THE NAVIES OF THE WORLD.

IV.—THE AUSTRO-HUNGARIAN NAVY.

THOUGH the Navy of Austria-Hungary is the youngest in Europe, having no maritime traditions dating from a bygone age, like Germany, Italy, or Greece, to revive, it has the distinction of having fought with credit in one case and with success in another—the only two general actions between opposing squadrons at sea that have occurred in the latter half of this century; and of having produced the ablest naval commander, with the exception perhaps of Farragut, that the world has seen during the same period.

The Austrian Navy dates from 1814, when the Congress of Vienna handed over Venice to the house of Hapsburg. With the acquisition of that "fairest city, throned by the sea," and its arsenal, where the 'Bucentaur' lay rotting, came the possession of ten line-of-battle ships, seven frigates, two corvettes, seventeen brigs, six schooners, and innumerable smaller craft, either completed or on the stocks, which constituted the navy of the Napoleonic "Kingdom of Italy," a navy that was meant to perform great things, had not its action from the first been paralysed by the ubiquitous maritime supremacy of Great Britain. The chronic bankruptcy of the Austrian Empire never permitted much use to be made of these vessels, which, for the most part, rotted gradually

and peacefully away in the fulness of time. In 1835 the Imperial Navy had diminished to three frigates, four corvettes, three brigs, seven schooners, and some smaller vessels of divers denominations. It, nevertheless, was efficiently and gallantly represented in the allied operations off the coast of Syria in 1840, and the boats of the Austrian frigate raced in friendly rivalry with those of the British squadron when a landing was effected at St. Jean d'Acre. It was not the first time that the Austrians and English had appeared side by side on the same coast, but unfortunately on the previous occasion the relations between them were not quite so cordial, for Leopold of Babenberg, Duke of Austria, was an unmitigated churl, and Richard Plantagenet, King of England, was blessed with more valour than sense. In 1857 the Austrian Navy counted one screw line-of-battle ship, the old 'Kaiser," in a total of 108 vessels.

In 1856 prescience of coming events caused the Government at Vienna to consider the advisability of creating a second naval port, and it was decided to utilise and improve the already existing facilities at Pola in Istria, sixty miles south of Trieste. Here, ever since Venice was given up in 1866, all the naval resources of the Austro-Hungarian Monarchy have been concentrated. The site is excellent, and the bay and harbour are spacious, besides being capable of easy defence. The dockyard consists of two parts, one situated on the mainland containing the workshops and stores, and the other on a small island, where the dry docks and building and patent slips are to be found. Of the three slips only one as yet has been completed. It is 411 feet long, 82 feet wide at the upper ledge, and 41 feet at the sill, and 28½ feet deep. The second dock, in course of construction,

will have a depth of 31 feet. The patent slip has the necessary arrangements for hauling up four vessels. The Pola dockyard, up to the present time, has only been used for refitting and repairing, as nearly all the vessels of the Navy have been built by contract, either at the Stabilimento San Marco, at Sant'Andrea, a suburb of Trieste, or at San Rocco, on the opposite side of the Gulf of Muggia from that port. Most of the ironclads were built at the former establishment, which was founded by one Giuseppe Tonello, formerly employed in the arsenal at Venice, and who died possessed of a considerable fortune and the title of Ritter von Stramare. His business was subsequently disposed of to a limited liability company, and is now carried on as the "Stabilimento Tecnico Triestino."

The first ironclads for the Imperial Government were laid down in Tonello's yard in 1860-2, and the same error was committed as in France and elsewhere of building their hulls of wood. The decay of these hulls, the weakness of the armour, and the rapid development of offensive and defensive qualities in the later types of armoured vessels, have rendered Tonello's crude constructions quite obsolete for a long time back. Since the establishment of the dual monarchy in 1867, the Delegations have always shown themselves very averse to any increase of naval expenditure, thereby constraining the Ministry of Marine to proceed by half, or at the best, round-about measures, to keep up the Navy in accordance with the position and needs of the State. The Delegations would not vote money for building new ironclads, but they had no objections to do so for the "conversion" of old ones. They had not the practical knowledge to see that the sums required in the Marine Budgets for converting and repairing three old ironclads, would, in

the long run, suffice for the construction of three new ones; but if the Minister had asked for three new vessels, he would probably have been granted nothing. He has therefore been reduced to the ignoble expedient of "dodging" his potent, grave, and reverend seigniors. Some years ago three of the oldest vessels—the 'Kaiser Max,' the 'Don Juan d'Austria,' and the 'Prinz Eugen,' were taken to pieces and iron substituted for wood in the hulls. Iron having the advantage of being lighter than wood, the constructors were thus enabled to add considerably to the thickness of the armour plates over the vital parts. The original engines were compounded and retained, as were most of the old fittings, but it is doubtful economy at the best to place old types of machinery in new types of vessels.

It has been recently decided to convert another old wooden ironclad, the 'Erzherzog Ferdinand Max.' Her hull is to be rebuilt of steel and iron, she will be armoured with thicker plates, and armed with new and heavier guns, so that nothing will remain of the original vessel except the machinery and the name. Apart from practical considerations, the persistent parsimony of the Delegations in naval affairs appears the more inexplicable, when it is remembered that the Navy deserved well of the country in the Schleswig-Holstein and Italian Wars, and is sure to be called on again, when the everlasting Eastern Question comes to be reopened, to fight for Austro-Hungarian interests. In the Schleswig-Holstein War, Admiral Tegethoff, a Styrian mountaineer, with the screw frigates 'Schwarzenberg' of 48 and 'Radetzky' of 31 guns, together with three Prussian gunboats, that proved to be of little or no assistance, sustained a very honourable, though unsuccessful fight, near the Island of Heligoland,

May 9th, 1864, against a Danish squadron, composed of the 'Jylland' of 44 and the 'Niels Juel' of 42 guns, screw frigates, and the 'Heimdal' screw corvette of 16 guns. The opposing squadrons advanced in line ahead, the Danes coming down on the beam of the Austrians. The 'Niels Juel' went straight for the 'Schwarzenberg,' while the 'Jylland' ranged up to the 'Radetzky,' and the 'Hemidal' attempted to cut off the gunboats. The latter steamed up on the unengaged broadside of their frigates, causing them to steam in a circle. The action was then continued in this manner, the gunboats being in the centre of the circle, and the Danish ships 600 yards outside the Austrian. The 'Heimdal,' no longer able to get at the gunboats, joined in the attack on the 'Radetzky.' After a combat of three hours, the 'Schwarzenberg' was set on fire, which caused Tegethoff to steam away to Heligoland. The Danes pursued, but on reaching the neutral limit in British waters, hauled off. The Austrians undoubtedly got the worst of it, but as the maiden action of their navy, it was by no means an inglorious one, and the manner in which Tegethoff manœuvred and handled his ships marked him at once as an able and daring commander, a reputation amply confirmed by the Battle of Lissa, July 20th, 1866.

