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THE FRENCH NAVAL MANŒUVRES.

Prepared by permission from the special correspondence of the
"Temps," by Commander H. GARBETT, R.N.

THE French Naval Manœuvres of this year have been of a totally different character to those of 1890 and 1891.

In 1890 the junction of the Mediterranean Squadron with the armoured division of the North in the Channel afforded a good opportunity for the study and practice of the different tactical formations of a fleet. In 1891 the fleet, which must be considered as possessing somewhat less speed than the English ships or the latest constructions in the Italian and German Navies, had a very important question to solve, viz., whether, in spite of a certain inferiority in speed, it is possible for a squadron to keep touch with another, by means of fast cruisers. The manœuvres of last year in the Mediterranean furnished some useful lessons on this head. The reports of the Commanding Admirals and the Captains of ships which took part in the manœuvres of 1890 and 1891 have formed a basis on which to lay down a new system of naval tactics.

A Commission appointed by M. Barbey, the Minister of Marine, in last October to enquire into the question, forwarded at the beginning of this year to that Minister the results of their work. Although the theories of naval war have been, in a general point of view, sufficiently studied, certain special points remained to be considered, necessitating a careful enquiry into the coast defences and their organization.

Last year, both in the Chamber and Senate, a certain disquietude was manifested with regard to the system of coast defence; a measure was introduced on this subject, in addition to which the report of M. Brisson on the Naval Budget contained, among other reforms, a plan for the complete reorganization of the "Défense Mobile" of the ports. Although M. Brisson resigned his chairmanship as President of the Committee before the discussion on the Budget, the measures which he recommended have been partly adopted. The system for the "Défense Mobile" has been modified, and this year's manœuvres had for their object the ascertaining of the efficacy of the measures taken, and the principal interest, therefore, has been centred on the defence. The scene of operations by the Mediterranean Squadron against the coast was comprised between the meridians of Cape Couronne and Villefranche, and that of the Northern Squadron between the meridian of the rocks of Primel and the parallel of the Island of Sein. It was not considered necessary to prepare a settled programme in advance for the movements of the belligerents. The rôle of the coast defence is to guard

against all surprises and unexpected attacks. The belligerents, that is to say, the Commander-in-Chief of the attacking fleets and the Maritime Prefects commanding the defending forces, were allowed perfectly free hands.

The resources at the disposal of the Maritime Prefects for the protection of the coasts of their arrondissements are of two kinds, those which constitute the means of defence properly so called, and those which are simply accessory thereto. The first category comprises the coast batteries, the mobilized coast-defence vessels, the torpedo-boats, and the mine-fields and other obstructions laid down at the entrance of the harbours; in the second category are included the means for scouting and transmitting intelligence such as semaphores, telegraphs, carrier pigeons, balloons, &c.; all these were placed at the disposal of the Maritime Prefects.

The following measures were taken for the Intelligence Service:— Each of the Maritime Prefects was to establish a central bureau for intelligence at a place selected by himself; the personnel of the semaphore stations within the limits assigned for the operations were placed on a war footing, carrier pigeons were distributed among the different stations and vessels, while the small squadrons of torpedo-boats which were under the orders of the Commandants of the "Défense Mobile" were ordered to keep as complete a touch as possible with the intelligence bureaux, semaphore and signal stations, &c.; submarine microphones were laid down in a belt outside the harbours so as to communicate the approach of any vessel at night, and telephonic communication was established between the coast batteries, &c. At Toulon, the only port possessing a naval balloon station, the balloon service under the direction of Lieutenant Ragot de la Touche carried out trials night and day, while twelve engineers from the garrison at Nice were also detailed to carry out experiments with the heliograph during the manœuvres.

As the operations were intended solely to test the efficacy of the organization of the coast defence, no Umpires were appointed; they afforded, however, opportunities for the attacking squadron to land men, destroy railways, and bombard unprotected ports. It is the first time that manœuvres of this kind have been carried out in France; the only attempt of a somewhat similar nature was the defence of the port of Toulon, ordered by Admiral Krantz when Minister of Marine. The defence was then entrusted to the marines and land forces, but the experiment did not produce the result expected.

This year the naval forces were alone called upon to protect the coast, and the defence was entirely organized by the Maritime Prefects. The experiment was looked upon with great interest, as it gave the Prefects the opportunity rarely afforded them of exercising military command.

It will be more convenient to follow first the operations against the Mediterranean coast, and then those of the Northern Squadron against Brest, Cherbourg, Havre, &c. Unfortunately only a general idea of what took place can be given, as the reports, even of the special correspondents, are of a decidedly meagre description.

The naval forces which took part in the operations in the Mediterranean were the Active Squadron of the Mediterranean Fleet, under the command of Vice-Admiral Rieunier, consisting of :—

Battle-ships : "Formidable," bearing the flag of the Commander-in-Chief, "Courbet," "Dévastation," "Hoche," "Vauban," bearing the flag of Rear-Admiral Buge, "Amiral Duperré," "Amiral Baudin," and "Bayard."

Cruisers ("à batterie") : "Cécile" and "Sfax," this latter specially commissioned for manœuvres, and manned by Reservists.

Cruiser ("à barbette"), 1st class : "Jean Bart."

3rd class : "Cosmao," "Lalande," and "Troude."

Torpedo-cruisers : "Condor" and "Vautour."

"Torpedo-avisos" : "Dragonne" and "Dague."

"Torpilleurs de haute mer" : "Aventurier," "Kabyle," "Ouragan," "Audacieux," "Téméraire."

The newly-formed Toulon Reserve Squadron, under the command of Vice-Admiral Vignes, consisting of :—

Battle-ships : "Richelieu," "Colbert," "Friedland," "Redoutable," and "Trident."

Coast-defence battle-ships : "Indomptable," "Terrible," and "Caïman."

"Torpilleurs de haute mer" : "Agile," "Bombe," "Éclaireur," and "Orage."

