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Christopher Evans
Wilfrid Laurier University

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The dichotomy between popular and academic history is, for most historians, and readers, an uncomfortable one. A book that appeals to a mass audience risks the scorn of academia, whereas a scholarly work may never reach beyond the confines of the university. While there are exceptions to this rule, John Keegan's *The Face of Battle* being perhaps the most famous, by and large academic study runs parallel with popular accounts and rarely the twain meet. No where is this more prevalent in the study of military history than the question of the role played by tactical air power in the Normandy campaign. With over a half century of intense study and voluminous publication this subject continues to defy a comprehensive reconciliation. It has therefore remained an area of constant debate.

The Royal Air Force and Royal Canadian Air Force, their proponents and certainly their pilots, have argued that their contribution to the victory in Normandy was vital, even decisive. Memoirs abound filled with the bravado of heroic acts so compelling that their tales have swept the day. Frank Wootton's painting, "Rocket-firing Typhoons at the Falaise Gap, Normandy, 1944," has come to epitomize this most positive view of the tank-killing fighter-bomber. The commanding officer of the Second Tactical Air Force, Air Marshal Sir Arthur Coningham, stated this sentiment clearly in his postwar report on operations.[1] George C. Blackburn, a gunner, concurred with this view in his award-winning book *The Guns of Normandy*:

> Surely the Typhoon is proving to be the most effective weapon of all in combating the superiority of the enemy's armour, particularly his irresistible Tigers. Without the Typhoons, the Allies might never have subdued his armoured divisions to the point where a break-out became possible.[2]

Despite such overwhelming support for the destructive powers of allied air power a group of historians undertook the unenviable task of questioning the myth of the tank-killing fighter-bomber. W.A. Jacobs, Terry Copp and Robert Vogel were among the first to publish studies based on operational research reports.[3] Operational research involved the study of the battlefield and the effectiveness, or lack thereof, of the weapons employed. Data accumulated by scientists of No.2 Operational Research Section, combing the battlefields of Normandy, pointed to something quite different than the pilots were claiming. Panthers, Tigers, Mk. IVs and assault guns certainly littered the Normandy landscape. However, close examination revealed that their demise was most often due to ground fire, mechanical defect, destruction by crew or lack of fuel. What then had tactical air power achieved? If 'The Day of the Typhoon' was more myth than reality, what was the contribution made by the pilots risking and often losing their lives in repeated ground attacks?[4] Field Marshal Erwin Rommel, the German general specifically tasked with repelling the invasion forces, gave one possible answer:

> Our own operations are rendered extraordinarily difficult and in part impossible to carry out [owing to] the exceptionally strong and, in some respects overwhelming, superiority of the enemy air force. The enemy has complete command of the air over the battle zone and up to about 100 kilometres behind the front and cuts off by day almost all traffic on roads. [-] Neither our flak

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> nor the Luftwaffe seem capable of putting a stop to this crippling and destructive operation of the enemy's aircraft.[5]

Shortly thereafter the Field Marshal was seriously injured when his staff car was strafed, at of all places, Ste. Foy de Montgommery. He never took to the field of battle again. Allied tactical air power was assured its place in history.