The Austrian fleet on that day consisted of seven ironclads: 'Erzherzog Ferdinand Max' (flagship), 'Hapsburg,' 'Don Juan d'Austria,' 'Prinz Eugen,' 'Salamander,' and 'Drache;' five wooden frigates, one corvette, and fourteen gunboats. The Italian fleet, under Persano, counted nine ironclads: 'Rè d'Italia,' Rè di Portogallo,' 'Principe di Carignano,' 'Ancona,' 'Palestro,' 'Castelfidardo,' 'Maria Pia,' 'San Martino,' and 'Affondatore.' All these came into action. Three others, 'Varese,' 'Terrible,' and

'Formidabile,' did not come into action, and the wooden fleet never came up at all. The Austrian ships advanced in three lines, *en échelon* ahead, Tegethoff leading in the 'Erzherzog Ferdinand Max' the right and advanced ironclad line. The wooden frigates and corvette formed the centre, the gunboats being to the left and rear, the whole in close order. Persano, on sighting his enemy, formed single line ahead in open order extending over five miles. As soon as the leading Austrian ships came within range, the head of the Italian line opened fire, but in a wild and unsteady manner, whereupon, the Austrian Admiral, turning his ships simultaneously eight points to port, poured a broadside into it. Then resuming his former course, he, with the same precision and celerity, pierced the Italian line astern of the third ship, between the 'Ancona' and the 'Rè d'Italia,' one half of his ironclads passing through this interval, and the other half between the 'Rè d'Italia' and the 'Palestro.' The leading Italian division now moved to starboard to attack the Austrian wooden vessels, but Tegethoff foiled this manœuvre by turning and re-passing through the same intervals, by which he had cut the the Italian line. The remainder of Persano's ironclads closed up on the Austrian wooden ships, and the dense smoke preventing all signals from being seen, the action became a general *mêlée*. The 'Erzherzog Ferdinand Max,' conned by Tegethoff himself, made two attempts to ram two different vessels of the enemy, each of which avoided the shock by the helm. A third charge made on the 'Rè d'Italia,' succeeded in striking that vessel under the counter and sending her to the bottom with appalling rapidity. The unlucky ironclad was engaged at the time with three Austrians on her bow and beam, and the Italian accounts say that her

stearing-gear had been shot away, making her unmanageable; but the Austrian officers aver that she was backing when she received the blow. Two Austrian ironclads, together with a wooden frigate, concentrating their guns on the 'Palestro,' very soon set her in a blaze, which forced her to draw out of action. She blew up an hour afterwards. The 'San Martino' also hauled out of action, when the 'Rè d'Italia,' alongside of which she was fighting, was struck. Persano's flagship, the turret ram 'Affondatore' made two attempts to use her spur, but her clumsy stearing-gear and inferior speed rendered them abortive. The 'Rè di Portogallo' made a clever and determined attempt to ram the 'Kaiser Max,' which the latter, in an equally clever and determined manner, avoided by turning promptly *towards* the Italian, and going full speed at her. The two vessels rubbed sides, the collision bringing down the Austrian's foremast, which fell on the funnel and caught fire, but was quickly extinguished. The Italian ship then ran the gauntlet of all the hostile ironclads, and reaching her own line drew out of action. This was practically the closing episode of the fight. The Austians did not pursue. Persano steamed away to Ancona, and Tegethoff returned to Lissa. The Italian losses were, two ironclads, 650 killed and 40 wounded. The Austrians had 136 killed and wounded, of whom three-fourths belonged to the 'Kaiser Max.'

There are eleven ironclads in the Austrian Navy, all casemate or central battery ships, and all sea-going. The oldest is the wooden 'Salamander,' launched in 1861, with a displacement of 3,110 tons; armour over water-line and guns $4\frac{3}{4}$ inches; 2,060 indicated horse-power; speed, eleven knots; armament, ten 7-in

muzzle-loading Armstrongs, four 3½-inch Uchatius bronze breech-loaders, two light pieces, and four machine guns. This obsolete vessel will be replaced by an entirely new 'Salamander,' recently laid down at Pola. She will be the first ironclad ever built at the Government dockyard, and will be a powerful turret-vessel, armed with two 12-inch Krupps.

The 'Erzherzog Ferdinand Max,' under process of "conversion," was launched in 1865, and served as the flag-ship at Lissa. The 'Habsburg,' her sister ship, was launched in the same year, and is not worth converting into anything except a hulk for harbour service. She has a displacement of 5,140 tons, and 3,150 horse-power. The belt armour is 5, and the casemate armour 4¾ inches thick. Armament, fourteen 7-inch muzzle-loading Armstrongs, four 3½-inch Uchatius, two light and four machine guns. Speed, twelve knots.

The 'Kaiser Max,' 'Don Juan d'Austria,' and 'Prinz Eugen,' "converted" vessels, were launched anew, the two first in 1875, and the last in 1877. Length, 239½ feet; beam, 49 feet 2 inches; mean draught, 19 feet 8½ inches; displacement, 3,550 tons; horse-power, from -,890 in the 'Kaiser Max,' to 2,960 in the 'Prinz Eugen;' speed, thirteen knots; belt armour, 8 inches; casemate, 6 inches; bulkhead, 5 inches; armament, eight 8¼-inch Krupp, four 3½-inch Uchatius, two light, and four Nordenfelt guns.

The 'Lissa,' wooden-hull ship, was launched in 1869 at Tonello's yard. Length, 285½ feet; beam, 55 feet 9 inches; mean draught, 23 feet; displacement, 6,080 tons; indicated horse-power, 4,100; speed, thirteen knots; armour on water-line, 6¼ inches, on casemate, 5½ inches, bulkhead, 5 inches; armament, twelve

9½-inch Krupp, four 3½-inch Uchatius, two light, and four machine guns. This vessel will probably be the next for "conversion."

The 'Kaiser,' also a wooden vessel, was launched in 1871, and is a smaller vessel than the 'Lissa.' Displacement, 5,810 tons; horse-power, 3,130; speed, thirteen knots. Armour, same as in the 'Lissa.' Armament, ten 9-inch muzzle-loading Armstrongs, six 3½-inch Uchatius, two light, and four machine guns.

The 'Erzherzog Albrecht,' launched in 1872, has an iron hull. Length, 288 feet 8 inches; beam, 55 feet, 9 inches; mean draught, 19 feet, 10 inches; displacement, 5,940 tons; horse-power, 4,060; speed, thirteen knots; armour on water-line, 8 inches, on casemate, 7 inches, on bulkhead, 6 inches, on deck, 1½ inches. Armament, eight 9½-inch Krupp, six 3½-inch Uchatius, two light, and four Nordenfelt guns.

The 'Custozza,' designed by Romako, Chief Constructor of the Imperial Royal Navy, is an iron vessel, and was launched in 1872. She has a displacement of 7,060 tons, and power of 4,820 horses, with a speed of fourteen knots. The water-line is protected with 9 inches of armour, while that over the casemate guns is 7 inches thick. The bulkhead armour has a thickness of 6 inches, and the deck is covered with 1½-inch plates. She carries eight 10¼-inch Krupp, six 3½-inch Uchatius, two light, and four Nordenfelt guns. Length, 302 feet; beam, 59 feet; mean draught, 23 feet 2 inches.

The 'Tegethoff,' built on the plans of Herr Romako, at the Stabilimento Tecnico at Sant' Andrea, near Trieste, was launched in 1878. She is a broadside central-battery ship, with ports in the angles of the batteries, which project over the sides of the vessel in

the manner first introduced in the upper batteries of the British 'Audacious' class.

Her principal dimensions and calculated elements are:—

Length between perpendiculars.	286 feet 11¼ inches.
Total length	303 „ 1¼ „
Breadth on the water-line .	62 „ 9 „
Extreme breadth over armour .	74 „ 1½ „
Depth of hold	34 „ 7 „
Draught of water, aft . .	26 „ 7½ „
„ „ forward .	23 „ 1 „
Displacement, with one half of the provisions . . .	7,390 tons.
Area of the midship section .	1,301 square feet.
Area at the load water-line .	14,308 „ „
Metacentric height above centre of gravity of displacement.	14,623 feet.
Metacentric height above water.	4,770 „
Distance of the centre of gravity of displacement forward of the midship section . .	3,356 „
Depth of the centre of gravity of displacement below water .	9,853 „
Co-efficient of displacement .	0·582
„ water-line . .	0·782
„ midship section .	0·82
Displacement of an inch immersion at the load water-line .	34·47 tons.
Weight of armour and backing.	2,160 „
Sail area.	12,165 square feet.
Estimated cost of hull . .	£172,790.
„ „ engines and boilers	£81,715.
Nominal horse-power . .	1,200.
Mean indicated „ . . .	8,000.
Estimated speed . . .	14 knots.
Number of cylinders . .	2
Diameter of cylinders, effective.	125 inches.

