

# THE GORDON SHEPHARD MEMORIAL PRIZE ESSAY, 1931

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## SUBJECT

*'Discuss how the Royal Air Force can best assist a landing on a large scale in the face of a powerful air force, when the landing is taking place beyond operating air range of our own or of friendly territory'.*

**BY SQUADRON LEADER R P M WHITHAM, MC, psa, RAF**

## MILITARY LANDINGS.

A landing upon the enemy's coast has been for centuries a normal expression of the British method of making war, and operations of this kind have many times been undertaken as a method of disturbing the enemy's plans and strengthening our own position.

The geographical distribution of the British Empire is singularly adapted for the employment of armed forces in this role, and an even more important factor is that, for so many years, Great Britain has been almost paramount at sea and consequently the defence of expeditions against enemy naval attack has been guaranteed.

Military landings of various degrees of importance have been carried out. They have ranged in date from Drake's attack on San Domingo in 1585 to the Dardanelles Expedition of 1915. Among them were the failures of Rochefort in 1757 and Walcheren in 1808, and also the successes at Quebec in 1759 and at Alexandria in 1800. Although these expeditions were by no means uniformly successful, the justification for them was rarely in doubt. Whether the military effort was attained locally with complete success or not, the very fact of its being made, and there being a chance of its succeeding, was of definite strategical value in that it led to important diversions of the enemy's forces. It would have been a different matter if an expedition had been in jeopardy prior to its landing, but this contingency, owing to British sea power, has always been a very remote one and has not been regarded as critical when the expedition was being planned.

Looking to the future, it is clear that situations may again arise when it may appear desirable to effect a military landing upon an enemy's coast. In the future, however, an important new factor enters into the situation. Just as control of the seas has previously been of the utmost importance, control of the air must enter largely into the conduct of the operation.

Before considering this new factor in detail, it may be advisable to set out the other factors affecting a combined expedition. The influence of air power must necessarily be to some extent a matter of speculation and we may derive guidance from consideration of factors the influence of which can be traced from actual experience.

## **GENERAL FACTORS.**

Apart from all questions of direct enemy interference, a large-scale landing, to have prospects of success, calls for a combination of important conditions. An adequate military force must be available and this must include all the arms, equipment and ancillary services necessary for it to carry out its task when it has landed in the enemy country. Sufficient shipping and landing craft must be available to convey the military force to its destination, and allow of its being put ashore in the appropriate manner. Suitable ports for embarking the force must be found and advanced bases may be necessary. The enemy coast must be topographically suitable for the landing and weather conditions must also be favourable.

Plans for a landing must be prepared in very great detail, and it is necessary for them to be worked out by tracing backwards from the prospective culminating stages of the landing in order to arrive at the correct original dispositions and requirements. The issue or amendment of orders, once the troops have embarked, is a matter of extreme difficulty owing to the fact that the force, and even individual units, are split up against the various ships. A complex arrangement of communications is necessary, both on the ships during the approach and in the course of the landing, and also between the ships and the shore in the early stages of the operations on land. In fact, the plans and material preparations need most careful adjustment and their adequacy is very susceptible to derangement from untoward events. A landing on an enemy coast is, under the best of conditions, a complicated operation and even a small degree of enemy interference may have far-reaching effects.

## **NAVAL FACTORS.**

The naval factors affecting a combined landing are of particular interest because it is possible to draw an analogy between them and the air factors owing to their general similarity.

There are several naval considerations which need not be dealt with in detail: for example, ports of assembly for the expedition are required; naval covering fire in support of the landing must be arranged; and the sea area near the landing-place must be swept clear of mines. These considerations, however, take secondary places when compared with the one outstanding naval requirement, which is that the expedition must be protected from enemy sea-borne attack during its approach and during the landing. When an enemy naval force is in the position even to threaten the safety of the expedition, serious naval problems immediately arise. It is always a difficult matter for a naval force to convey a number of defenceless ships and simultaneously fight a sea battle. The problem of combining these two incongruous tasks need not be explored, as they are strictly a matter of naval warfare, but it is quite obvious that even a very short bombardment of the transports by enemy naval craft would have disastrous results. Further, one must nowadays take into account the increased offensive value of naval flotilla craft such as submarines and coastal motor-boats. The well-known effect which was produced at Gallipoli by a few enemy submarines furnishes an excellent example of the potentialities of this new method of naval interference with landing operations, although it actually and fortunately only took place when the British force was securely established ashore.