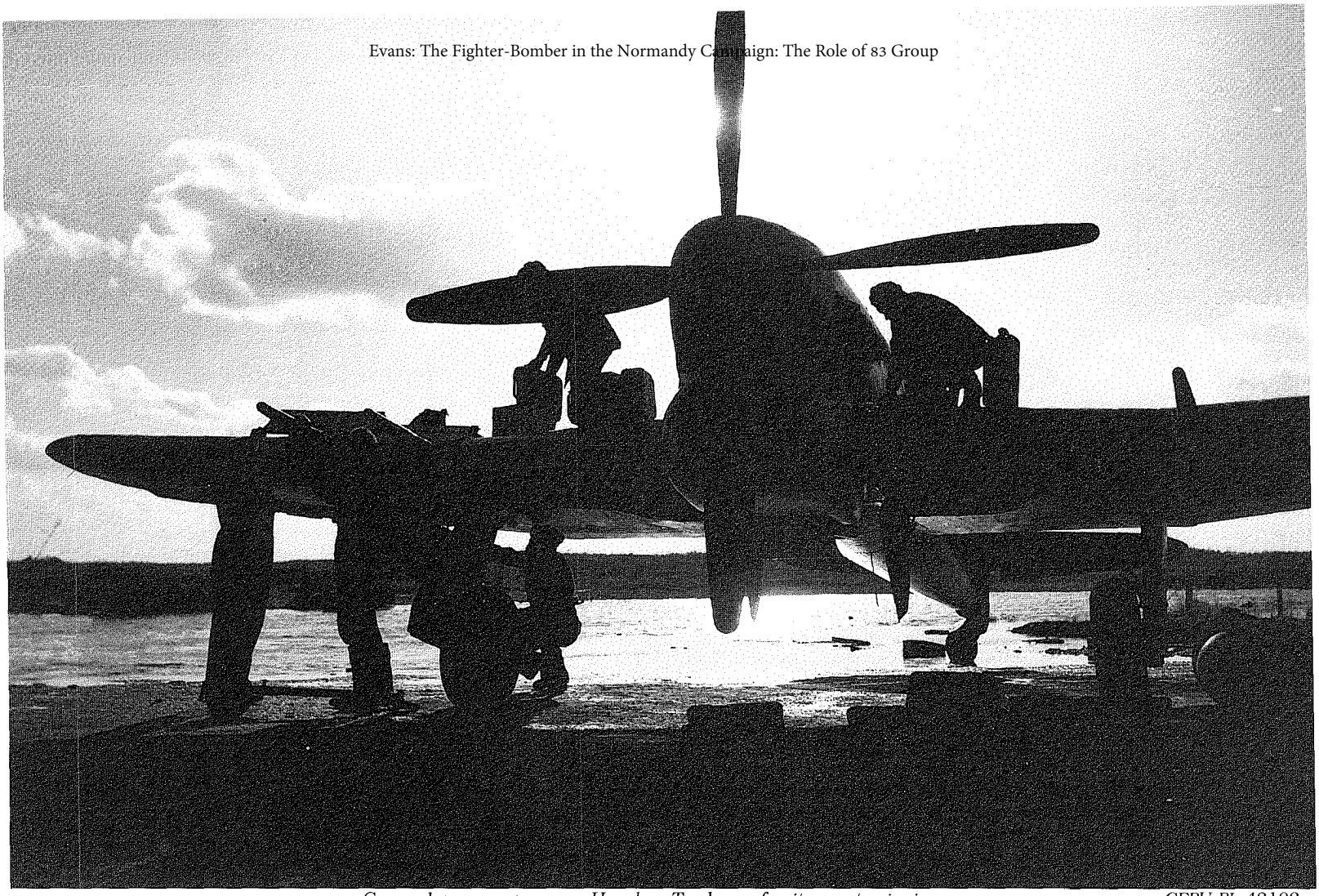
A recent book on the subject, *Air Power at the Battlefront: Allied Close Air Support in Europe, 1943-1945* by Ian Gooderson has expanded on this perception. Far less satisfying than the destruction of enemy tanks and far harder to prove, Gooderson cites the creation of negative morale as an important factor. Put simply, even if the fighter-bomber did not destroy the Tiger tank or knock out the concrete pill-box, it could and often did terrify and throw into confusion the soldiers within, thereby lessening their ability to fight. A less palpable result perhaps but a significant one nonetheless. But is this new understanding of tactical air power, based on contemporary studies, the whole story? The answer is no.

The historiography regarding the effectiveness of tactical air power in Normandy has focused so tightly on one aspect, the provision of close or direct support – attacking ground targets on or near the battlefield – that it has not fully encompassed the larger picture. All can agree that the Second Tactical Air Force was tasked with providing support to the ground forces in Normandy. What must be first clarified is how that support was actually provided. Only then can an attempt at quantifying its success be undertaken. The degree to which close support operations succeeded or failed becomes less crucial if the evidence shows that missions of a defensive and protective nature were the primary focus of tactical air power operations in Normandy, not close support.

With the end of the First World War the concept of strategic bombing was to come to the fore in Britain and remain there throughout the interwar period. At a 1924 RAF Air Staff Planning committee meeting it was made clear that the development of dedicated attack aviation was "quite unsuited to the needs of this country and that it would be impossible to produce [-] without starving far more important branches of the RAF."[6] Said branches were those concerned with the development of long range strategic bombers and short range defensive fighters. The design and production of ground attack aircraft, with their implied support of an army engaged in a land campaign, was therefore ignored. By 1935 this attitude was firmly ingrained, so much so

A Canadian pilot poses in front of his Hawker Typhoon.

CFPU PL 28802



Ground crew prepare a Hawker Typhoon for its next mission. *CFPU PL 42102*

that the same committee concluded that "an airforce whose primary function is direct cooperation with the army in a large scale 'land forces' war – [is] neither the role of the Royal Air Force in war, nor in its 'imperial police' duties."[7] It therefore rejected "the idea of armouring aircraft for use in the RAF" despite the likelihood of "low flying attacks against ground targets in the future."[8] Instead, existing aircraft would be utilized if required.

In 1942 the RAF remained confident in the ability of strategic bombing and continued to see little need in pursuing closer ties with the army in developing ground attack aircraft and doctrine. The Air Staff stated that with:

> the highest priority and sufficient energy [-] devoted to the development of a coordinated day and night bomber offensive – the war can certainly be won in 1944, and possibly in 1943.[9]

The army, however, did not see it this way. The same year that the RAF were predicting an end to the war through bombing, the British Imperial General Staff circulated a paper calling for no less than 109 squadrons to directly support ground forces. The circular noted that "Army Co-operation has been the Cinderella branch of the RAF, and the Army's efforts to get proper air support in reconnaissance, bombing and fighter cover has never had a fair deal."[10] When it was finally decided to create a tactical air force to support land operations, with the tacit acknowledgment by the RAF that strategic bombing was not going to win the war, it was too late to build an entirely new organization and equipment. Tactical air power would therefore have to come from existing commands and aircraft, even though neither were specifically designed for the task.

