Doctrine from the Crucible
The British Air-Land Experience in the Second World War

By Ian Gooderson

In September 1939, the British Army and Royal Air Force did not possess an agreed joint doctrine for integrating air power with the operations of an army in the field. There was no tactical air force for working closely with an army, and there was no joint system of command and communications. There were no suitable attack aircraft flexible enough to engage a range of targets at or near the battlefront, or survivable enough to defend themselves against hostile aircraft. In short, the British Army and Royal Air Force had no air-land capability for modern war.

There had been the potential for such a capability. By the end of the First World War, on the Western Front and in other theatres, the Army and the newly created independent Royal Air Force had achieved a high degree of integration. The final battles on the Western Front in 1918 had been more mobile than those of 1916-17, and they had witnessed close co-operation between troops and aircraft. In particular, aircraft had co-operated with tanks in the offensive, and there had been an effective, if rudimentary, system of signals and wireless communication between air and ground forces. This enabled the relaying of information from the battle area to a control centre that directed further attacks by air or ground units. Aircraft had also attacked German headquarters and lines of communication beyond the battlefront, and German airfields in an attempt to neutralise the opposing air threat.[1]

RAF S.E. 5

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This air-land effort was not particularly systematic. It had not followed a discernible pattern, it was not doctrinally driven, and it had not reflected close investigation of earlier experience. Subsequent RAF analysis concluded that its focus at or near the battlefront had missed opportunities against more distant communication targets, enabling the Germans to bring forward reserves to seal the breaches in their defensive zone.[2] It was, however, a signpost to the future of land warfare. It demonstrated the possibilities of a return to manoeuvre warfare enabled by the integration of air and land mobility and firepower and the exploitation of information from the battle area.

The 1918 air-land experience required evaluation and refining into doctrine, but this did not happen in the British Army or in the RAF in the interwar years. The equally compelling potential of strategic air war and the military and political imperative of national air defence pulled mainstream thinking in the RAF away from the nature and requirements of the land battle. Unlike the German Army with its General Staff system, the British Army possessed no professional tradition for the rigorous examination of its experience. Moreover, after 1918, the severely reduced Army found itself relegated to home and imperial defence — a return to pre-1914 soldiering, which caused it to stagnate. The Army that had pioneered the use of tanks in 1917-18 became equivocal and uncertain in its approach to mechanisation and the possibilities of armoured warfare. With its units dispersed in garrison duty, there was little combined arms training and little infrastructure around which to build an all-arms force. No comprehensive tactical doctrine for integrating tanks, infantry and artillery evolved, a shortcoming that would cause the Army severe battle co-ordination and cohesion problems in 1940-42.[3]

The interwar years saw a distancing between the Army and the RAF. Both Services with their differing imperatives neglected the study of how air power could interact with and influence the dynamics of a land campaign against a first-class opponent in Europe. The one School of Army Co-operation at Old Sarum held courses for Army

Ju.87 Stukas over Norway

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and RAF officers, but its emphasis was that of artillery spotting and tactical reconnaissance. This was too narrow and specialised a focus, imparting little sense of the extent of the air-land integration required to fight a successful land campaign that even the 1918 battles had indicated. The procedure for artillery co-operation reflected more the static battles of 1916-17, while air-land communications had regressed rather than progressed.[4] For the RAF, Army Co-operation was a backwater, with serious retention problems concerning brighter RAF talents. The Army also had little cause, and little incentive, to spare much thought for the integration of air power in operations for which its equipment, training, and doctrine were ill-prepared and which, it was thought, were of a type it was unlikely to undertake again.[5]

At the outset of the Second World War, RAF tactical support doctrine emphasised attacks upon an enemy's air power and its infrastructure. As far as it considered the land battle, doctrine emphasised interdiction of an enemy army's reserves and supplies and the disruption of its headquarters and communications. Battlefront close air support was a temporary measure, justified only in unusual or extreme circumstances. These included attacks in support of an offensive to enable troops to break into formidable enemy defensive positions, attacks in support of the defensive to prevent an enemy's breakthrough or attacks to rout an already defeated and retreating enemy.[6] This was a sound enough reflection of the contribution of air power in the land battles of 1917-18, particularly those on the Western Front where losses over the battlefield to low-flying aircraft vulnerable to ground fire had been very heavy. The problems with this doctrine were twofold. One was the fact that by 1940 the RAF no longer possessed the means to implement it effectively. The doctrine was the shadow of 1918. It lacked the substance of progressive examination of land warfare, which would have required much closer liaison with an Army more forward-thinking and progressive than was possible for the British Army at the time, and it lacked the development of relevant capabilities since 1918. The other problem was that it acknowledged only part of what was in reality a far more complex whole. It lacked acknowledgement of how the Army's success against a first rate opponent would depend upon a close linkage and integration with air power across a spectrum of roles in both the planning and execution of its operations. Like the term 'co-operation' itself, it implied only a temporary

confluence of air and land whereas in practice unity had to be constant. The 1918 experience had implied this 'joint' requirement, and the early campaigns of the Second World War would confirm it.

