



guns, some weighing 100 tons, and actually manned by 500,000 men, with as many reserves, and you have the naval force of the world marshaled in one grand Salamis and Manila are the naval antipodes of history. Salamis was the first great recorded battle. It drove the Persians from Greek soil. From crude galley ships, propelled by oars, naval pro-gress has advanced to a stage which al-

MAGINE a fleet of 5,000 war vessels lances, swords and every sort of weapon armed with more than 2,000 new style they could lay their hands on.

Same Mode of Attack.

In the fight between Pembroke and the Spaniard Ruy Diaz De Roxas, near Rochelle, although cannon were used almost for the first time on sea, the same mode of attack prevailed. Pembroke was made prisoner after four of the enemy's vessels had been inshed to his vessels. In fact, all the records of ancient naval warfare seem to indicate that sea fighting was lit-tle more than land fighting. The cantendmost reaches the limit of terrible deing fleets would be lashed together and the men would fight hand to hand until one of the principals surrendered. The Spanish. armada, with its 130 vessels, was little more than a series of Homeric duels. The ships were clumsy and unwieldy, communication was effected by means of small boats and most of the destruction was wrought by fireships. Guns cut little figure, and most of the Spanish vessels, it appears, were destroyed by violent storms, open sea. Even as late as 1692, when Admiral Russell of England engaged the French in a series of sea fights known as the battle of La Hague, he positively for-bade his men to fire on the French until his opponent, Tourville, had taken his distance in battle array. One English ad-miral in a battle with the French forbade his men firing until the enemy had fired the first shot, an incident which furnishes a precedent for President McKinley's reported order to Captain Sampson. It was not until forty years ago that the ironclad cut any figure in naval warfare. At the great battle of Trafalgar in 1805. in which Nelson was killed, only a handful of powder was used in a discharge, and the guns were all twelve and pounders. It is a remarkable fact that England herself, the leader of the world as a sea fighter, weighed down by a cankerous stretch of peace, has not fired a shot, metaphorically speaking, in four decades. The bombardment of Alexandria in 1882 was not an exception, as England was then simply firing at a target, having no opposition whatever. Neither were the efforts of the Chilians and Peruvians in their late belligerency of any avail in affording a clew to the great problem of the ironclads. The attempts made by the vessels of China and Japan four years ago were anxiously awaited by the rest of the world, and, although they were on a more extended scale than any previously made, they still failed to furnish an exhibition of the real merits or demerits of the iron monsters. Japan's smaller ships got the better of China's heavler craft with the same case with which American soldiers prevailed over Pekin's raw land levies.

famous poets, military leaders and statesnen. It is all a matter of judgment, and no two lists would be alike. The following, however, are among the leaders:

Artemisium-Greeks virtually defeat Per-slans with superior fleet, 500 B. C. Salamis-Greeks, with 280 small war gal-leys, defeat Perslans with 800 ships, the former losing forty galleys and the latter twenty galleys. Loss of life on both sides estimated from 5,000 to 50,000; 480 B. C. Winchelsen-English defeat forty Spanish vessels and capture twenty-six, August, 1350.

1350. Harfleur-English capture or destroy 500 French vessels, Aug. 15, 1416. Bay of Lepanto-Venetian and Span-ish fleets defeat Turkish fleet under Pasha Ali; Christian fleet consisted of 250 ships and more than 50,000 men, and Turks commanded superior force; only thirty Turk-ish vessels escaped; 10,000 Turks were taken and 25,000 slain; Christians lost 10,000 men; 1571. Gibraltar bay-Dutch defeat the Spanish.

Gibraltar bay—Dutch defeat the Spanish, April 25, 1607.

Christians cried "Victoria, victoria," and rushed upon the enemy, but did not win the battle until the Christian galley slaves revolted, broke their chains and turned o their masters. Only thirty of the Turkish galleys escaped to Constantinople, 130 were captured and the rest destroyed. More than 10,000 Turks were taken and 25,000 slain, and the Christians lost 10,-000 men.