Transport : "Gironde."

The "Défense Mobile" of Toulon and the coasts under the command of Capitaine-de-Frégat Bonifay, which consisted of :—

Armoured gunboats : "Achéron," "Fusée," "Mitraille."

"Torpilleurs de haute mer" :—"Capitaine Cuny," "Capitaine Mehl," "Chailleur," and "Déroulède," and twenty torpedo-boats.

Eight of the latter belonged to the Algerian flotilla, and were temporarily ordered to Toulon, to increase the strength of the "Défense Mobile" during the manœuvres.

For some six weeks previous the active squadron of the Mediterranean was engaged in tactical manœuvres, target practice, attacks on the coast, &c.; between the 8th and 10th July, scouting operations combined with night attacks on one of the battle-ships, and four accompanying torpedo-catchers were carried out by a small squadron composed of the cruiser "Cosmao," the "torpilleurs de haute mer" "Aventurier," "Ouragan," "Téméraire," "Agile," "Orage," and "Éclair," temporarily detached for the purpose from the Active and Reserve Squadrons with a division of six torpedo-boats belonging to the "Défense Mobile" of the port of Toulon, the whole under the command of Frigate-Captain Bonifay acting under the orders of Vice-Admiral de Boissoudy, the Maritime Prefect. The squadron

broken up into four divisions proceeded to reconnoitre and search out the coast east and west of Toulon, but although they came into collision with the torpedo-catchers, the latter, thanks to their superior speed, were enabled to escape; neither do the night attacks appear to have been more successful, as on each occasion the torpedo-boats were discovered sufficiently early to prevent surprise.

The Reserve Squadron, under the command of Vice-Admiral Vignes, who hoisted his flag on board the "*Richelieu*" at the end of May, had been similarly employed in drilling and manœuvring, &c.; both squadrons returned to Toulon on the 16th of July, to coal and replenish with stores in readiness for the grand manœuvres; the harbour presenting a fine spectacle, as no less than seventeen battle-ships were lying there fully equipped and ready for sea.

On the 18th of July, the mobilization of the Reservists commenced, who, as soon as they had received their equipment, were placed at the disposal of the Commander of the submarine defences, a certain number being detailed to man the armoured gunboats, and the remaining torpedo-boats for the "*Défense Mobile*" with the transport "*Gironde*," the latter being temporarily attached to the Reserve Squadron to convey to Corsica the materials for constructing a large boom with which to close the harbour of Ajaccio, for which port the Reserve Squadron sailed on the evening of the 20th; during the next few days, in addition to other exercises, torpedo practice, night attacks by the torpedo-boats against the squadron, &c., the men were employed in putting the boom in position, in taking it to pieces, and embarking it again on board the "*Gironde*," the work being carried out on successive days until the men were familiar with the details.

The Active Squadron, under Admiral Rieunier, also proceeded to sea on the evening of the 20th, but anchored in the Gulf of Juan, where it remained until the 26th, landing battalions of seamen with field guns for drill, and exercising the steam and other boats with spar-torpedoes in attacking various ships of the squadrons.

On the evening of the 26th July the Maritime Prefect of Toulon and Vice-Admiral Rieunier received telegrams from the Minister of Marine, directing hostilities to commence at 8 A.M. on the following morning. At 5 A.M. on the 27th all the marine artillery and infantry detailed for service in the coast batteries during the manœuvres quitted their respective barracks and repaired to the posts assigned to them.

The *notitia* of the "*Défense Mobile*" was divided into three sections: the 1st consisted of the armoured gunboat "*Achéron*," Commandant de Fraysseix, the "*Capitaine Cury*," and "*Déroulède*," and four 1st class torpedo-boats, with headquarters at Nice; the 2nd of the armoured gunboat "*Fusée*," Commandant Swiencki, the "*Chailleur*," and "*Capitaine Mehl*," and two 1st class torpedo-boats, with headquarters at Marseilles; the 3rd, the armoured gunboat "*Mitraille*," Commandant Bonifay, and fourteen torpedo-boats, with their headquarters at Toulon. For a period of eight days previous to hostilities the whole flotilla had been carefully exercised and the

Reservists trained in their duties. These preliminary exercises had terminated the previous night by an attack on the "Mitraille" by the torpedo-boats, which took place off Sainte Marguerite, at the entrance to the roadstead of Toulon. The object was to prevent the gunboat entering the roadstead, the attempt to do which she had to give up. Although the night was dark, and the torpedo-boats carried no lights, they were well handled, and there were no collisions.

All the semaphore stations were placed on a war footing, and were under the direction of Commandant Lions; the captive balloon also made frequent ascents from the Croix des Signaux, but as the weather was hazy it was difficult to observe anything. The superintendence of the defence of the coast was confided to Capitaine de Vaisseau Rebufat, who took up his quarters permanently at the Croix des Signaux, acting under the orders of Rear-Admiral Romaure, the Major-General commanding the marine forces.

