Scientific American.

ESTABLISHED 1845.

MUNN & CO., Editors and Proprietors.

PUBLISHED WEEKLY AT

No. 361 BROADWAY, NEW YORK.

O. D. MUNN. A. E. BEACH.

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NEW YORK, SATURDAY, JULY 30, 1887.

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(Illustrated articles are marked with an asterisk.)

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SCIENTIFIC AMERICAN SUPPLEMENT

No. 604,

For the Week Ending July 30, 1887.

Price 10 cents. For sale by all newsdealers.

THE INTERNATIONAL YACHT RACE.

The new British yacht Thistle, portrait of which we published in our paper for July 2, was to leave for New York on July 25. She takes a crew of forty men. Her owner and her captain are sanguine that she will win the America's cup. This vessel appears to have sailed faster than any yacht heretofore built in Great Britain. The new American yacht Volunteer will probably be the competitor of the Thistle. The Volunteer had her first preliminary trial at Boston on the 21st of July, when she exhibited remarkably fast sailing qualities, and gave rise to an expectation that she would beat the Thistle. The Volunteer is of steel. On this trial trip she easily distanced the Priscilla and the Bedouin, both distinguished for superior speed. The international contest is to come off on September 26.

POSITIONS OF THE PLANETS IN AUGUST.

VENUS

is evening star. There is no need of pointing out her position in the western sky, for observers will recognize her at a glance as the largest and most beautiful star in the whole heavens. She will increase in splendor until the 15th, when she reaches her period of greatest brilliancy, and will approach the sun and set earlier every night during the month. On the 1st she sets at a quarter before 9 o'clock in the evening, an hour and a half after the sun. On the 31st she sets at a quarter before 7 o'clock, about a half hour after the sun.

JUPITER

is evening star. He may be found in the west, and is only exceeded in brightness by his fair rival Venus. He is in the constellation Virgo, and the brilliant star west of him, from which he is slowly receding, is Spica, or Alpha Virginis. Jupiter is approaching the sun, and sets on the 1st at a quarter after 10 o'clock in the evening; on the 31st he sets about half past 8 o'clock.

URANUS

is evening star. He is in the constellation Virgo, is approaching the sun, and is too far from the earth to be visible to the naked eye. He sets on the 1st about half past 9 o'clock in the evening; on the 31st he sets at half past seven o'clock.

MERCURY

is morning star. He reaches his greatest western elongation, or most distant point from the sun, on the 16th, and is, at that time, and for a few days before and after, visible to the naked eye. On the 16th he rises an hour and a half before the sun. He may then be found, at 4 o'clock in the east, about 4° north of the sunrise point. Mercury rises on the 1st soon after 4 o'clock. On the 31st he rises at half past 4 o'clock.

SATURN

is morning star. He is still near the sun, but is emerging from the solar rays, and at the end of the month rises more than three hours before the sun. He may be found among the stars of Cancer, southeast of Castor and Pollux, rising on the 1st about 4 o'clock in the morning, and on the 31st about 2 o'clock.

NEPTUNE

is morning star. He is in quadrature with the sun on the 23d. He is only visible in a powerful telescope, where he may be found in the constellation Taurus, south of the Pleiades, rising on the 1st shortly before midnight, and on the 31st a quarter before 10 o'clock in the evening.

MARS

is morning star, but is so small in size and luster as to be of little account. He is in the constellation Gemini, rising on the 1st about half past 2 o'clock in the morning, and on the 31st a few minutes after 2 o'clock.

Powder Ignited by Lightning.

On the 21st of July, at 2:30 A.M., at Streator, Ill., a mining town, a stroke of lightning struck the powder in the powder house of the Chicago, Wilmington, and Vermillion Coal Co., located half a mile from the center of the town. Ten tons of powder were instantly exploded with disastrous results. Fifty buildings were demolished; but only one person was killed—struck when asleep by a flying brick. Many people were slightly injured.

A terrific peal of thunder was followed by a rocking and swaying of the earth and a sweeping rush of air which made buildings totter on their foundations as if on the crest of a seismic wave.

Brick and debris were hurled in all directions for several hundred yards with such violence as to penetrate the walls of buildings, and dwellings nearly a quarter of a mile from the scene of the explosion were riddled as if by grape and canister. The greatest damage, however, was done by the concussion of air. A row of dwellings 100 yards away were crushed into kindling wood. It seemed as if the atmosphere exerted its strength in a downward direction, and crushed the buildings to the earth.