Length of piston-stroke . .	51 „
Diameter of the single 2-bladed screw (Griffith's) . .	23 feet 6 inches.
Pitch	24 „
Revolutions per minute . .	70.
Number of boilers . . .	4.
„ furnaces . . .	36.
Area of fire-grate . . .	850 square feet.
„ heating-surface . .	25,500 „
„ super-heating-surface .	1,800 „
Pressure of steam . . .	30 lbs.

The problem submitted by the Austrian Ministry of Marine to their Chief Constructor, Herr Romako, required a vessel to mount six very heavy guns, completely protected without the complications of revolving turrets and the chances of simultaneous disablement of two guns: a water-line and casemate protected by the thickest plates ever placed on a sea-going ship; a speed of 15 knots with a moderate supply of coal, and above all, on economic grounds, to keep within the limits of 8,000 tons displacement. The result was the 'Tegethoff,' as the Constructor's interpretation of the above requirements. The ship is of the same type as the 'Custozza,' with a diminished armour protected area. The depth of the belt at the water-line was reduced from 11 feet 9 inches to 9 feet. It encircles the water-line aft, and is carried forward as far as the commencement of the bow-frames, at a distance of 32 feet 10 inches from the stem, and then forms an armoured traverse, the lower edge being carried forward in a heavy steel deck, and the forward compartment of the ship being fitted with cork. The belt rises to the height of the main-deck beams. The battery has only one deck, the height of the guns above water being somewhat less than in the 'Custozza,' but the

9-inch armour of that vessel was increased to 4½-inches which protect both the water-line and the casemate of the 'Tegethoff.' The deck is covered with 3-inch plates. The redoubt has an overhang of 5 feet, being cut back in the wake of the centre ports as a protection to the muzzles of the guns. The angles are cut and hollowed for ports to give beam and bow fire. The sides forward and abaft the casemate have a rank tumble home to allow of fore and aft fire. A 12-inch armoured bulkhead runs athwart ships, just abaft the forward guns, as a shelter from raking fire. An armoured pilot-house rises well above the spar-deck rail at the forward end of the redoubt. The armament consists of six 11-inch 27-ton Krupp guns in the casemate, six 3½-inch ½ ton Uchatius bronze breech-loaders for boat service, two light pieces and six Nordenfelt machine guns. The vessel is barkentine rigged, with three masts, and has stowage for 670 tons of coal, enough to steam 3,000 miles at ten knots, assuming a consumption of one kilogramme, or 2⅕ lbs. per horse-power every hour. Dislère says that the model of the 'Tegethoff' exhibits finer lines than any other armour-clad of the same period.

Besides these sea-going ironclads, there are two river monitors, the 'Leitha' and the 'Maros.' They have a displacement of 310 tons, and 320 indicated horse-power, giving a speed of eight knots, with a draught of 3 feet 3 inches. The belt armour is 1¾-inch thick, that on the turrets 2½-inches. They have a length of 164 feet, with 26 feet 3 inches beam.

UNARMOURED CRUISERS.

The frigates 'Radetzky,' launched in 1872, and 'Laudon,' in 1873, have composite hulls, with a dis-

placement of 3,430 tons, and 2,850 horse-power. Speed of the first, fourteen knots; of the second, thirteen knots. Armaments, fifteen 6-inch Krupps.

The 'Donau' and 'Saida,' launched respectively in 1874-8, are wooden spar-decked corvettes, having each a speed of only twelve knots. They each carry eleven 6-inch Krupps. The 'Donau' has a displacement of 2,570 tons, the 'Saida' of 2,440.

The 'Fasana' and 'Heligoland' are flush-decked corvettes, the first launched in 1870, and the second in 1867. Displacements respectively 1,970—1,820 tons; horse-power, 1,750—1,860; speed twelve knots. The 'Fasana' carries four, and the 'Heligoland' five 6-inch Krupps.

'Lussin' (building), 'Sebenico' (1882), 'Spalato' (1879), 'Zara' (1879), are twin-screw steel torpedo vessels, ranging from 913 to 840 tons displacement, with a mean draft of 10 feet 1 inch, and speed of fourteen knots. Besides their torpedo gear, they are armed with four 3½ inch Uchatius and two machine guns.

The 'Kerka,' just laid down, will be a fast cruiser of the Armstrong type, of 880 tons, and 2,000 indicated horse-power.

The service guns of the Austrian Navy are the breech-loading Krupps, the muzzle-loading Armstrongs, and the bronze breech-loading Uchatius. Of machine guns, at present, there are forty Nordenfelt and sixteen Hotchkiss.

THE NAVIES OF THE WORLD.

V.—THE OTTOMAN NAVY.

IN the thirteenth century a band of Oghuz Turks, counting some four hundred families, wandered from Khorassan westward "in search of a country," and crossing the head waters of the Euphrates, under Ertoghrul—the Right Hearted Man—finally found a haven in the realm of the Seljukian Sultan Ala-ed-deen. Othman, the son of Ertoghrul, gave his name to his clan, and laid the foundations of an empire, which three centuries later, grew to be the most formidable maritime power of the epoch. To the masterful will and energy of Sultan Selim, the Inflexible, is due the creation of the navy, which, in the reign of his son and successor, Sultan Suliaman the Great, the Magnificent, the Lord of his Age, became the terror of Christendom. In 1519, after the conquest of Egypt, Selim built 150 new ships of various dimensions, some of them of 700 tons, and at the same time he ordered 100 new galleys, that lay ready for launching, to be rigged and fully equipped for sea. In the following year death closed this Sultan's career, just as he had begun the construction of new dock-yards and arsenals.

As a well-known writer has pointed out, the awe which the Ottoman Empire inspired in the long reign of Sulaiman the Magnificent, and also in that of his degenerate son, Selim the Sot, was due not only to the successes gained by the Turkish Armies, but also to the achievements of the Turkish Navy, which extended

the power and renown of the Great Padishah along all the coasts of the Mediterranean, and the shores of the Red Sea and of the Indian Ocean. Preceding Sultans had devoted much care and money to build up a maritime force, but they were all surpassed in this respect by Sulaiman, and the skill and valour of his Admirals made the Ottoman flag as great an object of dread at sea as on land. Many of these Admirals were Christian renegades, and most of them commenced their naval career as privateersmen, or, as they were more generally called, Corsairs. Some of them, however, as Piri Reis and Sidi Ali for example, were eminent for scientific and literary attainments. These two commanders acquired Aden for Sulaiman, and annexed cities and districts in Arabia and India to the empire in the course of their operations. Piri Reis from his own surveys compiled a work on the currents, surroundings, harbours, and landing-places of the Mediterranean, and a similar one on the Ægean. Sidi Ali was a poet as well as a seaman. He was also the author of several mathematical and nautical treatises, and of a valuable work on the navigation of the Indian Ocean, called Mouhit, compiled from best Arab and Persian authorities, the only known copy of which is at Naples.

The most celebrated Admiral that Suliaman had was Khair-ed-deen, better known in Europe as Barbarossa. It was chiefly by his means that the piratical communities of North Africa placed themselves under the sovereignty of the Sublime Porte, whereby its naval resources were augmented by the commodious havens, the strong ports and cities, the well-built and well-equipped ships, and the daring and skilful seamen of Tripoli, Tunis, and Algiers. Barbarossa, or Khizr, as he was originally called, was the youngest of the

four sons of a Roumelian Spahi, who settled in Mitylene, when that island was conquered by the Turks, and there the great Admiral was born. Khizr and his brother Urudj, after combining commerce and piracy with varying fortunes near home, went off to Tunis and turned sea-rovers. They saw the feebleness of the Mussulman Princes of the Barbary Coast, and they knew the growing might of the Ottoman Empire. They sent one of their richest prizes as a present to Sultan Selim, and received in return two galleys and robes of honour. Increasing their fleet, they continued their conquests along the coast, until Algiers fell into their possession. Soon after, Urudj, or Baba Horusch as he is sometimes called, fell in battle with the Spaniards, and Khizr was left sole master of the situation. He formally acknowledged the sovereignty of the Sultan, and received from Selim the sabre, horse, and banner, as Beyler Bey of Algiers. As vassal of the Porte, the great Corsair Admiral made a point of accommodating his enterprises to the policy of the Divan. He fought against Spaniards, Italians, French, and Moors, sometimes on his own account, and sometimes on that of the Sultan, mostly with success, and always with consummate skill and daring. Sulaiman named him Khair-ed-deen, made him Kapitan Pasha, and loaded him with favours. He was the only Turkish Admiral who could cope on equal terms with the great Genoese seaman Andrea Doria, whom he repulsed at Djerbel,—and at the great battle of Prevesa in 1538, when he defeated the combined fleets of the Pope, the Emperor, and Venice, he anticipated the favourite and bold manœuvre of our greatest British sailors, in cutting the enemy's line. He died in 1546, and his tomb may still be seen at

Beshiktash, on the Bosphorus, in a spot of great romantic beauty selected by himself.

