)	Airfield	Pilots	Targets (Mission)	Claims	Remarks
13 May (1:40)	K-10 K-16	Capt G.Kotze Lt I. Gow Lt A.B. de Wet Lt M. Frost	Supply dumps <i>Ops Hotpants</i> (1863)	Nil Bombs jettisoned Inchon Bay	Target area covered by bad weather, crossed bomblines
13 May (0:55)	K-16 K-16	Capt G.Kotze Lt I. Gow Lt A.B. de Wet Lt M. Frost	Camouflaged supply dumps, <i>Ops Hotpants</i> (1823)	Destroyed: 1X supply dump	Second mission on 13 May
14 May (0:50)	K-16 K-16	Capt G.Kotze Lt I. Gow Lt A.B. de Wet Lt M. Frost	Buildings and supply stacks <i>Ops Windburn</i> (1802)	Damaged: 2X buildings 1X large POL dump	
14 May (0:55)	K-16 K-16	Capt G.Kotze Lt I. Gow Lt A.B. de Wet Lt M. Frost	Camouflaged supply dumps, <i>Ops Windburn</i> (1809)	Poor visibility prevented assessment	Second mission on 14 May
15 May (1:20)	K-16 K-16	Capt G. Kotze Lt F. Bekker Lt A.B. de Wet Lt M. Frost	Village Caves Vehicles (1807)	Destroyed: 2X vehicles Damaged: 1X villiage 1X POL dump	Bekker replaces Gow
15 May (1:20)	K-16 K-16	Capt G. Kotze Lt F. Bekker Lt A.B. de Wet Lt M. Frost	Village Vehicles (1823)	Destroyed: 2X vehicles Damaged: 1X vehicle 1X village	Second mission on 15 May
16 May (1:20)	K-16 K-16	Capt G. Kotze Lt F. Bekker Lt A.B. de Wet Lt M. Frost	Caves Vehicles (1807)	Damaged: 1X vehicle	-
16 May (1:35)	K-16 K-16	Capt G. Kotze Lt F. Bekker Lt A.B. de Wet Lt M. Frost	Supply dumps in wood (1802)	Fires started	-
16 May (1:30)	K-16 K-16	Capt G. Kotze Lt F. Bekker Lt A.B. de Wet Lt M. Frost	Supplies in dug-out highway bridge (1815)	Destroyed: 1X supply dump Damaged: 1X highway bridge	Third mission on 16 May
17 May (2:00)	K-16 K-10	Capt G. Kotze Lt F. Bekker Lt A.B. de Wet Lt M. Frost	Village (1802)	Poor visibility prevented assessment	Last mission of rotation through K-16 – return to K-10

³⁶ SAMAD, SAAF220, Debriefing Forms, 13-17 May 1951.

The Sinuiju Raid

The routine of the interdiction missions was broken on 9 May, when 312 aircraft of the 5th Air Force and the 1st Marine Air Wing participated in *Operation Buster*, a massive raid on the 26 square km Sinuiju airfield area, which was a major North Korean airbase just south of the Yalu River. This and other airfields in North Korea had reached a stage of repair where they could be used by CCAF in an attempt to gain air superiority over North Korea (which would be important for a future ground offensive by North Korea and her allies). The neutralization of these airfields was thus vital and the subsequent air raid had four distinct tasks: First, top cover had to be provided to protect the attacking fighter-bombers from MIG-15 interference as Sinuiju was very close to the MIG bases in Manchuria. The second task was flak suppression, the third the actual bombing of the airstrip, surrounding revetments and supply dumps, and finally the rescue efforts (by SA-16 and SA17 flying boats) escorted by tactical aircraft (see Table 2 for the task allotments).³⁷

Table 2: Task Allotment, Sinuiju Raid¹

Top cover	4 Wing F-86 Sabres 27 Wing F-84 Thunderjets 1 st Marine Air Wing Pantherjets
Flak suppression	8 Wing F-80 Shooting Stars 49 Wing F-80 Shooting Stars 51 Wing F-80 Shooting Stars
Airfield attack	1 st Marine Air Wing Corsairs 18 Wing F-51 Mustangs
Rescue escort	18 Wing F-51 Mustangs (16 aircraft from 2 Sqn, eight aircraft from 18 Fighter-Bomber Group)

The co-ordination of the successive waves of aircraft on their various interrelated tasks required precise direction and timing. For example: the 18 Fighter-Bomber Wing Frag Order for 9 May 1951 tasked 2 Sqn to “Dispatch 1, 24 ship fit (including 8 from 18th) to perform escort and rescue cap for SA-16s and SA-17s as indicated below”.³⁸ The rendezvous time was 12h45 and the rendezvous point as XC5005. The orbit time was from 13h00 to 16h00 and the orbit point XC3062 (see Map 1). The attack itself started at 14h00.³⁹ Any of the attacking pilots who got into trouble, had to head for the orbit area where they could ditch and be picked up by the flying boats. The task of 2 Sqn was to fly combat air patrol (CAP) over the downed pilots and the rescue aircraft.

³⁷ Futrell, *et al.*, *United States Air Force in Korea*, p.277; Republic of Korea, *The History of the United Nations Forces in the Korean War*, Vol. 1, p. 418.

³⁸ SAMAD, War Dairies (Korea), Box 4, 2 Squadron War Diary, Appendix “I”, Frag Order 5-9 for 9 May 1951.

³⁹ Futrell, *et al.*, *United States Air Force in Korea*, p. 277.

As part of this mission, sixteen 2 Sqn aircraft in four flights of four aircraft each took off, starting at 11h10 with Major (Maj) J.P.D. Blaauw as leader. They completed their mission without incident⁴⁰ and the raid itself was a great success. The UN forces inflicted heavy casualties, while they destroyed a number of aircraft on the ground, 106 buildings, one large aviation fuel dump and 26 ammunition and supply dumps. Only one Thunderjet was damaged.⁴¹

Reduced Sortie Rate

From 22 May onwards, 2 Sqn sorties were limited to 16 per day. The proximity of K-16 to the MLR allowed for sorties of a much shorter duration with a resultant increased sortie rate. The danger was therefore that too many experienced pilots might complete their operational tour of 75 sorties before the end of the month, leaving no one to train and lead the new batch of replacement pilots.⁴² This policy and the adverse weather kept the daily sortie rate below sixteen (with only a few exceptions) to 8 June when seventeen replacement pilots became available for operational duties. The seventeen new pilots arrived in two batches: the first 11 pilots under Capt H.J. Snyman on 29 May, while six pilots under Capt R.H. Rogers on 1 June. Capt L.P.T. Eager and four additional pilots arrived on 2 June.⁴³

Despite the initial reduction in the sortie, the hard work for both pilots and ground crew continued. After 8 June the sortie rate rose to approximately 24 sorties per day. The men who had prepared the new batch of pilots for combat now gradually completed their tours. On 21 June Capt J.A. Joubert led four aircraft from K-16 on a road interdiction mission to complete his 100th effective combat sortie in Korea. This mission caused two complete road cuts in the Chinnampo area (with 500lb bombs), and they then proceeded to rocket and strafe buildings which had been indicated as secondary targets in the same area. Capt G.G. Willers and Lt P.J. Strydom also completed their tours with 75 sorties each on the same mission.⁴⁴

Marshall's DFC

One of the most effective missions of the period was one led by Lt G. H. Marshall on 24 June 1951. Together with Capt L.P.T. Eager, Second Lieutenants (2Lts) J.F.G. Howe and J.P. Verster, he was briefed to carry out an interdiction mission north-

⁴⁰ SAMAD, War Dairies (Korea), Box 4, 2 Squadron War Diary, 9 May 1951; Box 15, Debriefing Forms SAAF220, 9 May 1951.

⁴¹ Futrell, *et al.*, *United States Air Force in Korea*, p. 277.

⁴² SAMAD, War Dairies (Korea), Box 4, 2 Squadron War Diary, 22 May 1951.

⁴³ SAMAD, War Dairies (Korea), Box 4, 2 Squadron War Diary, 29 May 1951, 1-2 June 1951 and 8 June 1951.

⁴⁴ SAMAD, War Dairies (Korea), Box 4, 2 Squadron War Diary, 21 June 1951; Box 16, Debriefing Forms SAAF220, 21 June 1951.

east of Kaesong. They carried napalm, rockets and .50 ammunition and took-off at 19h45. While en route to their target they heard an airborne controller call for support from any flight that could hear him. Marshall diverted his flight to answer to the call and the controller indicated the target. It was a troop concentration by the enemy about 30km south-west of Chorwon (see Map 1). The troops opened fire with automatic weapons and 20mm and 40mm anti-aircraft guns, but the four 2 Sqn Mustangs attacked through an intense and accurate barrage of enemy fire. Howe and Verster later expressed surprise at having survived the attack while the enemy fire was so intense that the controller instructed a USAF flight to stand-by to CAP any of the South Africans who might be hit. Yet, the attack was successful and the opposite side sustained the following losses: unknown number of troop casualties, one 40mm gun position and two automatic weapons positions were destroyed and one 40mm gun position damaged.⁴⁵

The courage of these pilots was recognised and on 2 July the Squadron was informed that Marshall would receive the American Distinguished Flying Cross immediately, while the other three pilots received the Air Medal. Tragically Verster was never to hear of his award as he was killed the previous day ferrying a Mustang from K-10 to K-16.⁴⁶ The citation which accompanied Marshall's award described the incident thus:

Despite poor visibility and in the face of withering enemy ground fire, Lieutenant Marshall, without hesitation and with complete disregard for personal safety made successive hazardous attacks with relentless accuracy on the enemy positions. In an exceptional display of aggressiveness and aeronautical skill he engineered the attacks of his flight with such outstanding airmanship that the optimum damage was inflicted against the enemy without the loss of one of his aircraft.⁴⁷

Airfield Neutralisation

Aerial photographs taken on 6 June showed all the North Korean airfields to be unserviceable, but a few days of bad weather gave them time to catch up with the damage caused by the FEAF raids. At least one airfield, Sariwon, became operational for light aircraft and on 14 June CCAF started with the type of harassment successfully used by the Russians against the Germans in the Second World War. PO-2 Polikarpov biplanes (canvas covered open cockpit trainers) were sent late at night or early in the morning to catch 5th Air Force aircraft being prepared by ground crews. The damage that could be inflicted by these small lone-flying aircraft was relatively slight, but their nuisance value was considerable. They were nicknamed 'Bed Check

⁴⁵ SAMAD, War Dairies (Korea), Box 4, 2 Squadron War Diary, 24 June 1951; Box 16, Debriefing Forms SAAF220, 24 June 1951.

⁴⁶ SAMAD, War Dairies (Korea), Box 5, 2 Squadron War Diary, 1-2 July 1951.

⁴⁷ SAMAD, War Dairies (Korea), Box 5, 2 Squadron War Diary, July 1951 Appendix "A": Citation for the immediate award of the Distinguished Flying Cross to Lt G.H. Marshall.

Charlies' by 5th Air Force personnel. In the early hours of 14 June two PO-2's headed southwards, one bombed a runway repair crew at Suwon Airbase (K-13) while the other an Eighth Army vehicle park near Inchon.⁴⁸ This was hardly effective close air support, but it was a beginning.

K-16 airfield, situated on an island in the Han River south of Seoul, was vulnerable to attack and during the night of 15-16 June K-16 was bombed and strafed, but no damage or casualties were reported.⁴⁹ During the next few days CCAF increased its air activity as it attempted to implement the revised air war plan of 10 May 1951. On 17 June, Sabres from 4 Wing encountered 25 MIG-15's, whose pilots were more aggressive than before and large numbers of MIG-15's again challenged the Sabres on 18 and 19 June. On 20 June a flight of Mustangs from 18 Fighter Bomber Wing were sweeping a road south of Sinuiju when they encountered eight IL-10's (Ilyushin ground attack aircraft) en route to render close support to the CCF ground forces on the island of Sinmi-do. Both sides called for reinforcements and a dogfight ensued involving in addition to the original Mustangs and IL-10's, Yak-9's, MIG-15's and Sabres. The 5th Air Force lost one Mustang in exchange for one Yak-9 and two IL-10's destroyed as well as damage to three IL-10's and four MIG-15's.⁵⁰

The FEAF commanders decided to meet the mounting air threat with an intensive airfield neutralization programme. From 17 June onwards B-26's attacked the North Korean airfields at night, while B-29's and the fighter-bombers attacked during the day.⁵¹ A decisive stage of the war was reached, both on the ground and in the air. 2 Sqn also became involved in the airfield raids. On 18 and 19 June SAAF aircraft bombed airstrips at Ongjin and Haeju with 500lb bombs and counted nine direct hits afterwards.⁵² On 23 June Capt J. Swanepoel led Lts D. Green, S. de la Harpe and T. Sivertsen on an attack against the revetments at Sariwon airfield, which was protected by 37 automatic weapons and numerous 20mm and 40mm anti-aircraft guns. Swanepoel led his flight in at 6-15 metres above the ground and succeeded in covering the target with napalm. Due to the intense and accurate incoming fire they did not wait around to survey the damage. The same day separate flights of four aircraft each from 2 Sqn attacked the airfields at Anak, Sinmak and Ongjin and on 24 June flights of four aircraft from 2 Sqn attacked the airfields at Sariwon, Anak, Sinmak and Haeju using V.T. fused rockets for flak suppression and 500lb bombs to pothole the runways.⁵³ As the ground offensive came to an end, the air offensive moved into

⁴⁸ Futrell, *et al.*, *United States Air Force in Korea*, p. 280.

⁴⁹ SAMAD, War Dairies (Korea), Box 4, 2 Squadron War Diary, 22 May 1951 and 16 June 1951.

⁵⁰ SAMAD, War Dairies (Korea), Box 4, 2 Squadron War Diary, 20 June 1951; and Futrell, *et al.*, *United States Air Force in Korea*, pp. 280-281.

⁵¹ Futrell, *et al.*, *United States Air Force in Korea*, pp. 281-282.

⁵² SAMAD, War Dairies (Korea), Box 4, 2 Squadron War Diary, 18 June 1951; and Box 16, Debriefing Forms SAAF220, 18 and 19 June 1951.

⁵³ SAMAD, War Dairies (Korea), Box 4, 2 Squadron War Diary, 23 and 24 June 1951; and Box 16, Debriefing Forms SAAF220, 23 and 24 June 1951.

top gear and with the commencement of the FEAF airfield neutralization programme North Korea and her allies began to make peace overtures (see Map 1).

Cost in Men and Material

The UN pilots face quite a challenge as their opponents were determined to protect supply routes, supply dumps and airfields from air attack. Besides excellent camouflage techniques, they also employed a heavy anti-aircraft screen and in May 1951 FEAF intelligence officers plotted the positions of 252 anti-aircraft guns and 673 automatic weapons. The anti-aircraft gun positions were fixed, but a major danger along the main supply routes was posed by truck-towed 37mm Soviet M-1939 automatic weapons (effective against targets up to 1 400m).⁵⁴ Test flights that UN forces did against own forces anti-aircraft batteries revealed the extreme vulnerability of the wingman in the two aircraft low-level reconnaissance while searching for targets. After these tests 18 Fighter-Bomber Wing (including 2 Sqn) changed their armed reconnaissance tactics in an effort to avoid further losses. Now, only the flight leader flew at 100m looking for targets of opportunity, while the remaining three aircraft covered him against flak from 1200m.⁵⁵

Between 22 April and 24 June 1951, 2 Sqn lost five aircraft as a direct result of enemy ground fire and three to accidents, while eight were damaged in action. Pilot casualties amounted to three killed (two in accidents) and four wounded. One pilot listed as missing in action (MIA) was later found to be a prisoner of war. The Mustang's liquid cooled engine also made it particularly vulnerable to ground fire. This factor combined with the fact that Chinese regiments had an air defence company armed with Soviet 12,7mm machine guns (very effective against low-flying aircraft) increased the operational hazard. On 29 April Capt Kotze's aircraft was hit in the engine by automatic fire while attacking enemy troops dug in along a ridge north of Seoul. His leader, Lt I. Gow, strafed and silenced the gun position, receiving a bullet through the wing in the process.⁵⁶ On 30 April Lt P. Celliers led four aircraft on a bombing mission against a railway tunnel on the line between Sinmak and Kumchon. Taking off from K-10 at 08h40 they bombed the tunnel with 500lb G.P. bombs and then split up into two elements to search for secondary targets. At 10h15 Celliers' aircraft was hit by anti-aircraft fire about 20km to the east of the original target. He baled out of the burning aircraft almost immediately. His wingman, Lt G.G. Paterson, alerted rescue and also re-assembled the original flight, leading it and another 2 Sqn flight to Celliers until he was rescued by helicopter. Celliers finally

⁵⁴ Futrell, *et al.*, *United States Air Force in Korea*, p. 307.

⁵⁵ *Ibid.*, p. 306; and Republic of Korea, *History of the United Nations Forces in the Korean War*, Vol. 1, p. 421.

⁵⁶ SAMAD, War Dairies (Korea), Box 14, Debriefing Forms SAAF220, 29 April 1951.

arrived back at K-10 at 21h00 with his right leg wounded by a 20mm shell.⁵⁷

On 1 May, the aircraft of Lts D.W. McKellar and G.H. Marshall were hit by automatic weapon fire in the wing tanks while on an interdiction mission.⁵⁸ The next day Capt J.M. Sweeney had a disconcerting experience. While attacking vehicles 5km south-east of Songsanni, he came under intense and accurate automatic ground fire. His aircraft was hit in the port aileron trimming and the starboard side of the cockpit and he was wounded in his right buttock. Shepherded by Maj J.P.D. Blaauw and weak from loss of blood, he managed to bring his aircraft back to K-16, where he passed out on landing.⁵⁹ On 6 May, the day before he completed his tour of duty with 75 sorties, Lt J.H. Kruger's aircraft was hit in the tail plane,⁶⁰ while on 11 May his namesake, Lt V.R. Kruger, was involved in an incident on his 74th combat sortie. At 15h30 Maj Blaauw and Lts P. Clulow, M. Mentz and V.R. Kruger took-off from K-16 on their third mission for the day. At 16h40, 12km west of Singye Kruger's aircraft was hit in the main plane by ground fire. The wing collapsed and the aircraft caught fire, forcing him to bale out. Blaauw and Mentz flew a CAP over the downed pilot while Clulow made a vain attempt to alert rescue. When his fuel began to run low, Blaauw sent Clulow and Mentz back to K-16 while he continued the CAP until his fuel ran out (at 18h45) and he was forced to belly land next to Kruger. By now another 2 Sqn flight was diverted from an interdiction mission and arrived on the scene. At the same time Mentz took off on his fourth sortie of the day, this time to lead a flight of three USAF Mustangs to rescue Kruger. The two pilots on the ground were successfully lifted by helicopter at 19h45. Kruger was injured (dislocated right shoulder, cracked right scapula, second degree burns on his hands and face), while Blaauw was only lightly injured with abrasions and bruises to the nose and eyes.⁶¹

On 15 May at 18h55, Lt M.H. Rorke fatally crashed on take-off. It was his third mission for the day as he conducted interdiction missions at 14h50 and 16h30. This mission was also an interdiction mission and his F-51 was loaded with napalm, rockets and .50 ammunition. The aircraft swung round 180°, collided with a crashed B-29 bomber at the end of the runway and immediately burst into flames.⁶² On 24 May Lt A. Gotze's aircraft was hit in the scoop while he was searching for a downed

⁵⁷ SAMAD, War Dairies (Korea), Box 4, 2 Squadron War Diary, 30 April 1951; and Box 14, Debriefing Forms SAAF220, 30 April 1951.

⁵⁸ SAMAD, War Dairies (Korea), Box 15, Debriefing Forms SAAF220, 1 May 1951.

⁵⁹ SAMAD, War Dairies (Korea), Box 4, 2 Squadron War Diary, 2 May 1951; and Box 15, Debriefing Forms SAAF220, 2 May 1951.

⁶⁰ SAMAD, War Dairies (Korea), Box 4, 2 Squadron War Diary, 6-7 May 1951.

⁶¹ SAMAD, War Dairies (Korea), Box 4, 2 Squadron War Diary, 11 May 1951 ; Box 15, Debriefing Forms SAAF220, 11 May 1951; and Republic of Korea, *History of the United Nations Forces in the Korean War*, Vol. 1, p. 420.