There being no appearance of the enemy, and no information transpiring from the signal stations, at 4 p.m. the "Mitraille" and torpedo-boats put to sea to scout, but returned at dark without having seen anything. Information in the meantime had been received that Nice and Villefranche had been attacked by an ironclad, two cruisers (the "Vauban," "Sfax," and "Lalande"), and two torpedo-boats, after they had first destroyed the signal station at Garoupe and the bridge at Loup; they were, however, driven off by the section of the "Défense Mobile," the "Achéron" chasing the "Vauban," and keeping her under the fire of her two 27-cm. (10-in.) guns for some time. According to the coefficient of strength laid down by the rules between the land and sea forces the enemy were considered to have been repulsed with loss from Nice. About 5 p.m. Admiral Boissoudy proceeded to make a personal inspection of all the measures taken at the entrance to the roads in view of the possibility of a night attack, which, in effect, did actually take place. About 11 p.m. a heavy fire was opened by the enemy's cruisers, presumably upon the electric search lights distributed along the coast. About 1 p.m. the enemy's whole squadron was signalled about 2 miles from Cape Siciè, and as they passed along the ships opened a heavy fire upon the different coast batteries, which replied vigorously. When off the island of Hyères a most dashing attack was made upon them by the torpedo-boats of the "Défense Mobile," the result of which was the most interesting episode of the manœuvres, viz., the placing *hors de combat* of Admiral Ricunier's flag-ship the "Formidable" and the cruiser "Sfax." So beset was the squadron by the torpilleurs that one of them, No. 140, was enabled, by making a circuit, to approach and torpedo the flag-ship and the cruiser before she was perceived. The torpedoes were provided with dummy collapsible heads, so that there might be no question as to when a successful hit was made. Admiral Ricunier himself admitted that his flag-ship would have been sunk, and sent his congratulations to the Officer in command of the torpedo-boat. No serious attempt was made to force the defences, and at 4 a.m. the enemy stood away to sea again. The defence had to acknowledge the loss of torpedo-boats 65 and 68, which, when scouting

from Marseilles the previous evening, were cut off and captured by the "Cécile" and "Cosmao." On the afternoon of the 28th the enemy again stood in, the "Sfax" leading, and attacked for half an hour the battery on Cape Siciè; afterwards steaming along the coast, they bombarded successfully all the batteries between Cape Siciè and Aigle Head, from which it would seem as if Admiral Rieunier contemplated the possibility of shelling the arsenal and naval establishments over the Isthmus of Sablettes. The night of the 28th-29th passed quietly, but some fresh disposition was made of the defence torpedo-boats, six being sent to reinforce the force at Marseilles, which was attacked by the enemy on the 29th; on the afternoon of that day also, in a strong breeze, the captive balloon burst, but fortunately no one was hurt. After the demonstration before Marseilles, the enemy bombarded the small port of Ciotat, but made no further attempt against Toulon itself, then destroying more of the semaphore and signal stations, Admiral Rieunier made another attack on Villefranche; on this occasion the place was considered to have been captured in view of the superior force brought against it by the enemy; but, on the other hand, the defence claimed to have successfully torpedoed the "Sfax," "Jean Bart," and "Cosmao." This brought the first part of the manœuvres to a conclusion, and both the Active and Reserve Squadrons, which latter remained exercising off Corsica, returned to Toulon to coal, &c.

The two squadrons again put to sea at 5 P.M. on the 7th August, leaving the anchorage in single column in line ahead, columns of divisions being formed when outside, the Reserve Squadron soon afterwards standing away to the southward, temporarily parting company with the Active Squadron. No further attempts were made against the coast, and the manœuvres partook for the most part of fleet tactics, the two squadrons acting against each other, and different divisions being pitted the one against another. On the evening of their departure, however, the Rieunier squadron was subjected to a grand attack by the torpedo flotilla from Toulon. Leaving the harbour in the evening, the flotilla, which consisted of the "torpilleurs de haute mer" "Chailleux," "Capitaine Cuny," "Capitaine Mehl," "Déroulède," and twenty torpedo-boats, about 10 P.M. fell in with the enemy off the Hyères islands. There was a bright moon, so that the attacking flotilla were discovered without the use of the search lights; in spite of this disadvantage several of the attacks by the torpedo-boats were successful, two of the battle-ships being torpedoed, while one torpedo-boat was put out of action as sunk. On the following day Admiral Rieunier proceeded along the coast testing the semaphore and signal stations, with the object of ascertaining how quickly orders and information could be communicated to him, and, on the other hand, how quickly reports brought in by vessels scouting could be transmitted to the authorities on land. During the manœuvres carrier pigeons were despatched both from the ships and the shore, while, during the second period of the operations, fresh experiments were carried out at the Crois des Signaux by a second balloon which had replaced the one which had burst.

The semaphore stations seem to have done their work well, Vice-Admiral Boissoudy having been kept thoroughly *au courant* with all that happened along the coast, and he had been able to direct the whole defence from Toulon. The pigeons sometimes carried their despatches well, but, on the other hand, there were several delays. At the termination of the manœuvres Vice-Admiral Boissoudy addressed a letter of thanks to M. Pierre Laure, the President of the Carrier Pigeons Society La Fortercuse, who had placed their pigeons at the disposal of the naval authorities for the manœuvres, in which he bears testimony to the valuable work done by the carrier pigeons of the Society, and to the patriotic zeal displayed in organizing so valuable a service.

On the afternoon of the 9th Admiral Ricunier's squadron anchored off Saint Tropez, and, reinforced by six torpedo-catchers and "torpilleurs de haute mer," prepared to defend the roadstead against an attack by the Reserve Squadron; mines were laid out, and other preparations made. Soon after 8.30 p.m. the cruisers which had been scouting returned and reported the appearance of the enemy, who were soon discovered off the entrance by means of the search lights, but, except for a heavy cannonade between the two squadrons, lasting over an hour, it does not appear that any serious attempts were made on the anchorage. The next day the operations came finally to an end by a grand sham fight between the battle-ships of the two squadrons. Both fleets joined company in the morning, and were divided into three divisions, two of which manœuvred against the third; here again, unfortunately, all details are wanting as to what took place and the results; the cruisers were employed keeping up communication with the shore between the defending squadron and the semaphore station at Cape Martin. At the conclusion the ships returned to Toulon, and the Reservists were discharged on the 13th August, after having been embarked twenty-six days.

We will now turn to the operations of the Northern Squadron, of which we have somewhat fuller details, as the special correspondent of the "Temps" gives a slight description of the nature of the defensive works of the two great ports of Brest and Cherbourg, and also glances at their weak points.