Second only to Barbarossa, were Sinan, Salih Reis, Dragut, Pialè and Ouludj Ali. Dragut, or more correctly, Torghoud, was the son of a Christian subject of the Padshah at Seroulout, in the Sandjak of Mentesché. He was made Beyler Bey of Tripoli, having commenced life as a pirate on his own account, and tugged an oar as a prisoner on board of Doria's own galley. He was killed by a cannon ball at the siege of Malta in 1565.

Pialè was the son of a shoe-maker at Tolna, in Croatia, and succeeded Sinan as Kapitan Pasha. He was conqueror of Khios and Oran, victor at Djerbé over the combined fleets of the Pope, Spain, and the Italian States in 1560, commander-in-chief of the abortive attack on Malta in 1565, and one of the four viziers to whom Sulaiman confided the construction of the arsenal at Stamboul.

Ouludj, or Auluch Ali, afterwards named Kilidj, "The Sword," was a Calabrian renegade, whose original Christian name was Ochiali. He was made Beyler Bey of Algiers, and it was only owing to his skill and daring that any part of the Ottoman fleet escaped from the great day of destruction in the Gulf of Lepanto.

To Sulaiman the Magnificent, succeeded Selim the Sot, whose bibulous longing for the red wine of Cyprus led him to attack and wrest the island from Venice in a time of profound peace with that Republic. This unscrupulous aggression and the vast preparations in the Turkish seaports and arsenals thoroughly alarmed Christendom. Pope Pius V. therefore had the less difficulty in forming a maritime league, which comprised besides the Papal States, Spain, Venice,

Genoa, Savoy, and the Knights of Malta. In the early autumn of 1571 the Christian fleets began to muster at Messina, under Don John of Austria, a natural son of Charles V., and one of the most renowned commanders of the age.

The Ottoman fleet assembled in the Gulf of Corinth, under the Kapitan Pasha, Mu'ezzinzade Ali, who had under his orders .Ouloudj, Beyler Bey of Algiers, Jaffer, Beyler Bey of Tripoli, Hassan, son of Barbarossa, and fifteen other Beys of maritime Sandjaks, each of whom was entitled to his banner on his galley as a "Prince of the Sea." The fleet counted 240 galleys, 60 smaller vessels, and the troops embarked on them were under the command of Pertev Pasha. On October 7th, 1571, the two fleets joined battle off the Albanian shore in the Gulf of Lepanto. Don John and the Kapitan Pasha engaged each other, and their two ships were closely locked together for two hours. Mu'ezzinzade fell with a musket-ball through his head, and his galley was carried by boarding. This and the arrival of the reserve line of Christian ships, under Santa Croce, decided the day. The Ottoman centre was broken, and the defeat spread rapidly to the right wing under Muhammed Shahoolah, Bey of Negropont. Ouloudj on the left was more successful. He out-manœuvred Giovanni Doria (nephew of the great Andrea), turned his flank, and attacking his scattered vessels in detail, he captured fifteen Venetian and Maltese galleys, and with his own hand struck off the head of the commandant of Messina. On seeing that the battle was completely lost, he collected forty of his best galleys, and breaking through the Christian lines, escaped to sea. These were the only vessels that were saved. The Ottomans lost 224 ships—of which 94 were sunk,

burnt, or run ashore and destroyed. The rest were captured and divided among the League; 30,000 Turks were slain, and 15,000 Christian galley slaves were released. The League lost 15 galleys and 8,000 men, and while its members were wrangling over the spoils and separating, Ouloudj rallied to himself the Ottoman war vessels in the Archipelago, and with the forty he had brought out of action at Lepanto, he entered the Golden Horn with eighty-seven sail, more like a conqueror than a fugitive. He was made Kapitan Pasha, his name was changed to Kilidj, and he was associated with the veteran Pialè in building and equipping a new fleet. While the Christians were building churches and chanting Te Deums, the Turks were building ships and docks, so that by the summer of the following year 250 vessels, and among them eight galleasses or mahons of the largest size, sailed out of the Dardanelles to re-assert Ottoman naval supremacy. The Turks had been proved to be not invincible at sea, for the Christians by united efforts could win a battle, but that was a different matter entirely to being able to keep the sea. Sultan Selim II. was zealous in aiding to restore the navy after Lepanto, and freely gave his own treasure for that purpose, and part of the Seraglio gardens for new docks, which is the only meritorious record in his cruel and drunken career.

Notwithstanding the battle of Lepanto, the Turkish navy still maintained its reputation and strength, and it was not till the reign of Muhammed IV., 1648-87, that signs of decay began to be apparent. This was chiefly caused by neglect and corruption in the navy-boards and arsenals of the capital, but very much was also due to the decline of the Barbaresque Regencies, which, as has been seen, formed the backbone of the

Ottoman maritime power. In the middle of the seventeenth century, these states had become practically independent. They sent aid or not, as it suited them, to the Sublime Porte. The strength and audacity of these piratical principalities, especially of Algiers, had increased so much, that their cruisers infested the Atlantic from Madeira to Iceland and Norway, and the Sack of Baltimore, when "Hackett of Dungarvan steered in the Algerine" is yet a story to frighten naughty children with in the south of Ireland. The rulers called themselves Deys or Dahis, which means a "superior." They were elected by the military body, descendants of Janissaries and other Turkish immigrants. They used to ask for the firman appointing them pashas and confirming their election, but this soon became a mere formality. Blake chastised them in 1655, and rescued the English captives. The Dutch admiral, De Ruyter, and the Frenchman, De Beaufort, at various times followed Blake's example, but it was not till 1816 that their piracy was finally extinguished by Lord Exmouth's bombardment of Algiers. Now that the French have appropriated Algiers and Tunis, a nominal sovereignty over Tripoli is all that remains to the present Sultan of the spoils of Barbarossa, Dragut, and Kilidj.

The decline of the naval power of Turkey was even more rapid than that of the military, and its history in the last and present centuries is principally remarkable for the three disasters of Tchesmé, Navarino, and Sinope, and for the black treachery of the infamous Kapitan Pasha, Ahmed Fevzy, who, in 1839, sent to coerce Muhammed Ali in Egypt, handed over his master's fleet to the rebel vassal.

In our own time, two British naval officers, Slade and Hobart, have had the direction for most practical

purposes of Turkish naval affairs, but the last-named officer with the powerful ironclad fleet under his command in the last war with Russia, could never get an opportunity to avenge Tchesmé and Sinope, because the Russians took very good care to remain in their harbours.

The Ottoman Navy counts eighteen ironclads, of which fourteen are sea-going, while the others are for coast and river defence. They were the favourite playthings of Sultan Abdul Aziz, who derived a gloomy sort of pleasure in gazing at the long lines of them moored abreast of Tcheragaon for his special gratification. With the exception of one built at Constantinople and another at San Rocco, near Trieste, they were all constructed in England or France.