⁶² SAMAD, War Dairies (Korea), Box 4, 2 Squadron War Diary, 15 May 1951; and Box 15, Debriefing Forms SAAF220, 15 May 1951.

pilot, but he landed safely after being escorted to K-18.⁶³ On 1 June Gotze was leading a flight of four aircraft on a low-level reconnaissance (about 15m) when his No 2, Lt H. MacDonald reported that his aircraft was burning and he had to bale out. A 30 minute search revealed the wreckage of an aircraft spread over about an area of roughly 180m and across a railway line, 12km south of Pyongyang and the pilot was listed as M.I.A.⁶⁴ MacDonald was not heard of again until a Voice of India broadcast later reported his arrival in a P.O.W. camp.⁶⁵

On 2 June two aircraft were damaged when two pilots in training, 2Lts T. Liebenberg and R.V. Sherwood suffered mishaps on landing at K-10.⁶⁶ These incidents were attributed to the poor visibility at K-10 for the transitional training of relatively inexperienced pilots. After this, authority was sought and received from the Officer Commanding 18 Fighter-Bomber Wing for transitional training to take place at the nearby K-1 airfield, which was considered to be far more suitable.⁶⁷ On 9 June Liebenberg, in No 4 position on a flight led by Lt F.M. Bekker and carrying a load of 500lb bombs, rockets and .50 ammunition, crashed on take-off. The aircraft exploded and the pilot was killed.⁶⁸ While on an early morning interdiction mission on 13 June, Bekker's aircraft was hit in the starboard main plane wing root by an explosive bullet. He had to land at K-16 without brakes as the bullet damaged his hydraulics.⁶⁹

The final casualty of the period occurred on 22 June. Lt A.G. Frisby led a flight consisting of Commandant R.F. Armstrong, Lts D. Marchand, and C. de Jongh from K-16 to interdict supplies north-west of Namchonjam. To the west of Sibyonni (at 600m) the leader was hit by ground fire and had to bale out. At roughly 250m a brown object was seen to leave the aircraft, which then crashed into the side of a river bed and broke up. No parachute was seen and there was no sign of the pilot. Armstrong led four aircraft to search the scene, but they found no sign of the pilot. They concluded that he baled out at 250m and that his parachute failed to open.⁷⁰

⁶³ SAMAD, War Dairies (Korea), Box 15, Debriefing Forms SAAF220, 24 May 1951.

⁶⁴ SAMAD, War Dairies (Korea), Box 4, 2 Squadron War Diary, 1 June 1951; Box 16, Debriefing Forms SAAF220, 1 June 1951.

⁶⁵ H. Parker, Out of the Sky into the Bag, *Outspan*, Vol 51, No 1352, p. 24.

⁶⁶ SAMAD, War Dairies (Korea), Box 4, 2 Squadron War Diary, 2 June 1951.

⁶⁷ SAMAD, War Dairies (Korea), Box 4, 2 Squadron War Diary, 8 and 18 June 1951.

⁶⁸ SAMAD, War Dairies (Korea), Box 4, 2 Squadron War Diary, 9 June 1951; and Box 16, Debriefing Forms SAAF220, 9 June 1951.

⁶⁹ SAMAD, War Dairies (Korea), Box 16, Debriefing Forms SAAF220, 13 June 1951.

⁷⁰ SAMAD, War Dairies (Korea), Box 4, 2 Squadron War Diary, 22 June 1951; and Box 16, Debriefing Forms SAAF220, 22 June 1951.

Concluding remarks

The main objective of 2 Sqn in Korea was interdiction – to isolate the battlefield from the sources of supply, while their main threat came from enemy ground fire. In general South African pilots displayed a professional approach, a high level of mutual loyalty, a willingness to assist comrades and team spirit, as the various examples illustrated. The Squadron certainly showed much tenacity, persistence and courage in performing their operational duties with pilots frequently flying three or even more missions in one day.

The SAAF has a long and proud history, a history that showed commitment and service, despite ever changing times. The example of Korea showed the SAAF as a highly innovative and adoptable force with a good operational track record. With the renewal of equipment, serious efforts to maintain the professional approach of the service and live up to standards, it is truly entering a new era and will continue to serve the country as called upon.

LARS ERICSON WOLKE*

Douhet or not Douhet.

Swedish Air Power Doctrine in the 1930's and 1940's

In 1911, the year of the first Italian use of Air strikes in Libya, the Swedish army got it's first planes and a year later the army followed.¹ However, it was not until 1926, that a unified Swedish Air Force was created by the army and navy air branches. The new arm, although weak in number, in the following years around 1930 developed an operational doctrine that could be described as douhetism², although Douhet himself wasn't translated to Swedish. However, when the German *Luftherrschaft* arrived in 1935³, his thoughts were opened also for Swedish readers. Most Swedish officers, as well as civilians, knew German as their first foreign language.

The decade between 1934 and 1945 was probably one of the most important decades in the history of the Swedish Air Force. Now it developed it's doctrine⁴, it operational and tactical skills as well as went through an unprecedented enlargement. In 1934 the Air Force got a new Commander-in-Chief, Torsten Friis, who already during World War One had studied the Air units used by the Austro-Hungarian Army at the Russian and Serbian fronts.⁵ The new Commander-in-Chief already from his first year in officer was keen on a close co-operation between the

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¹ For the Swedish reaction upon the Italian use of Air planes in 1911 see Lars Ericson Wolke, "*Bomba och bränn dom.*" *Taktik och terror under 100 år av flygkrig* (In Swedish: "*Bomb and Burn them.*" *Tactic and Terror during 100 years of Air Warfare*), Lund 2009 pp. 20-24.

² For the early development of Air Doctrines for the Army and Navy see Klaus-Richard Böhme, *Svensk luftförsvarsdoktrin 1919 till 1938* (In Swedish: *Swedish Air defence doctrine 1919 to 1938*), in *Aktuellt och Historiskt. Meddelanden från Militärhistoriska avdelningen vid Kungl Militärhögskolan* 1973, Stockholm 1973 pp. 129-172. The first Air doctrines are seen in a broader Swedish and international perspective in Lars Ericson Wolke, *Krigets idéer. Svenska tankar om krigföring 1320-1920* (In Swedish: *The Ideas of War. Swedish thought about Warfare, 1320-1920*), Stockholm 2007 pp. 310-316.

³ Giulio Douhet, *Luftherrschaft*, Berlin 1935.

⁴ Another study of the development of Swedish Air doctrine during the 1930's and 1940's is, with extensive archival references, published in English in Lars Ericson (Wolke), *The Swedish Air Force and the Question of Doctrine, 1934-1945*, in Klaus-R Böhme/Carl Linton, eds., *Air Power. Doctrine and Technology. Linköping 14-16 August 1996. Proceedings*, Stockholm/Linköping 1996 pp. 35-47.

⁵ Torsten Friis and the Air Force is studied in Lars Ericson (Wolke), Torsten Friis, in Gunnar Artéus, ed., *Svenska officersprofiler under 1900-talet* (In Swedish: *Swedish Officer profiles during the 20th Century*), Stockholm 1996 pp. 154-176.

Air Force and the young but growing Swedish Air Industry. The Air force played an important role when the SAAB Company was created in 1937.⁶

The result of this close work between the political sphere, the Air Force and the industry can be shown with some figures: Between 1933 and May 1939 Sweden imported 45 planes and from August 1940 to April 1943 another 118 were bought, it total 163. The vast majority of these were bought from Italy, especially Caproni-bombers. Some planes were also bought from Germany and the USA. In Sweden, during the period from October 1937 to September 1943 not less than 414 planes were manufactured, that is three times the amount that Sweden was able to buy from other countries. This build-up resulted in a transformation from a very weak Air Force at the time of the outbreak of the war in 1939 to a strong and efficient Air Force in 1944-45. This was fundamental for the continued development of Sweden's Air Force in the 1950's and 1960's.⁷

The first doctrinal feud in the mid 1930's took place between the new Air Force and the leading admirals of the navy. Torsten Friis accepted to be CIC of the Air Force on May 4, 1934 and only a little more than a week later the minister of defence wrote to him about some questions raised by the CIC of the Navy admiral Fabian Tamm. Among these questions were the dispute whether the defence budget should prioritise a bomber Air Force or heavy artilleryships. The minister, Ivar Vennerström, didn't make an open choice of his own in this feud between the Air Force and the Navy, but at least he showed some sympathy for the naval point of view. Vennerström told Friis that his opinion was that the roots of this dispute were to be found in "some kind of romantic bombviews that has tended to spread to much."

These words by the minister could be regarded as a criticism against the tendency towards a bomber doctrine in the Air Force, but it is more likely to have been meant to be an attempt to ease down the antagonism within the Armed Forces. Torsten Friis also tried, from his very first day in office, to ease the tensions and create a good relationship towards the Navy. That work seems to have been rather successful. As one important step he saw to that the most pro-bomber officers in his own force expressed themselves with a little smaller letters. However, and this is important, this was only a matter of official tactics, not at any point a concession towards the standpoint of the admirals.⁸

⁶ For the development of the Air industry see Klaus-Richard Böhme, *Svenska vingar växer. Flygvapnet och flygindustrin 1918-1945* (In Swedish: *Swedish Wings growing. The Air Forces and the Air industry 1918-1945*), Stockholm 1982.

⁷ See Böhme 1982 and Erik Norberg, *Flyg i beredskap. Det svenska flygvapnet i omvandling och uppbyggnad 1936-1942* (In Swedish: *Air Forces in preparedness. The Swedish Air Force under reconstruction and built-up 1936-1942*), Stockholm 1971.

⁸ For the rivalry between the Air Force and the Navy see Anders Berge, *Sakkunskap och politisk rationalitet. Den svenska flottan och pansarfartygsfrågan 1918-1939* (In Swedish: *Expert knowledge and political rationality. The Swedish Navy and the question of armoured ships 1918-1939*), Stockholm 1987.

When Torsten Friis became CIC in 1934 a Parliamentary Defence Commission that had started its work in 1930 almost had reached its conclusions. The result was published in 1935 and was to a large extent used in the 1936 Defence Resolution of the parliament. Several influential defence politicians were strongly in favour of an Air Force with a strong emphasis on its bomber capacity. This was reflected in the Parliamentary decision.

The essence in the Air Doctrine as reflected in the Defence Resolution 1936 was a strong bomber force. Its main purpose was to stop an enemy Air Force by attacking its bases. The Air Force also argued strongly for the use of bomber planes against enemy naval units, as an important part of the invasion defence. In August and September 1934 the Air Force for the first time trained divebombing against ships, as an obvious attempt to show the diversified usefulness of bombers.

The fundamental problem for all those involved in thinking about Air doctrines in the mid 1930's was: how to prevent a stronger enemy from bombing and destroying Sweden's cities and industries. In this Sweden didn't differ from any other European country at the time, and most influential officers and politicians were of the same opinion as the British prime minister Stanley Baldwin put in in 1932: "The bomber will always get through." Secondly came the question whether Sweden's Air Force could be of any use against an invasion fleet across the Baltic Sea. Both these problems led to a doctrine which without any doubts can be described as douhetism.

Both Giulio Douhet and the Englishman Percy Groves were read and discussed in Sweden in the mid 1930's. But their thoughts were not uncritically adopted. This is reflected in the words used by captain Gustaf Adolf Westring, the Swedish officer that had the best knowledge about Douhet and his thought, when he in August 1935 commented the Italian writer: "This is just plain theory and have because of that maybe not so much importance, but it can always be of some little use." But in reality, the influence of Douhet or at least thoughts very similar to those of Douhet were very influential in Sweden during the 1930's and were of crucial importance in the development of both doctrine and the creation of a bomber fleet for the Swedish Air Force.

In the tradition of Giulio Douhet also Percy Groves argued for the use of bombers, not against the enemy bases but against the home land and the war enemy. This was an operational doctrine for a large power, not for a small power like Sweden, whom likely would be inferior in number in a future war, presumable against Germany or Soviet-Russia.

As a consequence of that the Swedish Air Force made specific "bombing files" for potential targets in the east. The military planners in Sweden regarded it as certain that the Soviet Union before launching an attack against Sweden, had to pass through the until the summer 1940 formally still independent Baltic countries (however they had been forced to allow Soviet military bases from the autumn 1939). This meant that the Swedish Air Force planned for strikes against the harbours in Tallinn, Paldiski,

Pärnu, Riga, Liepaja and others, as well as against air fields used by the Russians. Important bridges, like the one in Kaunas, Lithuania over the river Njemen and rail-road junctions as Tapa in northern Estonia were also regarded as important targets for the Swedish bombers. The main aim was to prevent the invasion, or at least stop the second echelon of the invading force before it left the eastern coast of the Baltic Sea. In case of war with Germany the main potential targets were the northern harbour at Rostock, Sassnitz, Swinemünde and, maybe, also the large naval base at Kiel. However, Kiel was so heavily defended that even in theory an attack against that naval base must be regarded as extremely risky and very likely to fail.

An obvious risk in case of war was also that the enemy could answer on Swedish attacks against his bases with attacks on the bases of the Swedish bombers. To prevent that the doctrine in use in Sweden in the mid 1930's argued for several different bases to be prepared. This doctrine was taught at the War College by the Air Force officer Axel Ljungdahl and presented in a paper by Björn Bjuggren. The tactics used was to spread out the planes on bases far from the coastline or land borders, and to assemble them in an advanced base just before the beginning of an operation. After an attack on enemy bases of ships, the planes would return to the more remote and better protected bases.

Much of the Swedish debate concerned the limited capabilities of the fighter force as well as the anti aircraft-artillery. The Swedish fighters of the time could only operate over a small area and for a very limited period of time. This meant that the planes had to be based very close to the target that they were supposed to protect, and also relieved after a short while of time in the air. But the most important problem was the need for warnings to the fighterbases in good time before the enemy bomber arrived to the target. The warningsystems at the time didn't fulfil that need. In the case of the capitol, Stockholm, there was a strong doubt of whether any warning would arrive in time, so that the fighters could start and create their formations in the sky. And even if so, how to direct the fighters against the bomber? There were no such systems in operation. The only hope was the visual observations by the fighter pilots themselves. This is why the discussion about to defend Sweden's cities tended to circle about how to attack the enemy bases themselves. This was regarded the only efficient way to defence the mother country, regardless of the geographical and tactical problems with such a doctrine. The weak capabilities of the fighters against enemy bombers were stressed in a large manoeuvre in Skåne in southern Sweden in 1935. The same was the situation of the anti aircraft artillery. All this were regarded as supporting those who argued for a large bomber fleet, as an indirect defence for our cities and industries. The question then was how large the proportion of bombers there should be among the aircraft.

The defence resolution of 1936 decided there should be four bomber wings, one fighter wing and two reconnaissance wings, in total seven wings or three more than at the creation of a unified Air Force in 1926. The fighter wing, F 8, was deployed close to Stockholm.

It's interesting that the douhetism was more widespread among the politicians in the parliament than among the Air Force officers themselves. The Air Force had argued for another fighter wing and one reconnaissance wing. But these demands were rejected by the politicians for financial reasons. What we can call the "bomber lobby" was strong within the parliament. If the demands of the Air Forces had been followed, the proportions between bombers and fighters would have been 2:1, i.e. exactly the same proportions as in the British RAF, the foreign force that had given the largest impulses to Sweden.⁹

This resulted in a bomber force proportionally – but of course not in quantity – larger than in most European countries, but this is not the same as to say that the Swedish Air Force rejected the use of fighters, quite the opposite. The leading men in the Force were of course very much aware of the fact that the proportions between bombers and fighters were – as in all fields of military activities – depending upon the race between offensive and defensive weapons. One can also note that the CIC in person, from his very first year in office showed a large interest in both Swedish and foreign fighterplane constructions.

In the spring of 1939, with only some months left to the outbreak of the war, the Swedish Air Force counted two bomber wings (F1 and F 4), two reconnaissance wings (F 2 and F 3) and one fighter wing (F 8 close to Stockholm). The two other bomber wings decided by the Parliament in 1936 were established on July 1, 1939 (F 6) and in 1940 (F 7). In total the Air Force could muster some 195 planes in September 1939, but for different reasons (especially lack of spare parts and modern propellers) only 134 of these were operational. Therefore Torsten Friis when the war broke out could only send 47 bombers and 33 fighters in the air. However these figures are disputed among scholars, and they should be regarded as minimum figures.

The first year of the war underlined the importance of having a strong Air Force to protect the mobilization as well as cities, industries and communications. During the Winter War between Finland and the Soviet Union, Sweden in January 1940 sent a wing (F 19) with four bombers and twelve fighters to support Finland. The creation of this volunteer unit meant that one third of Torsten Friis operational fighters were sent to Finland. This was the only time, together with the UN-operations in Congo 1960-64, that the Swedish Air Force had been taken part in war operations.¹⁰

The experiences from the winter war were important, but they also showed how vulnerable the relatively small Swedish Air Force was. The parliament in 1940 decided to create two more fighter wings and one reconnaissance wings. The first,

⁹ For the debate about how to count these proportions see *Norberg 1971* pp. 225 note 30 and Klaus-Richard Böhme, "Review of Norberg" 1971, in "Historisk Tidskrift" (Historical Review) 1972:2 p. 302.

¹⁰ For F 19 see Göran Andolf, *Svenska frivilligkåren* (In English: *The Swedish Volunteer Corps*), in *Svenska frivilliga i Finland 1939-1944* (In English: *Swedish Volunteers in Finland, 1939-1944*), Stockholm 1989 pp. 39-190, especially pp. 176-187.

fighter wing, F 9, was established in July 1940 in Gothenburg. The German occupation of Norway in April 1940 had made the defence on Sweden's second largest city and the western border extremely important. From October 1940 and on another fighter wing, F 10, also was established at Bulltofta close to Malmö, Sweden's third largest city, and the Germanoccupied Denmark.¹¹

This was an important shift in the Air doctrine, and it occurred without any explicit discussion. The military events around Sweden's borders had made the decision for more fighters necessary. No bombers, how useful they might be for other tasks, could ever defend Sweden against German attacks from a large number of bases not only in Germany but also in Denmark and Norway. There was not even a theoretical possibility to prevent such attacks by bombing the German air bases.

Another important factor was the technical development that during the 1930's had been in favour of the bomber planes. Now in 1940 the technology had shifted and made fighters with a speed up to some 600 km/hour superior in speed to bombers with a speed between 400 and 500 km/hour. Machinegun-armed fighter planes could now with some hope of success attack bombers in aerial combat plane versus plane.

But to this also came a third important impuls to shift Sweden's Air doctrine in 1940: the outcome of the Battle of Britain. The British results against the Luftwaffe were impressing, and underlined also for the Swedish Air Force the importance of the use of fighters for the defence against attacking bomber fleets. But in Sweden, as in many other countries, one wasn't totally aware of how the British victory had been accomplished: the still hidden secret about the radar.

The impulses from the Battle of Britain could clearly be seen in the following years. Already in 1940 manoeuvres with the Air Squadron, the elite striking force of the Air Force, showed the superiority of the fighters in the air battle. In 1941 new directives for the Air Force was written in the warplanning for Case I and Case II – i.e. war against Germany and Soviet Unions respectively – including for the first time the task of defending populated cities. When a German invasion of Sweden was much feared in February and March 1942 the fighter units were concentrated close to the three largest cities Stockholm, Gothenburg and Malmö. The defence against an invasion fleet and enemy land forces on the ground were left to the bomber units, who thereby kept one of their two main tasks from the 1930's.

In November 1941 two Swedish Air Force officers – colonel Axel Ljungdahl (from 1954 CIC of the Air Force) and colonel-lieutenant Lars Hägglöf – visited Great Britain. Their hosts showed the many thing, although they didn't disclosed all secrets. The British experiences from the Battle of Britain were reported back to Stockholm: "Attacks against Air bases isn't enough of You want to win superiority in the air. Through such attacks You can destroy some air crafts, a task difficult enough against well prepared air bases. The combat in the air is a more efficient way, since

¹¹ Gösta Norrbohm/Bertil Skogsberg, *Att flyga är att leva. Flygvapnet 1926-1976* (In English: *To fly is to live. The Air Force 1926-1976*), Höganäs 1975 pp. 76-77 and 138-141.

You then shoot down the crews. After severe losses also the remaining crews begin to loose their morale.”