The attacking fleet in the north was the Northern Squadron, under the command of Vice-Admiral Lefèvre, and consisted of:—

Battle-ships: "Suffren," flag-ship of Commander-in-Chief,

"Victorieuse," flag-ship of Rear-Admiral Barrera.

Coast-defence armour-clads: "Requin," "Furieux," "Fulminant," and "Tonnerre."

Cruiser ("à barbettes"), 2nd class: "Rigault-de-Genouilly," specially commissioned for the manœuvres by Reservists.

Cruiser ("à barbettes"), 3rd class: "Surcouf."

Torpedo-cruiser: "Épervier," "Wattignies."

"Torpedo-avisos": "Lance," "Salve."

"Torpilleurs de haute mer": "Défi," "Alarme," "Turco," and "Veloce," specially commissioned by Reservists, and attached to Northern Squadron for manœuvres.

The "Défense Mobile" at Brest consisted of:—

Coast-defence armour-clad: "Tempête" and nine torpedo-boats.

At Cherbourg:—

The coast-defence ironclads: "Tonnant," "Vengeur."

Armoured gunboats: "Cocyte," "Flamme," "Grenade," and fourteen torpedo-boats, to which were added two from Lorient and Rochefort.

The mobilization began on the 18th of July, the semaphore and look-out stations along the coast were put on a war footing, and the coast batteries manned. War, however, was not supposed to be declared until the morning of the 26th, the interval being employed both by Admiral Lefèvre's squadron and the defending forces in preliminary drills, reconnaissances by day and night, and generally testing the means of defence, including the submarine microphonic apparatus, which was laid down off the harbour's mouth to signal the approach of vessels at night; the search lights, both from the ships and shore stations, were also practised. The evening of the 25th was unfortunately marked by the loss of one of the torpedo-boats. The "Tempête" and her flotilla had put to sea in the morning to make a reconnaissance and exercise the semaphore stations; when approaching the harbour on their return about 10 P.M., the torpilleurs of Admiral Lefèvre's squadron were ordered out to reconnoitre the approaching vessels; both sides employed their search lights. Confused by the blinding glare from the "Tempête's" light turned full upon her, No. 76 ran across the ironclad's ram, and was so damaged that she sank almost immediately; all the crew were fortunately saved, although two stokers were badly scalded by the steam as the boiler blew up; the "Tempête" at the time was steaming about 6 knots.

The Northern Squadron put to sea from Brest at 6 A.M. on the 26th July, in splendid weather, to carry out a similar programme to that of the Mediterranean Fleet, the first part of the operations being confined to attacks on this harbour only. The "Défense Mobile" was under the orders of Captain Motet, of the "Tempête"; the torpedo-flotilla quitted their anchorage at the entrance of the military port, and were distributed in the numerous creeks which abound on that coast, in readiness for seizing any favourable opportunity to attack the enemy.

Brest is admittedly one of the strongest of the French arsenals; its natural advantages are very great; the approaches, bristling with small islets, reefs, and rocks, are dangerous for an enemy; the surrounding coast, broken up into deep bays, is particularly favourable for the "Défense Mobile," as torpedo-boats can lie concealed completely out of sight of hostile vessels; the cliffs are high and permit the look-out men to sweep the sea horizon in all directions, while the channel narrows at the entrance to a width of only 1,500 yards. Naturally, a considerable divergence of opinion exists between the Officers of the Navy and those of the land forces as to the impregnability or otherwise of the place. Many of the Naval Officers hold

that in spite of the batteries and mine-fields it is quite possible for swift ships to rush the channel and destroy the town and dockyard; artillerymen, on the other hand, while admitting that ships might pass one or two of the forts, consider it impossible for them to run the gauntlet of all; this is a question which cannot, of course, be settled by any peace manœuvres such as have taken place, the object of which has been to test the working order and efficiency of the mobile and shore defences, and in this respect the results have been considered highly satisfactory.

A little before midnight on the night of the 27th-28th Admiral Lefèvre made his first attack. The "*Tempête*" had taken up her station in the centre of the channel on a line between Point St. Mathieu and the Point of Toulanguet; two torpedo-boats were also stationed off each of these points, while the remainder of the flotilla was formed in two divisions, of which the one, distributed between the two sides of the channel, occupied on the north the small bays of Mingan, Elec, and Ste. Anne, and on the south lay concealed in the indentures of the coast of the Island of Roscanvel, the points of Kervinon, Cornouailles, and Robert; while the other division took post in the Bay of Bertheume, completely masked by the fort and point of Creachmeur. The night was extremely dark, but all the search lights between Minon and Cornouailles Points were in readiness. Towards 11.30 P.M. the microphonic apparatus, which, as before mentioned, was laid out in the form of a belt some two miles outside the entrance, signalled the alarm, and the search lights soon discovered the approaching enemy. The defending torpedo-boats immediately began to harass the hostile ships, and, although attacked in turn by the torpedo-catchers, they were enabled to find refuge inshore, from whence they returned again and again to the attack. The enemy succeeded in forcing his way into the channel, and the "*Tempête*" was compelled to fall back on the inner port, but in actual war it is almost certain that no ships could have penetrated further without being destroyed by the powerful guns of the land batteries, not to mention the mine-fields, no attempt to remove or destroy which was made. The whole channel was lit up as bright as day by the numerous electric search lights placed on the different points, on the Minou lighthouse on the north side of the entrance, on the battery of the Capucins on the Isle of Roscanvel, on Point Delec, Fort Robert, &c., and even if the first lights from their position had been destroyed by the enemy's fire, the others in more protected stations could still keep the whole channel illuminated. Not only are heavy guns now mounted on the summits of the different promontories, but every creek has its concealed battery, and as the guns are mounted but little above the level of the water their concentrated fire, even on an ironclad steaming at speed, would have a terrible effect, and the damage would be done almost before the ship would be aware of their existence; neither would it be possible for a ship to stop and attempt to engage any single battery, as in that case she would be brought under a concentrated fire from both sides of the channel. At 1.30 A.M. Admiral Lefèvre gave up the attempt

to force his way further, and signalled that he considered himself beaten.