Under modern conditions, even allowing for evasion, it may be accepted that, unless the enemy's naval vessels can be definitely contained, the safety of the expedition will be precarious. If the enemy has a working command of the sea, then the hazard of the enterprise is clearly extremely serious.

At this point the analogy between the naval and the air factors can be drawn, for, if attack by surface craft is of so great importance, then air attack must be equally important, for it is reasonable to

assume that a force of enemy aircraft can do just as much damage to a collection of transports as can enemy naval vessels.

### **MILITARY FACTORS.**

The military factors affecting a landing exert their most important influence from the stage when the expedition is in close proximity to the enemy coast. In recent times, they too have become of increasing complexity and importance.

In the past, land artillery was not very accurate and had a very limited range. The available fire-power of the defending troops was not very great, and material contrivances, such as beach and underwater obstructions, were little used. In the Russo-Japanese War, signs were evident of new developments in coast defence, but it was not until the Dardanelles expedition that the value to the defender of modern artillery, machine guns, and barbed wire was fully realized. We now know that the resources possessed by the Turks for the defence of the landing-places in Gallipoli were very meagre, but it was found that they had the ability to inflict severe losses on the troops when landing and seriously to upset the British plan of operations.

The possession by a modern enemy of these effective means of defence necessitates the expedition being equipped to meet them. Instead of a lightly armed fighting force, such as was adequate in the past, it now seems essential to employ a force equipped with all modern weapons, including even armoured fighting vehicles. The presence of this additional and heavy material greatly complicates the actual landing, and the arrangements for the replenishment and maintenance of a mixed fighting force ashore influences unfavourably the subsequent operations whilst that force is working from a base hastily organized on beaches.

The factors are brought out here, because, when later we turn to the air aspect, the difficulties under which the landing force is put ashore and must subsequently work, will be of some relevance.

### **SURPRISE.**

Before turning to the particular situation given in the subject of this essay, it may be worthwhile to consider the importance, in combined operations, of the use of surprise. This has a bearing on both the naval and military aspects, and is intimately connected with the influence of aircraft.

If the enemy can be taken unawares, it is clear that a landing will be greatly facilitated. The risk of enemy interference both by land and sea will be lessened, and his precautions for the defence of the landing-places will be small. It is very desirable that this should be so, in view of the increased powers of naval offense and military defence which in recent times have become available to the enemy.

Unfortunately, however, modern developments have also affected the ease with which surprise can be secured. Shipping intelligence; industrial activity; the use of wireless communications; the activities of agents; all these, in modern times, afford means whereby the enemy or potential enemy can ascertain whether an attempt is being made to assemble a large landing force without his knowledge. The ultimate destination of the force can probably, if due precautions are taken, still be concealed by the attacker, but the enemy will no doubt be able to deduce fairly accurately if, and in what general locality, he is to expect attack.

It only remains for him to ascertain definitely the intended landing-places, and to distinguish between feints and real landings, and his task of defence is very greatly facilitated. The greatest

handicap under which the defender of a coast is called upon to operate is the uncertainty as to where the offensive force will land. Until he knows this he is unable to make his proper dispositions; once he knows it, he can concentrate the whole of his available force to meet the attack.

#### **THE SITUATION GIVEN FOR DISCUSSION.**

We are now in a position to summarize the general factors affecting a landing on a large scale. Very briefly, they are as follows:

- (i) Extensive preparations are necessary.
- (ii) Detailed plans are required, and these cannot easily be altered at later stages.
- (iii) Control of sea communications is essential.
- (iv) The military force must be equipped with complex and heavy fighting material.
- (v) Surprise is of the greatest importance.