The big secret behind the British victory, the radar, was not totally detected by the Swedes, however they in their reports spoke about what they called “the radiolocation”, a kind of echosystem in the air. Or as Axel Ljungdahl put it: “This was the first time the we ever heard the word ‘radar’, and we were highly astonished when we on the large operational map (in a combat leading centre) could see how German planes moved in France.”¹²

The impressions from the Battle of Britain were important for the development of a new Swedish Air Doctrine, but they shouldn't be overestimated. The experiences from the first two years of the war, especially the Finnish Winter War and the German occupation of Denmark and Norway were as important. The shift in the Swedish Air Doctrine had already begun before the Battle of Britain took place, but the speed and direction in that shift was increased after the British victory.

Not all impulses came from Britain. Other important news about the development of Air technology, operational art and tactics also came from Moscow and to a larger extent from Berlin. Important visits by Swedish officers took place at the Luftwaffe both before and after the outbreak of the war.¹³

Among the most important news were the German way of co-operation between Air units and Army forces in Close-Air-Support operations, as well as the system for supplying the Air units, the Fliegerhorst-organisation. The latter was introduced in Sweden in 1942 in form of the so called “Air bases-areas”, a system that was strongly supported by the new (from 1942) CIC of the Air Force, Bengt Nordenskiöld.¹⁴

The report written by Ljungdahl and Hägglöf from their visit in Britain in November 1941 gave a good push to the work on a Swedish radar construction, a work that had been going on since 1939. The work included several high-tech industries like Bofors, SAAB and L M Ericsson and during 1944 radar was introduced both in the anti-aircraft artillery and the Air Force. In 1944 Britain also revealed some important radar secrets to Sweden, as a gratitude since Sweden to the British had handed over some German V 2-bombs that had landed by mistake in Sweden. During the large manoeuvre with the fighter Squadron in September 1944 radar was used for the first time in Sweden to support operational control of the fighters from the operational control room on the ground.

¹² Axel Ljungdahl, *En flygofficers minnen* (In Swedish: *The memories of an Air Force officer*), Stockholm 1972 pp. 147-148.

¹³ Klaus-Richard Böhme, *Kontakter med en tänkbar angripare. Flygvapnet och Luftwaffe 1935-1939* (In English: *Contacts with a potential aggressor. The Air Force and the Luftwaffe 1935-1939*), in *Militärhistorisk Tidskrift* 1989 (*Military History Review* 1989) pp. 223-249 and Gunnar Richardson, *Beundran och fruktan. Sverige inför Tyskland 1940-1942* (In English: *Admiration and fear. Sweden in front of Germany 1940-1942*), Stockholm 1996 pp. 35-38.

¹⁴ *Norberg* 1971 pp. 204-205.

During these years of shift of Air doctrine the Swedish Air Force also steadily grew in number. In 1945 the Air Force consisted of 17 wings, seven bombers, seven fighters and three reconnaissance, and every unit had more, and also more modern, planes than in 1939. The CIC Bengt Nordenskiöld could muster a little more than 1 000 planes when the war ended in Europe in May 1945.

The changes in the Swedish Air Force doctrine in the years after 1936 was partly due to technical changes, partly to experiences of the war since 1939. In the first years of the 1940's there wasn't, of course, any realistic possibilities for the Swedish bomber wings to attack the Soviet or German air bases, not to speak about attacking Soviet or German cities in order to prevent attacks against similar targets in Sweden. The thought of using bombers to prevent bombing of Swedish cities and industries was already history.

Instead the bomber wing should be used the enemy invasionfleet or army units crossing the Swedish border. However, in the dramatic morning of June 22, 1941, when Nazi-Germany launched it's massive invasion of Soviet Russia, bombers of the 1st bomber wing at Västerås air base were put on alert. In case of a Soviet attack their task would have been to try to attack invasions ships and, if possible, harbours in the Sovietoccupied Estonia.¹⁵

A defence commission suggested in 1941 the establishment of as many fighter wings as bomber wings (six of each), and it argued for a closer cooperation between the Air Force, the Army and the Navy: "The fighter units shall have enough capacity to make an efficient protection for the own air forces in the air and on the ground, the army forces and their communications, the naval forces in harbour and close to the coasts and, finally, to the populated areas. These units are, together with mobile troops, the most important weapon against an enemy invasion."

This was postulated in January 1942 and marks the end of the bomber epoch in Swedish Air Force doctrine. The attempts by the Air Force to create a kind of strategic bomber force came to an end, and instead the Force began to develop tactical bombers (for CAS-missions), fighters and the new attack planes, light and fast planes aimed for attacking the invasion fleet. This shift in the doctrine also ment that the Air Force came to work more close to the other two branches of the armed forces. A strong strategic bomber force could operate more independent than the tactical and attack forces that now began to dominate the agenda. The most clear expression for this shift in doctrine was the creation of the "Attack squadron", the main mobile striking tool to be used by the CIC of the armed forces in case on an enemy invasion throughout the cold war.

¹⁵ Lars Ericson (Wolke), *Buffert eller hot? De baltiska staterna i svensk militär planering år 1941* (In English: *Buffert or threat? The Baltic states in Swedish military planning in 1941*), in Bo Hugemark, ed., *I orkanens öga. 1941 – osäker neutralitet* (In English: *In the eye of the hurricane. 1941 – uncertain neutrality*), Stockholm 1992 pp. 127-154, especially pp. 138-141.

The history of the Swedish Air Force between the years 1934 and 1945 shows how fast a military doctrine, in this case an Air doctrine, can change, due to technological and practical development as well as other factors, national and international.

The fast shift in Sweden's Air doctrine especially the years 1940-42 resulted in effects for several decades to come, first regarding the concentration of bombers as a tool against the invasion fleet and not the enemy bases on land, later in the same basic tasks for the new attack planes of the Air Force. The stability in this shift is underlined if we study the debate during the 1950's whether Sweden's armed forces should get nuclear capability. In 1954 the CIC of the armed forces, Nils Swedlund, argued that Sweden should have nuclear arms for tactical use, either against an invading fleet approaching across the Baltic Sea, or against large troop concentration that already had landed on the beaches. It's not explicitly clear whether the armed forces were prepared to launch nuclear attacks on Sweden's own territory, or against important enemy harbour and railroad junctions. But what is clear is that the Swedish armed forces totally rejected any proposal for Swedish nuclear arms to be used for strategical purposes. However a few voices in the debate argued for a strategical devise, the so called "Leningrad-bomb", in order to deter the Soviet Union to use nuclear arms against Swedish cities. But these voices had no anchorage within the armed forces.¹⁶

However, if the shift in Sweden's Air doctrine had *not* been taken place in 1940-42, the debate in the 1950's could have been a more explicit one about a Douhet-influenced doctrine in combination with nuclear arms. That would have been a totally different history.

¹⁶ Jan Thörnqvist, *Den öppna och den slutna militära debatten om taktisk och operativ anpassning av försvaret mot kärnvapen, 1954 till 1965* (In English: *The open and secret military debate about the operational adjustment of the armed forces towards nuclear arms, 1954 to 1965*), i Kent Zetterberg, ed., *Svenska kärnvapen? En antologi uppsatser kring frågan om svenska taktiska kärnvapen under kalla kriget* (In English: *Swedish nuclear arms? An anthology of papers concerning the question about Swedish tactical nuclear arms during the cold war*), Stockholm 2010 pp. 51-83.

JULIEN GRAND*

La doctrine d'emploi des troupes d'aviation suisses durant le XXème siècle

1. Introduction

A l'heure actuelle, l'Armée suisse se compose essentiellement de deux entités distinctes : les Forces terrestres et les Forces aériennes. Il n'en fut pas toujours ainsi. L'arme aérienne est créée durant la Première Guerre mondiale et ne devient autonome et organisée qu'en 1936, avec la mise sur pied de l'Office fédéral de l'aviation militaire et de la défense contre avions. Il se développe durant la Seconde Guerre mondiale et le début de la Guerre froide pour devenir, en 1968, un corps d'armée à part entière et atteint son paroxysme dans les années 1980 avec l'acquisition de l'appareil F-5 Tiger. Mais la fin de la Guerre froide remet en question les missions générales de l'Armée suisse, ce qui contraint également les Forces aériennes à une réduction, tant au niveau des effectifs que du matériel.

Le présent article tente de passer en revue, pour le XXème siècle, la doctrine d'engagement des troupes d'aviation helvétiques. Il nous appartient donc de définir, avant toute chose, le concept de doctrine. Pour ce faire, le présent nous donne une clé de lecture. Citons les Forces aériennes du XXIème siècle : « La doctrine est la mise au point et la description des principes fondamentaux régissant l'engagement des forces armées. [] », puis, plus loin : « Elle [la doctrine] fixe les principes de base des mécanismes de fonctionnement des Forces aériennes tels que structuration, organisation, équipement, instruction, entraînement et communication externe. »¹ En conséquence, nous analyserons en premier lieu les missions confiées à nos aviateurs, dans le cadre de la défense générale du pays afin d'établir les continuités ou les césures qui ont marquées l'évolution des Forces aériennes. Pour ce faire, nous utiliserons les indicateurs relatifs au matériel, à la structure ou à l'organisation, disponibles dans les sources et qui sont de qualité et de quantité différentes suivant chaque période. Nous avons également été contraint d'effectuer des choix : l'une des particularités helvètes est d'avoir confié la responsabilité de la défense contre avions aux troupes d'aviation, là où d'autres pays l'ont laissée à l'arme de l'artillerie. Aussi, même si des troupes DCA étaient incorporées au sein des formations des Forces terrestres, le

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¹ Site internet des Forces aériennes : http://www.lw.admin.ch/internet/luftwaffe/fr/home/die_luftwaffe/organisation/luftwaffenstab/doctrine/definition.html, version 29.09.2010 ; voir également Schweizer Luftwaffe, *Luftwaffe Basisdoktrin – Fassung Weiss*, du 20 décembre 2001, 154 p. disponible sous : http://www.lw.admin.ch/internet/luftwaffe/de/home/die_luftwaffe/organisation/luftwaffenstab/doctrine/downloads.html.

chef d'arme de la DCA était subordonné au commandant des troupes d'aviation. Il va sans dire que les missions confiées à nos aviateurs dépendent de celles confiées à la défense contre avion basée au sol, néanmoins la place manque ici pour analyser toutes les deux. Nous nous concentrerons donc, dans cette contribution, à analyser la doctrine relative à la composante volante. De même, nous nous sommes concentré sur les engagements de guerre de notre aviation, laissant de côté la problématique de la neutralité et de sa protection qu'il serait néanmoins très intéressant d'ausculter notamment sous l'angle de la création et de l'évolution de l'escadre de surveillance.

Pour cette analyse, nous nous sommes essentiellement basé sur les règlements en vigueur dans l'Armée suisse. Ceux-ci varient d'une époque à l'autre mais nous y retrouvons une certaine structure et continuité. Le fil rouge en matière de règlements est représenté par la *Conduite tactique* également appelée, par le passé, *Conduite des troupes* ou *Service en campagne*. Le règlement de *Conduite opérative* nous donne également, pour certaines périodes, des renseignements importants sur l'engagement de notre arme aérienne. Ensuite, nous avons eu recours aux règlements internes des troupes d'aviation relatifs à son engagement. Il est à déplorer que nous n'ayons pas réussi à retrouver tous les règlements qui, du fait de leur classification ou de leur âge, ne sont pas disponibles dans certains fonds. Organisée de manière fédérale et selon le principe de démocratie directe, la Suisse recèle certains particularismes dans le domaine de la défense. Le Parlement et le Conseil Fédéral portent une part importante dans les choix relatifs à l'organisation de notre Armée, notamment dans le domaine du matériel et de la structure de nos troupes. Les documents établis à ce niveau sont vitaux pour notre étude, aussi avons-nous étudié les messages du Conseil Fédéral relatifs à l'organisation des troupes ou à l'achat de matériel. Pour finir, nous avons complété notre analyse par la lecture d'études consacrées à la problématique de l'aviation en particulier ou de la défense en général. Particulièrement recommandée, la série d'études de la collection *L'Etat-major général suisse* ou encore les ouvrages publiés par l'Association Suisse d'Histoire et de Sciences Militaires.

Notre contribution sera organisée de manière chronologique. La Première Guerre mondiale forme la première tentative de formation d'une troupe d'aviation digne de ce nom. Puis, la seconde période commence avec les années 1920, marquées d'un pacifisme optimiste et le délaissement du domaine de la défense.² La création de l'Office fédéral de l'aviation militaire, en 1936, marque le début d'une troisième période avec la montée en puissance de l'arme aérienne durant la Seconde Guerre mondiale. La quatrième période va de la fin du second conflit mondial à 1966, date de la mise en place de la défense combinée. Cette mise en place, qui occupe la fin des années 1960 et le début des années 1970 marque notre cinquième période. Enfin, la sixième et dernière période voit les Forces aériennes atteindre leur paroxysme dans les années 1980, avant que la chute du mur de Berlin ne les contraignent à des réductions dues au passage à la défense dynamique.

² Ernst Wetter: *L'aviation militaire suisse* in "Revue militaire suisse", n°10, 1974, p. 450.

2. Des débuts timides

L'histoire de l'arme aérienne en Suisse débute comme dans toutes les autres armées, par une curiosité timide de la part des états-majors. Des essais sont entrepris en 1911, avec l'engagement d'un appareil lors des manœuvres de septembre du 1^{er} corps d'armée. Les résultats sont très mitigés, forgeant ainsi les arguments des adversaires de l'arme aérienne.³ Un deuxième essai, en 1913, se termine même par un accident.⁴ Le Conseil Fédéral préfère ainsi attendre avant de prendre une décision. Cette attitude attentiste pousse alors la Société suisse des officiers à lancer une collecte nationale pour la création d'une aviation. Des officiers de haut rang sont sceptiques, comme le commandant de corps Sprecher von Bernegg. D'autres y sont carrément opposés, notamment le commandant de corps Wille, futur général durant la Première guerre mondiale.⁵ Qu'à cela ne tienne, la collecte aboutit et l'on se dirige vers la création d'une troupe d'aviation alors que le premier conflit mondial éclate.

Lors de la mobilisation générale de 1914, l'embryon de troupe d'aviation est donc représenté par dix pilotes mobilisés avec leur propre appareil. Parmi les huit appareils, nous retrouvons deux biplans LVG et Aviatik, un Blériot, un monoplane Grandjean, un Farman, un Morane-Salunier, un Sommer ainsi qu'un hydravion.⁶ Difficile de trouver dans ces conditions une doctrine d'engagement alors même que la troupe n'existe pas officiellement ! Ce n'est que le 13 août 1915 que le Conseil Fédéral officialise la troupe en publiant une *Organisation provisoire de l'aviation militaire*.⁷ Cette organisation demeurera en vigueur d'ailleurs jusqu'en 1936 ! Elle sera révisée en 1920, 1922, 1923, 1924, 1928, 1929, 1931, 1932 et 1936.⁸ Nous nous trouvons donc face à du provisoire qui dure ! La mise en place du corps des aviateurs durant la guerre relève du chaos. Sa subordination reste provisoire et personne ne semble se préoccuper de l'utilisation de cette arme nouvelle. De 1914 à 1916, l'arme aérienne dépend directement des services de l'Etat-major général. Puis, à l'automne 1916 et jusqu'en 1917, elle est subordonnée à l'office du Génie. Son commandant délègue alors ses compétences au Chef de la télégraphie de l'armée ! En mars 1917, enfin, une double-subordination est mise en place : pour l'engagement, l'arme aérienne dépend de l'Etat-major général mais demeure subordonnée au Génie en ce qui concerne le matériel et l'instruction.⁹ A la fin de la première Guerre mondiale, il n'existe toujours aucune doctrine d'engagement relative à l'emploi de notre arme

³ Christophe Siméon: *L'envol manqué de l'aviation militaire suisse à la fin de la Belle époque (1910-1914)*. Neuchâtel, Alphil, 2008, pp. 73-75.

⁴ *Ibid.*, pp. 132-133.

⁵ *Ibid.*, pp. 88-89 et 110.

⁶ *Ibid.*, pp. 156-157.

⁷ *Ibid.*, p. 157.

⁸ Office fédéral de l'aviation militaire et de la défense contre avions: *50 ans: Office fédéral de l'aviation militaire et de la défense contre avions*. Berne, Office fédéral de l'aviation et de la défense contre avions, 1986, p. 23.

⁹ *Ibid.*

aérienne.¹⁰ Au sein de l'Etat-major général, l'aviation ne représentait pas une priorité mais l'on peut tout de même se représenter comment l'engagement des troupes d'aviation en cas de conflit y était envisagé. Lors des entretiens avec l'état-major français pour une éventuelle collaboration, on parle de cantonner les avions helvétiques dans les rôles d'exploration et de direction des feux d'artillerie.¹¹ La chasse n'est donc pas d'actualité, comme l'atteste également les achats d'appareils durant le conflit : 12 DH-1/2, 43 Wild, 109 DH-3, tous des appareils à engager pour des tâches d'exploration. L'acquisition de ces modèles met au jour des tensions entre le Service technique militaire et les troupes d'aviation quant aux procédures et responsabilités pour l'achat du matériel volant. Ce problème sera d'ailleurs récurrent jusqu'à nos jours. Au sortir de la guerre, le bilan est donc plutôt mitigé et l'aviation suisse est évaluée par un attaché de défense américain comme « practically helpless ». ¹² Le général Wille demande, dans son rapport sur le service actif, alors même qu'il était sceptique avant la guerre, le renforcement de l'aviation militaire suisse.¹³

3. L'aviation suisse dans l'Entre-deux-guerres

L'Entre-deux-guerres en Suisse est marqué par un certain pacifisme ambiant, loin du renforcement demandé par le général. L'idéologie du « plus jamais ça » règne pour une majorité de la population, même si elle n'a pas connu la guerre. L'armée ne reçoit pas les crédits nécessaires pour sa modernisation et sa préparation s'en ressent. Il n'en va pas autrement en ce qui concerne les troupes d'aviation qui, comme nous l'avons vu plus haut, demeurent organisées sur une base provisoire. Depuis 1921, l'aviation, subordonnée à l'Etat-major général, disposait d'un chef en la personne du colonel Immenhauser. Celui-ci jouait le rôle d'un chef d'arme. Une doctrine d'emploi devrait donc se dessiner, même si l'on ne connaît pas encore de directives fixes quant à l'aviation.¹⁴

En 1924, le Conseil Fédéral présente au Parlement un message relatif à la nouvelle organisation des troupes. Celui-ci nous permet de nous représenter l'engagement des troupes aériennes. Il n'en demeure pas moins que, si le message présente la menace aérienne comme l'une des plus dangereuses, « ce problème reste encore à résoudre ». ¹⁵ Nous nous trouvons donc toujours dans le flou le plus complet. Les missions que l'on désire confier à l'aviation sont de nature défensive. On envisage

¹⁰ *Ibid.*, p. 19.

¹¹ Hans Rapold: *Zeit der Bewährung ? Die Epoche um den ersten Weltkrieg 1907 - 1924*. Bâle, coll. *L'Etat-major général suisse*, Vol. V, Helbling & Lichtenhahn, 1988, pp. 203 et 305.

¹² *Ibid.*, p. 425.

¹³ *Ibid.*, p. 333.

¹⁴ Hans Senn: *Erhaltung und Verstärkung der Verteidigungsbereitschaft zwischen den beiden Weltkriegen*. Bâle, coll. *L'Etat-major général suisse*, vol VI, Helbling & Lichtenhahn, 1991, pp. 109-111.

¹⁵ « Message du Conseil fédéral à l'Assemblée fédérale relatif à une nouvelle organisation des troupes. (Du 6 mai 1924.) » in *Feuille fédérale*, 1924, Vol. 2, n° 21, pp. 61-63.

ainsi pour celle-ci un rôle d'exploration, de renseignement et de liaison. Elle doit également être en mesure de pouvoir empêcher les escadrilles ennemies d'évoluer au-dessus de notre territoire.¹⁶ L'organisation des troupes prévoit la création de 5 groupes d'aviation, chacun destiné à une mission particulière. Le premier, composé de 6 compagnies d'avions légers¹⁷ sert à l'exploration rapprochée et l'observation pour l'artillerie. Cela représente une compagnie par division. Le second groupe se compose également de 6 compagnies, destinées aussi aux divisions. La mission demeure la même mais les appareils doivent être plus puissants afin d'évoluer en montagne. Les troisième et quatrième groupe sont tous deux composés de 6 compagnies d'avion d'observation lourds. Le troisième groupe est également destiné aux divisions pour les missions « difficiles » tandis que le quatrième est destiné au commandement de l'armée pour l'exploration lointaine. Le cinquième groupe est également à disposition du haut commandement et se compose de 6 compagnies d'aviation de chasse, « chargés de protéger, contre les attaques des escadrilles de bombardement, le terrain situé en arrière du front de l'armée. » On renonce, en revanche, à acquérir des avions de bombardement ainsi que des avions blindés armés de mitrailleuses.¹⁸ Un état-major des troupes d'aviation est également mis sur pied avec, non pas la mission de commander les troupes, mais de s'occuper des questions intéressant les troupes d'aviation au sein de l'Etat-major général.