In the summer of 1943 the Second Tactical Air Force was created in England. Among its key components was 83 Composite Group. The organization, especially 83 Group, was in reality Fighter Command with a new name and new mission. Since the successful defense of the British Isles, Fighter Command had been in

search of a new role. This situation was exacerbated in the summer of 1941 when virtually all Luftwaffe fighter and bomber squadrons stationed in western Europe were transferred to the new eastern front in Russia. Fighter Command was in danger of becoming redundant. Bomber Command had the range and weapons to take the offensive to Germany, Fighter Command did not. The Hurricane, already obsolete in Europe, and its uncertain replacement, the Typhoon and the updated Spitfire, had all been designed for air defense. As a result, they lacked the range to escort the heavy bombers deep into occupied territory. The compromise, as a way to utilize such a sizeable asset, maintain morale and with the hope of drawing some of the Luftwaffe squadrons away from Russia, was to conduct offensive sweeps over occupied France and the Low countries.

With the fighter squadrons now taking the fight to the enemy, aspects of fighter aircraft design, previously irrelevant, became critical. Very quickly Air Vice Marshal Leigh-Mallory, AOC-in-C Fighter Command concluded that "the best type of aircraft for low flying attack was the radial engined fighter."[11] This was disturbing. Fighter Command possessed no such fighter. The only new fighter added to the roster of what would later become 83 Group was the ubiquitous Mustang, another liquid cooled inline engined fighter. Leigh-Mallory's remark stemmed from the quite heavy losses that were incurring on these offensive sweeps. All four fighter types had their radiators and cooling systems located on the bottom of the aircraft. While this offered protection from an enemy airplane shooting from behind, it presented ground fire, flak, with a very vulnerable target. Prewar decisions to forego a dedicated ground attack aircraft with sufficient armour protection now took on a darker connotation.

As offensive operations continued, other problems began to emerge. Fighter pilots had not been trained to drop bombs or fire rockets at ground targets and their aircraft had not been built to do so either. Studies concluded that fighters equipped with bombs, flying at just 50 feet above the ground, would need to drop 60 bombs to hit a target 150 feet square, and this with no enemy opposition. Raise the height to a still low 1,000 feet, and the amount of flak to moderate and the number of bombs required jumped to a staggering 4,000. By the time fighters were up at 10,000 feet and experiencing intense flak the number of bombs required was ridiculous; 50,000.[12] The desire of the pilot to survive in the face of ground fire and the unsuitability of fighters converted to bombers proved anathema to accuracy.

The use of rockets was equally difficult. By August 1943 the rocket projectile was regarded as a weapon best used against large targets as it was deemed not a "precision weapon."[13] This then left strafing as the first and most accurate means by which a fighter could attack ground targets. Against soft targets such as transport and troops in the open such attacks proved to be devastating. However, the .303 and 20mm shells fired by the fighters were virtually useless against tanks and well fortified positions. In essence then, the most accurate weapon fighters had with which to conduct ground attack was also its weakest. This was worrisome. The vaunted Panther and Tiger tanks were viewed with varying states of awe and fear by the men of the western armies who would soon have to face them in numbers that in terms of density surpassed those on the eastern front. The army's hopes that the air force could deal directly with these adversaries was to prove illusory.

Air Superiority

When the allies came ashore in France on 6 June 1944, the role of the supporting air forces was deemed crucial. With the advantage of hindsight the then very real chance of the allies being pushed back into the sea seems of little importance. To the leaders of the time however, it remained an ominous possibility. Dieppe was an all too graphic reminder of what could go wrong. First and foremost then, the fighters of the tactical air forces were tasked with gaining and maintaining air superiority over the battle area. It was a task they were supremely suited to carry out.

Air Marshal Tedder commented after the war that "even though one 'felt' the air situation was satisfactory one must admit to a certain degree of anxiety – it would have needed only a small surviving enemy force to do immense damage during the initial landings."[14] To negate the German Air Force as much as possible the

tactical air forces continued the offensive against the Luftwaffe. Airfields and infrastructure were attacked, escort patrols for bomber and fighter-bomber formations were provided, defensive patrols were conducted over the sea and land forces and fighter sweeps behind enemy lines continually sought out any German aircraft in the sky. Their efforts proved extremely successful. During the period 6 June through 30 June the Luftwaffe sunk a mere five vessels and damaged another seven. Over 5,000 ships were crowded in the narrow confines of the English Channel and Normandy beachhead yet the Luftwaffe destroyed but a fraction of them.[15] It was at this point, when allied armour and infantry were at their most vulnerable, that the Luftwaffe could have struck a severe, even crippling, blow. Its failure to do so, as well as its inability to disrupt the massive naval artillery that was brought to bear on German targets far inshore with devastating results, is an often-overlooked but significant contribution that tactical air power made to the land campaign.