The most brilliant naval victory of the American revolution was won by John Paul Jones, when he captured with the old bulk, Bon Homme Richard, the British frigate Serapis and a smaller vessel, the Countess of Scarborough, convoying a fleet of merchantmen. The enemy approached within pistol-shot distance and city proper. Jones' sharpshooters kept the Englishman's decks clear. At the outset Jones suffered considerably from the bursting April 25, 1607. Dever straits—Dutch destroy the English fleet, Nov. 20, 1652. Portsmouth—English defeat the Dutch and destroy eleven men-of-war and thirty merchantmen, Feb. 18, 1653. North Foreland—One hundred English and Dutch men-of-war engaged; eleven Dutch taken and six sunk; June 2, 1653. Coast of Holland—English smak thirty Dutch men-of-war, July 31, 1653. Santa Cruz—Spanish fleet burned by the

English vessels. The British fleet bore

down upon the enemy under full sail, led

by Nelson with fourteen vessels in the

Victory and Admiral Collingwood on the

right with thirteen vessels. Nelson's ob-

ject was to break the enemy's fleet into

sections inferior to his own and then join

battle at close quarters. It was in this

battle that Nelson raised the pennant,

Nelson was shot, and England lost her

greatest admiral. After the dying Nelson

was told that fifteen of the enemy's ships

had been taken, he said: "That is well,

The battle of Lake Erie, in which Perry,

a mere youth, with fifty-four guns and

600 men, defeated the British squadron

with sixty-three guns and nearly 2,800

men, was an epoch-maker in American

history, as it gave the Americans control

of the great lakes. Captain Barclay, a

veteran who fought under Nelson at Tra-

falgar, commanded the British fleet. Dur-

Perry forsook the Lawrence, his flagship,

and in a little boat which was made the

target of scores of rifles he was rowed

over to the Niagara. The Niagara sud-

denly swerved, broke the enemy's line,

raking the enemy's ships at pistol dis

tance. In a few moments all the Ameri-

can vessels were close on their opponents

and the English pulled down their flags

First Ironclad Engagement.

Lissa. In this engagement the Austrian

was placed on the Union scroll.

man-of-war was heard.

hailing distance.

The history of Europe and South Amer

abounds in instances of daring at sea, the

destruction of ships and loss of men, but

in less than half an hour.

ing the fight, which lasted three hours

but I bargained for twenty."

duty."

The English were successful, but

DID MUCH FOR 'FRISCO.

The Late Ex-Mayor Sutro Lade Many Gifts to the Pacific Metropolis. San Francisco lost one of her best known and most phllanthropic citizens in the death of ex-Mayor Adolph Sutro. He was a man of many peculiar characteristics, but withal a most generous giver, and his name will long be held in remembrance by the people of San Francisco for the many splendid gifts he made to the city.

Adolph Sutro was born sixty-eight years ago in Prussia of Jewish parents. He came to the United States in 1850, when the gold fever was at its height, and was lured with countless others to the shores of the Pacific. It was not ed in a recently patented and decidedly long after that the great Comstock lode novel device designed to change the began to turn out its millions and at- present principle of applying power to tracted the attention of the world. The the bicycle. The rider simply moves mines soon got down so deep that there his legs up and down, almost vertically. appeared to be no way to drain them. He thus saves all that power that is and the heat was so intense from lack now lost in making the complete revoof ventilation that the miners could not lution on the pedal. The device consists work. Sutro, who had studied engi- of two spur wheels, the one on the rear neering, conceived the scheme of con- hub being two inches in diameter. The structing an enormous tunnel under the lode which should connect the shafts and relieve them. He got capitalists to back him up, and in October, 1878, a tunnel twelve feet wide, ten feet high, and with its branches over five miles long had been completed. It proved a success. The mining companies, however, refused to share revenues with the tunnel company. Sutro therefore closed the tunnel and brought every-

worked without using it. When the tunnel was in full opera- other, which is attached to the rear profit, wandered about Europe for a arms, connecting with cranks, move up

body to terms, as the lode could not be



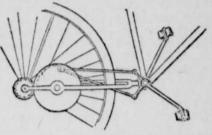
EX-MAYOB ADOLPH SUTBO.