Cette première ébauche nous permet de faire quelques constatations intéressantes : les deux missions confiées à notre aviation sont la chasse et l'exploration. La seconde tâche obtient la priorité. Ensuite, il est prévu de subordonner, en cas de service actif, trois groupes aériens aux trois corps d'armée, respectivement aux divisions, alors que deux groupes restent à disposition du commandement de l'armée.¹⁹ On ne choisit donc pas la concentration des forces mais on préfère mettre les moyens directement à disposition des Grandes unités, même si en temps de paix, les unités ne sont pas endivisionnées.²⁰ Ces tâches sont entérinées par le règlement du *Service en campagne* de 1927, quoique dans une priorité différente que celle donnée dans le document *Organisation des troupes* : on y définit en effet la chasse comme la mission principale de l'aviation.²¹ Néanmoins, cette organisation reste un vœu pieu, car le

¹⁶ *Ibid.*, pp. 68-69.

¹⁷ On ne parle alors pas d'escadrille au sens moderne, puisque le document *Organisation des troupes* se réfère à des escadrilles composées de 30 à 60 avions ! Le document fait alors allusion à des compagnies d'aviation qui comprennent alors autant le personnel volant que les rampants. Cette particularité est par ailleurs relevée par les aviateurs eux-mêmes : Etienne Primault: *Les possibilités de l'aviation militaire suisse* in "Revue militaire suisse", n°4, 1927, p. 155.

¹⁸ *Message du Conseil fédéral à l'Assemblée fédérale relatif à une nouvelle organisation des troupes*. (Du 6 mai 1924.), *op. cit.*, pp. 76-77. Pour l'emploi tactique de ces types de formations voir : Maj EMG Ackermann: *Emploi de l'aviation en temps de guerre* in "Revue militaire suisse", n°7, 1932, pp. 327-341.

¹⁹ *Ibid.*, p. 146.

²⁰ *Ibid.*, p. 244.

²¹ Règlement *Felddienst*, 1927, Berne, DMF, pp. 35-39.

matériel ne permet pas d'accomplir les missions retenues. A la fin des années 1920, les appareils que possède la troupe d'aviation ne permettent en effet que de mener des missions d'exploration.²² Le capitaine Primault, futur commandant des troupes d'aviation dans les années 1950 écrit alors : « Elle [l'aviation] est tout au plus un service ou, si vous préférez, un moyen de renseignements. »²³ Ce changement de vision, imprimé dans le règlement de 1927 est confirmé par le message du Conseil Fédéral relatif à l'acquisition d'avions de 1929, qui place l'avion de chasse comme le plus à même de répondre à nos besoins.²⁴ Cherchant à poursuivre la mise en place de l'organisation des troupes de 1924, le Conseil Fédéral propose alors l'acquisition de 60 appareils de chasse et 45 d'observation.²⁵ On remarque donc que, si cet achat ne permet pas de combler le manque de matériel pour réaliser les plans de 1924²⁶, les autorités commencent à se préoccuper de l'engagement de l'arme aérienne à la fin des années 1920. Un service autonome relatif à l'aviation militaire est donc enfin créé en 1936.

4. La création d'un office fédéral de l'aviation militaire et la Seconde Guerre mondiale

Cette mise en place d'un office consacre définitivement la création des troupes d'aviation qui deviennent ainsi autonomes, avec leur propre commandant qui, par la même occasion, fait office de chef d'arme. Un état-major lui est adjoint en 1937 et l'office reçoit la compétence, en 1938, d'établir les règlements d'engagement de l'arme.²⁷ En corollaire, une nouvelle *Organisation des troupes* est donnée. Celle-ci introduit le régiment d'aviation, qui a pour but de coordonner l'action combinée de plusieurs groupes d'aviation. On compte ainsi 3 régiments qui regroupent les 21 escadrilles des 7 Groupes.²⁸

Néanmoins, les travaux sur la doctrine d'engagement ainsi que la planification de l'engagement des troupes d'aviation n'avancent que très peu. La montée des périls en Europe aboutit à un renforcement d'urgence de l'Armée suisse, mais la Commission de défense nationale, « général » en temps de paix, ne consacre que pas

²² Hans Senn: *op. cit.*, p. 115.

²³ Etienne Primault: *op. cit.*, p. 153.

²⁴ *Message du Conseil fédéral à l'Assemblée fédérale concernant l'acquisition d'avions, moteurs d'avions et autre matériel de corps pour la troupe d'aviation.* (Du 13 décembre 1929.) in *Feuille fédérale*, 1929, Vol. 3, n° 51, pp. 613-614.

²⁵ *Ibid.*

²⁶ Senn Hans: *op. cit.*, p. 115.

²⁷ Werner Rutschmann: *Die Schweizer Flieger- und Fliegerabwehr - Aufträge und Einsatztruppen 1939-1945.* Thoune, Ott Verlag, 1989, p. 27.

²⁸ *Message du Conseil fédéral à l'Assemblée fédérale relatif à une nouvelle organisation des troupes.* (Du 19 juin 1936.) in *Feuille fédérale*, 1936, Vol. 2, n° 26, p. 36 et Werner Rutschmann: *op. cit.*, p. 30.

ou peu de séance à l'aviation.²⁹ Une étude de 1935 sur la question de la protection aérienne, rédigée par le colonel EMG Bandi, futur commandant des troupes d'aviation, est donnée par le chef de l'EMG, le commandant de corps Roost. Celle-ci pose comme base la défense aérienne passive élargie par des éléments de défense active. L'influence de Douhet est palpable dans cette étude qui veut donner des capacités offensives aux forces aériennes. Un autre élément indiquant une modification réalisée après la guerre apparaît : la concentration des forces est évoquée et non la dispersion telle qu'exprimée dans *l'Organisation des troupes* de 1924.³⁰

Ainsi, lorsque la guerre éclate, l'état de préparation est déplorable ; certaines escadrilles ne disposent même pas d'avions ! Le Général ne trouve, dans les documents de l'EMG, rien de relatif à l'engagement des forces aériennes.³¹ Le Général Guisan apprécie la situation comme un « véritable état de crise » : « La doctrine de l'emploi de l'arme manquait : le principal règlement tactique n'était pas élaboré. Les sens et la volonté de collaboration avec les forces terrestres faisaient défaut. »³² Durant la guerre, ce ne sera donc pas la mission qui détermine les moyens mais les moyens à disposition qui donnent les missions.³³ Avant la prise du Réduit national, l'aviation reçoit la mission primaire de couvrir la marche des unités contre les attaques aériennes.³⁴ Cet engagement est réglé dans les différents ordres d'opération révisés périodiquement durant la guerre. La prise du dispositif du Réduit modifie quelque peu ces missions. D'une arme de sacrifice, l'aviation reçoit la mission de couvrir la mobilisation, combattre les troupes aéroportées et de participer au combat retardateur avec les brigades légères.³⁵ A ce titre, l'organisation est modifiée par la création d'un quatrième régiment d'aviation. De la sorte, chaque corps d'armée dispose de son régiment. La décentralisation des moyens est donc maintenue.³⁶

La Seconde Guerre mondiale voit la naissance du premier règlement d'engagement des troupes d'aviation, bien que provisoire. Ce document est plutôt concis puisqu'il ne contient que dix-huit pages et est l'œuvre du commandant des troupes d'aviation, le colonel-divisionnaire Bandi en 1943. Les tâches dévolues à l'aviation sont l'exploration et le combat. Seule la première est prévue au niveau opératif, la seconde se déroulant uniquement au niveau tactique. Tous ces engagements sont alors menés au profit des troupes terrestres, même la « chasse libre ». La conduite du combat demeure néanmoins très aléatoire puisque le règlement prévoit même la

²⁹ Werner Rutschmann : *op. cit.*, p. 29.

³⁰ *Ibid.*, pp. 23-28.

³¹ *Rapport du Général Guisan à l'Assemblée fédérale sur le service actif 1939-1945*, Lausanne, Imprimeries Réunies SA, 1945, p. 99.

³² *Ibid.*, pp. 104-105.

³³ *Ibid.*, pp. 109-110.

³⁴ Hans Senn: *Anfänge einer Dissuasionsstrategie während des Zweiten Weltkrieges*. Bâle, coll. *L'Etat-major général suisse*, vol VII, Helbling & Lichtenhahn, 1995, p. 96.

³⁵ Hans Senn: *Anfänge einer Dissuasionsstrategie während des Zweiten Weltkrieges*, *op. cit.*, p. 324.

³⁶ Werner Rutschmann: *op. cit.*, pp. 317-318.

communication entre troupes au sol et aviation par le bais de draps disposés au sol !³⁷ A la fin de la Seconde Guerre mondiale, la troupe d'aviation est autonome mais encore engagée uniquement au profit des Forces terrestres, avec un matériel vieux et mal adapté à la conduite de la guerre moderne.

5. Le début de la guerre froide - une *Konzeptionsstreit*

Au sortir de la guerre, ce sont encore les documents d'avant-guerre qui prévalent. Il faut alors les remettre au goût du jour. L'*Organisation des troupes* de 1946 entérine ainsi les changements apportés durant la Seconde Guerre mondiale. Elle consacre notamment la création de la division aérienne et introduit enfin le concept d'escadrille. On passe alors à 27 escadrilles d'aviation et escadrilles de nuit, réparties entre 4 régiments d'aviation et 1 escadre de nuit. L'organisation au sol est, elle également, modifiée pour aller dans le sens du principe de la base aérienne.³⁸ Le début de la guerre froide provoque un choc au sein de l'élite de notre pays qui ne veut en aucun cas revivre la situation de dépendance imposée durant la Seconde Guerre mondiale. L'aviation est donc rapidement renforcée au niveau matériel, notamment par l'acquisition de P-51, de DH-100 Vampire et DH-110 Venom qui permettent un saut qualitatif. L'organisation de l'Armée est elle aussi rapidement modifiée par l'*Organisation des troupes* 1950, qui n'amène cependant rien de nouveau pour les troupes d'aviation.³⁹ Le principal règlement de conduite connaît lui également une remise au goût du jour, avec la publication de la *Conduite des troupes 1951* (CT 51) qui remplace le règlement de *Service en campagne* de 1927. La CT 51 suit une structure similaire au règlement d'avant-guerre et souffre encore d'une vision limitée sur les capacités de l'aviation, puisque celle-ci arrive en onzième position dans les moyens de combat cités par la CT 51, après même le renforcement du terrain ! De même, sa contribution au combat est relativisée dans son chapitre introductif.⁴⁰ Notre aviation doit alors se borner à la collaboration tactique avec les forces terrestres et n'engager le combat aérien que si la mission l'exige. (chi. 148).⁴¹ La seule exception est représentée par l'exploration lointaine, tâche stratégique au profit de l'armée.⁴² Son engagement doit être réservé aux phases décisives de la bataille. Il sera analogue à celui de l'artillerie

³⁷ *Provisorische Ausbildungsvorschrift der Fliegertruppe 1943, Die Kampfführung der Fliegertruppe*, 1943, PC du général en chef de l'Armée, p. 18.

³⁸ *Message du Conseil fédéral à l'Assemblée fédérale concernant la modification de l'arrêté de l'Assemblée fédérale du 7 octobre 1936 sur l'organisation de l'armée (organisation des troupes)*. (Du 30 septembre 1946.) in *Feuille fédérale*, 1946, Vol. 3, n° 21, pp. 308 et 323.

³⁹ *Message du Conseil fédéral à l'Assemblée fédérale concernant l'organisation de l'armée (organisation des troupes)* (Du 10 octobre 1950) in *Feuille fédérale*, 1950, Vol. 3, n° 41, pp. 118 - 162.

⁴⁰ Règlement 51.20 f *Conduite des troupes 1951*, 1953, Berne, DMF, p. 32.

⁴¹ *Ibid.*

⁴² *Ibid.*, p. 89.

et peut être considéré comme du *Close Air Support*.⁴³ L'aviation est directement subordonnée au commandant en chef de l'Armée qui l'engage ou en subordonne des parties à une unité d'armée pour une action bien précise. L'officier d'engagement d'aviation de l'unité d'armée en question conduit alors les moyens mis à disposition.⁴⁴ Il s'agit alors ici d'une modification puisque l'on renonce à l'éparpillement des moyens qui prévalaient encore avant la Seconde guerre mondiale. Cette fois-ci les moyens sont concentrés dans les mains du commandant en chef.

Dans les années 1950, les troupes d'aviation ne représentent donc pas une composante essentielle dans la conduite du combat de l'Armée suisse. Son développement va également se trouver ralenti par la *Konzeptionsstreit*. Il s'agit d'une lutte livrée entre les partisans de plusieurs doctrines de combat. Dans les grandes lignes, les partisans de la *mobile defence* affrontent ceux de l'*area defence*⁴⁵ : dans le premier cas, une armée mobile est envisagée pouvant mener un combat mécanisé et protégé par une aviation de chasse forte, capable d'atteindre la supériorité aérienne, alors que le second courant demande une armée statique, combattant depuis des positions fixes et préparées de longue date. Dans ce cas-là, une aviation d'appui suffit largement.⁴⁶ Cette querelle va produire une indécision quant à l'emploi de l'aviation et empêcher sa modernisation durant la décennie. D'autres problèmes entravent ce développement, comme la lutte menée avec les officiers de la DCA, qui prônent le cantonnement des aviateurs aux missions de CAS afin d'assurer eux-mêmes la défense de l'espace aérien, ou encore les intérêts relatifs au développement d'avions helvétiques pour équiper nos troupes d'aviation.⁴⁷

De plus, le colonel-divisionnaire Primault, commandant des troupes d'aviation durant les années 1950, n'a pas de vision clairement établie sur l'emploi opératif de l'aviation et change souvent son avis quant à l'emploi de l'arme aérienne. Le commandant de corps Walter Dürig, commandant des troupes d'aviation de 1987 à 1989, évalue les capacités opératives des troupes d'aviation pour les années 1950 et 1960 comme étant « catastrophiquement mauvaises », puisqu'aucun exercice opératif n'eut lieu avant 1972.⁴⁸ Seul un changement à la tête de l'armée, en 1958, avec

⁴³ *Ibid.*, pp. 35-36.

⁴⁴ *Ibid.*, p. 37.

⁴⁵ Ces termes sont intervenus bien plus tard, il n'existait pas sous cette forme à l'époque. Nous les utilisons pour des vertus de démonstration.

⁴⁶ Cette description demeure très schématique et succincte. Les différents courants en opposition se distinguent encore par d'autres caractéristiques, notamment en ce qui concerne les attentes adressées aux troupes d'aviation. Pour le lecteur intéressé, nous recommandons vivement la lecture de Braun Peter: *Von der Reduitstrategie zur Abwehr. Die militärische Landesverteidigung der Schweiz im Kalten Krieg 1945 - 1966*. Baden, coll. *L'Etat-major général suisse*, Vol. X, 2 tomes, hier+jetzt, 2006, p. 1055.

⁴⁷ Voir Julien Grand: *N-20 et P-16, les raisons de l'échec d'une industrie aéronautique suisse autonome 1945-1966*. Fribourg, travail de licence - manuscrit, 2006, p. 155.

⁴⁸ Walter Dürig : *Die Schweizerische Luftverteidigung in der Mitte des geteilten Europas* in De Weck Hervé [Eds] : *La Suisse et la guerre froide 1950-1990*. Berne, ASHSM, 2003, pp. 149-182.

l'arrivée de nouveaux membres au sein de la Commission de défense nationale va permettre de débloquent la situation et sortir de cette crise de conception. La fin de la période voit néanmoins la parution du premier règlement non-provisoire relatif à l'engagement des troupes d'aviation.⁴⁹ Celui-ci ne change rien au constat que notre force aérienne est à engager de manière tactique. L'analyse est toutefois quelque peu affinée puisque l'on parle de deux phases de guerre : 1° la protection de la neutralité ; 2° les engagements de guerre. Les missions ne varient guère, le transport aérien s'y est ajouté.⁵⁰ L'engagement est néanmoins envisagé de manière centralisée afin de pouvoir fixer un effort principal.⁵¹ On désire atteindre ainsi une supériorité aérienne locale et limitée dans le temps⁵², signe qu'un chasseur devra alors faire son apparition dans les rangs des troupes d'aviation. Le soutien des troupes au sol, tant direct qu'indirect demeure néanmoins le point central ; celui-ci doit être conduit et coordonné au niveau des corps d'armée, qui disposent chacun d'une centrale d'engagement air, alors que les divisions et brigades ne disposent que d'un poste de direction air.⁵³ Ce règlement ne révolutionne pas l'engagement mais rend perceptibles des évolutions à venir : la chasse comme partie intégrante de l'engagement des troupes d'aviation ou encore la centralisation de son engagement en une seule et unique centrale d'engagement. Pour l'instant néanmoins, la situation ne diffère guère de celle rencontrée durant la Seconde Guerre mondiale.

6. La mise en place de la défense combinée

En 1958, les changements au sein de la Commission de défense nationale font pencher la balance de la *Konzeptionsstreit* dans le sens de la *mobile defence*. Cela signe en partie l'arrêt de mort de la production indigène d'avions, en l'occurrence l'abandon du P-16.⁵⁴ Cette doctrine se voit concrétisée dans l'*Organisation des troupes* de 1960. L'aviation de chasse y apparaît très clairement puisque l'aviation doit être en mesure de pouvoir repousser des raids aériens importants, dans une phase de protection de la neutralité.⁵⁵ Ensuite, l'Armée doit pouvoir mener un combat mobile sur le plateau, le tout couvert par l'aviation. Celle-ci appuie toujours les troupes terrestres mais, soit par la lutte contre les bases de feu et les installations adverses ou par la couverture aérienne.⁵⁶ Pour les troupes d'aviation, ce change-

⁴⁹ Règlement 56.3 *Einsatz und Kampfführung der Flugwaffe*, 1959, Berne, DMF, p. 111.

⁵⁰ *Ibid.*, pp. 10-11.

⁵¹ *Ibid.*, p. 12.

⁵² *Ibid.*, p. 31.

⁵³ *Ibid.*, pp. 69-76.

⁵⁴ GRAND Julien: *op. cit.*

⁵⁵ *Message du Conseil fédéral à l'Assemblée fédérale concernant l'organisation de l'armée* (Organisation des troupes) (Du 30 juin 1960) in *Feuille fédérale*, 1960, Vol. 2, n° 29, p. 327.

⁵⁶ *Ibid.*, pp. 334 – 336.

ment trouve sa concrétisation dans la commande de 100 chasseurs Mirage III.⁵⁷ Une mauvaise gestion du projet aboutit à un dépassement de crédits de plusieurs centaines de millions, que le parlement refuse d'accorder. Cela aboutit à une énorme crise politique et à la première commission d'enquête parlementaire de l'histoire suisse.⁵⁸ Le nombre de Mirage commandés passe donc à 57, dont uniquement 36 en version chasseur. La copie livrée dans l'*Organisation des troupes* 1960 est donc à revoir. La conception 66, connue sous le terme d'Armée 61, voit le jour et représente une spécificité helvétique. Le terme de défense combinée apparaît : des éléments d'infanterie classiques combattent depuis des positions préparées avec pour but de canaliser les forces adverses et créer les conditions favorables à la riposte des éléments mécanisés du secteur.⁵⁹ La mission des troupes d'aviation demeure l'appui des troupes au sol, mais les objectifs envisagés sont hors d'atteinte des autres armes.⁶⁰ Le spectre des missions d'*Offensive Counter Air* et d'*Air Interdiction* remplace alors celui de *Close Air Support*.⁶¹ Chose nouvelle également, une centrale d'engagement nationale est évoquée, qui sera mise en place avec l'acquisition du radar de surveillance FLORIDA.