Intelligence

The reconnaissance fighters of 83 Group provided as great a service as those aircraft directly attacking the enemy:

> they kept a general watch on road and rail movement and on shipping; they flew over rivers to observe barge movement; bridging and ferrying sites; they made detailed searches of specific areas at the request of Twenty One Army Group to detect possible concentrations for counter-attacks. They also carried out intelligence missions in search of gun-sites, dumps, supply centres, etc., and for purposes of bomb damage assessment.[16]

A measure of just how active reconnaissance aircraft were during the campaign is the sheer volume of photographs taken in such a short span of time [see Table 1]. These photographs were distributed widely, often down to the platoon level, providing the ground forces with up-to-date information on enemy dispositions, thereby allowing for a more informed plan of attack. Information was to come from other sources too. With fighter aircraft operating almost constantly over forward enemy positions on other missions they constantly reported back on what they saw, supplementing the dedicated reconnaissance squadrons many times over.[18]

Table 1
Production of Air Photographs by 83 Group during the Normandy Campaign[17]

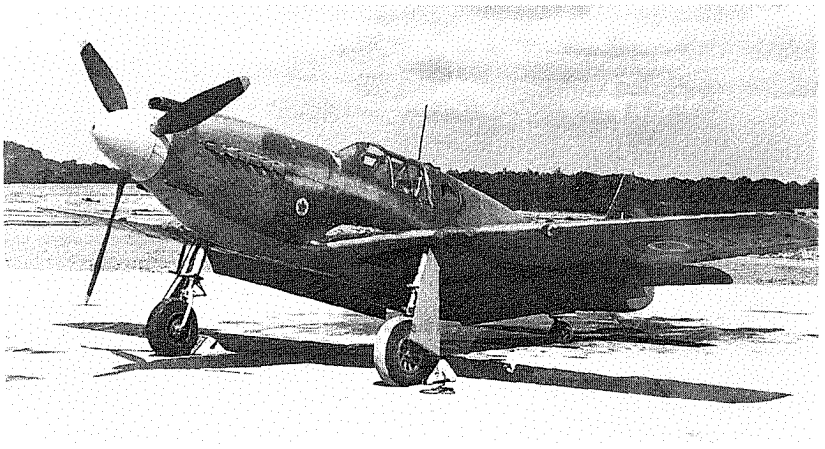
Month	No. of Successful Sortes	No. of Exposures	No. of Prints
June	446	34,000	287,000
July	299	33,000	380,000
August	495	76,000	814,000
Totals	1,240	143,000	1,481,000

Armed Reconnaissance and Interdiction

Armed reconnaissance meant that "fighter aircraft [were] sent out to look for ground targets and attack them. At the same time, pilots bring back any possible information about the enemy ground situation."[19] Missions would involve anywhere from 4 to 12 aircraft "sweeping the given area at a height of about 4,000 to 6,000 feet, according to the flak concentrations present, and searching for any form of road, rail or water-borne movement."[20] So numerous were these missions that German road movement was virtually confined to the hours after dark or in bad weather when the marauding aircraft would not be present.

Interdiction "was usually carried out in a fairly calm period before the land battle really joined, and consisted of cutting off completely

A photo-reconnaissance Mustang I of 430 Squadron RCAF in Normandy. *CFPU PL 34965*



A Typhoon of 438 Squadron RCAF being serviced. In the foreground are two bombs ready to be fitted, a 1000-pounder (bottom) and a 500-pounder.

the area in which the enemy was situated by carrying out bombing attacks on all lines of communication leading to the area."[21] Armed reconnaissance was an integral part of interdiction and sought to starve the forward German defences of food, fuel, ammunition and reinforcements. The ability to quantify the success of these missions however, remains difficult. Postwar reports however, especially those given by German generals, were vociferous in noting the constant and destructive effect allied air power had on their ability to conduct operations:

> Our daily losses in men and material from close support planes and fighter bombers were high in good weather. Their effect on the morale of our soldiers was considerable. On the other hand, the enemy suffered practically no losses from our planes.
>
> [-] All our movements [-] could, during clear weather, only be accomplished during the night (six to eight hours). During these few hours, we experienced overloading of the road and railroad network with resulting traffic jams.[22]

The consequences of this were:

> (1) All our movements could be executed only slowly, and with many difficulties and losses. It was therefore necessary to plan in advance and prepare those movements very thoroughly.
>
> (2) The enemy was able to execute his movements at least twice as fast as we carried out ours.
>
> (3) Movements of our units during daytime and good weather bogged down because of air attacks and caused heavy losses.
>
> (4) The supply situation was bound to become increasingly difficult.
>
> (5) The moving up of reinforcements was a tedious operation. Delays entailing critical situations had to be taken into account.[23]