The Norwegian campaign (April-June 1940) and the campaign in France and Belgium (May-June 1940) saw the collapse of the inadequate air support system with which the Army and RAF began the war. This had been outlined in 1938 in a War Office pamphlet entitled *The Employment of Air Forces in the Field*, stating such doctrine as existed for providing air support to an Army Field Force deployed overseas, not necessarily to Europe. There would be an 'air component' of RAF fighter, bomber and reconnaissance squadrons to operate under the direction of the Field Force headquarters. Additional support, however, would have to come from squadrons detached from RAF Bomber and Fighter Commands, and it would not be their primary task. Instead, these squadrons would constitute an independent striking force 'directed in accordance with the general war-plan of the Government', an imperative reflecting the RAF's focus on the strategic level of war.[7]

In Norway, the Germans had successfully pre-empted the British and French, whose intervention came too late to break the air superiority already established by the Luftwaffe. The hastily organised and poorly equipped and co-ordinated Allied land forces and their supporting naval units fought, and lost, without the protection of air power. In France, the British Expeditionary Force of ultimately 10 divisions, for which the British Army had been denuded of trained personnel and equipment, had its Air Component. This consisted of 13 squadrons; no less than nine of them were of specialised artillery and tactical reconnaissance aircraft with, initially, only four squadrons of fighters. There was also the Advanced Air Striking Force (AASF) of 10 light bomber squadrons detached from Bomber Command and deployed to France within range of targets in Germany and to co-operate with the French Air Force. This too had limited fighter strength. Both the Component and the AASF were administered by a single RAF headquarters, that of the British Air Forces in France (BAFF).

However, there was nothing in the way of a concentrated, balanced force of fighter, bomber, and reconnaissance squadrons or a joint system of command and communications for linking air action at or beyond the battlefront with the Army's operations.[8] The Component was overwhelmed soon after the start of the German offensive in the West, and its surviving aircraft and personnel evacuated. The AASF was tasked in desperation with attacks against bridges to delay the German advance on the French Army front. Most of them were shot out of the sky by German fighters or by the generous scale of automatic anti-aircraft firepower with which the German Army, more jointly air-minded than its opponents at the time, was able to protect the critical points in its lines of communication. Army requests for air support took hours to pass through separate Army and RAF headquarters. If it was possible to respond to them at all, it was by bombers unsuited to the task arriving too late to affect a rapidly changing battle situation. All was lost in a series of disconnected actions. The German air-land combination was not quite the smooth functioning machine assumed by its stunned opponents at the time, and so often depicted subsequently. It did however possess sufficient integration to outpace and defeat the far less cohesive and defensively oriented Allied air and land forces.[9]

In Britain, the War Office and the Air Ministry interpreted the Luftwaffe's employment of air power and the reasons for German success quite differently. This was the consequence of the post-1918 distancing between the Services and their lack of analysis of the First World War air-land experience, and it caused immense problems. In late 1939, following the shock of the rapid German success in Poland, the War Office called for 250 first-line bombers to be at the Army's disposal by the spring of 1940. This was only an interim measure, for the War Office also called for the provision of dive-bombers, and the ability to train its own pilots in air support. This reflected a view that in Poland the Luftwaffe's close air support had been decisive, and that the British Army required similar air support and role-specific aircraft on the lines of the German Ju.87 Stuka. It also reflected an awareness that the RAF was both

RAF Hurricane

Fighter Command was employing bomb-equipped fighters on its cross-Channel offensive sweeps.The versatile 'fighter-bomber' in its various types proved the ideal air support aircraft

unable, and unwilling, to provide them. This was a call for an Army Air Arm.[10] The Air Ministry, in firm contention, argued that, although there were occasions when the Luftwaffe provided effective close support, it was in attacks against airfields, communications and headquarters beyond the Polish forward positions that the Luftwaffe had been primarily and most effectively employed. This had paralysed Polish ability to resist on land and in the air. The Air Ministry also observed that the Luftwaffe would not have been able to provide such close support, had it not been for the possession of air superiority and the weakness of the Polish anti-aircraft capability.[11] The Cabinet faced the task of mediating these two diametrically opposite Service views of air power, a situation exacerbated by bitterness on both sides. The War Office felt it was not getting a fair deal[12] while the Air Ministry felt the ability to prosecute air warfare in its widest sense was under threat of being frittered away on the battlefield. In the event the Cabinet rejected the War Office demands. To meet them would have crippled the existing and potential striking power of the RAF, but assurances that adequate forces would be available to support the Army unless required elsewhere in an emergency offered the War Office small comfort.[13]

