the end of the month, he sets about twenty minutes past 10 o'clock.

URANUS

is evening star, and has traveled so far away that he is no longer visible except in the telescope. His course during the month is enlivened by an incident. On the 5th, at 3 o'clock in the morning, he is in quadrature with the sun, that is, he has reached his half way house between opposition and conjunction, being 90° from each. He is therefore on the meridian at 6 o'clock in the evening, and well advanced on his western path when the stars come out. His right ascension is 11 hours 4 minutes, and his declination 6° 50′ north.

Uranus sets a quarter before 1 o'clock in the morning; at the close of the month, he sets about 11 o'clock in the evening.

NEPTUNE

is morning star, and the first of the trio enjoying that distinction to emerge above the horizon. It will be remembered that he was in conjunction with the sun on the 6th of May, after which he passed to the sun's western side and became evening star. He is too far away to be seen even in the telescope at present. But the mental eye can pierce the depths of space, and behold the distant planet appearing above the horizon, and taking the lead of the morning stars as they herald the sun's near approach.

Neptune rises a few minutes before half past 3 o'clock in the morning; at the end of the month he rises about twenty-five minutes before 2 o'clock.

SATURN

is morning star, and keeps close to Neptune, there being but seven minutes' difference in the time of their rising at the beginning of the month, and ten minutes' difference at the close. His progress is entirely uneventful, though it is pleasant to think that he has turned the corner leading to opposition, and to imagine the superb aspect he will take on next November. He will begin to be an object of interest during the last part of June, for he rises nearly three hours before the sun. He may be found then in right ascension 3 hours 21 minutes, and declination 16° 20′ north, in the constellation Taurus, forming a triangle with the Pleiades and Aldebaran. Though at his most distant point, and in his smallest phase, he will soon change his aspect. Saturn rises now a little after half past 3 o'clock in the morning; at the close of the month he rises at a quarter before 2 o'clock.

JUPITER

is morning star and comes lagging along an hour after his brother planets. The Prince of Planets makes a forlorn appearance in his lessened size and diminished luster, hugging the sun so closely as to be entirely eclipsed during the first part of the month, and only faintly shining an hour before sunrise at its close. His path during the month is decidedly monotonous after the important part he has played for some months past. But all the planets cannot be leading actors all the time, and a season of rest will bring him out in radiant colors as the months roll on. It is unusual to have nothing to record concerning the movements of the planet upon whom so much attention is lavished when he is near enough for telescopic inspection. Never was a view of his returning face more ardently longed for, and never will the problems concerning the changes on his surface be more zealously studied than when he again draws near.

Jupiter now rises shortly before half past 4 o'clock in the morning; at the close of the month he rises at the end of the month at 3 o'clock.

THE JUNE MOON

fulls on the 1st. The waning moon is in conjunction with Neptune on the 12th, and with Saturn on the 13th. The waning crescent the day before her change is very near Jupiter, passing thirty-seven minutes south. The new moon of the 15th is in conjunction with Mercury on the 16th, and with Venus on the 18th. As Venus will be at the time more than six degrees north of the moon, the conjunction will not be of special interest. The moon passes near Mars on the 20th, and near Uranus on the 22d.

The telescopic material for planetary observation in June is not very satisfactory. Venus will, however, reward the patient observer, for while she retains her gibbous phase, less of her enlightened surface is turned toward us. She, however, more than makes up for the loss of light by her increasing nearness, and presents the seeming anomaly of steadily gaining in size and brilliancy as less and less of her illumined disk is turned toward the earth. Mercury may be studied with interest as he presents the phase of a waning moon in passing to inferior conjunction. Mars and Regulus at conjunction will be instructive objects for the telescope, the planet taking on the form of a ruddy disk with faint markings, and the star remaining a brilliant point of light. Even the largest telescopes can make nothing but points of dazzling light of the largest fixed stars on account of their immense distance.

In the scarcity of other objects the amateur telescopist can fall back upon the moon, which, in certain phases never loses her charm, and is seen to better advantage in a small telescope than a large one. The best time for a view of the moon is near or before the first quarter, when she is from three to eight days old, or under the same conditions during the last quarter. She is then superbly beautiful with her silvery light and curious markings, while her inner edge or terminator presents all manner of fantastic forms.