Blockades under Existing Conditions of Warfare.

At the Royal United Service Institution, recently, a lecture on this subject was given by Rear-Admiral P H. Colomb, who, we may remark, is a gold medalist of the Institution. The chair was taken by Admiral the Rt. Hon. S. A. Cooper-Key, G.C.B. Admiral Colomb gave a very interesting account of the various blockading experiences from the time of Nelson and the Spanish blockade to the war between the North and South Americans. The latter was specially drawn upon as showing the most recent and instructive operations. The lesson learnt from these experiences shows that if the naval forces of England should have to engage in blockading operations against a naval power, they would, in the first instance, be liable to the attacks similar to those which the Federals experienced. But the particular force which promises to interfere most with blockaders is that of torpedo boats, not torpedo vessels; for if torpedo vessels are to take a large place in war, they will take it in the open sea, and as the equals of any other form of open sea naval force. That is to say, they will be the rivals of the fleet ship as at present developed, and aim themselves at becoming the fleet ships of the future, as claimed by M. Gabriel Charmes.

But the torpedo boat does not in any way claim to take the place of the fleet ship. It tends to operate outward from the land, and not inward from the sea. It is more a prospective terror than an open match for the ironclad; and its cheapness, combined with its assumed destructive powers, make it especially the weapon proposed for the driving off of masking or observing forces in the operations of blockade. It is not uncommon to hear naval officers express the opinion that the torpedo boat has made blockade a thing of the past. A well reasoned judgment cannot, however, accept this view. If the Confederate ports had swarmed with torpedo boats, the in-shore squadrons could not have been safely so numerous, nor could they have pressed in so closely nor so perseveringly. To us the sealing up of the enemy's ports can rarely be the object. We are not in a position to attempt such a thing with any country, and consequently our blockade will seldom extend beyond masking and observing—to measures of defense, not of attack. A single observing ship close in to the port, designed to evade the most modern forms of attack, and with her signaling powers developed to the utmost, is all that is necessary for all purposes of observing, when she is in communication with the real force off-shore.

The bases of such observing ships are the new "torpedo catchers." They have a speed which makes the actual attack of torpedo boats remote; a draught of water enabling them to press into the shallows, and rendering the chances of a blow from the locomotive torpedo uncertain. Three or four of such vessels forming an in-shore squadron, always closing in and lying quiet at night, and drawing off as daylight breaks in the morning, would keep quite as close a watch on the egress of the enemy as the numerous vessels of the Federals were able to do. They would be powerless to prevent ingress, but that would be immaterial to us. In the case of vessels or squadrons attempting to escape by night, it would be less the duty of these ships to engage them than to hang on their flanks and continually report their movements by signal to the off-shore squadron, which would detach and concentrate sufficient force to intercept the runaways. If the in-shore observers were attacked either by like forces, or such as might be supposed superior, they would either fight them or draw them off, taking care, however, that some of their number should evade action for the purpose of keeping up the watch.

No doubt the work of these observers would require all the skill, daring, and perseverance that the navy has always been accustomed to show, but it would not be of the harassing character which those of the Federal in-shore squadrons was. And this, simply because they would be relieved of the anxieties due to watching ingress. The fleet proper need not expect every kind of attack without notice. If its watchers fail to keep it warned, there is practically only the torpedo boat attack which can be delivered as a surprise. In this attack, the net defense, though perhaps not a perfect one, is yet a considerable safeguard. A torpedo boat flotilla will not quit the harbor for the attack unless there be some reasonable hope of finding the off-shore fleet, and this need not disclose itself except in answering the signals of the in-shore observers. But this disclosure presupposes warning, and is so much against the hopes of the torpedo boat flotilla.

Shocking an Elephant.

The great elephant Chief, who forms a part of the "pageant of victory" in the play "Fall of Babylon," met with a curious misfortune recently. Just as he was about to go on the stage, the company was startled with a tremendous roar, and the great elephant fell to the stage writhing in pain. It was discovered that he had been engaged in scientific investigations, and had seized an electric light wire with his trunk. He received a severe shock, and his trunk was considerably burned, but he was not otherwise injured.