The 'Aziziyeh,' 'Mahmoodiyeh,' 'Osmaniyeh,' all three launched in 1864, and the 'Orkhaniyeh,' in 1865, are obsolete broadside ironclads, constructed in England from designs of Sir Edward Reed. They bear a general resemblance to the British 'Minotaur,' without the five masts of the latter. The hulls are of iron, and the dead works are 16½ feet above the water-line amidships. They have no spurs, but the forged iron stems curve outwards like a swan's breast. On the fore part of the upper deck a 4½-in. armoured traverse covers a chaser firing *en barbette*. Behind this, and directly in front of the fore-mast, rises a conning tower with armour of the same thickness. The belt armour, 5½ inches thick, girds the entire water-line and descends 3½ feet below it. The armour over the broadside guns has only a thickness of 5 inches, and the decks are quite unarmoured. These vessels are bark-rigged with one funnel, and they can carry coal enough to steam 1,600 miles at a speed of ten knots an hour. They can turn an average circle of 860 yards in ten minutes,

their other nautical qualities being also very fair. The armament consists of fourteen 7-in. Armstrong guns—seven on a broadside; two 9-in. Armstrongs as bow and stern-chasers; four light pieces, and two Nordenfelt machine guns. The following are the dimensions and other particulars:—

Extreme length	292 feet.
Beam	55 „ 9 inches.
Draught (aft.)	23 „ 3 „
Displacement	5,400 tons.
Indicated horse-power	3,735.
Speed	12½ knots.

The 'Assar-i-Shevket,' and the 'Nedjm-i-Shevket,' are classed as corvettes, and were launched in 1868-9. They have iron hulls built upon the bracket system. In the centre of each vessel is the armoured casemate surrounded by a barbette tower at its aft extremity. The whole water-line is armour girdled, but the ram, which is not very prominent, is not plated. These vessels are rigged in schooner-brig fashion, have twin-screws, and can carry coal enough to steam 1,000 knots at the usual calculation of ten knots an hour.

Length	203 feet 5 inches.
Beam	39 „ 4 „
Aft draught	16 „ 5 „
Displacement	2,046 tons.
Indicated horse-power	1,800
Speed	11 knots.
Belt armour	6 inches.
Casemate armour	4½ „
Tower and fore traverse	4½ „
Armament { One 9-in. 12-ton / Four 7-in. 6½ „ }	Armstrong guns.

The 'Assar-i-Tevfik,' launched in 1868, has an iron

hull, built upon the bracket system. She has an armoured casemate, the two forward angles of which are surmounted by barbette towers. The dead works, 13 feet 3 inches above the water, have a decided tumble home to facilitate the range of the guns. The casemate is closed fore and aft by armoured traverses or bulkheads. The deck is not armoured. The spur, formed by the forged iron stem, projects nearly 10 feet under water. This vessel is bark-rigged, with one screw, and can carry sufficient coal to steam 1,840 knots, at 10 knots an hour.

Length	272 feet 3 inches.
Beam	52 „ 6 „
Aft Draught	19 „ 10 „
Displacement	5,568 tons.
Indicated horse-power	3,560.
Speed	13 knots.
Belt armour	6 inches.
Tower armour	6 „
Casemate „	4½ „
Traverse „	4 „
Armament	Eight 9-in. 12-ton Armstrong guns.

The 'Avn-i-Illah' and the 'Mu'in-i-Zaffer,' launched respectively in 1869 and 1868, have separate octagonal redoubts or casemates, joined to each other by an armoured curtain, the whole presenting the appearance of the body of a violin. The dead works, 13 feet above water, have a rank tumble home, giving the aft guns a fire to within 15° of the keel, and the forward guns a field of 75°. These vessels are schooner-brig rigged, have twin screws and ram bows, and can steam 1,270 miles at 10 knots.

Length	226 feet 4 inches.
Beam	36 „ 1 „
Aft draught	16 „ 5 „
Displacement	2,440 tons.
Indicated horse-power	2,220.
Speed	11 knots.
Belt and Casemate armour	6 inches.
Traverse armour	5 „
Armament	Four 9-in. 12-ton Armstrong guns.

The 'Feth-i-Bulend' and the 'Mukudme-i-Khair,' launched respectively in 1869 and 1872, are casemated corvettes. They have iron hulls on the bracket system, and ram bows. The first has two screws, the second only one. The central casemate has its angles cut off and pierced for ports, the upper works receding in order to open out the fire of the guns. The fore-and-aft armoured bulk-heads of the casemate do not extend below the main deck, and the deck is only covered with ½-inch plating. These vessels are brig rigged, and can steam 1,040 knots at the rate of 10 knots an hour.

Length		236 feet 2 inches.
Beam		39 „ 4 „
Aft draught		16 „ 7 „
Displacement		2,760 tons.
Indicated horse-power	'Feth-i-Bulend'	3,250.
	'Mukudme-i-Khair'	2,700.
Speed	'Feth-i-Bulend,' 13 knots; 'Mukudme-i-Khair,' 12 knots.	
Belt armour		6 to 9 inches.
Casemate armour		6 to 9 „
Traverse „		5½ inches.
Armament	Four 9-in. 12-ton Armstrong guns.	

The 'Idjlaliyeh' was built at Trieste, and launched in 1870. She is a casemated vessel with one barbette tower, and her hull is of iron, on the bracket system.

The whole water-line is armour girt, and the casemate fore and aft is closed with armoured bulk-heads. The main deck is not armoured. The cast-iron stem projects into a formidable ram. The vessel is brig rigged, is propelled by twin screws, and carries coal enough to steam 1,170 miles at 10 knots.

Length	213 feet 3 inches.
Beam	42 „ 8 „
Aft draught	16 „ 6 „
Displacement	2,228 tons.
Indicated horse-power	1,800.
Speed	11 knots.
Belt armour	6 inches.
Casemate armour	4¾ „
Tower „	4½ „
Fore Traverse armour	5½ „
Armament { Two 9-in. 12-ton / Three 7-in. 6½-ton }	Armstrong guns.

The 'Messoodiyeh,' built in the Thames and launched in 1874, is a casemated three-masted bark of the British 'Hercules' type. The hull is of iron, on the bracket system. There is a top-gallant-fore-castle, and poop, and fore and aft of the casemate the upper works are retired in order to give a greater range to the guns at the angles. Between the fore funnel and foremast rises a conning tower, the back part of it resting on the foremost bulk-head of the casemate. The belt encircles the entire water-line, and the cast-iron stem forms a ram projecting 6 feet 9 inches. The vessel is provided with steam steering apparatus, besides three ordinary wheels. Twelve heavy guns are mounted in the casemate. Eight of these (four on a broadside) have a beam fire of 40°. The other four in the angle ports have a horizontal range of 75°. Four guns of less metal, and six light pieces are dis-

tributed on the upper deck. There is only one screw, and the distance that can be steamed at 10 knots is 1,800 miles.

Length	331 feet 6 inches.
Beam	59 „
Aft draught	23 „
Displacement	9,140 tons.
Indicated horse-power	7,910.
Speed	13 knots.
Belt armour	12 inches.
Casemate armour	9 „
Conning Tower armour	8 „
Fore Traverse „	6 „
Deck armour	1 „
Armament { Twelve 10-in. 18-ton / Four 7-in. 6½ „ / Six light pieces. }	Armstrong guns.

The 'Hamidiyeh,' originally named the 'Noosretiyeh,' was built in the arsenal at Constantinople, and launched in 1874. She is a smaller edition of the 'Messoodiyeh,' with iron hull, on the bracket system, and built on very fine lines. There are two conning towers. The ram bow is not very prominent. The casemate contains ten heavy Armstrong guns, three on each broadside, with 30° range, and four in the angle ports, with 82° range. Two other Armstrongs of somewhat lighter metal are mounted on the upper deck, one at the bow and one at the stern. The casemate guns are 6 feet 9 inches above the water line. The vessel has only one screw, is bark rigged, and can steam 1,800 miles at 10 knots.