The following day the attack was renewed about 11.30 A.M., in broad daylight. As a spectacle the whole *coup d'œil* was very effective as the fleet, in column of divisions in line ahead, advanced up the channel towards the harbour, opening a heavy fire on the forts on each side as the ships passed, which was returned with equal spirit from the batteries; but it is certain that no hostile ships could penetrate so far up the channel, as even if they had silenced the whole of the lower batteries and cleared a way through the mine-fields, which is very doubtful, they must succumb to the plunging fire to which they would be subjected from the heavy guns mounted on the heights of the Capucins and Toulbroch, to which no reply from a ship could be made, neither is it likely that these works could be silenced by bombardment from the sea. At 2 P.M. the battle ceased, and both attacks on Brest may be considered to have completely failed. Admiral Lefèvre anchored his squadron for the night in the Bay of Douarnenez, the battle-ships lying with their Bullivant steel nets out to guard against the attacks of torpedo-boats. Such an attack took place about 10 P.M. by seven torpilleurs of the "Défense Mobile," which, aided by a light fog, were enabled to approach within range and torpedo the torpedo-cruiser "Épervier," before they were either detected, any search light turned on them, or fire opened.

The next morning Admiral Lefèvre weighed and destroyed the torpedo station at Morlaix, which brought the first part of the operations to a conclusion, hostilities ceasing at midday.

The second series of the manœuvres began on the 7th August, the scene of operations being the coast of La Manche, bounded on the west by Cape La Hague, and on the east by Point d'Ailly, which includes the great commercial port of Havre and several smaller ones. As Cherbourg is the military port most exposed to a bombardment from the sea, it was desired to test the improvements introduced into its system of defence by the new works commenced in 1890. The flotilla of the "Défense Mobile" at Cherbourg is stronger than at any of the other ports, including, as it does, two of the coast-defence ironclads and three armoured gunboats. As at Toulon and Brest, all the measures for the defence were entirely in the hands of the Maritime Prefect, Admiral Lespès.

The last act of Admiral Lefèvre, at the conclusion of the first part of the manœuvres, had been the destruction of the small torpedo station at Morlaix, where an old wooden ship, the "Obligado," serves as a workshop and dépôt. The place is practically undefended, the old castle of Taureau, which formerly guarded the port, being only armed with obsolete guns: there is nothing to prevent the landing of a force, as only a regiment of infantry, without artillery, form the garrison, and, in case of mobilization, its place is on the frontier with the rest of the 10th Army Corps. It would also be difficult to mass troops in the event of its being necessary to take steps to repel a landing on the Brittany coast, as the railways are absolutely insufficient; from Rennes to St. Brieuc and from Guingamp to

Kerhuon, that is to say, Brest, there is only a single line, and yet it is by that route that the territorial artillery would have to be brought from Rennes, just at the time when mobilization towards the east will render the working of the railways most difficult.

Bretagne is, however, but indirectly threatened. However valuable the possession of Brest may be, serving, as it would, as a place for victualling and shelter, it would not be an indispensable base for operations by the enemy. The occupation of Cherbourg would be much more useful to him, as it is within reach of Havre and the mouth of the Seine, that is to say, Paris. Cherbourg and Le Cotentin in the hands of the enemy would mean the annihilation of the national defence.

The manœuvres have been of considerable interest, as showing, without doubt, that Cherbourg, "that nest of bomb-shells," is less threatened from the sea than from the land. The danger will arise from the surrounding heights, which are very imperfectly fortified.

The defence of the harbour and arsenal is not so impossible as has been supposed. Of course we are far removed from the time when the breakwater was the only absolute protection. Steam allows of an entrance into channels without tacking: therefore these channels are now too broad. The breakwater is only about 2 km. from the military port, and 5 from the commercial, and modern guns carry a distance of 10 or 12 km.: but works are now in progress to narrow these channels by uniting the isle of Pelée and the fort of Chavagnac by means of breakwaters; as to the distance of the large breakwater, it must not be forgotten that it is fortified, and will shortly be completely rearmed with modern heavy guns, which will keep the enemy at a distance sufficiently far to prevent his being able to fire with accuracy. We can imagine what the 3,606-yard-long breakwater may become when well armed; in spite of the power of the projectiles of the present day, days of bombarding will be necessary to silence it, and, considering the price of modern projectiles, an enemy would recoil from such an enterprise; it must, therefore, be strongly fortified, after the fashion of the mortar batteries erected at the foot of the old forts of Vauban and Napoleon, which cover the access to the channels.

On the other hand, we can do nothing against an attack which had for its object the capture of Cherbourg from the rear. The harbour of La Hougue, which faces the Seine, and especially the small bay of Vauville, which faces the islands of Normandy, are not fortified. In case of an unexpected declaration of war, when the active troops will already be marching eastward, a strong squadron could easily throw on shore a body of men who, in half a day, would be able to reach the heights above the town, take the fortifications in reverse, and destroy Cherbourg and the arsenal. Caen, Rouen, Havre, and, consequently, Paris, would all be threatened.