Direct/Close Air Support

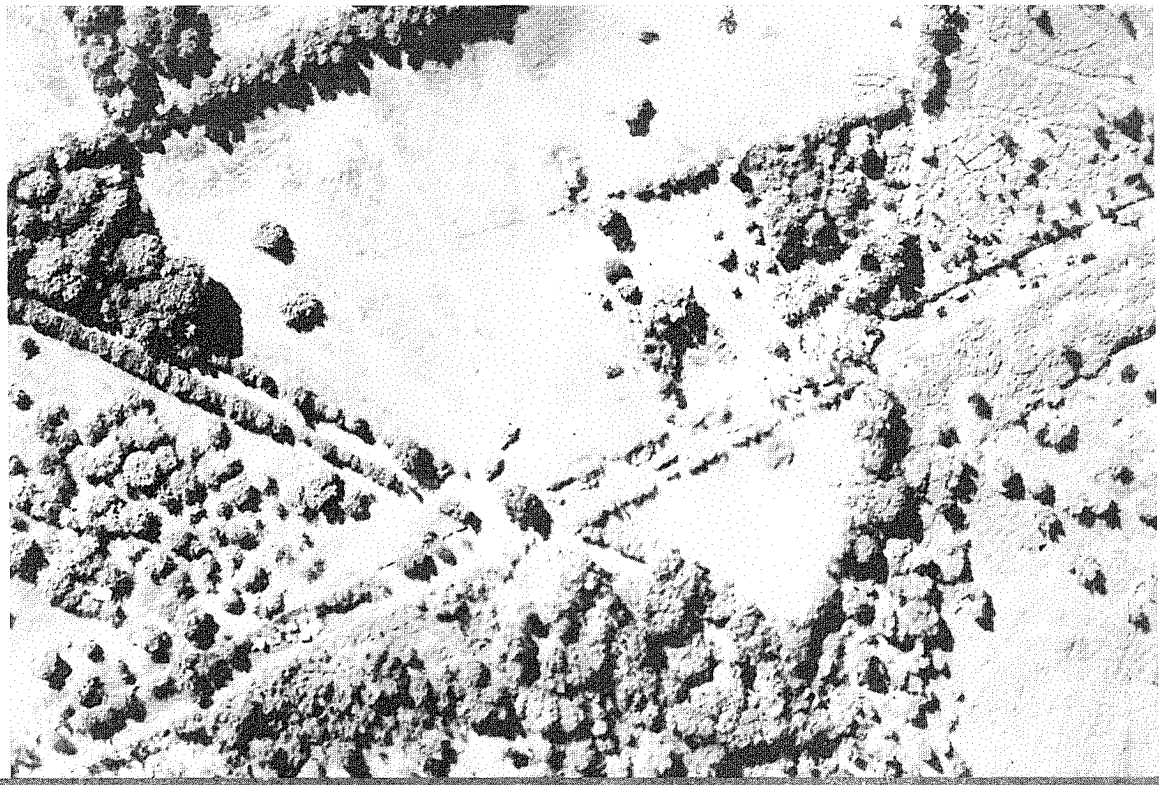
The general term 'direct air support' was used as a catch all to describe "the attack by air forces of targets having an immediate effect upon the action of our own land forces and may be divided into prearranged and impromptu support."[24] In either case this support was primarily concerned with ground attack which entailed strafing, bombing and/or rocketing of specific targets near the front lines and in close proximity to allied forces. For such missions communication between the ground forces and pilots was essential, and various methods were employed. The one most famous was known as "CABRANK" which consisted of a group of orbiting aircraft being directed by a ground controller onto a specific target.

Despite its fame, CABRANK was never in widespread use. It was a costly and difficult way to employ aircraft and offered no guarantees of a target being located. More often, when aircraft

attacked targets near the front line, they adhered to the bombline for guidance. As the name suggests a line was delineated on the field of battle that determined on which side an aircraft could safely engage targets. Geographic landmarks were used to give pilots visual clues but this was not always sufficient. In that case any number of artificial indicators were employed to signal to aircraft where the allied troops were in relation to the Germans. These signals included strips of cloth laid out on the ground, coloured smoke or flares, trenches made with bulldozers or graters and even white paint directly on a road.[25] As the ingenuity of the allied soldier was limited only by what he could lay his hands on, the amount and type of signal markers was numerous.

When the campaign evolved into one of rapid movement, these methods were no longer suitable and so another means of identification was required. The front line would be 'predicted' and pilots would be told to attack in areas that the prediction indicated was enemy and not allied.[26] Overly optimistic predictions would place the Germans within the allied side, offering them a greater degree of protection while a pessimistic one could find allied troops further forward than expected and so subject to attack by their own aircraft. The system, while far from ideal, sufficed in most cases.