The Air Ministry view was, however, closest to the mark by acknowledging that the influence of air power upon a land campaign extended well beyond the ground battle zone. In fact, German success did not depend upon responsive close support by dive-bombers, or upon systematic

attacks beyond the battlefront. It depended above all upon the gaining of the initiative through air superiority. This enabled the concentration of all available air power at the decisive time and place, while a doctrine rooted in their own 1917-18 experience assisted German land and air commanders to recognise when, and where, that was.

The defeats in Norway and France, and those later in the Mediterranean and the Far East during 1941 and into 1942, widened the gulf between the War Office and the Air Ministry. One cause of War Office exasperation was that following Dunkirk the RAF had few aircraft and crews to spare for air support training. The RAF was fully and constantly in action: in air defence, in working up its strategic bombing capability, and engaging in cross-Channel offensive sweeps and anti-shipping operations. In contrast, the Army in Britain was rebuilding. Between Dunkirk and the summer of 1942, only four British divisions engaged German troops, the Commonwealth shouldered the burden in this period by providing ten divisions that served in the Mediterranean theatre.[14] This inevitably undermined the relative urgency of the War Office case. The RAF's Army Co-operation Command, established in December 1940 in response to the obvious need to restore air-land capability and War Office pressure, remained under-resourced and in the RAF, unpopular.
The defeats overseas saw the Army subjected to an enemy's air superiority, while enemy troops appeared able to call up supporting aircraft when desired. The RAF in theatre lacked the strength both in aircraft numbers and modern types with which to challenge the enemy and was rarely seen by the soldiers, causing a resentment throughout all ranks of the Army. What were perceived to be RAF failures to support the Army intensified War Office demands, spearheaded by the Chief of the Imperial General Staff General Sir Alan Brooke, for the placing of aircraft under Army control. By the spring of 1942, the question of an eventual Allied cross-Channel invasion to open a land front in Northwest Europe was at the heart of evolving Anglo-American strategy. For Brooke it was imperative to solve the air support question before the bulk of the Army forming and training in Britain took on the Wehrmacht. In May 1942, the Chief of the Air Staff, Air Marshal Sir Charles Portal responded to the War Office demands by promising that when the Army engaged the enemy it would receive the full support of Bomber and Fighter Commands. Brooke in turn argued the impossibility of properly training Army and RAF commanders in air support unless the RAF formations were at the Army's disposal and air support one of their primary roles.[15] The rift was serious, and at the centre of the controversy were two closely linked but unresolved issues.

One was the question of which Service should provide and control the air support without which the Army's operations could not hope to succeed. This began to be resolved when a mainstream RAF Command with its existing infrastructure and aircraft types assumed the principal air-land responsibility. Only then was the Army's lack of confidence in the RAF's ability and willingness to provide air support overcome. By October 1941, Fighter Command was employing bomb-equipped fighters on its cross-Channel offensive sweeps.[16] The versatile 'fighter-bomber' in its various types proved the ideal air support aircraft. It combined in a single weapon the ability to secure the all-important air superiority and the ability to attack a wide range of land battle targets when equipped with bombs, cannon or rockets, and it was available in large numbers. Fighter Command, no longer restricted to the air defence role, determinedly embraced air support and by late 1942, had begun exercising with the Army.[17] Army Co-operation Command lapsed and on 1 June 1943 ceased to exist. By then an RAF Composite Group with squadrons of fighters, fighter-bombers, medium and light bombers and reconnaissance aircraft had developed initially through the framework and infrastructure of Fighter Command. On the day of Army Co-operation Command's demise it became officially the Second Tactical Air Force, the RAF formation that was partner to the British and Canadian armies in Northwest Europe in 1944-45.

In the meantime, the other issue had been to determine how to employ air power in support of a land campaign. This required operational

experience. Not the negative and recriminatory experience of defeat, of which there had been all too much, but the evidence provided by success. Only an active theatre involving both the RAF and the Army could provide such experience and, with it, a proven doctrine upon which both Services could rely. Validation of principles and procedures through operational success, when it finally came, had a direct influence upon the outcome in Britain of which Service should control the Army's air support and the form it should take. These questions were of such import as to bring the direct intervention of the Prime Minister, Winston Churchill, in his role as Minister of Defence. His decision, and the formation of the Composite Group/Tactical Air Force, reflected the active theatre experience.