A ce moment-là, les troupes d'aviation comptent trois régiments d'aviation : le premier à 6 escadrilles (2 sur Hunter, 4 sur Venom) basé en Valais ; le second à 8 escadrilles (2 sur Hunter, 2 sur Venom et 4 sur Vampire) basé dans l'Oberland bernois et le troisième à 7 escadrilles (1 sur Hunter et 6 sur Venom) basé dans la région du Gothard. Ces escadrilles sont concentrées sur 11 bases aériennes qui se trouvent toutes dans la zone de responsabilité du Corps d'armée de montagne 3. La centralisation des moyens, tant géographiques que dans la conduite, est donc atteinte à ce moment-là.⁶² La centrale d'engagement des Forces aériennes viendra chapeauter le tout. Les missions citées plus haut sont ancrées dans la *Conduite des troupes* 69 : l'aviation est un instrument d'exploration opérative ainsi qu'une réserve des commandants supérieurs ; sa mission première consiste en l'appui indirect des troupes au sol et est engagée en outre pour la couverture aérienne et, exceptionnellement, pour l'appui direct au sol.⁶³

⁵⁷ Arrêté Fédéral concernant l'acquisition d'avions de combat (Mirage III S), ainsi que de matériels pour les troupes d'aviation (Du 21 juin 1961) in *Feuille fédérale*, 1961, Vol. 1, n° 26, pp. 1634-1635.

⁵⁸ Voir Paolo Urio : *L'affaire des Mirages : décision administrative et contrôle parlementaire*. Genève, Ed. Médecine et hygiène, 1972, p. 311.

⁵⁹ Rapport du Conseil fédéral à l'Assemblée fédérale concernant la conception de la défense nationale militaire (Du 6 juin 1966) in *Feuille fédérale*, 1966, Vol. 1, n° 24, pp. 873-897.

⁶⁰ *Ibid.*, p. 884.

⁶¹ Peter Braun : *Der Operationsbefehl « ALPHA » von 1962* in Braun Peter et De Weck Hervé [Eds] : *La planification de la défense combinée dans l'Armée 61*. Berne, ASHSM, 2009, pp. 255-276.

⁶² Adrien Tschumy : *Planification au corps d'armée de montagne 3* et Peter Braun : *Der Operationsbefehl* () in Peter Braun et De Weck Hervé [Eds] : *op. cit.*, pp. 209, 222 et 252.

⁶³ Règlement 51.20 f *Conduite des troupes* 1969, 1969, Berne, DMF, p. 9.

7. Les adaptations de la défense combinée et le passage à la défense dynamique

La doctrine d'emploi des troupes d'aviation ne connaîtra alors que peu de changement jusqu'à la chute du Mur de Berlin. Les préparatifs au niveau opératif s'améliorent néanmoins notablement, avec le premier exercice opératif en 1972 ou encore la rédaction d'un ordre d'opération fixant les premiers engagements pour chaque escadrille en cas de conflit, à une distance allant jusqu'à 95 kilomètres au-delà de la frontière.⁶⁴ Au niveau matériel, et malgré l'arrivée des Mirage, la flotte est vieillissante pour les années 1970. Le Département militaire fédéral demande l'acquisition d'un avion d'attaque au sol, censé être le Corsair américain. En 1972, le Conseil fédéral renonce à cette acquisition, ce qui pose le problème du renforcement de notre aviation.⁶⁵ En 1973, une solution transitoire est trouvée dans l'acquisition de 30 Hunter supplémentaires, qui assurent alors à la fois des missions de couverture aérienne et d'attaque au sol.⁶⁶ En 1975, une centaine d'avions de combat F-5 Tiger sont achetés, avec pour but premier d'assurer la couverture de zone, complétée en 1980 par une deuxième série de 38 appareils.⁶⁷ Les Forces aériennes sont donc ainsi en mesure de remplir les 4 missions opératives qui leur sont confiées et atteignent, à ce moment-là, leur paroxysme. La police et la défense aérienne sont confiées aux Mirage ; la couverture de zone, soit l'atteinte d'une supériorité aérienne limitée dans le temps et l'espace est remise aux Tiger alors que la mission d'appui au sol est assurée par les Hunter ; l'exploration est affaire des Mirage de reconnaissance, le tout enfin complété par la mission de transport aérien confiée aux avions légers et hélicoptères.⁶⁸ L'importance alors accrue de l'aviation et ses tâches sont entérinées par la *Conduite des Troupes* 1982. La collaboration avec les troupes terrestres y est plus clairement définie par le biais de lignes de commandement clairement hiérarchisées.⁶⁹ Des crédits de vols sont attribués aux corps d'armée qui les distribuent à leurs Grandes Unités et peuvent être utilisés pour les 4 missions opératives confiées aux troupes d'aviation.⁷⁰

⁶⁴ Peter Braun : *Der Operationsbefehl « ALPHA » von 1962*, op. cit., pp. 262-269.

⁶⁵ Hans Senn : *Entstehung, Redaktion und Umsetzung der Konzeption der militärischen Landesverteidigung vom 6.6.66 in Planungstab der Armee* [Eds]: *La conception du 6.6.66 - 40 après*. Berne, ZEM, Dok 92.001 df, 2007, p. 45.

⁶⁶ *Message du Conseil fédéral à l'Assemblée fédérale sur l'acquisition d'avions Hunter* (Du 31 janvier 1973) in *Feuille fédérale*, 1973, Vol. 1, n° 8, pp. 345-349.

⁶⁷ *Message du Conseil fédéral à l'Assemblée fédérale sur l'acquisition d'avions de combat* (Du 27 août 1975) in *Feuille fédérale*, 1975, Vol. 2, n° 34, pp. 889-903 et *Message concernant l'acquisition d'avions de combat et d'avions-école du 12 novembre 1980* in *Feuille fédérale*, 1980, Vol. 1, n° 3, pp. 222-254.

⁶⁸ Walter Dürig : op. cit., p. 166.

⁶⁹ Règlement 51.20 f *Conduite des troupes* 1982, 1983, Berne, DMF, 121 p., voir également l'illustration 1.

⁷⁰ Règlement 51.15 f *La conduite de l'armée et des Grandes Unités* (CAG 83), 1983, Berne, DMF, pp. 26-30.

Cette organisation va demeurer jusqu'à la fin de la Guerre froide. En 1989, la chute du Mur de Berlin remet en cause le modèle de la défense combinée. En 1995, est mise en place la nouvelle armée sous le titre Armée 95. De défense combinée, on passe alors à la défense dynamique. La *Conduite tactique 95* ne parle plus de missions d'attaque au sol, seules demeurent la couverture de zone, la reconnaissance et le transport. La mise hors service des Hunter a, de facto, supprimé les missions qui formaient alors le cœur de compétence des troupes d'aviation au début de la Guerre froide et jusque dans les années 1960. Le FA-18, entré en service afin de remplacer le Mirage, ne dispose en effet d'aucune capacité d'attaque au sol vu que la munition requise pour ce type d'engagement n'a pas été achetée.⁷¹ La notion de combat dans le seuil infra-guerrier est nouvellement évoquée, ce qui augmente l'importance de la protection et de la sauvegarde de la neutralité pour les Forces aériennes.⁷² La conduite de l'engagement est encore plus centralisée puisque les corps d'armée ne disposent plus de crédits définis mais doivent adresser leurs demandes au commandement de l'Armée, qui fixe les priorités en accord avec le commandement des troupes d'aviation et de défense contre avions dans l'ordre d'opération de l'Armée.⁷³

8. Conclusion

Il est possible de tirer plusieurs conclusions de ce tour d'horizon de l'emploi de nos troupes d'aviation durant le XXème siècle. Tout d'abord au niveau des missions qui leur sont confiées. Une lente mais certaine évolution est notable. Premièrement engagées pour des tâches d'exploration, la mission principale est rapidement devenue l'appui des troupes au sol dès les années 1930 et ce jusque dans les années 1970. On peut alors y distinguer deux phases. La première couvre la Seconde Guerre mondiale et les années 1950 qui cantonnent l'aviation dans un rôle de *Close Air Support*. Les fonds ne doivent pas être gaspillés et la priorité demeure les troupes combattant au sol. Il faut donc se limiter au strict nécessaire. La césure intervenue en 1958 au sein de la Commission de défense nationale met quelque peu au rencart le CAS, pour fixer la priorité sur l'*Air Interdiction* et l'*Offensive Counter Air*. L'aviation devient alors l'artillerie qui permet de frapper au-delà du champ de bataille. De cette période-là, date également l'entrée de l'aviation de chasse dans le concept d'engagement des troupes d'aviation qui reçoivent alors la mission de couvrir les éléments les plus modernes des corps d'armées, à savoir les divisions mécanisées. Cette mission prend petit à petit le dessus dans les années 1970 - 1980 avec l'acquisition des Tiger. La mise en place d'Armée 95 couronne définitivement la couverture de zone comme mission principale puisque les Forces aériennes perdent à ce moment-là la capacité

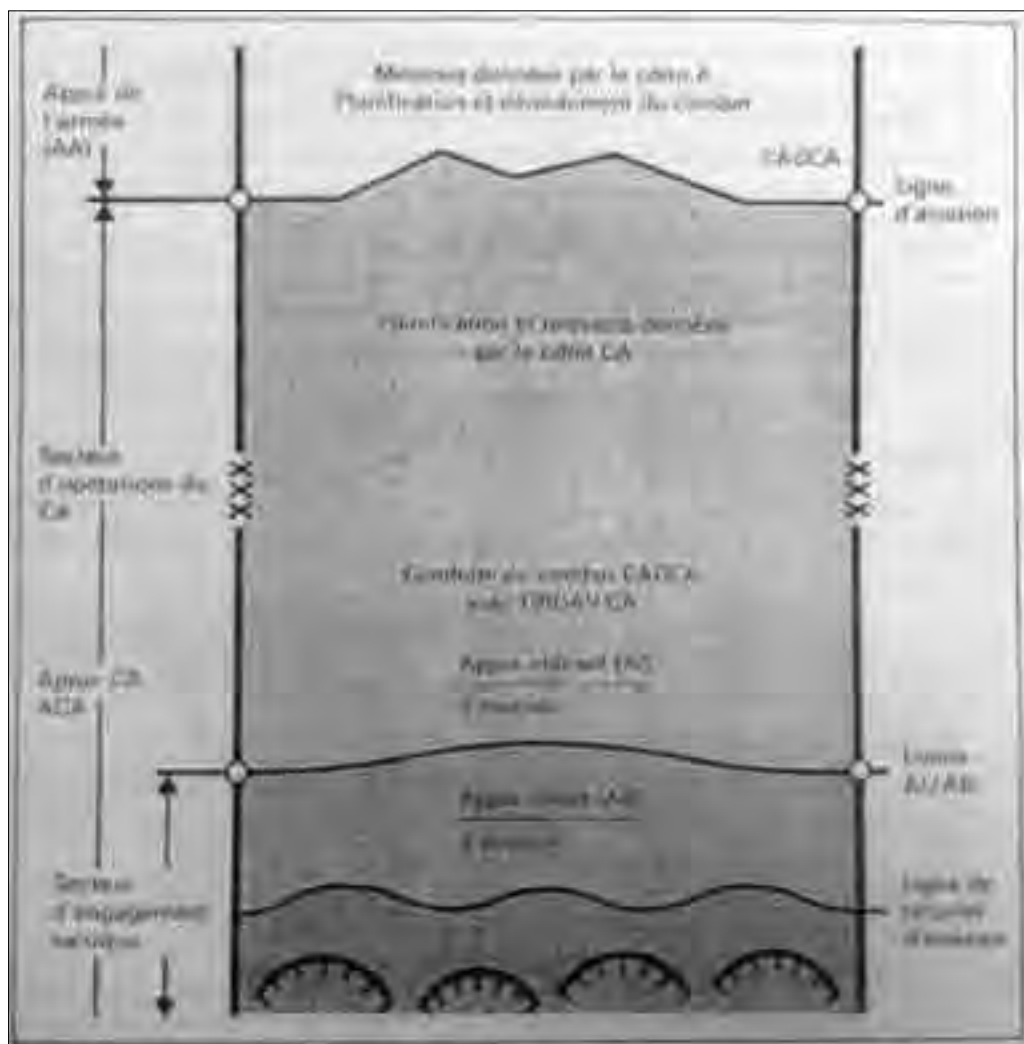
⁷¹ Règlement 51.20 f *Conduite tactique 1995*, 1995, DMD, règlement donné en 15 parties de taille variable.

⁷² Règlement 51.15 f *Conduite opérationnelle (Cop 95)*, 1994, Berne, DMF, édition provisoire, p. 40.

⁷³ Règlement 56.90 d *Führung und Einsatz der FF Trp 95*, 1995, Berne, DMF, pp. 23 et 29.

de mener des frappes au sol. La reconnaissance opérative survivra encore jusqu'à l'Armée XXI, mais cette capacité sera alors également mise au placard avec le retrait des Mirage de reconnaissance.

La conduite des troupes d'aviation livre également son lot de constatations intéressantes. Les moyens envisagés dans les années 1920 sont totalement décentralisés et confiés aux divisions. Une concentration des rares moyens alors à disposition est alors totalement impossible. Seul le renforcement administratif du corps d'aviation, dès 1936, va permettre d'inverser la tendance. L'introduction du régiment d'aviation permet alors, au moins, de coordonner les engagements au sein d'un même corps d'armée. Ce système est définitivement mis en place dans les années 1950 avec la



Regl 51.20 1982 p. 46 - Lignes de commandement pour l'engagement des troupes d'aviation.

centrale d'engagement air au niveau des corps d'armée. Les travaux préparatifs des années 1960 et les avancées technologiques qui permettent la mise en place d'une centrale d'engagement au niveau national, avec le système FLORIDA, vont définitivement mettre les troupes d'aviation sur la voie de la centralisation des moyens. La *Conduite des troupes* 1982 définit alors clairement les lignes de commandement et les attributions, notamment par le biais de crédits de vols. Le passage à l'Armée 95 termine cette évolution avec une aviation alors totalement autonome, où les Grandes Unités ne disposent même plus de crédits pré-définis. Les demandes d'appui des Grandes Unités doivent d'abord transiter par l'Etat-major de conduite de l'Armée avant d'être transmises au commandement des troupes d'aviation, qui décident quels moyens sont engagés.

Le dernier point touche l'organisation matérielle. Trop souvent, l'équipement des troupes d'aviation ne permet pas de remplir les missions envisagées par les autorités politiques ou militaires du pays. Cela est particulièrement criant dans l'organisation des troupes de 1924. La mission de chasse alors envisagée ne pourra jamais être remplie car l'aviation ne dispose alors que d'avions capables de mener des missions d'exploration. Les Messerschmitt acquis avant et durant la Seconde Guerre mondiale permettront quelque peu de corriger le tir. Se présente également le cas de figure où du matériel est acquis ou développé alors même que la doctrine n'est pas clairement définie. C'est le cas notamment du P-16. La commission d'acquisition d'avion, active dans les années 1940 et 1950, ne se pose alors pas la question de savoir pour quelle(s) type(s) de mission l'appareil est développé et demeure concentrée sur des points très techniques, comme par exemple de savoir ce qui est le plus avantageux pour nos troupes d'aviation : un monospace ou un biplace !

Nous devons également faire la constatation que les préparatifs menés pour l'engagement des troupes d'aviation jusque dans les années 1960 ne sont pas optimaux. Cela explique en partie les errements au niveau de l'acquisition de matériel, bien que les rivalités entre les différents services (aviation, état-major général, service technique militaire,) y soient également pour beaucoup. La mise en place de la défense combinée permet enfin d'aligner les missions confiées aux troupes d'aviation avec le matériel en dotation dans les escadrilles. Il s'agit alors du point culminant pour nos troupes d'aviation. La fin de la Guerre froide et la chute des crédits alloués à la défense auront pour conséquence de mettre les Forces aériennes devant le choix cornélien de renoncer à certaines tâches, comme les capacités d'attaque au sol. A l'aube du XXI^{ème} siècle, le défi est maintenant de façonner le nouveau profil de prestations de notre aviation, avec pour toile de fond, le remplacement des Tiger et les réductions budgétaires.

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F. Rezzan Ünalp *

Turkish Air Campaigns during the Battles of Çanakkale March 1915 - January 1916

Introduction

Those, who wrote the history of the air power just before the World War I, have attached little importance to the aerial aspects of the Ottoman-Italian war and Balkan Wars. In fact, the basic principles governing the employment of the aircraft in the theater for attack purposes have been introduced during these battles.

The Ottoman army having learnt lessons from experience during the Balkan Wars has recognized the need for a separate corps of observation which would assume the duty of observation in an aircraft in support of the pilot, and to that end issued an order in May 1913 in order to train staff officers as air observers and establish an independent corps of air observers. On the other hand, the British had just seen the necessity of an independent observation in July 1914. At the beginning of the campaign in the Çanakkale front the British did not have even one trained observer.

At a time when First Lord of the Admiralty Churchill did not say anything about the employment of the aircraft in the Strait of Çanakkale, the Ottoman army posted aircraft to Çanakkale patrol the Strait long before the bomb attacks. Although there was no aircraft capable to perform military tasks in the Yeşilköy (Ayastefanos) Flight School, a one-man Nieuport seaplane was deployed to Çanakkale on August 18, 1914 under First Lieutenant Fazıl's command. Since it was expected in Çanakkale that the army posted an aircraft not a seaplane, no works were carried out for a seaplane base. While a seaplane base was being under construct near the Cape Nara in the Anatolian section of

First Lieutenant Fazıl



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Yeşilköy Flight School.

Çanakkale, First Lieutenant Fazıl conducted reconnaissance flights around the Islands of Gökçeada (Imbros), Tenedos and Lemnos. Though the Ottoman army already began to use aircraft in Çanakkale in August 1914, it took six months that the first British aircraft arrived the area.

Another two-man seaplane titled “Mahmut Şevket Pasha from the Yeşilköy Flight

School was also assigned to Çanakkale. It could not, however, serve for a long time, since it overturned on October 26, 1914. Its pilot, First Lieutenant Savmi (Uçan) and air observer survived. Bleriot aircraft named “Ertuğrul” was posted to Çanakkale in January 1915. This aircraft was the first army aircraft assigned to the area and generally flown by First Lieutenant Mehmet Cemal (Durusoy). Ertuğrul had already con-



ducted many reconnaissance flights over the enemy area long before the British aircraft carrier Ark Royal came to the area. When the British War Council ordered the navy to conduct an operation against the Strait of Çanakkale, the Ark Royal was hastily deployed to the area.



The Ottoman army, Blériot (Ertuğrul). found itself unprepared in the battle, requested

Germany to provide support to its combat force. Pilot First Lieutenant Erich Serno, who has been serving in German air units since 1991, was assigned to the German military mission in İstanbul and charged with the task of restructuring the Yeşilköy Flight School. First Lieutenant Serno was promoted to the rank of captain, as applied to all German officers serving within the Ottoman army at that time. He became officially commander of the Flight School, but he was given the responsibility of restructuring the whole aviation organization of the Ottoman Army at the same time.





First Lieutenant Savmi Uçan.



First Lieutenant Mehmet Cemal
(Durusoy).

Cavalry First Lieutenant Şakir Fevzi (General Fevzioğlu) who received pilot training in Germany supported also First Lieutenant Serno.¹

The Strait of Çanakkale Fortress Command was being reinforced by German naval artillery since September 1914. The Fortress Command was responsible for defense lines at both sides of the Strait and under the command of Colonel Cevat Bey. All Turkish and German aircraft in the area were assigned to the command of the First Flight Company, which had been subordinate to Çanakkale until July 1915 and subsequently assigned to the command of the 5th Army. The 5th Army, established on March 25, 1915, was under the command of General Otto Liman von Sanders having been chief of German military mission in Turkey who became Commander of the 1st Army later.²

The allies had a 40-aircraft combined air force for the air support, whereas the Turks relied solely on Bleriot (Ertuğrul), Rumpler B. I. and three Albatros B. I. Aircraft.³

¹ The Air War, *The Dardanelles Air Battles*, Bülent Yilmazer, Mönch Press, Ankara, 2005, p. 53.

² Richard T. Whistler, *Over the Wine-Dark Sea, Aerial Aspects of the Dardanelles, Gallipoli Campaign, Part III, Turco-German Aviation*, Over the Front, 1994, USA, Vol. 9(3), pp. 231-233.

³ Karl Stirling Schneide, *Aviation in the Dardanelles Campaign*, March 1915-January 1916, International Symposium on The Dardanelles Battles, Reasons and Results, TTK Press, Ankara, 1993, p. 94.

