

CORRESPONDENCE

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THE NAVY OF THE FUTURE AND AIRCRAFT

[2037] In the recent controversy on the trend of Naval development, widely-divergent views have been expressed. Some eminent authorities have asserted that all large surface craft should be abandoned owing to their vulnerability by torpedo attack, while others maintain that large ships can be built, doubtless at considerable extra cost, to safely withstand torpedo attack. It would appear, however, that these in their turn would be endangered by the advent of larger torpedoes carrying a heavier explosive charge.

In no case has the value of the torpedo as a weapon been questioned, and it is interesting therefore to consider the advantages which are claimed for aircraft over the other means which may be employed for delivering a torpedo attack, namely, small high-speed surface craft (ranging from motor-boats to destroyers) and submarines.

In attacking with the torpedo, as in all forms of attack, the element of surprise is of the utmost value. For this reason the submarine has an advantage over surface craft, in that it can approach close to its objective with little chance of detection until within short torpedo range. It pays a heavy price, however, for this advantage in its lack of speed and manœuvrability. Its lack of speed confines its operations largely to lying in wait for enemy ships, and if its presence is detected its poor manœuvrability gives the enemy a good chance of avoiding the torpedo by rapid changes of course. Surprise can rarely enter into an attack by surface craft; an approaching destroyer would be visible to the enemy in fairly clear weather for at least ten minutes before getting within extreme torpedo range, and, except in the case of opposing ships steaming towards one another, for a longer period.

Torpedoplanes flying at upwards of 10,000 ft. can begin to glide with engine off, and therefore silently, some ten miles away, remaining invisible until within three or four miles, and probably undetected until much closer. Gliding at say 120 knots it is unlikely they would be seen more than a minute before launching a torpedo at close range.

Thus the torpedoplane shares with the submarine the advantage of getting to close range unobserved, but on the score of speed and manœuvrability is not merely not inferior to its target, but has about four times the speed of a fast ship, and can turn in a time measured in seconds as compared with minutes. Moreover, with a fraction of the personnel of one submarine, a whole squadron of torpedoplanes can be provided to converge from all points of the compass, and so render manœuvres such as change of course almost useless.

The facility of getting to close range has not only the advantage of surprise, but also implies a much higher percentage of hits than can be hoped for with surface craft. When torpedoes are launched at a range of several miles, it is necessary in order to score a hit to estimate correctly the speed and course which the target will maintain or take up for some five minutes after the torpedo is discharged, and as change of course is commonly resorted to when a ship is attacked by torpedo, the percentage of hits to be expected is comparatively small.

From the point of view of cost, both as regards personnel and material, aircraft can claim a marked advantage. A flotilla of destroyers costing £300,000 or £400,000 each, and carrying 70 or 80 men each, would only in a heavy engagement average ten torpedoes discharged per ship. This would imply some seven or eight men and thirty or forty thousand pounds' worth of material employed and endangered for each torpedo fired. In the case of aircraft, there is only one man and a machine costing about five thousand pounds engaged for each torpedo fired. The implied assumption that each torpedoplane risked has an opportunity of discharging its torpedo is justified because it is not visible, and therefore not endangered, until within striking distance; moreover, every ship sighted, or whose position is signalled by wireless, presents an opportunity to a machine having a speed some 70 or 80 knots superior to that of any ship.



The Paris A.A. Defences

PARIS is determined to take no chances with the late enemy, at any rate as regards aerial matters. It has been decided to reconstitute and enlarge the anti-aircraft services of the city, and Parisians who are free from military services, are under the age of 55, and have good sight and hearing, are being called upon to volunteer for the duty.

On the score of comparative results for the same cost, it is interesting to imagine what would have happened if in the battle of Jutland our destroyers had been replaced by torpedo-carrying aircraft of the same monetary value, some part of the ships of the line being used as carriers. If there were a hundred destroyers employed, costing, say, thirty-five million pounds, with crews aggregating 7,000 men, torpedoplanes could have been provided to the number of 7,000, which represents not less than 30 torpedoplanes to every ship in the German Fleet. The cost would have been the same, and the number of men endangered would have been the same, but whether any German ship would have returned to its harbour is another question.

As an illustration of the value of speed in torpedo work, it may be remarked that had this country been supplied with torpedo aircraft, as they now exist, at the time of the German naval raids on the East Coast, it would have been possible to give the Germans three hours' start on their return journey and still overtake them with torpedoes within an hour.

It has also to be borne in mind that at no time is an enemy fleet safe from attack by torpedoplanes. While a fleet may be protected from an attack by surface craft and submarines by being anchored in sheltered waters, the entrance to which is guarded by nets, mines and shore defences, such devices are no bar to aircraft, and while anti-aircraft guns may be installed, and fighter aircraft be sent up in opposition, these cannot be counted upon to stop more than a fraction of an attacking force.

R. BLACKBURN

Leeds, December 23, 1920

[For several years the Blackburn Company, of which Mr. R. Blackburn, A.M.I.C.E., A.F.R.Ae.S., is managing director, have specialised on torpedo aircraft, and have, in fact, built the whole of the machines of this class now in use in the British service. Mr. Blackburn's opinions of the value of the torpedoplane, therefore, carries considerable weight, and he points out that the design of these machines originated, as did so many excellent war machines, with Messrs. Sopwith, but was handed over to Messrs. Blackburns to put into production. A different engine was installed, and modifications were continually introduced as experiences were gained in what was a new, and still remains a highly specialised, branch of warfare.

Messrs. Blackburns' faith in the future of torpedo aircraft and their experience in the production of so many machines of this type naturally led to a desire on their part to produce a new machine incorporating all the improvements which had gradually been introduced in previous machines, and including several bold steps forward as regards general layout and construction. The machine which has been built and recently tested at their works at Brough, East Yorks, has completely fulfilled the firm's expectations. The torpedo carried is larger than in machines previously in service, the speed is greater, the rate of climb is better, and the ceiling higher. The engine employed to make this improved performance possible is the Napier Lion, which, on account of its light weight per horse-power, coupled with smooth and reliable running, is being so widely used in the present-day development of aircraft. The engine is carried on a mounting of steel tubes, which is arranged to leave the engine exceptionally accessible, and forms with the steel centre section of the machine a unit which from the engineering point of view is a marked advance on previous practice. The main planes are of orthodox construction, with spruce spars and steel struts braced with streamline wires, and the fuselage aft of the steel centre section is built of spruce with tie-rod bracing. The chassis is of novel design, and obviates several defects of previous divided chassis. This, together with the tail skid, has been severely tested during trials, and both have stood up satisfactorily to their work.

The following are the main particulars of the machine:—Span, 48 ft. 6 ins.; overall length, 34 ft. 10 ins.; height, 12 ft. 3 ins.; total weight, 6,300 lbs.; maximum speed, 100 knots; minimum speed, 45 knots.—ED.]

Norway After Smugglers

IT has long been a troublesome business for the Norwegian Government to keep all the fjords round the coast under efficient observation, to prevent the smuggling of contraband goods into the country, but it has now been decided to organise an aerial police service to undertake the duty.