These factors have so far been considered irrespective of the influence of aircraft. It is now necessary that we should turn to the air conditions of the particular situation which is to be discussed in this paper, for it is with relation to these that the air factors in general can conveniently be brought out.

We are told that the landing on a large scale is taking place 'in the face of a powerful air force', and that it is 'beyond operating air range of our own or of friendly territory'.

A suitable method of considering the air factors seems to be, firstly, to deal with the potentialities of aircraft in the hands of the enemy, and, secondly, to survey the air facilities available for the expedition. These latter may be divided into air support of the landing and into counter-measures against the enemy's air activity.

It is not possible for us to draw upon definite experience of the past, for, although aircraft were available during the Gallipoli expedition, their development was in so rudimentary a stage that no definite lessons were afforded.

The air factors, unlike the naval and military ones, are still a matter of theory; nevertheless, the arguments whereby they can be arrived at are not pure hypothesis. Modern experience of the capabilities of aircraft indicates reasonably clearly what can be expected of them in connection with a large-scale landing.

#### **EMPLOYMENT OF AIRCRAFT BY THE ENEMY FOR RECONNAISSANCE DUTIES.**

The operations conducted by the defender of a coast can be divided into two phases. The aim in the first phase is to avoid being surprised by the landing force. Having detected the approaching expedition, the aim of the second is to prevent any attempt at a landing from being successful. In both of these, aircraft can play a most important role.

The enemy, if in possession of a powerful air force, can and will use his aircraft for reconnaissance. He will already have availed himself of other intelligence resources to ensure that the landing force has hope of little more than local surprise. To deprive them of this, on receipt of information indicating the possibility of a landing being attempted, he will send out his reconnaissance aeroplanes over the sea approaches to the greatest possible distance and with great determination. The value of the information is so great that he can afford to run risks in order to obtain adequate warning.

Now a convoy of ships sufficient to carry a large landing force will necessarily be conspicuous whilst at sea in daylight. The reconnaissance aircraft will therefore have little difficulty in covering large areas of water in their search. Further, they will be able to see the convoy from a considerable distance and thereby avoid being intercepted by the convoy's protective aircraft. As an endeavour to avoid observation, the convoy may possibly make its final approach to the coast during the hours of darkness, but in doing so it is handicapped because of the limited distance which can be covered in the time available. The ships suitable for the conveyance of a large force are probably limited in speed to twelve or fifteen knots. This means that during the hours of darkness they can cover only about 150 miles, and this distance is inadequate to escape air reconnaissance if it is well conducted. Aircraft with a range of 200 to 300 miles will probably see the convoy before it can make use of the cover of darkness, and once the defender is in touch with the convoy he is unlikely completely to lose it again. Even if he cannot follow all its movements in detail, the approaches to all potential landing-places can be continuously searched by means of flares.

It is almost a certainty that the actual landing operations would have to be deferred until daylight, as a task of this nature, carried out in darkness, is fraught with difficulties so great as to be almost prohibitive. If there is a transfer of troops from transports to small craft, there is sure to be great delay and confusion, and even when the force has been satisfactorily transferred to the landing craft, the maintenance of direction of approach to the shore and the actual disembarkation will be most difficult. It is therefore very likely that the landing will have to be carried out in daylight, when the defender will once more be able to use his aircraft to full advantage.

It is unlikely that, as is possible in other forms of sea and land operations, the attacking force could take advantage of weather conditions unsuitable for the employment of aircraft, because if the weather were unfit for flying, owing either to fog or storm, it would be equally or even more unfit for the landing to take place.

It is therefore apparent that, unless some effective countermeasures are available, a large-scale landing on the coast of an enemy with a powerful air force will be compelled to operate deprived of the invaluable advantage of surprise.

#### **OFFENSIVE EMPLOYMENT OF AIRCRAFT BY THE ENEMY.**

If to the defender the reconnaissance value of his aircraft is great, their offensive value is even greater. In the first place, they are a weapon which offers singular facilities for rapid concentration. Coast defence artillery, beach obstructions, and defensive works all suffer in value from their immobility. If they are adequately to cover an extensive coast, they will entail great expense in provision and maintenance, and even then there is no guarantee that the landing force may not choose some place which has been overlooked, or considered unnecessary to defend.