We are looking at things in their worst light; it is to be hoped that the Cherbourg flotilla would be strong enough to frustrate any such attempt; but still a landing of this sort is quite within the bounds of possibility. In considering the question of the defence of

this part of the coast, the most urgent work seems to be the defence of Cotentin, and this could be done at but little cost. An enemy wishing to land is not likely to have siege material with him, and, therefore, it is not necessary to have here a fortress on the scale of those on the line of the Meuse. Good strategical roads, shelters for a few guns, redoubts overlooking the bays where a debarkation can be effected, railways allowing of the quick transport of reinforcements, and the construction of a few simple forts within a radius of 1 or 2 leagues of Cherbourg, would suffice. Cotentin, in reality, is only a peninsula adjoining the narrow isthmus, less than 10 km., between St. Sauveur de Pierrepont and Port Bail. An arm of the sea at one time covered all this country; little by little it has receded, and a vast marshy valley has been formed, through which runs the Dauce. Without the sluices, erected at Caranton, this immense valley and that of Tauto would again be covered by the sea. Napoleon began a canal to connect the sea at Caen and that of Jersey, so as to avoid the trouble of doubling the Capes of La Hogue and La Hague, but the project was abandoned. It ought to be possible to work the sluices so that this low country may be inundated if necessary, as can be done at Dunkerque; the country is then impracticable, save by the isthmus of Port Bail, which should therefore be strongly held. It ought to be possible by the railway, at the first alarm, to occupy all the country between Port Bail and the promontory called Nez-de-Jobourg. The hills of Flamanville should serve as a base for a corps of observation charged to prevent any disembarkation towards Carteret, or the Bay of Vauville; on the opposite side of La Hogue the new batteries of St. Vaast protect the great roadstead; but it would be well to have on the height of Montebourg a post of observation. Thus secured, Cotentin ought to be a large entrenched camp, inaccessible to an enemy who had disembarked, and would serve as a protection to Cherbourg from its principal danger, viz., an attack in reverse.

It is a matter for regret that the land forces have not taken part in the operations. It would have been most useful to have seen how quickly troops could be sent to points menaced by a disembarkation of an enemy. It is true that there are no field artillery or cavalry attached to the garrison of Cherbourg, but this grave want could be remedied by sending part of the territorial regiment of artillery and some squadrons of cavalry from Rennes, and, from this point of view, the question may well be asked if that town is the most convenient centre for the assembly of the forces, whose duty would be, above all, the defence of Cherbourg. The questions raised by the manœuvres are very grave: they touch the vital interests of the country.

The 7th passed quietly at Cherbourg; the "Tonnant," "Vengeur," and torpedo-boats being sent to scout for traces of the enemy. Rear-Admiral Mathieu, Chief of the Staff of the 1st Arrondissement, took up his post in the morning at the fort of Roule, which was made the headquarters of the defence during the operations. This fort and some other old redoubts, although now not armed, from their position on the heights overlooking the roadstead, form excellent posts of

observation. From the fort a fine bird's-eye view of the whole grand military port is obtained. The town, the roads, the ships, the enormous breakwater, the insular forts of Chavagnac and Pelée Island, those of Querqueville and the Flamands, which complete the maritime *enceinte*, all stand out with the distinctness and precision of a plan in relief. It is easy to understand that the weak point of the defence is the stretch of deep sea between Pelée Island and Cape Levi, called the Roads of Grumes. These roads could be easily occupied by an enemy's squadron, and from there he could enfilade all the defences of Pelée and of the breakwater. It is in order to remedy this danger that the pass between Pelée and the coast is to be closed by a breakwater, which will be powerfully armed, and that at the foot of the heights on a level with the sea powerful mortar-batteries are to be placed, designed to pour a plunging fire upon hostile ships which may take up a position in this roadstead.

A little after midday a telegram was received that the squadron had passed some distance off Cotentin, in sight from the semaphore at Ailly, near Dieppe. If the enemy had Cherbourg as its objective, he might be sighted about 5 p.m. Should Admiral Lefèvre, however, pass the estuary of the Seine, he would probably be intending to make a demonstration against Havre, and to destroy the coast defences and semaphores before appearing against Cherbourg. Admiral Lespès had foreseen this, and detached the armoured gunboats "*Flamme*," "*Grenade*," and "*Cocyte*" to share in the defence of the great commercial port. This rich city would, in time of war, offer a strong temptation to an enemy to attempt to destroy its wealth, and to levy a heavy contribution upon the town. Some years ago the defences were strengthened, and it is proposed now to erect some new batteries similar to those in the Brest Channel and at Cherbourg. In addition, the estuary will afford a good shelter for the *torpilleurs* and gunboats, which will be a powerful aid to the shore batteries. The demonstration of Admiral Lefèvre will have for its result to make known the exact values of the fixed and mobile defences, and to indicate the weak points of the organization. According to the reports from the semaphore stations, Admiral Lefèvre proceeded methodically. He bombarded the stations at Entretat and Cape Antifer, after passing before Fécamp, without disturbing that port. The semaphores destroyed, he was able to arrive before Havre without being signalled. At 1 p.m. the semaphore at Octeville telephoned to Havre that the enemy was in sight, about 15 miles north of La Hève, and steaming rapidly towards Havre. At 2.30 the vessels of the "*Défense Mobile*," which had been scouting all the morning outside, came into action with the enemy, but, being much inferior in force, they had to fall back under protection of the guns of the batteries, which opened fire about 3.30 p.m.; the squadron made no attempt to force the harbour, and, ceasing fire a little after 4 p.m., stood away out of range.

The batteries were manned by the men of the 11th Regiment of Artillery and of the 1st Fortress Battalion, which were mobilized for the purpose, and occupied the batteries of Floride, Huguenots, Epi-à-Pin, Hève, and Frascati.

The night passed quietly, both at Havre and Cherbourg, and, as it was quite clear, with a bright moon, it did not offer a favourable opportunity for the vessels of either side to attempt a surprise.