much statuary and drifted back to San Francisco to buy so much of the "outside lands" of the city that he owned one-twelfth of the entire acreage of the

In 1894 Sutro ran for Mayor of San poor. Francisco and was elected, in spite of the fact that the newspapers and all the big corporations and politicians of Prof. N. E. Wilson, agricultural were against him. After his term as Mayor his mind began to fail and for months had been a blank. The last years of his life had been embittered by family quarrels, and it is possible that the settlement of his estate, which



To Save Power. Wheelmen generally will be interest-



ANOTHEB BICYCLE IMPROVEMENT.

tion Sutro unloaded it at a handsome frame, is six inches in diameter. Two time, picked up a wondrous library and and down as the power is applied, and the wheel moves off, it is claimed, with even less friction than does the chainless wheel and with great saving in the amount of power. The two spur wheels are neatly covered and the general appearance of the wheel is not altered.

The December Race.

It is said that the six-day bicycle race to be run at Madison Square Garden in December will be either twenty or twenty-two hours a day, with two to four hours of compulsory rest for the contestants. It is predicted that this will be a harder contest than the straightaway, 142-hour grind, owing to the fact that riders will feel themselves compelled to remain upon their wheels all of the riding hours.

Cooper Faves His Money.

When Tom Cooper retires from the racing field it will be as a rich man. He has carefully hoarded his money, and has invested it in telephone stock that has trebled in value and which is now paying a handsome dividend. Eddie Bald is laying by a snug sum, and although this is not invested as lucratively and advantageously as the money of Cooper, Bald will not quit the game

He Begins Well.

This is Nat Wilson, the 7-year-old son



struction. One battleship like the Oregon could have destroyed the Spanish armada and its English foe. There are guns on the Oregon which consume 1,000 pounds of gunpowder in a single discharge, while the most formidable guns in the armada service consumed four and a half pounds to the charge.

Although ironclads were used to some extent in the civil war, in the Chinese-Japanese war, in minor engagements be tween the Peruvian and Chilian fleets and the Russo-Turkish war in 1877, the Spanish-American fight in the Philippines and at Santiago, marks the first conflict between ironclads in which the great sea monsters of modern warfare received a fair test.

In naval warfare it is the same as in land warfare. The whole history of the art has been divided into tactical periods ushered in more or less directly by some great tactical discovery. Such discoveries have consisted not only of new arrange ments and maneuvers, but of improved weapons as well-improved defensive armor or improved motive power. When the Tyrrhenian Pessacsus added a sharp beak to the prow of the ancient galley he introduced a feature of greater tactical import than the off-quoted invention of iron ramrods of the Dessaure or of the needle-gun by Mr. Dreyse. As the Pyrric phalanx succumbed to the more open array the lighter weapons of the Roman legion and the Swiss heresson to the short swords of closed fighting of Gonsaloo's infantry, so the old line of battle was pierced and broken by the new tactics, which Paul Hoste, the Jesuit, the clerk of Eldin and Rodney and Nelson put into practice.

In the battle of Artemesium, about 500 B. C., an engagement which was of more political than military importance, which he Theban poet celebrated as the "place where the sons of Athens laid the shining groundwork of freedom," the Greeks adopted a very remarkable order of battle. Their fleet was inferior to that of the Persians, which was large enough to literally surround them. The Greeks, appreciat ing the fatality of adopting the old formation, formed their fleet in a circle, with their prows facing the surrounding enemy, and then darted forth to break the ande wall. As a result the Persians lost thirty vessels. The Greeks were nominally defeated, although the net result was in their favor. This was perhaps the first great naval battle of which we have any knowledge, although the battle of Salamis is usually credited as the first great recorded sea fight.

Ramming as a method of aggressive history, and has not yet been abandoned, although the improvements in shipbuilding have rendered it less effective. The invention of gunpowder found a slow response in the methods of naval warfare, galleys forming a considerable part of the navy until the eighteenth century. In the sels of war, and the United States has reign of Edward III., when the English quickly come to the front as a naval powfought the French at Sluys, the former stood off on the starboard tack and ma-French and, aided by the sun at their ed with the best in the world.