Phases of the campaign

The main task of Turkish-German aviation services was to conduct reconnaissance, but both sides performed bombardment missions at the beginning of the landing. However, a few missions were successfully completed due to the limited bombing capacity and unsophisticated fire directing



Albatros B.I Aircraft.

methods. Air combat rarely occurred between the aircraft of both sides towards the end of the landing and many of the damages suffered by the aircraft resulted either from mechanical failures or pilot's error.⁴

First Phase: Attack by Allies on the Strait of Çanakkale

Of the four aircraft (3 Albatros B. I and 1 Rumpler B.I type aircraft), three were assigned to Çanakkale front and the other was deployed the Fortress Command since there was a special requirement for air reconnaissance reports. This Rumpler B.I type aircraft arrived at the airport in the night of March 17, which was built three kilometers from the Strait of Çanakkale. Commander of the Fortress sent this aircraft to the Allied Naval Force in Tenedos in the morning of March 18.

The reconnaissance flight conducted by Captain Serno in the morning of March 18 played a decisive role in the naval campaign. The vessels group observed by Schneider was the joint British-French armada. Aircraft, returning



⁴ Whistler, p. 230.



Çanakkale under bombs.

to Çanakkale under anti-aircraft fire, gave report to Admiral von Usedom and thus, ensured that the Fortress Command made itself ready for the campaign.⁵

Meanwhile, Second Lieutenant Pilot Cemal saw the approaching fleet by Bleriot (Ertuğrul) and confirmed the assault. Before the

attacks started, the hostile naval-reconnaissance aircraft that had been unable to see the mines had issued the certificate of clear ground. It used to be believed that the mines cast in 8 m in depth could be seen from 1000 m high above. However, the aircraft could only detect the ones that were very near to the sea level. The chopping sea also prevented the mines to be detected.⁶

Having beaten the outer bastions of the Çanakkale since February 1915, the great armada, of British and French vessels started its main attack on March 18, 1915. The mines laid by Nusrat mine vessel and could not be detected by minesweepers played a major role at this well-known phase of the Battles of Çanakkale. Of the allied armada, Bouvet, Irresistible and Ocean had sunk



Dropping of the airplanes onto sea by hoist.

⁵ Karl Stirling Schneide, *Ibid.*, p. 94.

⁶ Yavuz Kansı, *Ibid.*, p. 196.



Balloon Vessel Manica.

and Gaulois, Suffren and Inflexible had gotten severe damage.⁷

First Lieutenant Cemal and Observer Ensign Osman Tayyar had patrolled around strait by Ertuğrul (Bleriot) at 04.00 pm. Captain Seidler and Lieutenant Hüseyin Sedat conducted an aerial reconnaissance for the second time. They discovered Lemnos 80 km far in the west. During the aerial reconnaissance the enemies had been seen to have withdrawn.

The heavy rain and storm prevented further reconnaissance in the following days. One of our artilleryman brought a British aircraft down in the Saronic Gulf.

Due to insufficient aerial support a cap-



Balloon Ship Hector.

⁷ *Atlas*, Issue No:77, Istanbul, August, 1999, p. 22.



The Airborne Crew Following Reconnaissance.

tive balloon vessel named Manica leaving Britain arrived the Strait of Çanakkale on 22 March. On March 26, Captain Serno and Captain Schneider conducted a new aerial reconnaissance, which was repeated by Captain Schneider

and Lieutenant Hüseyin Sedat by the late afternoon. The report given by them revealed that they would not be a new armada attack. Meanwhile, two Albatros B.I aircraft arrived Çanakkale.⁸

The British air troop in Gallipoli was the third fleet of the Royal Naval-Air Service (RNAS) under the command of Fleet Commander Charles Samson arriving Bozcaada. The carrier Ark Royal, the aircraft and flight personnel tried to do their best while serving around Çanakkale. They conducted aerial reconnaissance around Edremit, İzmir and Enez Gulf. They arranged the vessel artillery fires during bombardment in Saronic Gulf.⁹

2. Second Phase: Aerial Activities During Gallipolis Landing

On April 25, 1915, French and British forces landed on Gallipolis Peninsula, which rendered the nature of the combat from naval campaign to land campaign. Escadrille M.F 98T, a supplementary squadron arrived Bozcaada so as to accompany the French troops. The squadron consisted of 8 aviation aircraft and 6 Maurice Farman aircraft. The French, though, failed in the air campaign at Çanakkale front, they kept off in order to spread propaganda.

Depending on the weather conditions the airplanes in Tenedos (Bozcaada) generally took flight two or three times a day. It was including a dangerous flight of more than 17.5 miles at open sea. Their task was to identify the Turkish positions, improve the coordination of the maps and take photographs.

⁸ Yavuz Kansu, pp. 196-198.

⁹ Nigel Steel, Peter Hart, *Gallipoli, Legend of a Defeat*, Sabah Press, Translated by Mehmet Harman-ci, İstanbul, 1977, p. 249.

While the land airplanes were continuing to conduct operations in Tenedos (Bozcaada) HMS Ark Royal was utilizing its seaplanes in the vicinity of İzmir and Enez for the mission of long-range reconnaissance.¹⁰

By the arrival of the German submarines the HMS Ark Royal, which was slow in motion and vulnerable was first sent to the Mudros Port and then to Salonika to serve as aircraft carrier. It was replaced by HMS Ben-my-Chree equipped with five seaplanes.

Çanakkale Front was not only witness to the use of land and seaplanes but also to another “first”. It caused the fact that the balloon activities increased in the Royal Navy and that Major General Birdwood asked for free or tied balloons to help identify the distribution of the Ottoman artillery companies and arrange the fires accordingly. The advantages of the tied balloons are that they could stay in the air for a long time and that the reconnaissance reports could directly conveyed via telephone lines and that mechanical problems were quite rare in the balloons when compared to the English aircraft.



Lieutenant (Navy) Hüseyin Sedat.

A trade ship called Manica discharging the cargo of fertilizer at Manchester port was made ready for the balloon operation and arrived at Mudros Port on 9 April 1915. Air reconnaissance activities contributed significantly to the operations of the English army during the Battles of Çanakkale operation and caused casualties in the Ottoman forces, therefore the only successful air reconnaissance activity were considered those executed by the balloons. In the mean time the balloon ship Hector which was formed modifying a trade ship would come to the area on 9 June 1915 and support Manica.

On the Turkish side, 1st Flight Company in Galata in the vicinity of Gallipoli, strengthened with a few aircraft together with the Turkish and German observers continued to execute reconnaissance and bombing tasks against the English and French forces on the islands. The bombs used to be sent by hand. The aircraft had little ammunition. The first aircraft the rear cockpit of which was equipped with weapons arrived in August 1915. This unit based in Çanakkale had approximately 4 aircraft.¹¹

In order for the Allied powers to land in Cape İlyas and Anafartalar Bay at the

¹⁰ Schneide, p. 95.

¹¹ Whistler, p. 234.



Naval Airplanes Gotha.

edge of Gallipoli peninsula on 25 April 1915 necessitated new air reconnaissance. In the morning of 25 April as predicted by Lieutenant Colonel Mustafa Kemal the English powers started a landing operation from Sedd-el Bahr with the Australians and from the north of Kaba Tepe with the New Zealanders. At the same time they executed

two delaying manoeuvres. While the French were launching a surprise attack on Anatolian side the Royal Navy Division were performing a demonstration attack in Bolayır.

Von Sanders was mistaken by this demonstration attack and thought that the Entente Powers wanted to cut off the peninsula on its narrowest part to stop his army. So he sent one of the divisions to the north and by doing this he removed his forces from the real combat area. Although he sent Esat Pasha, Army Corps Commander to resist the possible attack from the south, they were left without reinforcement.¹²

While General von Sanders was determining the defence of Çanakkale in accordance with his own ideas the Flight Company in this area was under the command of the Fortress Area Command subordinate to the General Command of the Straits. When the landing operation started in the morning of April 25 with an intense sea bombardment second lieutenant (pilot) Garber and Lieutenant (Navy) Hüseyin Sedat¹³ started a reconnaissance flight. In a reconnaissance flight of 3 hours starting from Saroz Bay to the Anatolian coast 45 transports were identified. It was identified that the warships were leaving and that they were having a landing rehearsal. This very important reconnaissance report couldn't be conveyed to the 5th Army on time and no other flights could be achieved, as the aircraft were broken. The reconnaissance achieved on 27, 28, 29 April showed that the real forces of the enemy were in Sedd-el-Bahr and Arıburnu and that the other operations in Beşike Port, Kumkale and Bolayır were demonstration landings.

¹² Lord Kinross; *Rebirth of a nation with Atatürk*, Translated by Necdet Sander, İstanbul, December 1994, p 100.

¹³ Lieutenant Hüseyin Sedat served many flights in Çanakkale. He was an experienced Ottoman officer in observing at offshore. He served as chief engineer (Charkchibashi) in 'Refah' ship that was sank after being torpedoed by a submarine on 22 January 1941. Among the crew of Refah, who lost their lives. there were aviation personnel, who were selected for an education in England, as well.



Turkish Soldiers.

The bombs thrown from the aircraft by hand at the firing line were not very effective and the limited number of aircraft and ammunition did not sufficiently damage the enemy. For instance, an observer in Euryalus, the English armoured ship performing the task of fire support and reconnaissance off shore Cape İlyas stated that an aircraft had flown over the battleship on 30 April and that it had thrown bombs dropping into the sea and exploding there. No alliance ships were damaged by air bombardment. However, the information given by the aircraft about the location, power, movement, weapons position and depot locations were more helpful for the Turks than the bombardment results.¹⁴

When lieutenant colonel Mustafa Kemal woke up with the noise of the naval gunfire in the morning of April 25 he found himself in the centre of the war. He sent a cavalry troop for reconnaissance towards Kocaçimen Tepe and understood that they encountered a big enemy attack towards Chunuk Bair and that the Sari Bair ridges and particularly the hills of Chunuk Bair consisted the key points of the whole Turkish defence. Having the idea that only one battalion would not be adequate for defence and that a division would be necessary he took over the responsibility. He gave an order, which was beyond the Division Command and sent the 57th Regiment to Kocaçimen Tepe with a mountain battery. Mustafa Kemal understood that they encountered the real attack and directed most of the reserves of Sanders to war and he was right with his decision.

Watching the operation from Queen Elizabeth ship, the English Commander-in-chief Sir Ian Hamilton would write these words in his memoirs:

“Under so many savage blows, the labouring mountains brought forth Turks. Here and there advancing lines; dots moving over green patches; dots following one another across a broad red scar on the flank of Sari Bair; others following- and yet others and others- and others, closing in, disappearing, reappearing in close waves converging on the central and highest part of our position. The tic tac of the machine guns and the roar of the big guns as hail, pouring down on a greenhouse... The fire slackened. The attack had ebbed away; our fellows were holding their ground. A few, very few, little

¹⁴ Kansu, p. 198.



Anafartalar Group Commander Colonel Mustafa Kemal.

dots had run back over that green patch- the others had passed away into the world of darkness”¹⁵.

After heavy conflicts the Turkish Army stopped the Allied Power’s advance on the peninsula in June 1915. Under the command of the Fortress Area command the 1st Aircraft Com-

pany was transferred to the 5th Army at the end of June. Such an organisational amendment was not enough to efficiently utilize the air power performing in a small area nearby Çanakkale town on the Anatolian side. At the end of July 1915 the airport was moved to a new place nearby Galata on the European side so as to ensure that the reconnaissance reports were quickly conveyed to the headquarters. From the new airport in Galata the Company continued to carry out reconnaissance missions on the off-shore islands which were seized by the enemy.

At this stage after the enemy powers achieved to hold their ground and advanced in Sedd-el Bahr, the English 3rd Fleet formed a small airport there to overcome the problem of range. As this area, which was within the range of the Turkish artillery were exposed to heavy gunfire as soon as an aircraft landed, it was not used after June 1915 except for the emergencies.¹⁶

In July-August 1915 German Naval Flight Company subordinate to the General Command of the Straits was formed in Cape Nara on the Anatolian side of the Strait of Çanakkale with the naval airplanes Gotha WD1 and Gotha WD2 coming from Germany; the English reinforcement was achieved towards the end of August 1915 by the arrival of R.N.A.S 2nd Fleet at the area.¹⁷

¹⁵ Kinross; pp. 100-104.

¹⁶ Whistler, p. 234.

¹⁷ The Air War, Air Battles in the Battles of Çanakkale, p. 87.

3. Third Phase: Occupation of Anafarta Bay; Anafarta Battles

After the Allies attacked Chunuk Bair - Kocaçimen line and seized these areas they advanced across Kabatepe-Maydos line and wanted to cut off Turkish Army's ties with İstanbul and land the other forces on Anafartalar to make this area movement base. At the night of 6-7 August the landing operation started in the north of Arıburnu and Anafartalar.¹⁸

In order to accompany the allied power's occupation another aircraft power joined the second R.N.A.S Fleet. The Fleet were consisting of 4 magnificent Bristol reconnaissance airplanes, 6 Caudrons, 6 BE 2C in addition to 6 Morane Parasols. With these inventory the Allies managed to have an air force consisting of 48 airplanes. On the other hand the 1st Turkish Flight Company had only 8 airplanes and they had very poor safety due to the conditions of the region.

The basic problems which Turkish aviation units faced with were the distribution and delivery of the airplanes. They solved the problems of making bomb and providing hand tools by establishing a warehouse in Bakırköy and using craftsmen in İstanbul.

Some of these craftsmen were designated for making propeller and jig that were essential. First Flight Company, backed The Fifth Army up beyond the manpower struggle in İstanbul Battles.¹⁹

Mustafa Kemal²⁰ who was promoted to colonel rank on June 1, 1915 was appointed to Anafartalar Group Command on 8 / 9 August 1915.

By means of an order coming from Army Headquarters on 8 / 9 August, Colonel Mustafa Kemal was appointed to Anafartalar Frontal Group Command. In the next morning at sunrise, the attack would be conducted immediately. On 10 August, Mustafa Kemal would conduct the most enormous and bloodiest attack of the Battles of Çanakkale. During the command of Mustafa Kemal in Anafartalar Group

Command, first lieutenant Mehmet Zeki Doğan (Zeki Doğan was the first commander of Air Forces which was turned out to Force Command in 1944.) was aide-decamp of Mustafa Kemal.

In his book called "Gallipoli" published in 1956, Alan Moorehead, an Australian, wrote, " The presence of that young and genius Turkish Chief (M. Kemal) at that time is one of the most tragic stroke of fortune for the Allied" for Anafartalar Battles.²¹

¹⁸ Schneide, p. 97.

¹⁹ Schneide, p. 97.

²⁰ Mustafa Kemal who was promoted to colonel rank on June 1, 1915 was appointed to Anafartalar Group Command on 8 / 9 August 1915.

²¹ Şevket Süreyya Aydemir, Tek Adam, Mustafa Kemal, İstanbul, 1979, p. 249.



Pilot First Lieutenant
Ali Rıza.

4. The Forth Stage: Departure of The Allies / The Turkish Victory in Battles of Çanakkale

On 10 August Chunuk Bair (Conkbayırı) Battle revealed that in Gallipoli Peninsula landing forces had no chance in land battles. The battle of Çanakkale was stuck to trenches. Although Mustafa Kemal offered to pulverize the adversary with an attack since he was sure about the withdrawal of the adversary, he was replied, “we don’t have any force to sacrifice, even a soldier.” Upon realizing that a great opportunity was about to be missed, Colonel Mustafa Kemal resigned his post on December 10, 1915. Liman von Sanders respecting to Colonel Mustafa Kemal converted the resignation into sick leave. After arriving at İstanbul, Mustafa Kemal learned that the adversary vacated Çanakkale harmlessly (19 December 1915).²²

In September 1915 the joining of Bulgaria to war near the Central Powers facilitated the transfer of the military equipments. Airplanes could easily pass through Bulgaria without any risk of confiscation. While the essential military equipments, especially airplane spare parts were being transferred via recently opened supply roads, on November 30, 1915, Albatros CI Airplane under the control of Pilot First Lieutenant Ali Rıza together with Observer Lieutenant İbrahim Orhan confronted with a French airplane at the moment of reconnaissance flight over Kaba Tepe. In the air warfare Lieutenant Orhan²³, observer of the airplane, succeeded in hitting the fuel tank of the enemy airplane with a machine gun and then the enemy airplane went down in flames between İntepe and Sedd-el-Bahr (Seddülbahir).²⁴

The reconnaissance flights, air photos and reports at the end of the Battles of Çanakkale showed that the enemy was preparing to evacuation. This recognition was achieved on the reports given after reconnaissance flight by German Aviation Units Inspector Major Siegert. However, General von Sander’s opinion that the enemy wouldn’t relinquish control of the Strait of Çanakkale and his determined manner gave an opportunity to the Allies to leave from the island suffering fewer losses.

Before evacuation a great number of fires disclosing that occupying forces were

²² Falih Rifkî Atay, p. 94.

²³ In 1916 Lieutenant Orhan was sent to Germany to take pilot training. After getting pilot brevet he carried successful missions in Palestine and Medina. In 1918 he was one of the İzmir The Fifth Airplane Company airmen. During World War I, on June 13, 1918, in the course of reconnaissance flight over Chios with his observer Lieutenant Hüseyin Hüsnü, his airplane which was hit by anti-aircraft fire went down near the island. İbrahim Orhan died and Hüseyin Hüsnü became a prisoner of war. Lieutenant İbrahim Orhan was buried in Chios.

²⁴ Kansu, p. 205.

damaging all supplies and equipments were observed. Meanwhile, Turkish aviation units launched 32 bombs and hit 17 targets in Sedd-el-Bahr (Seddülbahir) camp. Moreover two equipment hangars in Mudros (Mondros) Bay and an airplane hangar in Tenedos (Bozcaada) were demolished and four shots fell down at close range of enemy ships. In 1916, upon coming to Çanakkale in the first week of December Fokker Fighter Company (6th Fighter Company) took part in the operation. On January 4, 1916 Pilot First Lieutenant Schubert, from German Maritime Airplane Company, hit one of the airplanes of French Maurice Farman and made it shoot down.²⁵



Observer Lieutenant
Orhan.

Although they participated Battles of Çanakkale Frontal for a short time, Fokker Staffel airplanes played great parts in the subsequent battles. In Gallipoli Frontal, Fokkers successfully managed the missions of fighter interception. On the last days of battles merely six enemy airplanes were shot down whereas we only had one.²⁶

Throughout the year, 1916, no personnel in air force at Ottoman army were killed in Çanakkale. A Fokker airplane belonging to the 6th Flight Company (6th Fighter Company made up of Fokker airplanes were deployed in Galata since January in 1916 and joined with 1st Company for a while) suffered damage. There wasn't any damage or loss at the airplanes belonging to 1st Flight Company. Four of maritime aircrafts suffered damages owing to mechanical problems and emergency landing. Compared to existing airplanes, guns and the number of personnel, the air force of enemy outnumbered that of us. However, Turks had full sovereignty over Çanakkale skies. While the remaining Allies units were leaving secretly at night in 10 January 1916, this was the picture of aviation in the peninsula including Çanakkale.

Conclusion

Although it is in limited numbers, aviation has played an important part in the Battle's of Çanakkale. The airplanes participating the operation each day were never under sixty on Allies' part whereas in Ottoman this number could scarcely be twenty. Some of the airplanes were in maintenance, thus the number of airplanes used in operations decreased. The operations were conducted under harsh circumstances due to the heavy weather conditions for airplanes with small engines, lack of spare parts and especially the existence of long supply roads for Germans and Turks. Moreover, qualified personnel were needed much.

²⁵ Schneide, pp. 99-100.

²⁶ Whistler, *The Defense of The Bosphorus and The Fokker Staffel*, Over The Front, Vol. (3), USA, 1999, p. 259.

During the Battles of Çanakkale, the assignments given regardless of ranks in Ottoman Aviation units led to how to be effective in using very few airplanes against allied forces. Captain Serno definitely persuaded Turkish and German senior military personnel that far more airplanes was needed to defend Gallipoli peninsula. In the Battles of Çanakkale although General Hamilton, commander of Allied Powers, considered that reconnaissance was worthless and deceptive, Ottoman General Staff wished that the army had to be equipped with airplanes at once and skilled personnel supposed to use those airplanes were to be trained. This paved the way for successes caused by airplanes.

As the war entered its final phase, air force reversed towards the enemy. During the war, the effectiveness of the Allies' joint air force and the number of airplanes decreased. On the contrary, Turkish Air force gained strength and contributed to the unique Turkish Victory in Çanakkale.