The culmination of the Normandy campaign was the "Battle of the Falaise Pocket." When the "Pocket" was finally liquidated a rough tally was made of the destroyed and abandoned vehicles left in and around Falaise. There was so much wreckage that the area was divided into three portions, the Pocket, the Shambles and the Chase. A total of 885 vehicles was counted in the Pocket area, 3,043 in the Shambles and another



Recce photos of the German exodus in the Falaise Pocket. ***Right****: At this crossroads near Orbec, clearly defined track marks indicate where vehicles on the escape route make a detour to pass wrecked transport blocking the road.* ***Below****: Close packed German vehicles (including cars, trucks, AFVs and horse-drawn carts) spotted by a reconnaissance aircraft east of Falaise on the hazardous escape routes toward the Seine River.*

3,648 in the Chase for a total of 7,576 vehicles, not including the innumerable horse-drawn carts, in this one section of Normandy alone.[27] When the vehicles were categorized by type and their condition assessed it became clear that strafing, not bombs and rockets, had been the main cause of destruction of vehicles attacked from the air. Of the 150 tanks and self-propelled guns located in the Chase, not a single one showed signs of having been destroyed from the air.[28] Even so, it is equally clear that at least some of the German armour found was there because of air attack on fuel trucks, blocked roads and bridges and even the demoralization of the crew.

In this final battle of the Normandy campaign the pilots of 83 Group claimed the destruction of 141 tanks and 2,284 motorized enemy transport (MET).[29] While the evidence suggests that these claims are exaggerated, the fact remains that the battle of the Falaise Pocket was a defeat comparable to that suffered by the Germans at Stalingrad. In the span of just three months two German armies had been mauled and routed, and the air forces had played their part. What has remained controversial ever since was how exactly that contribution was made.

A breakdown of the numbers and types of missions flown by the tactical air forces [shown in Tables 2 and 3] is instructive in assessing their contribution. Excluding the light and medium bombers and focusing just on the fighter aircraft one can see that for the first two months of the campaign over 50 percent of all fighter sorties were air superiority missions in some form. When the month of August is included the total drops to 42 percent, still far and away the single largest number of sorties flown by the fighters in the composite groups in 2nd TAF. The actual percentage of missions termed direct or close air support was just 19 percent of the total effort expended. That bears repeating. Less than 20 percent of all fighter and fighter/bomber sorties flown throughout the entirety of the Normandy campaign were of the specific type, direct/close support, that the army wanted. The remaining 80 percent followed the doctrine argued by the RAF, support through air superiority, interdiction and intelligence gathering.

Table 2
Effort expended on obtaining and maintaining Air Supremacy[30]

Month	Number of effective sorties flown by all groups					
	Offensive Patrols	Interception	Escort	Total	85 Group	83 and 84 Group
June	4,716	4,692	3,134	12,542	1,488	11,054
July	4,548	135	3,869	8,552	1,294	7,258
August	1,035	3,009	2,751	6,795	916	5,879
Totals	10,299	7,836	9,754	27,889	3,698	24,191

Table 3
Sorties by Aircraft of 2 TAF during the Normandy Campaign[31]

Month	Medium & Light Bombing	Fighter Escort & Patrols	Fighter Bomber & RP attacks*	Armed Recce	Photo, weather visual and tactical recce and ASR	Total
June	3,117	18,062	7,652	5,277	3,810	37,918
July	3,304	14,528	6,484	5,527	3,025	32,868
August	3,990	7,325	3,850	14,169	3,918	33,252
Totals	10,411	39,915	17,986	24,973	10,753	104,038

Refers to pre-arranged attacks against ground targets and immediate support/close support.

The importance of this finding cannot be understated. The debate waged over the effectiveness of the rocket Typhoons and their accuracy and resultant impact on the battlefield has focused entirely in the wrong area and on the wrong criteria. To understand what tactical air power did in the campaign requires that one determine what the majority of sorties were and what those sorties accomplished, either by what they did, or what they prevented. It was the fighter, in the case of 83 Group, the Spitfire and the Mustang, not the fighter-bomber, the Typhoon, that supplied the majority of the support to the ground forces. It may have been in a form that few soldiers ever saw or appreciated but nonetheless benefitted from in very real and tangible ways. [See Table 4].

Of the 403 enemy aircraft claimed destroyed by pilots in 83 Group during the entire Normandy campaign, not one was shot down by a Typhoon. Despite being trained as fighter pilots first and foremost, despite being equipped with single engine fighter aircraft and despite operations in a hostile environment for three months the Typhoons of 83 Group claimed no air-to-air kills at all.[32] Spitfire and Mustang squadrons, often flying right alongside them, did all the damage to the Luftwaffe. This is as it should be. Typhoons were tasked as fighter-bombers, with their focus on the ground. The importance in this data is in dispelling the notion of the duality of the fighter-bomber. There were fighters and there were bombers but rarely were they the same plane and the same pilot on one sortie.