The active theatre was the Middle East. In September 1941, Churchill issued a directive stating that the Army must never again expect, as a matter of course, to be protected against air attack by standing patrols of aircraft over moving columns. This he termed a 'mischievous practice', and contrary to the requirements of air superiority. He added that with a battle in prospect, the Army Commander-in-Chief in the Middle East will 'specify to the Air Officer Commanding-in-Chief the targets and tasks which he requires to be performed both in the preparatory attack on the rearward installations of the enemy and for air action during the progress of the battle. It will be for the Air Officer Commanding-in-Chief to use his maximum force for those objects in the manner most effective.' The latter was expected to employ all the air power available in theatre, and in the 'preparatory period' to attack the enemy rear areas not only at night, but also during daylight with bombers protected by fighters. This would draw the enemy fighters into a 'trial of strength' to achieve command of the air.[18]

The implications of Churchill's directive were immense. It was affirmation at the highest political level that air power was not a tool at the Army's disposal, but a partner element with imperatives of its own that were nevertheless integral to a land campaign. It acknowledged that air power was a single weapon, to be directed under RAF command, though, as Churchill's directive made clear, because the 'interests of the two C-in-Cs are identical it is not thought any difficulty should arise'. The directive was an acknowledgement that the prosecution of a land campaign required a close air-land partnership. By identifying the importance of air superiority and of attacking targets in the enemy's rear zone, it also indicated wherein the principal air contribution lay.

Churchill's directive reflected the fact that in the campaign in North Africa the Army and RAF had begun to integrate their operations. In September 1941, there was still much to be done, but the air-land pattern necessary not only to avoid defeat, but also to secure victory was recognisable. It had emerged out of chaos, though initially in the Middle East the early British victories over the Italians in Libya and in East Africa during 1940-41 offered some significant indicators.

These successes had been commendably 'joint', an approach driven not least because the air and land resources available to Middle East Command had been slender. In East Africa, close air support had often proved vital in terrain unsuited to artillery, or on occasions when it had been in short supply. The air support had been provided by the novel expedient of an RAF commander with his own communications advancing with the forward troops. This ensured a timely support in response to changes in the battle situation, and this was more flexible than that pre-arranged.[19] It was a luxury, however, of having no formidable air opposition. This was also the case during Operation 'Compass' (December 1940-February 1941), the remarkably successful offensive that destroyed a numerically superior Italian army and its supporting air force in Libya. 'Compass', the concept of the Middle East Commander-in-Chief General Sir Archibald Wavell, benefited from joint planning. Wavell's own headquarters was co-located with that of the air Commander-in-Chief, Air Chief Marshal Sir Arthur Longmore. This situation was replicated, initially at least, by General Richard O'Connor of the Army's Western Desert Force and Air Commodore Raymond Collishaw of the RAF's No. 202 Group in the forward area. During

'Compass' Collishaw employed his strength, some 48 fighters and 116 bombers, in an intensive offensive against Italian air strength in the desert. This was so successful that the Italian air units completely lost the initiative, played no effective part in the campaign and lost some 1,200 of their aircraft destroyed — mostly on the ground — or captured. The consequent air superiority enabled the RAF to respond flexibly to, and influence, the unfolding campaign on land. Fighters and bombers harassed Italian columns and when essential maintenance and replenishment halted O'Connor's armour, they kept up the pursuit, flying from captured Italian airfields. They provided close support, along with artillery and naval gunfire, for the attacks on strong defensive positions such as Bardia and Tobruk, while reconnaissance squadrons, for the first time using less vulnerable and faster fighters in the role, provided the information to direct the armoured thrusts. O'Connor's fulsome tribute to the RAF acknowledged the importance of its contribution: 'Compass' had been an air-land success. As such, it had enabled Western Desert Force, of never more than two divisions (one armoured) to advance over 500 miles, destroy an Italian army of ten Italian divisions and capture 130,000 prisoners along with some 400 tanks and over 800 artillery guns.[20]

There was too little time to assess the doctrinal implications of the victories over the Italians in East Africa and Libya. Moreover, success over the poorly co-ordinated Italian air and land effort, undermined by its severe administrative, logistical and equipment shortcomings, offered a dangerously complacent model of competence both on land and in the air. This success and the threat of an Italian collapse in North Africa brought German intervention, and for the British the real test.