View from Cape Nara.



JAMES S. CORUM *

U.S. Air Force Doctrine: The Search for Decisive Effect

From the very beginning of American military aviation, the central idea behind American airpower doctrine and theory has been to employ airpower with decisive, war-winning effect. For almost a century, the U.S. Air Force has maintained its strategic focus and has built a force with a strong common belief that decisive victory in war could be achieved by airpower, with a minimal contribution by other forces. While the technologies and tactics have changed, the core doctrinal principles have remained constant.

The Birth of the American Airpower Doctrine

Although the airplane was invented in America, the U.S. military at first lagged behind the major European powers in developing an air doctrine. Prior to America's entry into World War I on the side of the Entente in April 1917, there was basically no American airpower to speak of. The U.S. Army could provide only one squadron of obsolete airplanes to support the U.S. Army's intervention into Northern Mexico in late 1916. By April 1917 only a handful of American officers had been trained as pilots. In stark contrast, America's British, French, and Italian allies, as well as the enemy Germans, all fielded large and modern air forces by 1917.

By 1917 tactical aviation in the form of reconnaissance, fighter planes and close air support attack had become an integral part of all major ground operations. Specialized fighter forces had been created by all major air forces to establish conditions of air superiority over the battlefield-conditions that would allow one's own airpower to be employed with maximum effect. Long range bombers, carrying bombs of over 500 KG, had already made cities in England, France, and Germany targets for strategic air attacks. Airpower, with its ability to strike quickly and deeply into the enemy homeland, had brought the civilian population and economy under threat as never before. Airpower had truly made war total.

The American political and military leaders understood that a revolution had occurred in warfare with the invention of the airplane. They were aware of the increasingly important role that airpower played in every aspect of the war. In the spring of 1917 the French government requested large scale assistance to build up their front aviation force. The French asked the Americans to provide 4,500

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airplanes, 5,000 aircraft engines and 50,000 aircraft mechanics to arrive on the Western Front by the Spring of 1918. It was a goal totally beyond the very limited capability of American industry. But, as unrealistic as it was, the French request had the positive effect of providing an immediate impetus to create a large American aircraft industry.¹

In May 1917 the U.S. Congress voted an appropriation of \$640,000,000 to enable the U.S. Army to quickly build an air arm equal to that of the other major powers. It was an enormous sum and, up to that time, the largest single appropriation ever made by the U.S. Congress.² The massive influx of funds made it possible for the Americans to quickly build up the infrastructure of aviation—engine companies, aircraft manufacturers, airfields, and schools to train the mechanics and pilots.

America's allies contributed by providing training, aircraft and equipment. Most of the American air units that made it into combat before the end of the war were equipped with excellent British and French planes, and most of the American pilots had been trained under French supervision. In addition to the material support to create an air force, the British, French, and Italian allies also shared their ideas of airpower—ideas that the Americans would modify in their own way to develop a distinctly American doctrine of aerial war.

Among the handful of American airmen in 1917 was Major William ("Billy") Mitchell, who was in Europe as an observer of Allied airpower. Mitchell laid the groundwork to establish an American aviation structure in France to help support the American forces that would soon arrive. As a first step, Mitchell met with the commander of Britain's Royal Flying Corps in France, General Hugh Trenchard, to discuss the development of an American air force. Trenchard, soon to become the first chief of staff of the Royal Air Force, was creating a strategic bomber force that was intended to strike vital operational targets behind the front lines, and would also strike vital war industries deep within Germany. Mitchell was impressed by Trenchard and his views and proposed to the American Expeditionary Force Commander, General Pershing, that the Americans copy the British concept of an independent strategic bomber force.³

As Mitchell worked to prepare the way for American air power in Europe, other key officers of the American Air Service in a mission headed by Major Bolling visited Allied air forces to determine what types of aircraft America should build and how American aviation might be organized for the war. The Bolling Mission provided realistic guidance to the American army staff and recommended certain types of aircraft for the fledgling Air Service.⁴ The American mission met with the

¹ Stephen Budiansky, *Air Power* (New York: Viking Press, 2003) p. 112.

² *Ibid.*

³ On Mitchell, his career and wartime service see James Cooke, *Billy Mitchell* (Boulder, Lynne Rienner, 2002) On the genesis of his wartime airpower ideas see pp. 51-55.

⁴ Cooke, pp. 56-57.

Italian airmen and chose the Italian Caproni heavy bomber to equip the American Expeditionary force.

In November 1917 Major Edgar Gorrell, tasked to study organization and equipment for the American Air Service, enthusiastically passed on ideas from British and Italian allies on the use of heavy bombers in the strategic role to attack enemy industries and vital targets far behind the front lines. An outline plan for strategic bombing was presented to General Foulois of the AEF Air Service who endorsed the plan and forwarded it Pershing.⁵

As the American presence in Europe grew through 1917 and an aviation headquarters set up, Pershing appointed Colonel William Kenly as the chief of the American air service in France. Mitchell, promoted to colonel, was seen as an energetic and capable officer, but was also seen as too young and too undisciplined to be an effective manager. Kenly, followed later by another non-airman General Mason Patrick, had the managerial and leadership skills to develop the force and to use the young enthusiasts like Mitchell and Gorrell to the best advantage.⁶

The American Expeditionary Force air plan of 1918 conformed largely to General Pershing's view that the main purpose of airpower was close support of the armies in the field. The plan was to build 202 American squadrons of which 101 would be observation squadrons (also capable as light bombers), and 60 fighter squadrons. But the bombing mission had not been ignored and a force of 41 bomber squadrons was proposed. The bomber force proposal was the result of a June 1918 study on the possibilities of strategic bombardment by the Director of Military Aeronautics.⁷

By the fall of 1918 American airpower performed creditably in supporting the US Armies in the St. Mihiel and Meuse Argonne offensives. In September 1918 the Americans launched their first large scale ground offensive to drive the Germans from the St. Mihiel salient. Mitchell, now promoted to brigadier general, was given command of 1,418 airplanes (one half of them French) to support the offensive. Mitchell and the American air units performed very creditably providing support to the ground troops and demonstrated that American airpower had matured as a capable combat force.⁸ American bombers also flew a few long range strike missions into Germany, but the war ended before this aspect of American airpower could be explored.

By the end of World War I the Americans were in possession of one of the World's major air forces and had created a modern airframe and aircraft engine industry. The next question was how the force would develop.⁹

⁵ Conrad Crane, *Bombs, Cities and Civilians: American Airpower Strategy in World War II* (Lawrence: University Press of Kansas, 1993) p. 12.

⁶ An excellent biography of General Patrick is Robert White, *Mason Patrick and the Fight for Air Service Independence* (Washington: Smithsonian Institution Press, 2001).

⁷ *Ibid.* p. 12.

⁸ Budiansky, p. 114.

⁹ On lessons learned by American airmen in World War I see I.B. Holley, *Ideas and Weapons* (New Haven: Yale University Press, 1953) reprint (Washington GPO, 1983).

Developing Key Airpower Concepts: 1920-1921

General Mason Patrick ensured that the bomber idea would not be ignored when he assigned Colonel Edgar Gorrell the duty of writing the final report on the aviation activities of the Americans in Europe in World War I. Gorrell's four volumes provide a rich history of the American wartime effort and a thorough study on the techniques and experience of strategic bombing was included in the report.¹⁰ Gorrell's report went into the library of the Air Corps Tactical School where it was used by a generation of American officers in developing doctrine.¹¹

After World War I the U.S. military was largely demobilized. But aviation had shown its worth and a new organization, the Air Service, was created by the U.S. Army. After a rough beginning, in 1921 General Patrick was called back to serve as the Air Service commander. An exceptionally talented leader, Patrick worked to create an effective leadership cadre for the service. A major training center for Air Service officers was established at Langley Field in Virginia and this school soon became the center of thinking and development for the Army Air Service.

In the meantime, Brigadier General Mitchell was given the leeway to carry out experiments with new bomber aircraft. Convinced of the future role that bombers could play in war, he set out to convince the U.S. Congress and military leaders of the decisive role that airpower could play in future warfare. Mitchell made headlines by leading a bomber force that sank the modern German battleship *Ostfriesland* in Chesapeake Bay in a series of tests in 1921. Although the tests were conducted in highly unrealistic conditions, the fact that airplane bombs could sink one of the world's most modern battleships, a ship that had withstood numerous heavy gun hits at the Battle of Jutland, forced naval officers and army generals to reconsider the potential of the airplane.¹²

However, Mitchell pushed too far and too fast. His books and articles advocating "air mindedness" and his bombing experiments won headlines, but his open attacks on the Navy and Army leadership did a lot more harm than good for American aviation.¹³ Mitchell was court-martialed and suspended from the army in 1926 for his behavior. Yet, while Mitchell was won headlines, the real work developing the aviation forces was carried out by General Patrick, who led the process of transforming the Air Service into the Air Corps in 1926 and created a sound infrastructure for American military airpower to develop further.

¹⁰ For full text of the report see Mauer Mauer ed., *The U.S. Air Service in World War I*, 4 vols. (Washington: GPO, 1978-1979).

¹¹ Crane, pp. 14-15.

¹² Cooke, pp. 116-137.

¹³ For a critical assessment of General Mitchell and his thinking see Mark Clodfelter, "Molding Airpower Convictions: Development and William Mitchell's Strategic Thought," in *Paths of Heaven: The Evolution of Airpower Theory*, ed. Phillip Meilinger (Maxwell AFB: Air University Press, 1997) pp. 79-114.

In the 1920s in the Air Corps Tactical School, first located in Virginia and then moved to Maxwell Field in Alabama in 1931, U.S. Army aviators began to develop a uniquely American view of air warfare. One of the most notable of the early airpower theorists was Major William Sherman of the Air Corps. His 1926 book, *Air Warfare*, provided a comprehensive view of aviation, its roles and its likely development.¹⁴ The use of airpower in ground forces support and in strategic bombing missions, as well as the future importance of air transport, were all discussed in his book. Sherman provided a far more coherent and balanced view of airpower than Mitchell, and his extensive discussion of strategic bombing, which he saw as the main role of the air arm, discussed the moral as well as tactical issues involved in bombing enemy cities and industries. Sherman's thinking was as sophisticated as anything written in Europe at the time, and showed how much American airpower thinking had matured since 1918. Tragically, Sherman, one of America's most capable airpower thinkers, died of an infection in 1927.

Yet others carried on the intellectual work at the Air Corps Tactical School. While the official army doctrine still saw the chief Air Corps role as that of a support arm for ground units, the Air Corps began to develop its own doctrine of air power, a largely unofficial doctrine that was very different from that of the mainstream army. In 1926 a new manual for the Air corps emphasized the employment of combined air forces against the enemy. In the 1926 doctrine the enemy population and the vital points of the enemy homeland were listed as primary targets for air operations.¹⁵

In the late 1920s and early 1930s a small cadre of Air Corps instructors at the Air Corps Tactical School (ACTS) began an intense study of the economics of warfare. An understanding of how economies and production affected warfare had first been pioneered in the Industrial College of the Armed Forces in Washington and this also became part of Air Corps' approach to studying airpower and war. For example, instructors at the Air Corps Tactical School (ACTS) noted how the destruction of a few specific bridges could disrupt a national transportation network for weeks. The loss of one factory making a single essential engine part could stop production of a major aircraft plant. The loss of a few electric generating stations could shut down the electric net for an entire region.¹⁶

The conclusion was drawn that for airpower to decisively affect an enemy's ability to wage war, one did not need to carry out mass bombardment attacks against an entire industry, or devastate an entire region. The desired effects -- the shutdown of production or transportation-- could be accomplished by attacking only a few

¹⁴ William Sherman, *Air Warfare* (New York: Ronald Press, 1926) reprint, (Maxwell Air Force Base: Air University Press, 2002). For Sherman's discussion of strategic bombing see pp. 190-208.

¹⁵ Crane, p. 21.

¹⁶ Peter Faber, "Interwar U.S. Army Aviation and the Air Corps Tactical School: Incubators of American Airpower," in *Paths of Heaven: The Evolution of Airpower Theory*, ed. Phillip Meilinger (Maxwell AFB: Air University Press, 1997) pp. 183-238.

carefully selected targets. It was an attractive doctrine that avoided the slaughter of enemy civilians and soldiers. If one deprived the enemy of his material to wage a war— then the enemy would be forced to sue for peace.

By the early 1930s such concepts were developed into a specific doctrine. At the Air Corps Tactical School in 1933 the faculty and students began research on identifying railroad chokepoints; vital railyards, and bridges whose loss would impose a massive dislocation of the national transportation net.¹⁷ A generation of airmen was trained at the Air Corps Tactical School in the elements of airpower thinking that would dominate the U.S. Air Corps and, later, the Air Force. The ACTS doctrine of strategic bombardment known as the “industrial web theory” of airpower concentrated on identifying key nodes of economic activity whose loss would cripple whole sectors of the economy.¹⁸

The strategic bombing doctrine ensured decisive effect with an economy of effort—but for such a doctrine to work America had to have an air weapon that had the range, speed, and accuracy to penetrate deep into enemy territory, avoid enemy air defenses, carry a heavy bomb load, and strike a pinpoint target. The rapidly developing American aviation technology turned the concept of strategic bombing from a fantasy into a real possibility in a few years. The mid-1920s to the mid-1930s saw an enormous advance in aircraft technology. In the 1930s aircraft engines went from 500 horsepower to 1,200 horsepower. NACA cowlings cut drag and increased speed. High octane fuel made engines more efficient while increasing range. The all metal and multi-engine transport planes built for the rapidly growing American airlines pioneered advanced production technologies and made the dramatic new engine and airframe designs the norm throughout the industry.

In 1931 the Air Corps fielded its first all metal monoplane bomber. The two engine B-9 bomber had a retractable landing gear, a speed of 186 mph, carried 2260 pounds of bombs and was the most advanced bomber of its day.¹⁹ The B-9 was followed in 1932 by the B-10; another twin engine monoplane bomber equipped with machine gun turrets for defense and flew at 207 mph.²⁰ Even as the B-10 was being introduced into the Air Corps units, the Air Corps and Army leadership proposed an exponential leap in bomber technology. In 1934 the Air Corps negotiated with American’s aviation industry to develop a four-engine bomber that could carry 5,000 pounds of bombs for 1,300 miles, or 2,500 pounds of bombs for 2,300 miles. The next year the prototype of the B-17 first flew and on a test flight achieved an average speed of 232 mph while flying a distance of 2,100 miles.²¹ This exceeded all expectations and

¹⁷ A discussion of the role of Acts in development of American bombing concepts is found in Stephen McFarland, *America’s Pursuit of Precision Bombing 1910-1945* (Washington: Smithsonian, 1995).

¹⁸ *Ibid.* pp. 176-177.

¹⁹ Budiansky, p. 181.

²⁰ *Ibid.*

²¹ *Ibid.* pp. 181-183.

was far ahead of anything flying in Europe. In fact, the B-17 could cruise at a speed faster than the best fighter planes of the day. Equipped with the precise gyroscopic Norden bombsight and modern navigation aids, the Air Corps now had the airplane with which it could realistically expect to carry out its theory of precision strategic bombardment.

Through the 1930s and 1940s a key figure in this process of doctrine development was General Henry ‘Hap’ Arnold, one of the first American officers who had learned to fly. Arnold had held a key position on the Air Service staff in Washington in World War I and, although he did not win combat experience, his work with industrial mobilization of resources for American aviation gave him a superb understanding of aviation technology and its potential—an understanding that served him very well in his career. He served with General Mitchell in the post World War I period as one of Mitchell’s key assistants. After Mitchell’s resignation Arnold learned to temper his outspoken advocacy for airpower and worked within the army staff system to further the goal of an independent air force equal to the army and navy.

Partly under Arnold’s influence, American military aviation moved from being an Air Service, a specialist branch of the army with a status like infantry or cavalry, to being the Air Corps, an organization with its own assistant secretary of the army, a special headquarters, and considerable training infrastructure of its own. In 1934–1935 the Air Corps was granted permission to set up a General Headquarters to serve as a command headquarters of the Air Corps deployed in case of war. While much of the air force would operate in direct support of army units, in wartime much of the American aviation force would be concentrated under the command of an airman and employed in mass as a decisive weapon. From 1918 to 1941, step by step, the Army aviation force moved towards full independence as a separate service. This was the goal of Arnold and a cadre of senior American airmen that included General Carl Spaatz, who commanded the American strategic bomber forces in Europe in World War II and later become the first chief of staff of an independent U.S. Air Force.²²

World War II and American Air Doctrine

In 1939 Arnold became chief of the Army Air Corps and prepared plans for aviation expansion in case the Americans were drawn into the World War that had begun in Europe. Arnold, and many of his colleagues such as Spaatz, believed that airpower, if employed correctly and as a strategic weapon, could win the war on its own. The goal was to avoid the kind of long and bloody ground campaign that had resulted in years of stalemate and the loss of millions of men in World War I.

With the beginning of limited American rearmament in 1939, American airmen began planning in earnest to create the type of air force they believed America would

²² On the key personalities who led the early U.S. Army Air Corps see John L. Frisbee, *Makers of the United States Air Force* (Washington DC: Office of Air Force History, 1987).

need to defeat Nazi Germany. In this period before America's entry into World War II, the precision strategic bombing concept became established as the official doctrine, not only of the Air Corps but of the U.S. Army as a whole. It had been Arnold's program of steady progress and advocacy of the bombing theories and the Air Corps' careful investment of limited aviation funds into a heavy bomber—the B-17— that could truly fulfill the promise, that helped convince the U.S. Army leadership to accept precision bombing doctrine as a key factor in planning for the war budget and national industrial mobilization.²³ In 1940 Air Corps planners started thinking in terms of an American production capability of 50,000 aircraft per year—something in the realm of fantasy only two years before. In fact, the seemingly fantastic figure of 50,000 aircraft produced in one year was reached in 1942.

The Air Corps was renamed and reorganized as the Army Air Forces (AAF) in 1941. While still part of the army, it had status closely approaching service independence. Arnold saw the oncoming war as an opportunity to prove the theory that airpower could provide the decisive win. The practical expression of the theory was Arnold's creation of a special strategic planning group on the Army Air Forces Staff, the Air War Planning Division (AWPD). In the summer and fall of 1941 a key group of officers, most of whom had taught at the faculty of the ACTS and who would go on to serve as senior officers in World War II, developed a plan for creating and deploying a vast American air force that would employ strategic bombing as its main method of defeating Germany if war came.²⁴ The Air Corp's strategic war plans also included fighter forces for air defense, and light bombers for tactical support of the army—but the main resources were to go into the strategic heavy bomber force. The AWPD -1 Plan, the Army Air Forces component of the Army's strategic war plan, was approved in late 1941 by General George Marshall, the U.S. Army chief of staff. That such a concept was readily approved shows not only Marshall's broad vision, but also how American airpower concepts that had once been derided by the Army leadership were now broadly accepted by the American military and civilian leadership.

The expanded AAF would be organized around units equipped with large numbers of heavy bombers, the existing B-17s and B-24s, which would be supplemented by the very heavy bomber in development since 1939. The very heavy bomber would have an intercontinental range, fly very high and fast, and carry a large bombload. This bomber, being developed as the B-29, would become the characteristic symbol of American airpower theory and doctrine by 1945.

World War II served as a laboratory for the American airpower concepts developed since the First World War. In Europe, at least, the idea that Germany could be defeated through airpower alone proved fallacious. The American bombing

²³ Crane, 22-27.

²⁴ Lawrence Kuter, Harold George, Haywood Hansell and others who developed the AWPD-1 Plan had been instructors at the ACTS in the 1930s. See Budiansky, pp. 177-180.

offensive against German industries and strategic targets that began in 1943 ran into far more problems than anticipated. Under combat conditions, bombing accuracy was much worse than expected. The heavy bombers, although heavily armed and designed to defend themselves, proved much more vulnerable to German fighters than prewar theorists had expected and suffered unacceptably high losses.²⁵ German industry proved far more resilient and capable of absorbing heavy punishment than prewar airpower theorists had suspected.