June is therefore a quiet month among the planets, in striking contrast to the prevailing activity of May. Our celestial neighbors have, however, greatly changed their position. Neptune, Saturn, and Jupiter reign in the morning sky, and anticipate the sun. Saturn and Jupiter will be charming to behold at the end of the month as they make their appearance when the morning light is breaking. The peerless Venus glows in the west throughout the month, and in the later portion reigns almost alone, Mars being the only other representative of the family. Those who watch the movements of Venus can see just how the earth looks when viewed from the planet Mars. Like her, she hugs the sun, oscillates eastward and back again, passes between the sun and Mars, oscillates westward and back again, and completes the circuit. Like Venus, she will, at long intervals make a transit. Martian astronomers, if there be any, will look forward to a transit of the earth as eagerly as terrestrial astronomers are looking forward to the transit of Venus in December. But Martian observers behold something more than our eyes can discern in looking upon Venus, for the earth, as she serenely pursues her course in the Martian sky, is accompanied by a tiny companion, our beautiful moon, transformed by distance from the grand proportions which we behold to a tiny point of light, revolving around the lovely evening star that glows in the Martian sky.

If planetary events are rare there is hope that the movements of the new comet will atone for the deficiency. Unless the men of science are wide of the mark the visitor in our northern sky will become an object of intense interest as, reaching perihelion, he looks down from high northern latitude, displays his shining nucleus, and spreads his gauzy tail over millions of miles of space, coming from unknown depths, and departing to unknown depths again.

CONGRESSIONAL ENGINEERING.

A bill was recently passed by the House of Representatives making an immediate appropriation of $50,000 for the work at Hell Gate, East River. In urging the passage of the bill Mr. Hewitt, of New York, said:

"The underground chambers are nearly ready for the final explosion, but in order that the rocks may be blown out of place this year, it is absolutely indispensable that the work should go on without interruption. If there be any interruption it will postpone the explosion for twelve months, for the reason that nitro-glycerine, which is the explosive agent used, can only be surely and safely exploded during a period of six weeks in September and October. During the summer the lightning which prevails at that time is apt to produce an inductive current, which may discharge the explosive compound; and during the winter the cold weather prevents the explosion altogether; so that any delay in the prosecution of this work will simply delay the entire work for twelve months."

Mr. Hewitt's statement of the case appears to have been convincing and conclusive, the successful explosion at Hallett's Point and the daily use of nitro-glycerine in mining and tunneling in all parts of the country to the contrary notwithstanding.

An Improvement in Ice Making.

Some months ago there was described and illustrated in this paper an important forward step in the economical production of ice artificially, in the binary absorption system, invented by the late C. M. Tessie du Motay and August J. Rossi. This system employed two liquids of unequal volatility, having great affinity, yet separable by reduction of pressure owing to the great volatility of one of them, its volatilization producing intense cold. The binary liquid was a mixture of sulphuric ether and sulphurous dioxide.

Recently Mr. Rossi and Mr. Leonard F. Beckwith, President of the International Ice Machine Company, have discovered that still better effects are obtainable by a mixture of ammonia and glycerine. The non-volatile glycerine absorbs at low pressure many volumes of ammonia; and when the ammonia is vaporized by the action of a pump, intense cold is produced. The chief advantage claimed for the new compound arises from the utilization of the great cold-producing power of the ammonia in volatilization, and the neutralization of its enormous pressure by its absorption in the glycerine. When the machine is at rest the pressure is from zero to 15 pounds, as against 125 pounds in the ordinary ammonia machine, and when the machine is at work the pressure is from 35 to 50 pounds, as compared with a pressure of 225 to 300 pounds in the ammonia machine.

The Faure Storage Battery on Shipboard.

The lighting of the steamship Labrador, on her recent passage from Havre to this port, by electric lamps supplied by Faure accumulators, marks an important stage in the practical application of stored electric energy.

The Labrador took on board at Havre 145 accumulators, said to contain 30,000 amperes of two volts tension. They were charged by a dynamo machine, April 29, and transferred the next day to the steamer, just before she sailed. Fifty of the batteries were placed in the engine room and were used in supplying the light aboard the steamer. Upon the arrival of the steamer at this port it was found that less than 500 amperes had been used, leaving the balance in good condition for future purposes. There were eight lamps kept continually lighted, six of "eight candle" power, one of six, and one of fifty candle light. The lamps used were those of the Edison, Maxim, and Swan lamps, the first named emitting the brightest light.