With the arrival of even a limited force of German troops and armour, and of Luftwaffe fighter and bomber units, the campaign took on a different dimension. In the Afrika Korps, the British Army was confronted by an enemy with generally better (if fewer) tanks, well integrated with infantry and anti-tank artillery, and of superior manoeuvre skill. Its commander, Rommel, was an aggressive and opportunistic master of the tactical battle. Until the British Army overcame the doctrinal neglect of the interwar years and learned greater tactical cohesion and control, employing its arms in mutual support, its formations in the desert could not hope to beat Rommel in battle and indeed never did so. For much of the desert war, the Middle East Commanders-in-Chief, Wavell, until early July 1941, and thereafter his successor General Sir Claude Auchinleck, were trying to fight with an army and at the same time train it.[21] The RAF also had to meet operational demands while ensuring that, as far as possible, its replacement pilots and squadrons newly arrived in theatre were adequately trained and prepared for desert operations.[22] Churchill's persistent calls for an offensive to defeat Rommel complicated the situation.

The burden placed upon the RAF in the desert was heavy, and under the intensive pressure of combat against a formidable enemy, the smooth air-land partnership of 'Compass' was swept away, and serious co-ordination problems emerged. This was seen in two unsuccessful offensive operations launched during 1941. In 'Brevity' (15-16 May) the Army wanted the RAF to engage German tanks. Collishaw, knew that individual tanks were too small to make good air targets and that their laagers were too well protected by anti-aircraft fire. He argued for attacks upon the columns of thin-skinned vehicles carrying troops and the supplies upon which the German tanks depended, and eventually won his point.[23] In 'Battleaxe' (15-17 June) constant standing patrols of fighters to protect the Army's advancing columns from German air attack proved costly, and if continued would have surrendered the initiative, and air superiority, to the Luftwaffe.[24] Air-land communications had also broken down; army and air headquarters were no longer co-located and at critical times during the fighting it was impossible to discover the locations of the forward British troops. Army headquarters staff, with communications problems enough of their own, did not know, and the RAF's reconnaissance flights were not always able to tell. Ground-air recognition procedures lapsed in the see-saw confusion of desert fighting, a situation made worse by both sides using similar or captured

vehicles that were near impossible to distinguish from the air. In such circumstances 'bomb-lines' beyond which it was safe to attack targets became meaningless, and much potential air support was lost.

'Battleaxe' prompted a fundamental revision, at the direction of Auchinleck and Air Marshal Sir Arthur Tedder, (acting AOC-in-C since May 1941 and confirmed in post in June), and Air Vice-Marshal Arthur Coningham, who replaced Collishaw in July. An inter-service committee, joint exercises, and a joint conference resulted in the issue of *Middle East Training Pamphlet No. 3 – Direct Air Support* in September 1941. This established some agreed fundamentals, which Churchill's own directive endorsed. The Army and RAF now agreed that Direct Air Support referred to air action that had an immediate effect upon the land battle. It consisted of either defensive support to halt or impede the enemy's air and ground attacks, or offensive support aimed at the destruction of the enemy ground forces. Either form of support could be pre-arranged, or impromptu. Close air support was defined as offensive support in close proximity to friendly troops, though Coningham was keen to ensure that his light bomber squadrons would not be called upon to attack targets within 500 yards of friendly positions, or targets capable of being engaged by the Army's own artillery. Air action directed against enemy forces and installations beyond the battle zone but of effect upon the land battle, albeit not immediate effect, was termed Indirect Support. Most significantly, it was agreed that the level of air support available at any time would depend upon the extent of air superiority attained.[25]

Air support depended upon command and control, which in turn depended upon communications, and upon mobility. Coningham established his advanced headquarters with that of the Army, and following the joint exercises, the RAF and Army began to set up a command and control system for air support that welded both Services together to an extent never previously attained operationally. In October, Air Support Control (ASC) headquarters with joint Army and RAF staffs were established at army corps and with each armoured division, linked by mobile wireless equipped 'tentacles' to the forward brigades. Each was assigned RAF 'Forward Air Support Links' (FASLs) equipped with radio for communicating with aircraft and receiving reconnaissance reports. Requests for air support from the forward units could be rapidly evaluated and approved by the ASC, and from there passed to the RAF airfields by radio-equipped Rear Air Support Links (RASLs). When functioning, the system cut the time previously required to respond to air support requests by hours.[26]

Before this system of air-land command and control and its doctrine were fully implemented, the Army in the Western Desert (by then designated the Eighth Army), and what had become the Desert Air Force, took the offensive against Rommel again. This was Operation 'Crusader' (18 November 1941-20 January 1942). Although initially successful, the Eighth Army's advance ultimately faltered against Rommel's superior tactical handling. His counterstroke pushed the Eighth Army back in retreat towards Gazala, but this time under the protection of an RAF air superiority that had been established early in the offensive and that remained unshaken. 'Crusader' also saw the first RAF use of the 'fighter-bomber' in air support, in attacks against German and Italian transport.