Length	292 feet.
Beam	55 „ 9 inches.
Aft draught	23 „ 2 „

Displacement	7,920 tons.
Indicated horse-power	6,800.
Speed	13 knots.
Belt armour	10 inches.
Casemate	6 „
Armament	Ten 9-in. 12-ton Two 7 „ 6½ „ Six light pieces. } Armstrong guns.

The 'Hufz-i-Rahman,' built at Bordeaux, and launched in 1868, is a double turreted iron Monitor, with three tripod masts, and bark rigged without bowsprit. The ram-bow has no great projection, and the deck is not armoured. She has a top-gallant forecastle and poop. The bases of the revolving turrets rest on the main deck. The fore turret has a somewhat larger diameter than the after one, and carries heavier guns than the latter.

Length	223 feet 1 inch.
Beam	46 „
Aft draught	13 „
Displacement	2,500 tons.
Indicated horse-power	3,950.
Speed	12 knots.
Belt armour	4½ inches.
Turret „	5 „
Armament	Two 9-in. 12-ton „ 7 „ 6½ „ } Armstrong guns. One 40-pr. on spar-deck at bow, protected by a 3-in. armour shield.

The 'Feth-ul-Islam,' and 'Semendereh,' launched in 1864, are armoured iron gun-boats for river service, and together with others that were blown up or captured by the Russians in the Russo-Turkish war, were stationed in the Danube.

Length	173 feet 10 inches.
Beam	39 „ 4 „
Aft draught	9 „ 10 „
Displacement	511 tons.
Indicated horse-power	290.
Speed	10 knots.
Belt and battery armour	3 inches.
Armament	Two 4¾-in. Krupp guns.

The 'Hizber' (Lion), is a twin-screw, iron, single turret monitor for river service. She was launched in 1875. She has a high deck-house aft, and only a signal mast.

Length	144 feet 4 inches.
Beam	29 „ 7 „
Aft draught	13 „ 3 „
Displacement	652 tons.
Indicated horse-power	404.
Speed	7 knots.
Armour	3 inches.
Armament	Two 4¾-in. Krupp guns.

Turkey possesses no unarmoured vessels of new types or any old ones worthy of particular notice. One corvette, the 'Muhammed Selim,' is in course of construction. The Ottoman Government is fully alive to the advantages to be derived, especially by a weak power, from torpedo defence, and is paying more attention to that branch of the marine establishments than to any thing else at present. The Turks as yet have no Hotchkiss shell guns, but they have purchased 200 of the Nordenfelt weapons.

THE NAVIES OF THE WORLD.

VI.—THE RUSSIAN NAVY.

THE Russian Navy, curiously enough, owes it origin to a man, who, at the outset of his career, had such a constitutional aversion to water, that on crossing a bridge the curtains of his carriage were always drawn in order to shut out the sight of the obnoxious element. But the mind of the Great Czar Peter prevailed over the nervous tremors of the body, and his indomitable will so far overcame his repugnance, as to allow him to make several voyages in trading vessels for the purpose of acquiring a practical knowledge of ships and navigation. At his accession to the throne in 1672, his dominions were still in a state of semi-barbarism, and his genius was quick to discern that an effective maritime force was an essential element of strength and an instrument of civilization. As he possessed no one about him with any practical knowledge of shipbuilding, he commenced his apprenticeship as a shipwright at Archangel. The crude nature of the operations at that port not satisfying him, he went to Holland, where he entered himself as a common artisan in the shipyard at Zarndam opposite Amsterdam, and he compelled various members of his suite to follow his example. Ships, colonies, and commerce were among the foremost objects of his far-reaching schemes and incessant

labours. By 1721 he had succeeded in forming something like a navy, and before his death in 1725 he had the satisfaction of seeing his infant marine gain a victory over the Swedes in the Finland War. But with the exception of a few not very brilliant successes over the decaying maritime power of Sweden and Turkey in the Baltic and Euxine, the war services of the Russian Navy have been neither effective nor glorious. In the earlier years of its existence all the real work, both in peace and war, was done by British officers under the nominal leadership of incompetent natives like Orloff, Spiridoff, Cicagoff, and Lazareff. This was notably the case when the Empress Catherine despatched a fleet, the first that issued from the Baltic under the Russian flag, to attack the Turks in the Mediterranean. In 1770 twelve line-of-battle ships, twelve frigates, and a large number of transports carrying troops, left Cronstadt under the supreme command of Count Alexis Orloff, the favourite of the Czarina. Admiral Spiridoff commanded the fleet under Orloff, but the real leaders in all the naval operations were Admiral Elphinstone, Captain Greig, and other Scotch and English officers, some of whom were to be found in almost every vessel belonging to the Russian Navy.* Orloff's armament was so badly found and manned that it could never have reached the Mediterranean if it had not been succoured in British ports. It did, however, eventually arrive in the Ægean, and on July 7th, 1770, it fell in with the Ottoman fleet, under the Kapitan Pasha, Hosameddeen, near the Island of Chios. The Russians had eight liners and seven frigates; the Turks one ship of 100 guns, one of 96, four of 84, one of 74, one of 70, and six of 60. On the Russian side, the action that ensued was chiefly remarkable for the way in which the

British officers handled their ships, despite the ineptitude and cowardice of their crews. On the Ottoman, a disastrous defeat was only redeemed from utter disgrace by the seamanship and desperate valour of Hassan of Algiers, who, born on the Persian frontier, was sold into slavery as a child. He became by turns boatman, soldier, pirate, and Port Admiral of Algiers, and after the Battle of Tchesmé, succeeded to the chief command of the Ottoman fleets. Hosameddeen, the Kapitan Pasha, shirked fighting from the first, but Hassan ran his vessel alongside that of the Russian Admiral, and fought yard-arm to yard-arm, until both caught fire from the Russian hand-grenades, and blew up together. Spiridoff and Theodore Orloff escaped in their boats before the explosion, in which 700 of their men perished. Hassan kept his deck to the last, and although much hurt, succeeded in swimming ashore. The Turkish ships took refuge in the port of Tchesmé, the ancient Cyssus, where, B.C. 191, the Roman fleet defeated that of King Antiochus. Seeing the Ottoman vessels penned into this narrow bay, Orloff's British officers planned their destruction. Elphinstone blockaded them, Greig directed the cannonade, and Lieutenant Dugdale steered in a fire-ship. At the commencement his Russian crew leapt overboard and swam away, but Dugdale held on alone and set fire to one Turkish vessel, which communicated ruin to the rest. Only one frigate of 50 guns, and five xebecques escaped being consumed, and these were subsequently carried off by the Russians. The small town of Tchesmé, with its fort and batteries, was taken. Orloff was urged by Elphinstone to force the Dardanelles at once, but he hesitated until the defences of that channel were too much strengthened to admit of its being done with any chance of success.

After an ineffectual attempt on one of the forts, he proceeded to Lemnos and invested the castle, which after a sixty days' siege was about to capitulate, when Hassan, who in the meantime had made his way to Constantinople, suddenly appeared at the head of 4,000 ruffians, whom he had recruited in the streets of the capital and conveyed to the island in some light vessels. In the early morning of October 10th, he fell on Orloff's lines, drove the besiegers to their ships, and saved Lemnos. Getting together what was left of the Ottoman Navy, Hassan made head against the Russians, and finally compelled Orloff to sail away, he having, on the Ottoman Admiral's requisition, previously given up the hostages placed in his hands by the garrison of Lemnos during the negotiations for surrender, so rudely broken up by Hassan's appearnce.