The accumulators were of two sizes, the larger containing the equivalent of the effective force of one horse power for one hour. The smaller were of about one-third that capacity. The larger batteries contain fourteen lead plates each, inclosed in a box about 20 inches by 8 inches by 12. The cost of electric lights on shipboard, supplied in this way, it is claimed, would be less than the cost of oil now used. The probable weight and cost of batteries for such use are not given.

The Effect of Bleeding on Inflammation.

The effect of local abstraction of blood in relieving local inflammation is one of the ancient doctrines of therapeutics which is still unrefuted and still unexplained. It was formerly held that the result was produced by a perfectly simple *modus operandi*. By the removal of blood from the surface the vessels of the deeper inflamed parts were partly emptied; but it was later recognized that this explanation is incompatible with the known conditions of the circulation. The local removal of blood never produces a lasting effect on the circulation in the part. At the present time it is generally assumed that the effect of local depletion is to remove the inflammatory stasis, although such an effect has never been demonstrated experimentally; and, moreover, the idea of a derivatory action still haunts the theory of the subject, while the effect is sometimes ascribed to the influence of the depletion on the whole mass of blood. The question has been lately subjected to experimental investigation by Genzmer and Nikolas, of Halle, and the results obtained have been described by the former in the *Centralblatt für Med. Wiss.* In the web of the foot of curarized frogs foci of inflammation were excited by punctiform cauterization, either by nitrate of silver or a red hot needle; and the process was watched with the microscope. When well known phenomena of inflammation made their appearance, the aggregation and exit of the white corpuscles, retardation of the blood current, and, finally, the formation of stasis, a leech was applied to the leg. As soon as the leech began to suck, a striking change occurred in the inflammatory process in the foot; the blood current became quickened, and carried on the corpuscles which were adherent to the wall. The stasis passed away, and in a few minutes the inflamed capillaries were cleared, and presented to the end of the experiment a normal and even accelerated circulation. Whether the corpuscles which had already wandered out of the vessels were influenced by the abstraction of blood could not be with certainty determined. In some experiments scarification was employed after the focus of inflammation had been excited. The effect was less conspicuous, since the loss of blood did not occur with the same vehemence as with a leech, although the amount of blood abstracted was nearly the same. The effect of abstraction of blood from the general circulation, by opening an abdominal vein, was still slighter, although the amount of blood taken was considerable. The conclusion drawn from these experiments is that the antiphlogistic action of local abstraction of blood is produced by a purely mechanical agency. A temporary augmentation of the circulation occurs, by which the capillaries are cleared; and the stasis, which is the first step in a local necrosis, is removed. Not only is no local anæmia produced, but there is actually an arterial hyperæmia; there is an increased supply of arterial blood to the focus of inflammation, which, besides its effect on the blood vessels, may reasonably be supposed to improve the nutrition of the tissues, and so to counteract the tendencies of inflammation. The antiphlogistic action is clearly proportioned both to the amount of blood withdrawn and to the rapidity of its withdrawal, and its action is notably greater if the blood can be withdrawn from the circulation between the region of the inflammation and the right side of the heart.—*Lancet.*

An Improved Stone Boat.

A correspondent of the *Country Gentleman* describes a novel form of stone boat in use in Monroe county, N. Y. Instead of having the boards composing the "boat" extend under the entire surface, and only slightly turned up at the forward end, the improvement is a stone sled, with runners six to eight inches broad, composed of two three-inch planks, sawed so as to give a rise of six inches or more at the front. On each of these runners is placed a piece of 3x4 inch scantling, and three lengths of the same four and a half feet long connect the two sides of the boat and form the platform on which good inch boards are laid. The whole is then spiked with wooden bolts extending through the bottoms of the runners. Wooden pins are better than iron, because as the boat wears, iron would tear up the soil. There need not be a particle of iron in the boat, if wide enough boards are used, though it is better to put in a few nails to hold down the center.

This form of boat is very strong, and can be used where an ordinary stone boat would be impracticable. It is decidedly improved by putting in a tongue so as to be more readily guided. With even the slightest fall of snow it is quite as convenient as a sled.

Rear Admiral John Rodgers, U. S. N.

In the death of Rear Admiral John Rodgers, in Washington, May 5, the United States Navy loses one of its oldest and most capable officers. He was lately President of the Naval Advisory Board, and for a number of years has been Superintendent of the Naval Observatory at Washington.