Military forces suffer, to a considerable extent, from the same handicap. It is obviously inadvisable that they should be strung around the coast as a cordon; 'fit', as Napoleon said, 'only to deal with smugglers'. Lateral communications on any coast are usually bad, and therefore if the troops are kept in some central place it may not be possible to bring them to the actual landing areas in time to be fully effective.

In his aircraft, the defender has an arm without any of these disadvantages. His plans will therefore involve the use of them to the fullest possible extent. They can be held in readiness, dispersed in security from air attack, on aerodromes at considerable distances inland. And yet, on receipt of warning, they can be brought into action in a very short time in effective concentration at the

decisive place. They can be used for attacks on the landing force continuously from the time when it is detected at sea. The attacks can be continued during the stage when the landing craft are being filled and launched, and whilst the landing is in progress. They can be supplemented by low-flying attacks upon the troops whilst in boats and whilst disorganized during the first few hours on shore.

Even should the landing force secure a footing, and clear a zone of coast from defensive land fire, the supplies and reinforcements have all to be brought to the beaches in small craft, landed on temporary piers, man-handled ashore and then dumped in very restricted areas. These activities present most favourable targets for air bombardment, not to mention the transports and store ships themselves, which, lying in close proximity to the beaches, will be equally exposed to air action. Anyone who remembers, or who has seen photographs of, the great concentrations of shipping at Mudros and the congestion on the Gallipoli beaches will realize what air targets there were presented.

It is quite clear that, unless we can discover effective countermeasures available for the landing force, the defender of a coast has, in a powerful air force, a weapon calculated to interfere so seriously with the landing operations that their success becomes most problematical.

#### **AIR RESOURCES OF THE LANDING FORCE.**

We have been told that the landing is taking place beyond operating range of our own or of friendly territory; for aircraft, therefore, the landing force must depend upon what can be carried with it in ships, or possibly, upon the use of large seaworthy flying boats, which could be refuelled during the sea journey.

The aircraft carried by the expedition, if to be used in the early stages before an extensive footing is acquired ashore, are mainly confined to those working from capital ships and aircraft-carriers. Aircraft carried by capital ships are necessarily limited in number, in individual size and in armament. Even the latest type of ship can carry only two aeroplanes, and once these aeroplanes have been launched their subsequent recovery is greatly dependent upon sea conditions and may involve loss of time. Against determined enemy air attack, their collective value as an air force is very questionable.

The bulk of the aircraft of the landing force will therefore be those conveyed by the aircraft-carriers. Carriers have a certain advantage in that they are mobile, and can, if necessary, go on ahead of the convoy to employ their aircraft. By doing so, however, they may give away the presence of the expedition and thereby lose any remaining possibility of obtaining surprise.

On the other hand, the carriers themselves are very vulnerable to both sea and air attack, and slight damage to a carrier may immobilize all the aircraft on board and also entail subsequent loss of many of the aircraft from the carrier which happen to be in the air at the time. Also an aircraft-carrier is of little value for operating aeroplanes in darkness.

When opposed by land-based aircraft, carrier-borne aircraft are severely handicapped by the limitations in size and performance, by the limited speed with which they can be operated from the carrier's decks, by the difficulty in co-ordinating their activities, and by the necessity for an extremely carefully arranged programme of flying-off and landing-on, which is at all times dependent upon favourable sea conditions.

Sea-going aircraft accompanying the expedition may be of considerable value for air bombardment and reconnaissance duties, but their heavy construction and necessarily poor performance renders them far from suitable for offensive air combat.

Individually, therefore, the aircraft of the expedition are at a tactical disadvantage against the land-based air forces of the defender of the coast. The strategical aspect of their employment is also unpromising.

The operational control of ship and carrier-borne aircraft is a matter of complexity, owing to its being dependent simultaneously upon both air and naval factors. Whilst the air force commander of the expedition is alone able to appreciate the air situation and to co-ordinate the air activity, the actual flying-off and landing-on of the aircraft, being affected by sea conditions and naval factors, must remain under naval control. The air force commander will probably be aboard the headquarters ship; the carriers may, and in fact are most likely to, become separated from the convoy and from one another. Owing to difficulties of communication and liaison, the rapid execution of orders, which is so essential in the handling of air forces, may become almost impossible.