The subsequent desert fighting proved the soundness of the air-land organisation, and it withstood the setbacks during 1942. Early in the year diversions of strength to the new theatre of war in the Far East weakened the RAF in the desert, and in a series of successful tactical battles Rommel once again advanced to threaten Egypt. However, tactical success could not compensate for strategic error, nor for the increasing strength and competence of the British air-land combination. The German failure to take the opportunity to seize Malta in the summer of 1942 ensured the continued vulnerability of Axis supply lines across the Mediterranean, and Rommel's own extended communications across the desert came under increasing air attack. The Desert Air Force had greatly increased the mobility of its squadrons, and could 'leap-frog' back to operate from a chain of prepared landing grounds at short

RAF Typhoon

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notice,[27] and it maintained the initiative in the air. The Afrika Korps increasingly suffered under RAF air superiority and lost much of its tactical manouevre as a result.

In August 1942, General Sir Harold Alexander succeeded Auchinleck, who blunted Rommel's advance at the first battle of El Alamein in July, as Commander-in-Chief. General Bernard Montgomery took command of the Eighth Army. Montgomery possessed a sound appreciation of the role of air power, as his training of army formations in England had shown.[28] One of his first initiatives in the desert was to ensure that his Army headquarters was located with that of Coningham, a separation having again occurred during the Army's eastward retreat. Montgomery fully endorsed the air-land pattern already in place and under development. His first victory was at Alam El Halfa, (30 August – 2 September 1942) in which Rommel's resuming of the offensive was broken by a well-prepared Army defence and co-ordinated round-the-clock pounding from the air. Montgomery's offensive victory at the second battle of El Alamein in October was the first major victory over German forces that could be described as 'British', and the last as those subsequently would be Allied victories. This was

an air-land victory in the widest sense, with air power not only exploiting air superiority and harassing the German and Italian forces at and immediately beyond the land battlefront, but also striking at communications targets far in the rear.

In less than two years the British Army and RAF had progressed considerably in their joint appreciation and application of air-land warfare. Personalities undoubtedly played their part in influencing and progressing this development, but the underlying and constant imperative had been the reality of air power's influence upon land warfare. As Coningham later acknowledged, there were basic principles and in early 1943 they were promulgated in staff exercises under his influence and Montgomery's direction:

• The first requirement for any major land operation was air superiority

• Flexibility and the capacity for rapid concentration constituted the main strength of air power

• Control of air power must therefore be centralised in an air commander and exercised through air force channels

• Air forces must be concentrated and not dispersed in 'penny packets'

• The Army and Air commanders and their staffs must work closely together

• The plan of operations must be joint from the start, and mutually adjusted. [29]

As Montgomery himself observed: "There are not two plans, Army and Air, but one plan, Army-Air, which is made by me and the Air Vice-Marshal together." His most significant acknowledgement in terms of the British war experience to date came later in the same statement of principles: "There used to be an accepted term of 'army co-operation'. We never talk about that now. The Desert Air Force and the Eighth Army are one. We do not understand the meaning of 'army co-operation'. When you are one entity you cannot co-operate."[30]

By the beginning of 1943 the British air-land system and doctrine was set, and it would remain constant throughout the war.[31] It proved flexible enough to absorb innovations, and robust enough to survive later inter-Service disputes and controversies.

One important development was the increasing emphasis upon close air support in the later campaigns in Italy and Northwest Europe. This was made possible only by the possession of air superiority and the existence of large Allied tactical air forces, and the imperative was the difficulty faced by the soldiers in overcoming the robust efficiency of the German army fighting on the defensive. In March 1943, Air Vice-Marshal Broadhurst, then commanding the Desert Air Force, agreed to provide intensive low-level attacks in close support for the Eighth Army breakthrough at El Hamma in Tunisia. Neither Tedder nor Coningham were pleased, fearing heavy casualties to the aircraft from ground fire, and, most likely, the undoing of much that they had achieved in shaping the Army's expectations of air power. In the event, the 'air blitz' was successful and enabled the Army to break through, setting the trend for similar attacks. Broadhurst considered it an employment of air power in accordance with the principle of concentration, and in this he was right.[32] In Italy, and later in Northwest Europe, fighter-bomber 'blitzes' closely co-ordinated with the advance of friendly troops and a moving bomb-line were often employed, as were the provision of aircraft on 'cab-rank' patrols waiting to be directed onto targets. In the absence of the Luftwaffe, the employment of tactical air power came to reflect the trend of ground fighting. Offensives tended to see an increase in close support, while in more static periods the emphasis became that of sweeps against targets of opportunity beyond the battlefront. The latter was the 'armed reconnaissance' role, a means of dominating the enemy army's rearward zone. It bore little relation to the requirements and provision of reconnaissance, which remained a specialised role.[33]