Originated in America.

It was America, however, that introduced the ironclad to the world, and the duels between the Monitor and the Merrimac were pathfinders in the new and uncertain warfare which defies wooden beaks and ships of fire. As a result of the Spanish war, the whole world has been thrown on the defensive. Almost immediately after the United States vot-

Ramming as a method of aggressive ed a naval appropriation of \$50,000,000 naval warfare is almost as old as naval Russia set aside the same amount for the construction of men-of-war and England ordered built eighteen battleships to her annual budget of thirty-two cruisers, for-ty-one torpedo boat destroyers and eleven other war vessels. Next to the English come the French, with a total of 600 veser. Her vessels are not as heavy as those of her cousins, but they excel in speed neavered so as to turn on the pursuing and American seamen have always rank- followed.

backs, lashed their vessels to the French fleet and crippled their antagonists with the la history is like recounting the most masthead of Don John's flagship. The crankiness shows the absence of sense.

three sailing vessels and twenty-seven

Dutch men-of-war, July 31, 1653, Santa Cruz-Spanish fleet burned by the English, April 20, 1657. Harwich-Dutch lose eighteen ships to the English, June 23, 1665. Thames-Dutch lose to the English twen-ty-four men-of-war, four admirals killed and 4,000 seamen, July 25, 1606. Messina-Spanish fleet, twenty-nine ves-sels, destroyed by the English, July 31, 1718. Gibraitar-English defeated combined fleets of Spain and France, Sept. 13, 1782. St. Vincent-English, with fifteen vessels, defeated Spanish with twenty-seven vessels, Feb. 13, 1707. Battle of the Nile-English under Nelson defeat the French and capture and destroy

Battle of the Nile-English under Nelson defeat the French and capture and destroy eleven vessels and kill nearly 1,000 men un-der Admiral Brueys, Aug. 1, 1798. Trafalgar-Nelson sunk nineteen French and Spanish vessels, fighting twenty-seven ships against thirty-three of the combined fleet; Nelson killed; Oct. 21, 1805. Navarino-The fleets of England, France and Russia destroy thirty Turkish men-of-war, Oct. 20, 1827. Yalu River-Japanese defeat Chinese; heavy losses on both sides, Chinese losing four vessels and 600 men; Sept. 17, 1894.

Noted American Fights.

Among the noted American battles ar the following:

Coast of Scotland-Paul Jones captures th

Coast of Scotland—Paul Jones captures the Serapis and Scarborough, seventy guns, Sept. 23, 1770. Off St. Klitt's—The Constellation, twenty-six guns, captures the French L'Insurgeant, forty guns, Feb. 9, 1770. Coast of United States—Constitution, for-ty-four guns, sinks the Guerriere, thirty-eight guns, in thirty minutes, Aug. 19, 1812. Madeira—United States, forty-four guns, captures the Macedonian, forty guns, Oct.¹⁰ 25, 1812. 1812

Brazil-Constitution captures the Java.

Dec. 29, 1812. Lake Erle-Perry, with fifty-four guns, de-feats English fleet with sixty-three guns,

Lake Erle-Perry, with fifty-four guns, de-feats English fleet with sixty-three guns, Sept. 10, 1813. Lake Champain-McDonough, with eighty-six guns, defeats English fleet with ninety-six guns, Sept. 11, 1814. Manlia-Commodore Dewey, with six ves-sels, defeats the Spanish under Admirai Montejo with eighteen vessels, sinking elev-en of the Spaniards and withdrawing un-scathed, May 1, 1808. Santiago-Commodore Schley, with six ressels, totally destroyed the entire Spanish fleet under Cervera. But one American was killed, while the Spanish lost 600 killed and 1,100 taken prisoners. Passing by the battle of Salamis, which

