
THE

# Supremacy of Air Power

*The following article was published in the April 1930 edition of Royal Air Force Quarterly.*
*It provides an interesting insight into contemporary thought of the day. It is also prophetic in observing the part that Air Power would play in future conflict.*

Dear Editor

You have asked me to contribute to your new Quarterly. First, may I congratulate you on its appearance, for not only was such a publication badly needed, but to me it shows that freedom of speech – or, shall I say, some freedom – is to become part and parcel of the Royal Air Force policy. You and your Service are in many ways to be envied; you have youth on your side, and that enthusiasm which is known to youth alone; also, you have three dimensions to move in; but even a greater asset than this is that you have no traditions, and, like Henry Ford, I trust that you have no intention of founding any. The future lies before you stretching vastly over the horizon, and air power is not yet twenty-seven years old; well can you let the past take care of itself. For the work you carried out so gallantly twelve years ago was nothing more than the play of the nursery.

We live in an extraordinary age, an age of wonders. A few weeks ago I picked up a copy of *The Daily Telegraph*, and as my eyes ran down its columns I noticed a headline, “New York to London in Six Hours”: a miracle twenty years ago, and today a possibility. The proposal was to build an aeroplane to carry passengers and a crew of 100. It was to cost £1,000,000; be propelled by twelve 1,000 horse power motors miles above the earth at a speed of 500 miles an hour.

In this same paper, the next day, I looked for further information on this wonderful machine, but found none; in place, a headline which caught my eye: “Strange Cult of Caruso.” Here I learnt that the embalmed body of the great singer is exhumed every three years and re-dressed by his sorrowing friends. “At present,” we are told, “he is wearing a frock-coat, and Tito Schipa says he looks well in it.”

Indeed, this age is an extraordinary one, a compound of the lowest barbarism and of the highest science. Of all those emotions which brutalize and make war, and all those exalted thoughts which, so I hope, will end way by debrutalization. When once we can breakfast in London, lunch in New York, and be back home again for supper, and all in twenty-four hours, it seems to me that life will become far too brief and exciting to wait for three years for the re-opening of any man’s grave in Naples or elsewhere, or to worry whether its occupant’s frock-coat is still of the latest cut.

What has all this got to do with you? Everything, for you are the heralds of a new means of movement, a means, so it seems to me, which is destined to change civilization, and with it the nature of war. And now to descend to my base of operations – mother earth.

Should armies remain more or less as they are, that is to say, infantry forces, with all the other arms harnessed to the infantry idea, then your military conquest will be an easy one, too easy even to make it exciting. Do not, however, be deluded by such possibilities, for change is inevitable. One reason for this is that no nation is again going to accept the infantry casualties of the last war. Another is that no air target could be more admirable than a long infantry column, with its impediments, its serfdom to road and railway, and its many semi-static headquarters. Yet another reason, and the most potent, slow-moving infantry can no longer protect the civil will.

Frankly, my concern for your future does not lie in this direction, it is to be discovered nearer home, for it is hinged on your own irrational, though obviously self-interested, actions. You struggle to take over the policing of uncivilized areas and the defence of coastal fortresses, when a child can see that you make the most indifferent of constables, and to restrict your mobility of sitting in Aden is almost a practical joke. But, after all, perhaps these are but back doors and badly-fastened windows leading into that great and ancient military mansion which one day you will claim as your inheritance.

It is, however, almost inconceivable that the soldier will for long continue to go on marching in this age of car and char-a-banc. Already has the writing appeared on the wall, and it reads, *Why walk?* Increasingly is infantry recruiting becoming more difficult, because we are ceasing to be a walking race. Industrialism means mechanization of military forces, whether soldiers or civilians want it or not. If armies are to continue to exist, then mechanization is as vital to them as today it is vital to you. Where you were thirty years ago we are today; then you were in balloons – the top of the winds; we are still on our feet – the plaything of roads and railways. If the army does not mechanize you will become the army, and the army will be swallowed by the police force, a force destined to walk until the crack of doom, an uncomfortable and unprogressive force, yet a highly necessary one.

Assuming that the army will be mechanized, and that it cultivates a mechanical spirit which has little to do with polo and hunting, and assuming that you have advanced in your search for plunder, no further than the kitchen and the offices of the military mansion, what influence is military mechanization going to have on you? Here is something much more entrancing than the straits of Bab-el-Mandib, the Kurram Valley, or the ruins round Mosul.

Before examining the influence of a mechanized army on your future, I think it is wise to consider mechanization from a general point of view. What is going to be its strategical influence?

Have we any foundation to work upon? Yes, the mechanization of the Navy some seventy years ago. I do not suggest that identical changes are going to take place, because nations live on the land and not in the sea, but I do suggest that, as navies

are the creations of industrialism, and that mechanized armies must also draw their strength from industrial power, there is a common link in the evolution of both.

To begin with, I will compare warfare at sea when warships relied on sail-power with warfare at sea as it is today.