Table 4
Summary of 83 Group Operations Claims by Aircraft Type in the Normandy Campaign, June-August 1944

Month	Sorties	Bombs	R.P.	Tanks		MET		Enemy Aircraft			Losses	
				Dest	Dam	Dest	Dam	Dest	Prob	Dam	a/c	Pilots
3 Mustang III Squadrons												
June	1,344	1,692	0	0	0	92	63	36	0	17	15	15
July	1,232	1,016	0	0	0	24	44	28	2	24	11	9
August	1,805	1,909	0	1	4	151	444	21	3	15	19	14
Totals	4,381	4,617	0	1	4	267	551	85	5	56	45	28
12 Spitfire Mk IX Squadrons												
June	7,369	350	0	0	5	296	328	106	9	50	47	34
July	9,652	294	0	1	27	405	777	161	11	94	46	40
August	8,483	747	0	0	22	1,826	3,288	39	3	17	52	34
Totals	25,504	1,391	0	1	54	2,527	4,393	306	23	161	145	108
10 Typhoon 1B Squadrons RP and Bomb												
June	3,458	2,029	11,830	17	8	141	52	0	0	0	31	23
July	3,094	2,290	15,351	39	61	60	70	0	0	0	28	22
August	4,703	3,415	19,264	215	179	1,227	1,386	0	0	1	55	48
Totals	11,255	7,734	46,445	271	248	1,428	1,508	0	0	1	114	93
3 Mustang I Squadrons Tactical Photo Reconnaissance												
June	1,120										4	3
July	1,465					5		1			2	2
August	1,413					1	4	1		2	3	1
Totals	3,998					6	4	2		2	9	6
1 Composite Squadron Spitfire and Mosquito Strategic Photo Reconnaissance												
June	139											
July	144										1	
August	248											
Totals	531										1	
Grand Totals for all 83 Group Squadrons												
June	13614	4071	11830	18	17	552	468	143 ½	9	69	107	78
July	17643	2487	19349	49	97	516	936	197	13	123	110	92
August	19012	7295	25181	268	344	3347	5329	63	6	35	140	104
Totals	50269	13853	56360	335	458	4415	6733	403 ½	28	227	357	274

R.P. = rocket projectile; Dest=destroyed; Dam=damaged; MET=motorized enemy transport; Prob=probable; a/c=aircraft
(Compiled from 83 Group Intelligence Summaries IMW 83/15/3)

Armourers prepare rocket projectiles for use on Typhoons at Airfield B5 (121 Wing, 83 Group) near le Fresne-Camilly, Normandy.

The examination of results by squadron also indicates the actual effort expended by the various aircraft types in the fighter and fighter-bomber role. Despite the efforts to equip Spitfires with bombs, in the month of August 1944, 12 squadrons dropped just 747 bombs compared with the 3,415 dropped by just 3 Typhoon squadrons and the 1,909 dropped by 3 Mustang squadrons.[33] The Spitfire dropped very few bombs, fired no rockets yet claimed the highest number of enemy vehicles destroyed of any aircraft type in 83 Group. Even taking into account the strong likelihood of inflated claims it seems apparent that the cannon and machine gun of the Spitfire proved the most effective in ground attack, in other words strafing. As has been shown, the wing mounted cannon and machine gun in the single engine fighter were the most accurate weapon system on the aircraft and the only weapon the aircraft had initially been designed to carry. The focus on German armour, and the attempts to destroy it, proved far less successful.

The importance of tactical air power and the way to garner a true appreciation of what it accomplished lies in understanding its role, and how it carried that role out. The single engine fighters of 83 Group were engaged primarily in gaining and then maintaining a degree of air superiority over the battlefield that would, and did, allow the allies almost total freedom to deploy and conduct operations unhindered by the Luftwaffe. In this, tactical air power was clearly successful.

The question of the effectiveness of close air support is not as easily answered. The number of German armoured fighting vehicles destroyed by tank-busting Typhoons is demonstrably low. The number of German soldiers and tank crewmen who ran or cowered after an attack, thereby easing the job of the allied soldier, is unknown and will remain so. The bitter struggle that German forces conducted throughout the entire campaign however, does suggest that whatever the morale effect was, it proved insufficient in most cases to carry the day. In the end, it was allied infantry, armour and artillery, under a mostly benign sky, that would accomplish that.

The debate on the effectiveness of allied tactical air power in the Normandy campaign will continue. To bridge the continuing divide between what is "popular" and what is "scholarly," eye-witness and documentary evidence, from all sources, be they pilots, soldiers, or scientists, allied or enemy, would appear to offer hope of a synthesis of ideas.