Further, the aircraft of the expedition, of necessity, work from a few congested and conspicuous places, whilst the defender will probably have the choice of numerous aerodromes, allowing of dispersion of his force when not in action. The enemy will thus have ideal air targets of vital importance, that is, the carriers and the convoy, by the attack of which he can fix his opponent's air forces at will and engage them in battle. On the other hand, what course is open to the air forces of the expedition if the defender chooses to refrain from air battle until some given moment favourable to himself? Knowing the difficulty for the expedition in putting up a big concentration of aircraft, he may decide to deliver his air attack by the whole of his force at one blow, perhaps just as the convoy was anchoring.

The targets for air attack by the expedition may be widely dispersed and difficult to find. They would need to be reconnoitred, and thereby the presence of the expedition and its ultimate aim might be given away. If targets were found, time would be necessary to disseminate the information obtained amongst all the ships concerned. The convoy could not cruise about indefinitely whilst awaiting the outcome of the air operations, nor could it proceed with the landing and face the possibility of meeting at that moment the whole of the undefeated enemy's air force.

Without having gone too deeply into the matter, it is clear that the air forces of an expedition suffer from very great handicaps if they are to oppose a powerful air force securely based ashore.

#### **ANTI-AIRCRAFT FACILITIES OF THE LANDING FORCE.**

This survey of the air resources of the expedition is so far not of a very encouraging nature, but for air defence the landing force does not, of course, rely solely upon its aircraft. It will have available its anti-aircraft armament, and might make use of some passive form of air defence such as concealment by smoke.

The main anti-aircraft defence must fall upon the naval vessels, for it is unlikely that the transports in the expedition could be equipped with anti-aircraft guns and the fire-control apparatus necessary for their effective employment. The transports would probably have a limited amount of small arms defence only.

In estimating the efficiency of anti-aircraft fire from warships, there are some interesting points. Naval anti-aircraft guns are operated under a disadvantage as compared with similar guns on land. Firstly, the motion of the firing ship adds considerable complications to maintaining speed of fire. Secondly, the masts and rigging and super-structure of the ship curtail the effective zone which the individual guns cover. Thirdly, although the anti-aircraft fire of one ship may be effectively controlled, co-ordination of the fire of several ships is extremely difficult.

The enemy may attack the convoy from several directions simultaneously, and this would present to the expedition's anti-aircraft armament a task which it is doubtful could be dealt with adequately.

The anti-aircraft defence during the actual landing is in no better position. The landing craft, crowded with men, may have one or two machine guns each for use against aircraft, but these would be inadequate against well-directed low-flying attack, and no use at all against high bombing. The guns of the ships might possibly cover the area of landing, but on a shallow coast they might be out of range, or, what is more than likely, they would be fully occupied in defending the ships in the anchorage.

Once ashore, the military force would need to establish itself very securely before anti-aircraft guns could be landed. The modern anti-aircraft gun is a heavy weapon requiring a level platform and complex fire-control instruments, and could not be put ashore until the situation on the beaches was well established. Further, in all air-defence plans, it is of the utmost importance to have early warning of impending enemy air attack. The expedition is, to a great extent, deprived of this warning. During the approach of the convoy, outlying naval craft might afford some assistance, but once near the landing-place there would be no means of obtaining information except by the use of aircraft. These would probably not be very effective, and would entail a dispersion of force which could be ill-spared.

There is the possibility that the landing craft might, by the use of smoke, conceal themselves from the enemy, but this is not a promising one. An almost inconceivable amount of smoke would be necessary to cover the whole of the ships of the expedition, and even then, although smoke screens may be effective when viewed horizontally, when viewed vertically, as from an aeroplane, they are usually easily penetrable.

It seems that the anti-aircraft measures available to the expedition afford little promise in their effectiveness. They certainly afford no compensation for the obvious handicaps under which the aircraft of the force participate in the air defence arrangements.