Passing by the battle of Salamis, which was in reality nothing more than a land battle on galleys, the success of the victor readers of American history, but inasdepending largely upon favorable winds the event can scarcely be accounted as a and formidable crews, the next most important naval battle of the world was that fought in the bay of Lepanto in 1671 between the papal, Venetian and Spanish fleets and that of Selim, Sultan of Constantinople. The Christian fleet consisted of 250 ships and more than 50,000 men | der the Confederate ram, that the victory under the command of Don John of Aus-The Turkish fleet, which was under tria. ica, particularly of Chili and Peru, command of Pasha Ali, was much larger. but the Christians had the advantage in equipment, making use of helmets, coats of mail and firearms, while many of the it was not until Commodore Dewey opened fire on the Spanish fleet in Manila bay Turks had no better defensive garb than leather shields and no more formidable weapons than arrows.

Three times the Spaniards boarded the Turk and fell back. A fourth time, with a re-enforcement of 200 men, they rushed to the assault and carried everything be-fore them. An indiscriminate slaughter followed. The croscent was quickly replaced by the cross and the bloody head of

The battle of Trafalgar, Nelson's last amounts to about \$5,000,000, will cause fight, took place off Cadiz, between the ala bitter fight in the courts. lied French and Spanish fleets of thirty-

AN ACROBATIC MONKEY.

Cockatoo that Rides a Bicycle and Does All Sorts of Wonderful Things Monkey is the prize cockatoo is Mme. Belloin's troupe of trained birds. He rides a bicycle on a wire, turns somersaults and does very wonderful things. "I wain a new bird by allowing him to 'England expects every man to do his sit by and watch the others perform.' says Mme. Belloin. "Monkey is my fa-



The first general engagement between ronclads took place in 1866 between the actors. If I notice them he sulks for an hour." Italians and Austrians off the island of

It Looks Awkward.

admiral in the flagship Ferdinand Max sunk the Italian flagship, but as the Italshooting by Captain Gibbs, R. N., the He defeated Michael, breaking records ian sank half a battalion of marines fired on the Austrian and killed eighty of her champion long-distance shot of Eng-The fight between the Kearsarge



land and one of the best marksmen in the world. It is called "back shooting." The head, as one will see by the illus tration, is supported by a wrist-strap.

that the full strong voice of the modern The Judge-And for the levity with which you have conducted yourself As for the strength of the various naduring your trial I shall give you an ions of the world, figures indicate little. additional fine of \$10. How does that Suffice it to say that England and France suit you? The Villain-That is what I fit of those unable to afford the tuition are strong leaders, with Russia, Germany, Italy and the United States all within would call extra fine .- Indianapolis fee. Journal.

There are times when the absence of Hubbard except on days when the ther- piece, for which as high as \$300 has mometer is above 95.



chemist of the Nevada State University. The boy recently rode a bicycle from Reno to San Francisco and return -550 miles-in ten days.

Powell Has Fettred.

Irving A. Powell, the intercollegiate champion bicyclist, has retired and New York loses its best amateur representative of the past two seasons. Powell was worth in his own name \$400,000 and raced purely and solely for the fun of it. He tired of the sport and is now shining in the society of a prominent resort.

Felief for Tired Wheelmen.

Ardent lady cyclists may be pleased to know that when they return stiff and tired from a long country ride they will derive great benefit and relief from taking a warm bath into which has been poured a good teacupful of white vinegar. Ammonia used liberally in the same way also has excellent results.

Star of the Season.

McDuffee is the star bicyclist of the year. He has defeated good, bad and This is the position assumed when indifferent riders with the same ease. while doing so. He defeated Hoyt and broke records as well, and when he met Major Taylor the same story was told.

Cyclists in Chicago.

It is estimated that there were at least 300,000 cyclists in Chicago last year, and that this year the number will reach 500,000.

Poultry Schools in France.

England imports eggs and poultry to the value of \$23,000,000, while France exports \$70,000,000 of the same. France has a number of poultry schools, where pupils are regularly trained in rearing fowls, managing incubators, curing diseases, etc., 30,000 chickens being hatched each season at the Gambais school. The pupils pay for their instruction, and work from 6 a. m. to 8 p. m., three of the hours being devoted to study. Scholarships are founded for the bene-

The highest prized American coin is been paid.