Notes

1. Operations Carried out by Second Tactical Air Force Between 6th June 1944 and 9th May 1945 by Air Marshal Sir Arthur Coningham. November 1945, pp. 10-12. Public Record Office [PRO] AIR 37/876.
2. George C. Blackburn, *The Guns of Normandy: A Soldier's Eye View. France, 1944* (Toronto, McClelland & Stewart, 1995), p.350.
3. See W.A. Jacobs, "The Battle for France" in *Case Studies in the Development of Close Air Support* edited by B.F. Cooling (Washington, DC, Office of Air Force History, 1990); Terry Copp and Robert Vogel, "Anglo-Canadian Tactical Air Power in Normandy: A Reassessment," 1987 presentation at the American Military Institute; Terry Copp, "Tactical Air Power in Northwest Europe 1944-45: The Evidence from Operational Research," 1987, unpublished paper; Robert Vogel, "Tactical Air Power in Normandy: Some Thoughts on the Interdiction Plan," *Canadian Military History*, Vol.3, No.1 (Spring 1994), pp.37-47.
4. The phrase refers to the destruction of the German armoured attack at Mortain on 7 August 1944, in which rocket-firing Typhoons have been credited with the victory. See John Golley's *The Day of the Typhoon: Flying with the RAF Tankbusters in Normandy (London: Longman, 1975).*
5. Message from Rommel to Field Marshal Keitel, 12 June 1944, reproduced from John Terraine, *Right of the Line: The Royal Air Force in the European War, 1939-1945* (New York: Macmillan Publishing Company, 1985), p.637.
6. Minutes of Air Ministry Planning Committee, 28 February 1935, p.1. PRO AIR 9/6.
7. *Ibid.*
8. *Ibid.*
9. "Relative Bombing Efficiency - Actual Results to be Expected Through Improved Strategy, Tactics and Equipment," Air Staff, 14 October 1942, p.7. PRO AIR 20/3360.
10. Reproduced from *Chief of Staff*, Brian Bond , ed., 1974, pp.19-20.
11. Minutes of Meeting held by Commander-in-Chief Home Forces at GHQ to discuss Army Air Support, 11 May 1943. PRO WO 205/567.
12. *Report on the Army Requirement for Direct Support in Battle*, 30 November 1942, Appendix A, p.19. PRO AIR 37/760.
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Christopher Evans has an MA in history from Wilfrid Laurier University. He was the historian on a recently-televised documentary on Vimy Ridge. He is currently writing his first book, a study of the effectiveness and role of tactical air power in Normandy.

CMH Mailbox - continued from p.6.

knowing that they were out of normal small arms range I ordered my platoon Browning machine gun to open fire. This it did with shattering effect on the quiet evening air and on our own protective barbed wire.

I do not know what effect this fire had on the enemy but it had an almost immediate effect on me. Within seconds I was summoned to a violently ringing phone to answer demands from what seemed everyone from the GOC down as to why, and on whose authority, my MMG had fired. When I lamely replied that I thought the purpose of that gun was to shoot the enemy I received a short but blistering lesson on the special nature of war in Korea:

- "Don't fire your MMG unless your own position is under attack." To which my unvoiced reply was that I thought that the primary role of that gun was to fire in support of others.
-"Don't fire your MMG except in an emergency or you'll give away your position." Fair enough except that when patrolling in the valley you can identify nearly every UN position and few of the enemy's.
-"Report all activity, unless directed against you, before you engage." To which my rueful, but unspoken, reply was " I wish I had done so in this case by which time the enemy would have disappeared and I'd have been spared all these rockets."

On another time and place one of my platoon's three-man night standing patrols had relocated its valley position after being sited. Since, in the interest of wireless silence, they were equipped with a field telephone this relocation stretched the telephone line back to platoon. A Chinese patrol which was covering a propagnda sign planting party bumped into the wire and followed it to where our patrol lay hidden. The Canadians fired, at least one Chinese fell and our patrol dispersed. The enemy artillery commenced a heavy bombardment of our hill.

I reported the loss of contact and was about to lead my Quick Reaction party (the three trench clearers but armed with Brens and Stens instead of grenades) down on a search when I was summoned back to company headquarters to be briefed on a fighting patrol sweep I would now lead instead. The night was pitch black, company HQ was some 200 yards back and the Chinese were still shelling so the whole thing took a long time. By the time I had been briefed, reviewed a hasty fire plan, returned and briefed the fighting patrol and started off at least an hour had been lost and the Chinese had flown the coop.

On the plus side we swept the valley until daybreak and brought back our missing standing patrol members. On the negative side the long time delay in changing plans and teeing up a formal patrol resulted in a ponderous, overly controlled, slow operation when only a lightning reaction had a chance of real success. As was often proven in the First World War, a small two or three man lightly armed snatch patrol usually achieved greater success than did a formal raid involving a platoon or more. It was a lesson usually forgotten in the Second World War, except by commandos, and almost ignored in Korea.

I should emphasize that none of this is in any way a criticism of my company commander or battalion CO. Both were first class officers. It was simply the nature of semi-static trench warfare where the smallest warlike action resulted in intervention and over control from above derived from concepts of command honed at Verrières and the Hochwald.

Yours faithfully,
A.D. McKay
Stittsville ON