First, what do we see? We see that the size of a nation has little to do with sea-power. Holland, Denmark and Portugal were once mighty naval powers, and even single cities, like Venice and Genoa, controlled formidable fleets. Warfare at sea was prevalent, and only two or three centuries ago incessant, for then piracy abounded. Nearly every type of sailing ship was a potential warship, consequently the power to indulge in naval warfare was the common property of maritime nations, great or small. Then came the steamship, and the whole of naval warfare changes. Special types of ships, and ships which are no use for commercial purposes are built, and only wealthy industrial nations can afford to build them. The influence on piracy, naval small wars, is most marked, so marked that today piracy is almost unknown. In sailing-ship days pirates could thrive; in steamship days they cannot. The influence of the steamship on great naval wars was equally remarkable, so remarkable that today only three or four of the greater industrial nations can contemplate naval warfare. The steamship has, in fact, very largely restricted war at sea; this has been its most important, yet least appreciated, influence.

To turn now to mechanized warfare on land. In this sphere of conflict is not there every likelihood of the petrol engine influencing the frequency of war as the steam engine influenced war at sea? Small wars will surely disappear. Small nations will not be able to indulge in war, for only the greater industrial nations will be able to afford it. The strength of armies will no longer be reckoned in terms of manpower but in machine-power; conscription of a nation's manhood will no longer be a measure of strength. Will not, therefore, land warfare become less prevalent? To answer this question we must examine the tactical side of mechanization.

Mechanized battles will depend on the nature of the enemy and the nature of the ground. Will the armies of today find any place in the future? We know that large tracts of country will always exist over which the mechanized armies will have the greatest difficulty in moving freely. Will not infantry still find a tactical playground here? I do not think so if we can imagine what a mechanized battle will look like. It will consist of a series of rapid manœuvres, of feints, advances and retirements, followed by sudden and annihilating blows. Such battles will in one respect resemble actions at sea; they will be short and sharp, and not prolonged operations. A few hours may see the complete destruction of a large mechanized army, or its withdrawal to some land port, where it will risk blockade.

In such a war what use are infantry even if they occupy anti-tank positions? Should they become an annoyance their line of supply will be cut, and they will be besieged in their natural strongholds by tanks and aircraft. They will only be an encumbrance, and the little good they can do will be so outbalanced by the perpetual anxiety of supplying them that they will seldom be worth their pay.

Cut away the usefulness of infantry, and conscription has little reason to exist. The nation in arms, the creation of the Napoleonic wars, will become a thing of the past, and will give way to comparatively small long-service armies. The answer, therefore, is that

wars are likely to become less prevalent, petrol-power causing the same restrictions in land warfare as steam-power already has done in sea warfare. Further than this, possible theatres of war will shrink in size only such areas as are suitable for mechanized warfare becoming prospective battlefields. A country like Switzerland will practically be immune from war; even today few nations wish to fight in such a land, yet if Switzerland were to become pugnacious a few mechanized forces, by occupying its railways, could starve her out.

Mechanized warfare means fighting on the plains, therefore it is inconceivable that nations which possess great open stretches of country are not going to fortify them against mechanized attack. To maintain a superior mechanized army is not enough. Surprise is so likely, and battles may be so decisive, that no risk can be run.

Before we, as a nation, took to steam-power, our sailing ships could seek refuge in any sheltered cove. After it, defended harbours and coaling stations had to be constructed in every sea, so that our warships would possess bases of action to operate from, and harbours of refuge to refit it. In modified form, will not somewhat similar changes take place on land? Will not a nation more strongly than ever defend its frontiers, and will not these defences cover areas rather than occupy positions and block communications? Myself, I think they will resemble a broad net of works drawn out along the frontier, each knot representing an anti-tank fort or strong point.

It may seem that the cost of such a defensive system will be prohibitive, but I do not think that this necessarily follows, for a small concrete work with a gun in it is practically invulnerable to tank attack. Further, any stream, even at comparatively little cost, could be converted into an obstacle. Granted that such networks of defences are possible, then their influence on future tactics may be extraordinary.

To fight in one's own country has always been a much simpler operation than fighting in the enemy's. For instance, in the Civil War in America, though the Federals were vastly superior in numbers and equipment to the Confederates, the fact that they had to invade the South, and so constantly operate in an enemy's country, nearly cancelled out all these advantages.

Granted these fortifications, the picture now changes. Remember that on account of cost no nation is likely to have an enormous number of machines, consequently decisive battles will be avoided as they are at sea unless one side has a manifest advantage. Now if both sides be approximately equal, obviously the side which can make full use of its anti-tank defences as pivots of manœuvre and shields against attack will possess an asset of almost incalculable value. Even if one side is considerably weaker than the other, when this side is able to fight within its own frontier, that is, within its defensive zone, the stronger side is not likely to attack it in a hurry, but to proceed methodically towards its objectives.

We see here a return to a new form of static or semi-static warfare, forgotten by enhanced mobility. Whilst in the past field armies frequently had to halt until their line of advance was cleared of a castle or a fortress, in the future, quite possibly, mechanized armies will have to halt until a whole area is cleared of anti-tank defences. The conclusion is, therefore, a dual one. Either the

invader will advance with extreme caution, or he will attempt to entice his adversary to abandon his fortified zone and enter his enemy's. In both cases there is likely to be a prolonged delay, and it is this delay which will bring to the fore the enormous offensive power of aircraft.