The next day, the 8th, it was expected that the enemy would attack Cherbourg; the various semaphore stations between Trouville and the Point of Cotentin signalled them as they passed up the coasts, and for a short time they were in sight from Cherbourg itself, but about 11 A.M. a heavy fog set in, obscuring everything; in the afternoon, when the fog lifted, however, they turned off and bombarded some of the forts between La Hogue and Havre; in the evening it was signalled that they had anchored off La Hogue, which is the only anchorage from Cotentin to the mouth of the Seine where vessels can lie sheltered from the west winds; the holding ground is excellent, and it lies about 2 miles to the southward of the fortified island Tatihou. Immediately on the receipt of the information, Admiral Lespès determined to disturb them, and six torpedo-boats, under the orders of Capitaine de Frégate Ingouf, were despatched for that purpose; about 11 P.M. the small squadron approached within range, but the hostile ships were keeping a sharp look-out, and their search lights swept the sea, the powerful rays crossing each other in all directions. The torpilleurs were discovered, almost immediately, and the fire of the Hotchkiss guns directed against them; under these circumstances, and as there was, in addition, a bright moon, the attack must be held to have failed; it is, however, only fair to state that the torpedo-boats claimed to have torpedoed the "Requin" and "Furieux." The struggle lasted a little over an hour, and Commandant Ingouf and his flotilla reached Cherbourg again about 2.30 the next morning; the enemy quitted their anchorage a little before 10 A.M., and were soon signalled as steaming towards Cherbourg. The weather was very suitable for a surprise; it had rained hard part of the morning, dark and lowering clouds hung over La Manche, sometimes so thick as to hide the sea. Towards 11, the "Tonnant," with the small squadron of torpilleurs, under Commandant Ingouf, left the harbour by the Eastern Channel, the "Vengeur" remaining in the harbour ready to move when required; the batteries were manned ready to open fire; soon the rain began to fall in torrents, hiding everything, but at noon a breeze sprang up, clearing away the mist, and the enemy was discovered, with the "Suffren" leading, steaming towards the Eastern Channel. All the batteries and the coast-defence ships opened fire upon them, but the hostile ships continued to advance without returning a shot; at 12.15 a cloud of smoke belching from the "Suffren's" battery was a signal to the rest of the squadron to open fire, in turn, upon the defenders, and the action then became general. The squadron presented a fine sight as they defiled in line ahead past the breakwater, half hidden at times in the smoke which hung heavily about; in war, the new smokeless powder will give the defence a marked superiority over the attack, as the ships must always remain full in sight, while the batteries will be invisible.

The torpilleurs formed in line under shelter of the forts between Querqueville and Chavagnac awaited the moment of attack; at 12.30

the "Suffren" reached the extreme end of the breakwater, and Commandant Inguot launched his flotilla upon the hostile ships, supporting their attack by the "Tonnant"; they were immediately perceived and the quick-firing guns from the tops of the battle-ships opened upon them, while Admiral Lefèvre, in turn, ordered his own torpilleurs forward to attack, and whatever else may have happened, it is certain that several of these little craft in a real struggle must have been sunk; as it is, their swift movements to and fro brought into greater prominence the stately movements of the big ships; the spectacle had a severe beauty of its own—forts, breakwater, ships, and torpilleurs seemed to float in the smoke as the breeze drove it over the sea and hills. The enemy, instead of penetrating by the Eastern Channel, found himself unable to maintain his position in face of the overwhelming fire from the forts, and stood out to sea again, followed by the torpilleurs, which kept up the chase, until the fog settling down again, his ships disappeared under its shelter, and the small craft returned to the harbour.

Admiral Lefèvre renewed his attack again after dark; he was favoured by the night, for the moon was obscured and the heavy clouds hung low over the sea; it blew fresh from the north-east and there was a choppy sea. From the time it became dark, the electric search lights on the land were sweeping the roads and open sea, while the "Tonnant," "Vengeur," and torpilleurs were scouting outside.

Soon after 9 the enemy were discovered off the entrance to the Eastern Channel; the vessels of the "Défense Mobile" were driven in, pursued by the squadron which soon arrived within one of the zones of light, when the forts immediately opened fire upon them; the western batteries, Sainte Anne and Querqueville, placed within the luminous radius of their search lights, could see and fire upon the squadron, but on the north front, the batteries being between several of the streams of light, the gunners could see nothing and vainly strove to lay their guns, but were unable to fire. The squadron made a direct attack upon the breakwater, steaming along it towards the east; all the guns of the immense mole were in action; the red flashes and the clouds of smoke stretched over a line more than three miles long; the rays from the search lights formed a phosphorescent band, in which the smoke rolled itself into fantastic clouds. The squadron used their search lights but sparingly; a ray of light occasionally streamed for an instant over sea, breakwater, arsenal, and the heights of Octeville and Roule and then disappeared. The bombardment attained its height at about 10.15, and continued until 11 P.M., when the enemy again stood out to sea for the night, leaving it uncertain whether they would make another attempt against Havre on the morrow or once more try to force the entrance to Cherbourg. In the morning a red flag hoisted on Fort Roule announced to the forts and the "Défense Mobile" that the enemy was in sight; all the morning they remained at sea out of range but in sight. The "Tonnant" and "Vengeur" remained under shelter of the breakwater, while the torpilleurs cruised in the channels. Towards 3 P.M. the squadron

once more stood in towards the western entrance, opening fire upon the forts of Nacqueville, which was immediately returned. The "Vengeur" took up her station at the entrance and opened fire upon the "Suffren," which was leading, and soon from all the batteries heavy clouds of smoke began to rise. The "Tonnant" steamed towards the Eastern Channel, but the water was too low for the squadron to attempt to force that entrance before night, and the attempt had to be made by the west. The attack was fine spectacularly, as the ships came entirely into sight firing upon the defences; it blew from the north-east and the sky was cloudy, but the day was not so dismal as the previous one. The "Suffren," preceded by a despatch-boat, passed majestically before the end of the breakwater, followed by the rest of the squadron, and attacked it in front; its guns replied, and then the eastern forts, in their turn, took up the fire. The "Tonnant," advancing to open fire, managed to place herself in the way of the forts of Flamands and Tourlaville, which, consequently, were reduced to silence; at 4 P.M., when every one was expecting to see him attempt the Eastern Channel, Admiral Lefèvre gave it up, the "Suffren" altered her course to the north and, followed by the squadron in two divisions, steamed seaward again. The attack had failed, but the squadron still remained in sight. No further attempt, however, was made, and at sunset the hostilities came to an end and the manœuvres were finished.