On the other hand, American strategic airpower, while not the war winning weapon Arnold and Spaatz hoped it would be, was still very successful and played a key role in the Allied victory. In 1944 and 1945, supported by long range escort fighters and equipped with better technological aids, the heavy bomber force began inflicting decisive damage on key German industries. Bombing Germany's oil refineries triggered a fuel shortage that limited German operations on every front in 1944 and 1945. The heavy bombing campaign against the German and French transportation nets crippled the German reinforcement and resupply of forces fighting the Allied landing in Normandy and made the Allied victory on that front certain.²⁶

In the Pacific the reality of war operations again proved that many of the prewar concepts were flawed. Building and deploying and using the B-29 bomber in combat against Japan proved to be a much more difficult proposition than anyone had imagined. Precision bombing operations failed in Japan due to unforeseen problems with the plane, the weather, and the lack of decisive industrial targets. By the time the American bombers began their major offensive against Japan in early 1945 Japanese industry was already largely shut down due to the highly effective naval blockade by American submarines that had stopped Japan's import of raw materials. Eager to employ airpower in a decisive fashion, General Curtis LeMay, the commander of the B-29 forces in the Pacific, turned to bombing Japan's cities with incendiaries in massive attacks.²⁷

American airpower had come full circle. The first B-29 raids on Japan had all aimed for precision targets, aircraft and armaments factories, and other military targets. When precision bombing had little effect on degrading the Japanese war capability the Army Air Forces turned to a straightforward Douhetian doctrine of targeting the civilian population in order to demoralize Japan's national will to fight. Starting with a massive incendiary raid against Tokyo in March 1945, which burned over sixteen square miles of the city and killed an estimated 100,000-plus people, city after city was smashed by the American B-29s in incendiary attacks. The Japanese

²⁵ On US bomber losses over Germany see Crane, p. 50.

²⁶ On the development of U.S. Army Air Forces thinking during World War II see Robert F. Futrell, *Ideas, Concepts, Doctrine: Basic Thinking in the United States Air Force*, 2 Vols. (Maxwell AFB: Air University Press, 1989) Vol. 1. pp. 127-180.

²⁷ On the B-29 operations see Kenneth P. Werrell, *Blankets of Fire: U.S. bombers Over Japan during World War II* (Washington DC: Smithsonian Institution Press, 1996).

air defenses were so weak that the Americans could even give the Japanese public a list of cities to be bombed without fear that the warnings would lead to bomber losses. Indeed, the American 20th Air Force lost far more B-29 bombers to the rigors of long distance flying than to enemy action.

The American city busting campaign culminated in the dropping of two atomic bombs on Japan in August 1945. The use of the atomic bomb immediately ended the war, but also symbolized the end of one era of airpower and the start of another. For the next twenty years the United States airpower thinking centered on how the United States might employ these devastating weapons in strategic and tactical attacks to paralyze and annihilate any major attack by the Soviet Union or its satellites.

The World War had seen American airpower develop from a small air force to an enormous force organized into a large bomber force, tactical air forces, air defense forces and air transport forces. Airpower was American's trump card. At sea, the aircraft carrier replaced the battleship as capitol ship of the navy. The World War proved that no navy could survive if its opponents controlled the air and the U.S. Navy developed its own large and capable air arm capable of controlling the sea, defeating enemy navies and attacking land targets. Like the Air Corps, the U.S. Navy developed its own concepts of airpower employment that proved largely successful in World War II.²⁸ Armies might still function in conditions of aerial inferiority, but a decisive advantage in airpower such as the Americans and British possessed in the skies over France in 1944 meant that an enemy such as the Germans were severely limited in their logistics, movement and operational flexibility. Essentially, no ground force could prevail against enemy air superiority.

Postwar American Airpower and the Atomic Age

While the newly independent U.S. Air Force retained cadre forces for all the major roles of airpower --ground attack, air defense, air transport and strategic bombing—it was strategic bombing that received the funding priority and attention of the leadership in the post World War II era of drawdown and demobilization. Armed with the atom bomb, the new Strategic Air Command (SAC), headed by General Curtis LeMay, became the primary American military force.²⁹ As the strategic bomber force grew into a true intercontinental bomber force and was equipped with fast jets in the early 1950s, a school of new theories of atomic warfare arose. From the late 1940s into the early 1960s strategic thinkers such as Bernard Brodie and Hermann Kahn

²⁸ On U.S. Navy airpower concepts see David Mets, "The Influence of Aviation on the Evolution of American Naval Thought," in *Paths of Heaven*, pp. 115-149.

²⁹ A good overview of this period is found in Walton S. Moody, *Building a Strategic Air Force* (Washington DC: Air Force History and Museum Program, 1996).

developed theories of deterrence based on nuclear weapons.³⁰

Faced with the need to deter a Soviet enemy that could threaten America's European allies with overwhelming ground forces, the Americans found it cheaper and simpler to deter the Soviets by a superior airpower force that could guarantee massive nuclear destruction in the USSR in case of overt aggression. The nuclear deterrence theories assumed that the Soviets were highly rational actors who would carefully weigh the risk of openly attacking America or American allies and would back away from overt confrontation. It was a theory and doctrine, if cruel and ruthless in its implications, also worked to maintain peace and stability in Europe for decades.

On the other hand, in the immediate postwar world the Americans paid little heed to how airpower might respond to a war carried out by a proxy power for limited aims in an area on the margin of American interests. Would America use nuclear weapons if core interests and values were not at stake? Would the emphasis on the strategic bomber force and lack of resources for its tactical air forces prove to be a strategic mistake?

The Korean War initiated by the invasion of communist North Korea against a Western-aligned South Korea in June 1950 provoked American and international intervention to defend the South Koreans. American airpower based in Japan and Pacific bases was the first American response to the North Korean attack. Although the Americans and their allies had air superiority at the start of the war, the overwhelming airpower advantage failed to stop the relentless North Korean advance that carried the invader up to a small perimeter around Pusan. Finally, American and UN reinforcements, backed up by a massive application of available airpower, finally enabled the UN forces to hold the line. Aerial interdiction carried out in a manner no different from World War II helped cripple North Korean logistics and demoralize the communist ground forces, but airpower alone could not be decisive in this type of war. It was only the American amphibious landing at Inchon that turned the tide in Korea in 1950.³¹

³⁰ Brodie and Kahn were prolific and influential; authors. The key works on nuclear war theory by Bernard Brodie are: Bernard Brodie, *The Absolute Weapon: Atomic Power and World Order* (New York: Harcourt, 1946); *Strategy in the Missile Age* (Princeton: Princeton University Press, 1959); *From Cross-Bow to H-Bomb* (New York: Dell, 1962); *Escalation and the Nuclear Option* (Princeton: Princeton University Press, 1966). Herman Kahn wrote several important books on nuclear war theory to include: *Thinking about the unthinkable* (New York, Horizon Press, 1962); *On thermonuclear War* (Princeton: Princeton University Press, 1960). Kahn worked closely with the military developing special studies as a member of the Rand corporation. Some of Kahn's Rand studies include *Report on a Study of Non-Military Defense*, 1958; and *The Nature and Feasibility of War and Deterrence*, 1960.

³¹ An overview of the air war in Korea is found in Alan Stephens, "The Air War in Korea, 1950-1953" in *A History of Air Warfare*, ed. John Andreas Olsen (Washington DC: Potomac Books, 2010) pp. 85-106.

Later that year, American airpower again played a key role in slowing the onslaught of the Chinese forces that had intervened in the war. However, although airpower could severely hurt the enemy, it could not prevent the Chinese forces from holding a defensive line across the peninsula and stalemating the conflict from 1951 until an armistice was negotiated in 1953. The American military found the Korean War to be an exceptionally frustrating experience. Although the Communist nations had been foiled in their attempt to overrun South Korea, the readiness of Communist China and North Korea to lose vast numbers of soldiers, and the relative lack of strategic nodes and targets in North Korea, meant that American airpower could not have the kinds of effects it had demonstrated in world War II.³²

While Korea was a new type of limited war that was played out on the margins of the American national interest, the extensive use of airpower in that conflict resulted in few new doctrines for American airpower. The indecisive nature of the war convinced American airmen to avoid limited wars if at all possible. So during the 1950s and early 1960s American airpower thought concentrated on the issue of nuclear warfare. The initial delivery method of nuclear weapons was the heavy bomber. With the invention of the hydrogen bomb in the early 1950s a single bomber could carry more firepower than was deployed by all the armed forces of World War II. It was not just an issue of destruction and heavy casualties— such firepower threatened the very existence of civilization. By 1954 the situation became more interesting when America fielded its first tactical nuclear weapons. These bombs, ranging in effect from a few kilotons to 100 kilotons, weighed less than one ton and could easily be carried by a jet fighter bomber. Such small weapons meant that naval aircraft could also be nuclear capable. The army developed artillery pieces that fired small nuclear rounds. Soon the army, Navy and Air Force all began development of a host of missile systems ranging from small tactical cruise missiles to huge intercontinental missiles that could be based in America and send huge warheads onto targets deep in the Soviet Union within an hour of launch. The sheer variety of nuclear weapons made available in the 1950s changed military thinking to accept the idea that a nation might fight a largely conventional war with small nuclear weapons in support, or employ small nuclear weapons as a signal to an aggressor nation as a means of stopping an invasion before total nuclear war was initiated.³³

Vietnam and the Era of Limited War

By the late 1950s American strategic and military thinkers realized that an approach to war that emphasized the nuclear holocaust option did not answer the likely threat of small, limited wars initiated outside of Europe by allied or client states of the

³² On the U.S. Air Force response to the Korean War and the issue of limited war see Futrell, Vol. 1, pp. 273-352.

³³ For a discussion of U.S. Air Force thinking in this era and the debate about flexible response see Futrell, Volume 2, pp. 39-64.

communist powers. An Air Force study headed by Bernard Brodie concluded that the traditional strategy of striking at the enemy's "sources of national power" might not be applicable in a limited conflict. US Air Force General Weyland, head of the Air Force's Tactical Air Command, remarked that "we must have adequate tactical air forces in being that are capable of serving as a deterrent to the brush-fire kind of war, just as SAC (Strategic Air Command) is the main deterrent to global war."³⁴

By the early 1960s the doctrine of "flexible response" became the American war doctrine and strategy. The United States was to have a variety of options to deal with threats from total nuclear war to the limited "Korea-type" wars. General Maxwell Taylor, special military advisor to President Kennedy and later chairman of the Joint Chiefs of Staff noted in 1962. . . "Mindful of the awful dangers of atomic warfare, we require a military policy which takes it primary purpose the deterrence of that disaster. At the same time, . . . it must give due recognition to the need to cope with many situations short of general war—particularly para-war."³⁵

Beginning in the Kennedy presidency, American conventional military forces were again built up as the confrontations between the Western and communist nations began to heat up—especially in Southeast Asia. The doctrine of flexible response would soon be tested in the conflict in Vietnam.

When the question of how America ought to respond to North Vietnam's support of the insurgent movement in South Vietnam arose the Kennedy and Johnson administrations looked to air power as a means of decisively defeating the North Vietnamese. Curtis LeMay, the famous bomber commander of World War II, was chief of staff of the U.S. Air Force in the early 1960s and directed his staff to develop an airpower solution to stopping the North Vietnamese. The Air Force developed a list of 94 strategic targets whose destruction would cripple North Vietnam's armed forces and military capability. The 94 targets included transportation, industry, command centers, and fuel storage. LeMay and the Air Force believed that the destruction of all these targets in a quick, sharp campaign would quickly force North Vietnam to sue for peace.³⁶

Academic theorists working for the Kennedy and Johnson administrations, notably Walt Rostow and Assistant Secretary of State William Bundy, favored the use of airpower against North Vietnam and the bombing of the 94 targets advocated by the Air Force. But Rostow and Bundy also advocated a strategy of using bombing as a means of sending signals to the North Vietnamese. The destruction of the target list would be gradual and would escalate in violence until the North Vietnamese gave in to a negotiated settlement.³⁷

³⁴ Cited in Budiansky, pp. 374-375.

³⁵ Cited in Futrell, Vol. 2, p. 40.

³⁶ Budiansky, pp. 378-379.

³⁷ Donald Milne, *Our Equivalent of Guerrilla Warfare: Walt Rostow and the Bombing of North Vietnam, 1961-1968*, "Journal of Military History" Vol. 71/1, January 2007, pp. 169-203. See 183.

In 1965 and 1966 the Americans embarked on a major bombing campaign of North Vietnam that generally followed the Rostow/Bundy strategy. At the same time, large American ground combat forces were sent to South Vietnam. The air campaign against North Vietnam that was expected to have quick and decisive effects failed to cripple the North Vietnamese military capabilities.³⁸ However, North Vietnamese forces fighting in a low-level war in the south required relatively little in the way of logistics. Even a massive interdiction campaign by the U.S. could not stop the flow of supplies from North Vietnam to the south. By 1966 the “Rolling Thunder” bombing campaign had knocked out 60% of North Vietnam’s oil storage facilities. Yet the North Vietnamese quickly adapted their logistics system and dispersed fuel throughout the country in 55 gallon drums. Attacks that would have crippled a highly industrialized economy or mechanized armed forces had little effect against a low tech country and military.³⁹

The U.S. Air Force and U.S. Navy carried on an intermittent strategic bombing campaign against North Vietnam and an interdiction campaign against the supply routes along the Ho Chi Minh trail from 1965 until 1973 when the U.S. forces left South Vietnam. In many respects, the Vietnam war was an important learning experience for the American airpower. The US military employed many new technologies in the Vietnam War. Remote electronic sensors were deployed to collect targeting data along the Ho Chi Minh Trail. Many new aircraft were tested in combat. Laser-guided precision bombs saw their debut in bombing North Vietnam. The US Air Force also had to contend with highly sophisticated and extensive air defense systems in the skies over North Vietnam—and the aircraft losses throughout the whole of the war were heavy. Even though American airpower could claim significant tactical victories and accomplishments, as in Korea, the war for the Americans ended in a negotiated truce and not in anything resembling victory. This allowed for American withdrawal and final North Vietnamese victory over South Vietnam two years later.⁴⁰

From the Cold War to Desert Storm

After the very disappointing experience of Vietnam the U.S. military turned its attention to the more serious and immediate question of how to face the vast Soviet and Warsaw Pact conventional forces in case of an open confrontation between East and West on a European battlefield. In the case of the Cold War turning hot, the United States could not count on numerical superiority, or even fighting with air superiority.

³⁸ A good overview of the U.S. bombing campaign against North Vietnam is found in Mark Clodfelter, *The Limits of Air Power: The American Bombing of North Vietnam* (New York: The Free Press, 1989).

³⁹ Budiansky, pp. 382-383.

⁴⁰ See Kenneth Werrell, *Chasing the Silver Bullet: U.S. Air Force Weapons Development from Vietnam to Desert Storm* (Washington: Smithsonian Books, 2003) On US aircraft in Vietnam see pp. 9-35; on USAF munitions and sensors in Vietnam see pp. 36-54.

In such a conflict, the U.S. Air Force would likely have to carry out its missions in the face of highly sophisticated enemy air and fighter defenses. Despite the massive size of the Soviet forces, the Americans still maintained a strong technological lead. From the middle of the 1970s until the end of the Cold War the American concept of future air war centered on the idea of leveraging better technology to defeat a strong enemy air defense, strike deep behind enemy lines, and use the precision capabilities steadily developed since World War II to create maximum effects with an economy of force.

In taking this approach the Americans developed and fielded a superb array of modern aircraft and weapons. In order to penetrate enemy air defenses stealth technology was perfected in the F-117 attack aircraft which could not only penetrate a modern air defense system, but could put several tons of bombs on the target with exceptional accuracy. Laser range finders that enabled bombs to be guided by the pilot in flight meant that modern aircraft could easily deliver heavy bombs to within feet of the target point. Space satellites gave the American airmen exceptionally precise information on enemy defenses and targets, while modern digital communications enabled intelligence to be transmitted almost instantaneously to the pilot in the cockpit. Put together, all of these developments in information, munitions, and aircraft capability amounted to a new doctrine of employing airpower. Because the costs of the new technologies were so high, and the ability to integrate all these new technologies into effective systems so difficult, it was a uniquely American approach to aerial warfare. Only the United States could afford to field such systems and to train people to use them in concert.⁴¹

The most significant US airpower thinker of the 1980s and 1990s was an Air Force Colonel and Vietnam veteran John Warden. Warden believed that air power was the decisive element in modern war and argued that the Air Force should think in terms of an independent air campaign. Viewing a likely enemy as a system, Warden argued that one should think of the enemy in terms of rings—with the priority of targeting to the “inner” and more important rings of leadership and key infrastructure with fielded forces being on the outer and lower priority rings. Warden argued that by hitting key targets one could paralyze the enemy system and make it incapable of effective battle without a long campaign of attrition against the fielded forces.⁴²

The United States never fought its Cold War enemies, but the technology, skills and doctrines for war developed for Cold War enemies proved to be an excellent preparation to fight the conventional conflicts of the 1990s. In the Gulf War of 1991

⁴¹ On the development of the USAF technology after the Vietnam War see Werrell, pp. 55-220. See also Benjamin Lambeth, *The Transformation of American Airpower* (Ithaca: Cornell University Press, 2000).

⁴² Warden’s key concepts are expressed in: John A. Warden III, *The Air Campaign: Planning for Combat* (Washington: National Defense University Press, 1988); “The Enemy as a System,” *Airpower Journal* 9, Spring 1995, pp. 40-55.

American and Coalition airpower, which was overwhelmingly American airpower when counting sorties and bombs dropped, demonstrated what modern air forces armed with stealth, precision, and superior C2 could do against even a well-equipped enemy. In a six week air campaign that preceded the Coalition ground assault, the Iraqi air defense were first taken down, then key leadership and command and control targets were destroyed. Finally, the elite units of the Iraqi army were systematically targeted and heavily attrited. By the end of the air campaign, the Iraqi forces were demoralized they had lost much of the fighting power. When finally unleashed, the ground forces needed only four days to overwhelm the huge Iraqi army.⁴³

Warden's ideas and the group of airpower planners he led in the Pentagon had great influence over the air war plan in 1991. Many can rightly argue that the key concepts expressed by Warden are very close to the traditions of the Air Corps Tactical School.⁴⁴ The question was whether the airpower success in Iraq in 1991 signified a true revolution in military affairs in which airpower now plays the key role in applying military force, or the product of a set of unusually favorable circumstances.

The NATO air campaign against Kosovo in the 1999 was an instance of defeating a nation using air power alone. But the victory came only after a frustrating 78-day campaign and the goals of the campaign were very limited, Serbian withdrawal from the Province of Kosovo. In fact, the 1999 campaign demonstrated many flaws in the NATO and American application of airpower. As a coalition operation there were serious difficulties in developing a united strategy. Partner air forces found it difficult to operate alongside the Americans because other NATO nations had not invested in precision munitions or modern C2 systems. In the biggest air campaign since the Gulf War, it was still not clear that a true revolution had occurred.⁴⁵ Still, the most impressive feature of the campaign was the American capability to strike targets precisely.

In 2001 in Afghanistan and 2003 in Iraq the U.S. Air Force and U.S. Navy proved exceptionally capable in fighting against conventional enemies with little or no airpower. With huge technological advantages American airpower managed to cripple and destroy whole Iraqi divisions before they even reached the front.⁴⁶ Moreover, they did so with such precise effects that civilian casualties and damage to the civilian infrastructure was minimal.

At the dawn of the 21st Century the U.S. Air Force and Navy have such a techno-

⁴³ The best critical history of the Air War of 1991 is Thomas Keaney and Eliot Cohen, *Revolution in Warfare? Air Power in the Persian Gulf* (Annapolis: Naval Institute Press, 1993).

⁴⁴ See David Mets, *The Air Campaign: John Warden and the Classical Airpower Theorists* (Maxwell AFB: Air University Press, 1999).

⁴⁵ An excellent critical analysis of this campaign is Tony Mason, *Operation Allied Force, 1999 in A History of Air Warfare*, ed. John Andreas Olsen (Washington DC: Potomac Books, 2010) pp. 225-252.

⁴⁶ See Williamson Murray, *Operation Iraqi Freedom, 2003 in A History of Air Warfare*, pp. 279-296.

logical superiority and well-trained force, that the dream of winning a conventional state on state war with airpower in the lead role has become a reality. It is a doctrine for war that requires such complex and expensive technology that only the United States can realistically apply this doctrine. Yet, in the ongoing counterinsurgency campaigns in Afghanistan since 2001 and in Iraq since 2003, the technological advantage does not play the same central role as it might in conventional war. Current conflicts against non state forces offer no strategic target set or industrial nodes whose destruction will cripple the enemy forces. If unconventional wars are the norm for the coming decades, American airmen will have a frustrating future.