There is nothing new in this swing of the tactical pendulum. Mobile warfare always begets static warfare, and static warfare stimulates man's mind towards reinstating mobility. Thus Napoleon marched all over Europe; then by degrees bullet-power became so great that for three years during the World War we never marched at all. Static warfare begat the tank, and there can be little doubt that the tank will beget a new static war. Therefore, failing some unknown invention, it appears to me that this new static period will be solved by the mobility of the aeroplane, which can surmount all land defences.

If this is a correct judgment, then we may expect to see the following type of military organization. Whole countries, or their frontal zones, will be protected by anti-tank defences and fortifications. Within these fortified zones tank forces will be concentrated. The zone will be the castle of the past, and the tank forces their sally parties. Neither side will attempt to rush its enemy's castles, each will, so to speak, "sap" towards the other, will push forward slowly, and sallies will be made to frustrate this "sapping."

The true offensive arm will be aircraft. Their landing grounds and rear services will be within the fortifications. From these aircraft will be "fired" over the frontier against the enemy's vital points. It will no longer be a question of whether civilians can be attacked or not, for the land stalemate will justify any and all means of attack until civilized nations realize the folly of war, or a new static counter-agent is invented. In any case, when the civil will becomes a recognised objective, wars will still further be restricted. Thus we see, step by step, from flint axe to super-aeroplane, that every great tactical invention, instead of enhancing the god of war, undermines his temple.

Turning now from the speculative to the actual, are there any portents and signs which would lead us to suppose that the supremacy of the air is predestined? I think there are.

First and foremost, the third dimension to a large extent includes the second. Aircraft will, as far as we can see, be always influenced by gravity, but because they are all but influenced by water and land they have the power of rendering warfare far more simple.

Secondly, their great ally is the ether, they, born of the air, must court this still more attenuated element, for the ether is their true mistress, and once they have won her we shall see the birth of some strange children. The control of the ether is by wireless wave, an etheric vibration, the heart throbs of this great sorceress of future war. Today a wireless message can be sent from an aeroplane to a General many miles away. He compares the message with his map, dictates his orders, and sends them on by wireless to his troops. All this is a dual, there is no speculation about it, and the fact to note is the following importance of air power, and not the celerity of imparting information.

Now turn to information. The weak point is that it is far too slow. Let us, therefore, carry the system one step further, and make

not an altogether impracticable suggestion. Suppose the pilot had what I will call an automatic pointer, where he moves from place to place on his map, according to where he sees the enemy on the ground, and by a few Morse dots and dashes reports their strength and probable intention. Suppose that this pointer automatically sets in operation a similar pointer working over a similar map in the General's office, the General will at once see what the pilot or observer sees, then he can issue his orders almost instantaneously by another pointer to the pointers of his Subordinate Commanders. There will be much looking at maps but very little writing. The fact to note is the enormous importance of the pilot: he has become almost, if not quite, as important as the General, for should he make a mistake the General will repeat it; consequently, unless General and pilot see eye to eye, strategically and tactically, there are likely to be some terrible blunders. Surely, then, it would be better to fuse army and air force into one, so that a common education may be established. The weak point is two brains and not one brain.

Still there is another development you should examine. We know we can set in movement machines, coastal motor-boats and even battleships by wireless power. We know that throughout the history of war there has been a constant tendency to eliminate danger. Surely on many occasions it would be wise to use manless weapons as projectiles! For instance, we want to bomb a great city strongly protected by anti-aircraft defences, and we do not want to send two or three hundred brave men to certain death, besides, being human, they may prefer to live and not make quite certain of the city. So instead we send out 200 bombers, escorted by ten controlling machines. The bombers are unmanned and carry no bombs, for they are in themselves winged projectives, true aerial torpedoes. They are controlled by the ten machines, each of which is manned, and each of which by wireless directs the flight of twenty manless flying mines. As the city is neared and the air defence guns begin to fire, the ten controlling machines stand off and manœuvre their projectiles towards their goal. Some are shot down, and as they strike the ground they disintegrate with terrific detonations; others move on, then dip, rush to earth and explode.

Expensive in aircraft you say? Certainly, but very cheap in human life. After all, an 18-inch torpedo costs, I believe, as much as a large aeroplane, and if the Navy can afford such weapons why should not the Air Force? And when the Air Force does afford them, perhaps the Navy will find that theirs are no longer required.

Should such a form of war be evolved? – and I see no logical reason why it should not – then turning back to that speculative, though probable static, war which is likely to follow fully mechanized warfare, I also see no reason to doubt in the future supremacy of air power.

Your future is not immediate; you cannot, like Minerva, spring full-armed from the head of Jove. Nevertheless, my opinion is that when once war on land is rendered really mobile, that is when armies become mechanized, a static period will follow, and that out of this period you will emerge and simplify war by annihilating it altogether.

Yours, etc.,

J.F.C. Fuller

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