The reports of the Admirals and Maritime Prefects have not, as yet, been made known, but it is possible without them to draw a few general conclusions.

It is difficult to draw comparisons between the two series of manœuvres, not merely because the naval forces in the Mediterranean were far stronger than those in the north, but also because the zones of operations were very different. In the north a tidal sea runs strongly, the coast is a dangerous one, the currents strong and uncertain, and shipwrecks are frequent; on the other hand, the bays, estuaries, and numerous small roadsteads, closed by small islands, offer everywhere concealed places of refuge to torpedo-boats; at the same time an enemy might be able to push his light vessels nearly to the heart of the Armorican Peninsula; it is true the destruction of the railways would be difficult, as they lie well back from the coast; and if Méangon, Guingamp, and Morlaix are protected from a *coup de main*, the war, save in the case of an attempted landing, must be an essentially maritime one, as there are no objects of attack for a squadron, land defences existing only at the great ports.

In the Mediterranean there is no tide, no estuaries, the coast is nowhere deeply indented, the harbours and towns, with scarcely any exceptions, all face the open sea. Cette, Marseilles, La Ciotat, Antibes, Nice, Menton are all exposed to insults from an enemy. In addition, the points where a landing can be effected are numerous: Port-de-Bouc, La Ciotat, Bandol, Cavalaire, Cannes, the Gulf of Juan, are all points where a landing can be easily effected. Thus on the 22nd July, Admiral Riennier at 6 A.M. landed two battalions of seamen, two field batteries, with squads of miners from the torpedo-

boats under cover of the guns of the fleet on the shore of Jouan-les-Pins, and moved them on Antibes. The question is, are the mobile land forces in a position to oppose such attempts? This has never been tested, and the fact is much to be regretted. But one fact is certain; it is that, in the Mediterranean this defence is pretty nearly condemned to remain helpless, because the coast railway is directly exposed to attacks from a squadron. From the tunnel of Nerthe to Marseille, from La Ciotat to Toulon, from Saint Raphael to the frontier the railway runs either along the coast or on the side of the mountains, and the bridges and viaducts can all be destroyed from the sea by any vessel keeping at a distance of 10 km. Thus Admiral Rieunier repeated the classic operation of destroying the viaduct of Bandol, the finest of the works connected with the railway, and also the bridge over the Var. It is a matter of congratulation that a third line of rail has been provided to the southern railways of France. The line Draguignan—Grasse—Nice and that of Digne—Paget—Théniers—Nice ought to be able to supplement a little the great coast line. It would be well from this time to look upon these lines as the real strategic railways of the Mediterranean, and consequently to improve the junctions towards Meyrargues, Gardanne, and Cannes. The only point common to the two zones of the manœuvres was the presence on the sea-board of two important commercial towns. Havre in the north and Marseilles in the south are both tempting preys for an enemy.

To judge from the operations, Admiral Lefèvre failed against Havre, but as the dispositions of the land forces for the defence were supposed to have been studiously kept secret, and as his squadron was small, and he could not be aware of the numbers of the forces concentrated to resist any attempt at landing, it is scarcely to be wondered at that he forbore to essay a landing, and contented himself with doing what damage he could by a bombardment. Admiral Rieunier, on the other hand, was successful against both Marseilles and Nice, in spite of the fortresses which cover them. Havre is less well defended by the forts of La Hève than Marseilles by those of Pomègue and Ratonneau; there is, it is true, the shelter afforded to the "Défense Mobile" by the Seine, but the haven of Pomègue is also a shelter, so the results are contradictory.

With reference to the "Défense Mobile," it also proved itself stronger in the north, Admiral Lefèvre having recognized that on different attempts he was repulsed by the torpedo-boats as much as by the land batteries, while in the Mediterranean the torpilleurs suffered heavily, although they achieved one notable success, viz., the placing *hors de combat* of the "Formidable" and the cruiser "Sfax," still, on the whole, Admiral Rieunier was successful: he captured Villefranche and the Hyères Islands, besides the destruction of the torpedo-boats in the Gulf of Saint Tropez by the "Cécile" and "Cosmao." In the north the squadron only achieved a success against the torpedo-boats in the actions at Morlaix, and at the roadstead of La Hougue. But these two results should inspire grave apprehension, and ought to lead to a prompt improvement of the shore defences, as these are

the two places from which Brest and Cherbourg can be threatened in reverse. It is necessary, therefore, to guard against such eventualities by constructing fixed defences to cover these landing places, and still more to reorganize the territorial troops, so that they may be in a position to replace immediately the regular forces and marines on the outbreak of war. We know that it is considered sacrilegious to touch on the organization of the Army, but it seems to us that in the local gunners at Lille, and in the territorial chasseurs, there is an excellent model to follow for developing a coast defence. It is necessary at any cost to appropriate for this defence all the territorial elements to be found on the coast. The superabundant maritime "Inscrits" would form excellent companies of riflemen and gunners, and strengthened by the territorial infantry and artillery might be depended upon to do excellent service. It could be admitted then that any landing or, at least, effective occupation of any point of our coast would be impossible.

There yet remains the danger of night attacks on the coast by ships aided by their search lights. Measures ought to be taken to increase the number of the search lights on land, or even to render them mobile by means of light railways. On various occasions we have seen batteries reduced to silence for want of these electric lights, and every battery ought to be provided with them. All the manœuvres since 1886 have shown that these lights are a most valuable addition to the means of defence of our coasts.

Such are some of the general considerations suggested by the manœuvres. There still remains for study the question of the semaphore stations; to prove their efficiency was one of the objects of the manœuvres, to destroy them the squadrons passed up and down the coasts. We hope before long to be able to speak of what changes may be necessary.