During the Napoleonic Wars the Russian rulers had little time or money to spend on the Navy. In 1803, two vessels were equipped for a voyage round the world. After the peace of Tilsit, 1807, Russia became for a time the ally of Napoleon. At the end of that year, according to the official report of the Ministry of Marine, the Baltic fleet counted twenty new liners with 1,588 guns, fourteen frigates and corvettes, with 426 guns, besides smaller vessels. Among the liners, were three or four three-deckers, and nearly all the others were 74 gun ships. Several of the frigates carried 50 guns. In 1808 Russia joined the continental system under Napoleon against Great Britain. Sweden was then an ally of England, and a British fleet, under Sir James Saumarez, was sent to the Baltic to co-operate with the Swedes. A Russian fleet of twenty-four sail, nine of which were liners, under Admiral Chanikov, came out of Cronstadt to attack the Swedish fleet, which was crippled by

scurvy-stricken crews, but the presence of two British liners among the Swedes sufficed to keep Chanikov at a respectful distance. During the cruising and manœuvring that went on for some weeks, the British 'Implacable,' 74 guns, captured the Russian 'Sevolod,' 74 guns, after a brief single combat. The latter was subsequently destroyed under the eyes of her consorts.

On October 20th, 1827, occurred the "untoward event" of Navarino, when England and France obligingly destroyed the Ottoman Navy for Russia. The Muscovite contingent on that day, consisted of four liners and four frigates, under Admiral Count Heyden.

When Nicholas ascended the throne a fresh impetus was given to creating a navy. He saw that Russia, to be a naval power and to carry out the traditional programme handed down from Peter the Great, must be strong enough to force a passage for herself at will into the great oceans, from the inland basins of the Baltic and the Euxine. He invited men of science and skilled artisans to accept employment at the dockyards, which were established at Cronstadt, Nicolaieff, and Sevastopol. He founded naval colleges and schools for naval cadets and shipwrights, and organised a corps of pilots capable of navigating the seas of the entire globe.

So rapid was the growth of the Russian Navy under his despotic will, that by 1838 the Baltic fleet counted four three-deckers, each carrying 110 guns, seven of 84 guns each, and nineteen 74-gun ships; in all thirty liners and twenty-one frigates of various dimensions, manned by 30,000 sailors. The Black Sea, Caspian, and Aral fleets had also grown in proportion, but the sole exploit of all these costly and pretentious arma-

ments was the "Massacre of Sinope," which led to the entrance of the Allied Fleets into the Black Sea on January, 1854, after which nothing more was seen of the Russian Black Sea fleet, except dismantled hulls and sunken masts in the harbour of Sevastopol. On November 30th, 1853, Admiral Nachimoff, with six screw liners, two sailing ships and three steamers, appeared in the Bay of Sinope and opened fire on a Turkish squadron, consisting of seven frigates, three corvettes, and three small vessels, anchored there under Osman Pasha. Only one small Ottomite vessel escaped, the rest were destroyed, and 4,000 Turks were slaughtered. The Turkish Admiral subsequently died of his wounds at Sevastopol. The attack was held to be treacherous at the time,—it certainly was inglorious.

The Russian Navy created since the Crimean War did nothing to boast of during the last war with Turkey. Its sea-going ironclads never ventured to sea. The most powerful of them the 'Petr Veliky,'——Peter the Great—was too leaky to be employed. The 'General Admiral,' after being completely tried at sea and pronounced a success, came to grief by being driven ashore in a gale at Cronstadt, when she was badly strained and damaged. Besides these mishaps, those egregious failures, the 'Cyclads,' or 'Popoffkas,' from which so much had been expected, did absolutely nothing in the way of service. On being ordered to the Sulina mouth of the Danube, and on the preparatory trial at sea, the ventilators had to be closed when the sea was at all rough, thereby nearly suffocating the crews. They were found to be ill-suited for manœuvring, and in bad weather quite unseaworthy. They were consequently ordered back to port. With the exception of the destruction of one Ottoman armoured gunboat—the

'Saifi'—by torpedoes worked from boats by two lieutenants, and an unsuccessful attack on two other gunboats, there was not one single naval achievement worthy to be noted on the Russian side during the whole war.

The Navy of Russia is distributed into the Baltic Fleet, the Black Sea Fleet, the Caspian Sea Flotilla, the Aral Sea Flotilla, and the Siberian Flotilla. Of the thirty-four ironclads in the navy, thirty belong to the Baltic Fleet, which is the only one that would be of any account in a maritime war. The remaining four, consisting of the two 'Popoffkas' and two gunboats, belong to the Black Sea Fleet. The Baltic ironclads consist of seventeen vessels, called "sea-going" by courtesy, and thirteen coast defenders. The 'Petr Veliky,' 'Kniaz Minin,' the 'Wladimir Monomach' (completing), and the 'Dimitri Donskoi' and 'Moskwa' still on the stocks, are the only sea-going ironclads which are up to the modern standard. The rest are obsolete, or so defective in construction as to be unfit to venture far from land.

The 'Petr Veliky' is a sea-going, mastless, double turret, breastwork monitor of the British 'Devastation' type. She was launched in 1872. Her sea-going qualities are but mediocre, and she rolls heavily. The two revolving turrets are placed at the fore and aft extremities of an armoured breastwork, which extends for 155 feet along the centre of the vessel. A superstructure surrounding the funnel, and supporting a hurricane-deck, rises amidships between the turrets. The water-line is armoured throughout, the plates being thickest amidships, and thinning gradually towards the bow, and stern. The iron hull has no armoured bulkheads. Each turret carries two heavy guns worked by hydraulic apparatus. Their all-round fire is only interrupted by the central superstructure, and they

are carried 13 feet above the surface of the water. The hurricane-deck is garnished with six light pieces and two machine guns, and on each side of the bow spar torpedoes can be launched at a depth of 13 feet; these are worked by a steam capstan. All the turrets, capstans, pumps, and ventilators, have special engines, but the steering is done by hand. An electric light is fixed in the forepart of the hurricane-deck. The vessel is propelled by twin screws, and carries 900 tons of coal, enough to steam 3,000 miles at ten miles an hour. The following are the dimensions:

Length	321 feet 6 inches.
Beam	62 „ 4 „
Aft draught	23 „ 2 „
Displacement	9,665 tons.
Indicated horse-power	8,000.
Speed	13 knots.
Belt armour	8 to 6 inches.
Breastwork armour	Ditto.
Turret „	14 inches.
Deck „	3 „
Armament	Four 12-in. Krupp guns.

The 'Admiral Lazareff' launched in 1867, and the 'Admiral Greigh' in 1868, are three-masted, triple-turret, iron, sea-going vessels, of obsolete type, and of little value for anything but coast defence.

Length	262 feet 6 inches.
Beam	42 „ 8 „
Aft draught	19 „ 10 „
Displacement	'Griegh,' 3,841 tons; 'Lazareff,' 3,753 tons.
Indicated h.-p.	„ 2,031. „ 2,004.
Speed	10 knots.
Belt armour	4½ inches.
Turret „	6 „
Armament	Three 11-in. Krupp guns.
	Four light guns.
	One machine gun.

The 'Admiral Cicagoff'* and the 'Admiral Spiridoff,' both launched in 1868, are of the same type as the preceding, but of smaller dimensions and with only two turrets.

Length	252 feet 7 inches.
Beam	42 „ 8 „
Aft draught	16 „ 7 „
Displacement	'Cicagoff,' 3,693 tons, 'Spiridoff,' 3,745 tons.
Indicated h.-p.	„ 2,060. „ 2,007.
Speed	10 knots.
Belt and turret armour	6 inches.
Armament	Two 11-in. Krupp guns.
	Four light guns.
	One machine gun.

The 'General-Admiral,' launched in 1873, and the 'Gerzog-Edinburgsky' (formerly the 'Alexander-Nevski,') launched in 1875, are armoured cruisers, with hulls of wood and iron, built on the bracket system, but with no armoured bulkheads. The water-line is protected throughout. Amidships is an armoured overhanging redoubt, in which are mounted heavy guns *en barbette*. These vessels carry coal enough to steam 5,900 knots at ten knots an hour.