The most controversial aspect of air support was the persistent Army calls for the employment of the strategic heavy bomber forces in close support, both in Italy and Northwest Europe. In most cases, the effectiveness of this employment was questionable. In some cases, such as in the bombing of urban defended areas such as Cassino in Italy (March 1944) and Caen in Normandy (July 1944), it was counterproductive, causing a good deal of resentment against the Army at the diversion of the strategic forces and the failure to exploit it. Until late in the war, when adequate communications and air-ground recognition procedures and bomb-lines were put in place, it was also a hazardous enterprise for the troops it was intended to support. Hundreds of Allied soldiers were killed or wounded in error in 'short bombings' by the heavy bombers. For the most part, the senior airmen, and certainly Tedder and Coningham, remained opposed to their use on the battlefield, although their opposition never achieved the force of doctrine during the war.

That the possession of air superiority and large numbers of available aircraft resulted in a profligacy, otherwise impossible in tactical air support in 1943-45, can hardly be doubted. Nor can the reliance of the Army upon its provision be doubted, or that it was the decisive factor in the success of the land campaigns. The development of British air-land doctrine in the Second World War was the essential element of the adoption of joint warfare on land by the British Army and the RAF. In 1939, neither Service was prepared for this challenge, but in 1945 they left the battlefields, whether in the plains of Northwest Europe, the mountains and valleys of Italy, or the jungles of Burma, as close partners. Like the armies and the tactical air forces that came into being under the pressure of war, it was a remarkable achievement.

Notes:

[1] Shelford Bidwell and Dominick Graham, Fire-Power: British Army Weapons and Theories of War 1904-1945 (London: Allen & Unwin, 1985), pp. 142-145; Hilary St. John Saunders, Per Ardua: The Rise of British Air Power 1911-1939 (London: Oxford University Press, 1944), pp. 270-273.

[2] For example Air Staff Memorandum Bomber Support for the Army 18 November 1939, in The National Archives CAB 21/903. This was admittedly a paper produced to resist Army calls for the development of role-specific close support aircraft, but it had a compelling analysis.

[3] Bidwell and Graham, op. cit., Chapters 8, 10 and 11; for detailed examination of the British Army in the inter-war period see Brian Bond's important British Military Policy Between the Wars (Oxford: Clarendon, 1982).

[4] Brigadier Peter Mead, The Eye in the Air (London: HMSO, 1983), pp. 148-149.

[5] In his memoirs Major-General Sir Francis De Guingand, Military Assistant to the Secretary of State for War in 1939, recalled that the Army never gave sufficient thought to the problem of air support in the years leading to the outbreak of the Second World War. See Operation Victory (London: Hodder and Stoughton, 1947), p. 30.

[6] AP 1300 (February 1940) Part I – Operations, Chapter XI Paragraphs 45-46; Air Staff Memorandum Bomber Support for the Army 18 November 1939, The National Archives CAB 21/93.

[7] War Office 26/Manuals/1869 – September 1938, quoted in Lieutenant-Colonel C E Carrington, Army/Air Co-operation 1939-1943 in Journal of the Royal United Services Institute, December 1970, p. 37. See also W A Jacobs, Air Support for the British Army 1939-1943 in Military Affairs, December 1982, p. 174. Jacobs' article is an essential source for students of the subject.

[8] Brigadier Mungo Melvin, The Land/Air Interface: An Historical Perspective, Chapter 7 in Peter W Gray (Ed), Air Power 21: Challenges for the New Century (Defence Studies Royal Air Force/London: The Stationery Office, 2001), pp. 163-164.

[9] German Army/Luftwaffe integration is evident in Luftwaffe Air Field Manual No. 16 (1935). See Spearhead for Blitzkrieg: Luftwaffe Operations in Support of the Army 1939-1945 by General der Flieger Paul Deichmann, edited by Alfred Price (London: Greenhill, 1996), pp. 28-32. Details of German co-ordination problems are in Williamson Murray The Luftwaffe Experience 1939-1941, Chapter 2 in Benjamin Franklin Cooling (Ed) Case Studies in the Development of Close Air Support (Washington DC: Office of Air Force History, 1990), pp. 93-94.