#### **SURVEY OF THE POSITION AS A WHOLE.**

In his endeavour to investigate how the Royal Air Force can best assist a landing on a large scale in the face of a powerful air force, the writer has felt compelled to trace at some length the factors affecting military landings in general and this special situation in particular. It has emerged in the course of the review that the situation of the landing force is far from a favourable one. At every stage in the operations, from arriving within aircraft range of the enemy, the expedition is seriously handicapped in dealing with enemy air action.

Our original problem was to find how the air force could best assist in these circumstances. The writer believes that they can best assist by facing the facts which have been brought out by this appreciation. The truth is that, for a military landing under modern conditions, control of the air is just as essential as is control of the sea; and against a powerful modern air force, control of the air



can only be established by an air force able to meet and defeat its adversary in approximately equally favourable conditions.

However great the number of capital ships, however many the carriers, the inherent limitations of their aircraft and the circumstances in which they are compelled to operate, preclude their being able to secure air superiority over a powerful land-based air force. And, nothing less than complete air superiority will suffice. A military landing on an enemy coast is a task of such obvious delicacy that serious enemy air interference could not be tolerated at any stage in the operations.

Sir Julian Corbett has written: 'Against an enemy controlling the line of passage in force, the well-tried methods of covering and protecting an overseas expedition will no more work today than they did in the past. Until his hold is broken by purely naval action, combined work remains beyond all legitimate risk of war'.<sup>1</sup> Substitute the word 'air' for 'naval' in the last sentence, and this quotation applies in its entirety to a situation where an enemy has a powerful and undefeated air force.

It is essential, if the enemy is so equipped, that before a military expedition can land on a coast within enemy air range, the air forces of the expedition must be established ashore, and given time to defeat their enemy. Air superiority is not a situation to be created in a moment or at will. It may only be obtained by intensive operations over a considerable period, and until it is obtained the landing force should no more be dispatched than it should be if the enemy fleet were still in control of the sea.

### **CONCLUSIONS.**

During a recent Staff exercise, the senior military officer present, in the course of his final remarks, stated that no recent development had more fundamentally affected warlike operations than the advent of air power. This is a statement with which everyone trained in the doctrines of the Royal Air Force must necessarily agree, and yet the mental shackles imposed by tradition may sometimes prevent this new factor in the conduct of war from being fully appreciated.

In this essay, the writer has been forced to face the necessity of surveying every problem of war under modern conditions from its inception, and not at some arbitrary stage in his development.

A 'landing on a large scale' has great historical precedent, but it is only a phase in a campaign wherein an appreciation of the various factors has indicated a good prospect of success in the landing of a military force upon the enemy's coast, in order, eventually, to bring about the defeat of that enemy. It is a truism that, for such an operation, the control of sea communications is essential. Is it not equally true that the control of air communications, or, in the more accepted term, air superiority, is equally essential?

To oppose a powerful air force, securely based ashore, by ship and carrier-borne aircraft is asking too much of the air forces of the expedition. When the air situation so obviously favours the defender of the coast, it is clear that no commanders would recommend, and no government would sanction, a combined landing being attempted.

The writer hopes that he has proved that the situation put forward for discussion in this essay is an unrealistic one. If the enemy has a powerful air force, and we are not within operating air range of his coast, then, until such time as we can establish air bases nearer, and have defeated the enemy in the air, a landing on a large scale will be an impracticable operation.

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<sup>1</sup> 'Some Principles of Maritime Strategy', page 278.

Furthermore, if air bases are available, or can be secured, from whence air superiority can be obtained over the enemy, it is quite possible that, by the use of that very air superiority, the necessity of landing a military force in the face of opposition may be obviated. The enemy's power may be broken by purely air action, and all that will remain will be for the troops to be landed, without interference, to secure the fruits of the air victory.

In combined operations, more than in any other form of warfare, does the modern development of air power promise revolutionary change. It may be that, in future, except against an ill-equipped enemy, or in very unusual circumstances, the traditional form of a combined landing will cease to have any greater military significance than as an interesting feature of past history.