Length	282 feet 7 inches.
Beam	49 „
Aft draught	23 „
Displacement	4,600 tons.
Indicated horse-power	5,300.
Speed	13 knots.
Belt and battery armour	6 inches.

The 'General-Admiral' carries four 8-inch, two 6-inch, four 4-inch Krupps, and two machine guns. The 'Edinburgsky' ten 6-inch Krupps, four light pieces, and two machine guns.

* 'Cicagoff,' pronounced 'Tchitchagoff.'

The 'Minin' was laid down in 1869 as a cupola ship, of the ill-fated British 'Captain' type, but was rebuilt 1875-78 as a full-rigged barbette ship of the French 'Océan' type. The hull is built of iron, on the bracket system, the water-line is protected all round with 7-inch plates, the deck is strongly armoured, and the four barbette half towers projecting sponson-wise over the sides and carrying the four 8-inch Krupps, are covered with 8-inch slabs. Displacement 5,740 tons. Horse power 5,226 with thirteen knot speed. Besides the four tower guns, the 'Minin' carries twelve 6-inch Krupps on maindeck, four of which have a fore and aft fire, the others being on the broadsides, and six machine guns.

The 'Wladimir Monomach' is an improved and enlarged 'Minin,' launched last year, and completing. She has a displacement of 5,740 tons, with a power of 7,000 horses. The tower armour is twelve inches thick, but the belt armour is reduced to six inches. The hull is built up of steel, iron and wood, and she is to carry the same armament as the 'Minin.'

The 'Dimitri Donskoi', still on the stocks, is a sister ship of the 'Wladimir Monomach' with almost identical particulars.

The 'Kniaz (Prince) Pozarsky' launched in 1867, is a barque-rigged, iron, central battery ship of 4,506 tons displacement, 2,835 horse-power, speed of ten knots, and belt and battery armour 4½ inches thick. She carries eight 8-inch, two 6-inch Krupps, eight light pieces, and two machine guns.

The 'Sevastopol' (1863) and the 'Petropaulovsk' (1865), are wooden broadside ships of ancient type with 4½-inch armour, speed of twelve knots, and armament of sixteen 8-inch guns. They are unseaworthy, and of no account whatever as vessels of war.

The 'Pervenetz' (1863), the 'Kreml', and the 'Netroni-menia' (1864), are masted, broadside, iron vessels of old type, only fit to act as guardships. They have 4½-inch armour, and a maximum speed of nine knots, and are totally unseaworthy.

The thirteen coast defenders, launched between 1864 and 1867, are the 'Carodeika,' 'Russalka,' 'Smerc,' (double-turret, iron monitors with three masts) 'Bronenosec,' 'Yedinorog,' 'Koldun,' 'Latnik,' 'Lava,' 'Perun,' 'Streletz,' 'Tifon,' 'Uragan,' 'Vescun' (mastless, single-turret iron monitors). Their displacement varies from 1,979 tons in the 'Carodeika,' to 1,406 tons in the 'Yedinorog,' and their speed varies from six to eight knots. The three first have 4½-inch belt, and 6-inch turret armour. The remainder have 5-inch belt, and 11-inch turret armour, like their American models. The 'Carodeika,' and 'Russalka' each carry four 9-inch Krupps, the others two each. None of these vessels can be trustedin any sort of heavy weather, and below deck they are almost uninhabitable.

Of the circular ironclads, the 'Vice-Admiral Popoff,' and the 'Novgorod,' which have been so often described, it is useless to say any more than that they are total failures, and have been converted into harbour service vessels.

The 'Nikopol' and 'Sistovo' armoured gunboats, built for river service in the Danube for the Ottoman Government, became prizes of war when the Russians captured the two towns from which they are re-named.

Concerning the 'Moskwa,' now building, few reliable particulars are available. From one account it would seem that she is intended to be a large and powerful barbette vessel, of the French 'Amiral Duperre' type, with a displacement of 10,000 tons, and armament of four 100-ton guns.

In July of this year, two of the private yards at St. Petersburg received orders for the construction of an ironclad frigate, and two ocean cruisers. A gunboat provided with a pneumatic torpedo gun, on the English system, is also being built.

UNARMOURED CRUISERS.—This class of vessel is likely to prove more formidable to British interests, in case of war, than any ironclads that Russia may possess; but making allowance for any power for mischief they may have, if properly manned and commanded, the panic created in this country when their existence became known during the political complications in 1877-8, was neither healthy or edifying. Without treating lightly the danger that might accrue to British commerce in war-time from swift cruisers, it may fairly be asked, have Russian sailors ever shown the enterprise or the seamanship to warrant the assumption that they can at short notice produce a Duguay-Trouin, a Paul Jones, a Robert Surcouf, or a Raphael Semmes? The Russian regular unarmoured fleet may be divided into two categories, the Russian-built, and the American-built cruisers. The first have all been built in Russia between 1875 and 1880. The especial object for which they have been constructed is evident in their nomenclature: 'Dzigit' (Quiver), 'Kreiser' (Cruiser), 'Naiezdnik' (Corsair), 'Opricnik' (Marauder), 'Razboinik' (Robber), 'Strelok' (Poacher), 'Veistnik' (Scout), and 'Plastun' (?) Their displacement varies from 1,275 to 1,600 tons, and their horse power from 1,200 to 1,600. The slowest vessel is the 'Kreiser,' which can only make ten knots. The 'Naiezdnik,' 'Opricnik,' and 'Strelok' can steam thirteen knots. They carry three 6-inch Krupps, with lighter pieces and machine guns. These vessel were constructed from the designs of Captain Subbotin, naval architect to the Admiralty.

In 1878 the Russian Government bought three iron merchant steamers in the United States, 'State of California,' 'Columbus,' and 'Saratoga.' The two first were built by W. Cramp and Sons, at Philadelphia, the last by J. Roach and Son, at their yard on the Delaware River. Cramp and Sons also built a fourth vessel, the 'Zabiaka' (Strife-seeker) from designs prepared at the Russian Admiralty. The three first vessels were renamed the 'Europe,' 'Asia,' and 'Afrika,' and all were converted into war-ships by Messrs. Cramp. The guns were placed on board in a European port. They sailed from the Delaware for Copenhagen in 1879. The principal advantages possessed by these vessels are light draught, high speed, and considerable sail area. The 'Zabiaka,' with light draught and 832 tons displacement, made 15½ knots at sea off Cape Henlopen, in April, 1879. The hulls are divided by eleven water-tight bulkheads. The compound vertical engines drive a single fixed screw, and are protected by armour. The steering is done both by steam and hand. All the latest improvements have been introduced, and the officers' quarters are luxurious.

Besides the above, Russia possesses a Volunteer Fleet, the ships of which are employed in commerce in time of peace, and in time of war are commanded by officers of the Imperial Navy. This fleet was the outcome of Russian patriotism in the last Russo-Turkish War, when the course of events tended to bring England into the fray. A committee, composed chiefly of leading nobles and officials, encouraged by government aid, moral and financial, was formed at Moscow, and five millions of roubles were raised by private subscription for building and equipping a fleet of fast cruisers to prey on British commerce. Native

shipbuilding was to be encouraged both in the public and private yards, and the Moscow committee decided that no ships henceforth were to be constructed out of the country for the Volunteer Fleet. Six vessels were built at St. Petersburg, where some of them were also engined. These volunteer craft are the 'Yaroslav,' 3,100 tons; 'Rossia,' 3,150; 'Moscow,' 3,050; 'St. Petersburgh,' 3,050; 'Nijni-Novgorod,' 3,100; 'Constantine,' 1,625; 'Vesta,' 1,830; 'Argonaut,' 725. The speed of the six largest vessels averages fourteen knots, their armament consists of seven guns, ranging from 4-inches to 8-inches, and they can carry 1,400 tons of coal, enough for a cruise of 9,500 miles.

The Russian Navy has hitherto been mainly supplied with the Mörser machine gun. The Government have also purchased about forty Hotchkiss and thirty-seven Nordenfelt weapons.