[10] J R M Butler Grand Strategy (London: HMSO, 1957), pp. 154-155.

[11] Air Staff Memorandum Bomber Support for the Army 18 November 1939, The National Archives CAB 21/93.

[12] For example, Letter and Report Air Requirements for the Army, Admiral Lord Chatfield to the Prime Minister. 15 November 1939, in The National Archives CAB 21/903.
[13] Butler, op.cit., p. 155.
[14] See Russell A Hart, Clash of Arms (Boulder USA and London: Lynne Rienner, 2001), p. 107 and note 22, p. 151.
[15] DO (42) 34, Air Forces for Cooperation with the Army and the Navy, 1 April 1942, in The National Archives CAB 69/4 and COS (42) 246, 2 May 1942, in The National Archives CAB 80/36, both referred to in Jacobs, op.cit, p. 176. For Brooke's personal views confided to his diary see Alex Danchev and Daniel Todman (Eds) War Diaries 1939-1945: Field Marshal Lord Alanbrooke (London: Weidenfeld and Nicolson, 2001). P. 258.
[16] Christopher Shores Ground Attack Aircraft of World war II (London: Macdonald and Jane's, 1977), p. 104.
[17] Jacobs, op.cit, p. 177
[18] Quoted in Marshal of the Royal Air Force Lord Tedder, With Prejudice (London: Cassell, 1966), p. 169. A version with somewhat different wording is in CAB 69/4, and quoted in Jacobs, op.cit, p. 180.
[19] See John Terraine, The Right of the Line (London: Hodder and Stoughton/Sceptre, 1988), p. 324-325.
[20] Major-General I S O Playfair, The Mediterranean and Middle East Volume I (London: HMSO, 1954), p. 262, p. 357 and p. 362; Terraine, op.cit, pp. 316-318.
[21] A point made by Auchinleck to Churchill in June 1942. See Marshal of the Royal Air Force Lord Tedder, With Prejudice (London: Cassell, 1966), pp. 299-300.
[22] For example see Major-General I S O Playfair, The Mediterranean and Middle East Volume II (London: HMSO, 1956), p. 290.
[23] Playfair (1956), op.cit, p. 160; Terraine, op.cit, pp. 344-345
[24] Playfair (1956), op.cit., p.171 and Tedder, op.cit. p. 128
[25] Terraine, op.cit, pp. 345-346; Playfair, op.cit., p. 295; See also Vincent Orange Getting Together, Chapter 1 in Daniel R Mortensen (Ed), Airpower and Ground Armies: Essays on the Evolution of Anglo-American Air Doctrine 1940-43 (Maxwell, Alabama: Air University Press, 1998), pp. 11-14.
[26] This system mirrored vital work initiated in Britain in 1940. Following Dunkirk, Group Captain A Wann and Colonel J D Woodhall began air support control and communications experiments in Northern Ireland. These involved wireless equipped 'tentacles' with the forward troops that relayed air support requests to a joint control centre for evaluation and passing to RAF squadrons. The system proved successful and was adopted. The tentacles, grouped into independent units and attached to army corps, became known as Army Air Support Controls (AASC) and later Air Support Signals Units. A fusion of the work in Britain and that in North Africa occurred when an AASC was sent to gain operational experience in the desert in December 1941. See Charles Carrington, Soldier at Bomber Command (London: Leo Cooper, 1987), pp. 10-11; Bidwell and Graham, op.cit., pp. 264-269; early war British evaluation is in Directive on Close Support Bombing , 6 December 1940, in The National Archives WO 106/5162.
[27] Air Marshal Sir Arthur Coningham, The Development of Tactical Air Forces, lecture to the Royal United Services Institute, 20 February 1946, reproduced in the Journal of the Royal United Services Institute, May 1946, p. 214.
[28] See Nigel Hamilton, Monty: The Making of a General (London: Hamish Hamilton, 1981), p. 450 and 459.
[29] Coningham, op.cit., p. 215.
[30] Quoted in Philip Guedalla, Middle East 1940-1942: A Study in Air Power (London: Hodder and Stoughton, 1944), pp. 207-209.
[31] Its tenets were followed not only in the war in Europe, but also in the Far East.
[32] A report on the El Hamma operation, The Eighth Army Breakthrough at El Hamma on 26th March 1943 is in The National Archives AIR 23/1708.
[33] Mead, op.cit., pp. 201-202.