

POSITION OF THE PLANETS IN JUNE.

VENUS

is evening star and is the central object around whom the planetary interest of the fair month of June clusters. It is her last appearance as evening star, and many a month (her whole synodic period of 584 days) will pass before she comes round to a similar position with regard to the sun and the earth. Observers should therefore improve the opportunity to watch her departing steps as she hastens to make her exit from the evening sky so long adorned by her gracious presence. Venus reaches her greatest brilliancy on the 2d at noonday, being then 39° east of the sun and having one-fourth of her illuminated disk turned to the earth. After her superior conjunction until this era in her course, although less of her illuminated surface is turned to the earth, her approach toward us more than counterbalances the lessening light, and her luster increases. After this era, the lessening light more than counterbalances the nearer approach, and the luster decreases. The light number, or the brilliancy of her disk, on the 2d is 183.7 the highest point. It is 44.6 on the 30th. Venus is on the meridian at 2 h. 48 m. P. M. on the 1st, and at 0 h. 57 m. P. M. on the 30th.

Figures are unnecessary to convince observers of the quickly-coming changes in the aspect of this bright planet. She will be seen to set earlier every night, seemingly to approach the sun and lose a portion of her light, and when the month closes will be so near the sun that it will take bright eyes to find her.

The one-day-old moon is in conjunction with Venus on the 25th at 8 h. 5 m. P. M., being 6° 16' north, but crescent and planet are near the sun, and are above the horizon together scarcely an hour after the sun has set.

The right ascension of Venus on the 1st is 7 h. 35 m., her declination is 24° 14' north, her diameter is 37".2, and she is in the constellation Gemini throughout the month.

Venus sets on the 1st at 10 h. 19 m. P. M. On the 30th she sets at 8 h. 5 m. P. M.

MARS

is morning star. We place him second on the June annals, not for his present but for his coming importance. He is within two months of his opposition, when he will attract more attention and be more carefully observed than the rest of the heavenly bodies put together. Astronomers and amateurs will vie with each other in seeking to find out something new on his surface, when, about August 4, he makes his neighborly call, approaching the earth's domain 13,000,000 miles nearer than he does when his opposition takes place near his aphelion. He is now a somewhat insignificant red star of about one-third his future brightness, rising about half past 11 o'clock in the early part of the month, and reaching the meridian about 4 o'clock. Observers will find him at 2 o'clock about half way between the horizon and the zenith. These are the conditions for the first part of the month. Later, he will rise earlier, perceptibly increase in size and ruddy light as the month draws to a close, and give unmistakable signs of the grandeur and majestic mien to which early astronomers paid tribute when they named him for the god of war.

The moon four days after the full is in conjunction with Mars on the 14th, at 1 h. 15 m. P. M., being 1° 25' south.

The right ascension of Mars on the 1st is 20 h. 57 m., his declination is 20° 23' south, his diameter is 15".8, and he is in the constellation Capricornus.

Mars rises on the 1st at 11 h. 26 m. P. M. On the 30th he rises at 10 h. 0 m. P. M.

JUPITER

is morning star. There is a law of compensation in matters celestial as well as terrestrial. When Venus falls from her high estate in the evening sky, Jupiter asserts his right to reign in the morning sky. He is now a superb object in the early morning of the month of June, rising on the 1st of the month two hours before the sun, and on the last of the month four hours before the sun. A glance at the morning sky will reveal his presence in the east, for this princely planet is always bright when visible. He must be looked for a few degrees north of the eastern point of the heavens, and his benignant presence in the dawn is worth getting up to see. Northern observers have two things to be thankful for, that Jupiter is moving northward, and approaching perihelion, two events that will make him the grandest object in the heavens when the month of October is ushered in.

The moon, two days after her last quarter, is in conjunction with Jupiter on the 19th, at 6 h. 40 m. A. M., being 1° 9' south.

The right ascension of Jupiter on the 1st is 1 h. 5 m., his declination is 5° 41' north, his polar diameter is 34".4, and he is in the constellation Pisces. Jupiter rises on the 1st at 2 h. 1 m. A. M. On the 30th he rises at 0 h. 17 m. A. M.

SATURN

is evening star. One event enlivens his course. He is in quadrature on the 14th at 3 h. A. M., being 90°

east of the sun. This brings Saturn near the meridian at sunset, and during the rest of the month he will be visible only in the west, setting at the close of the month four hours after the sun and three hours later than Venus.

The moon is in conjunction with Saturn, when eight days old, on the 3d at 1 h. 15 m. A. M., being 2° 5' north.

The right ascension of Saturn on the 1st is 11 h. 39 m., his declination is 4° 48' north, his polar diameter is 17".0, and he is in the constellation Virgo. Saturn sets on the 1st at 1 h. 12 m. A. M. On the 30th he sets at 11 h. 16 m. P. M.

MERCURY

is morning star until the 20th, and then evening star. He is in superior conjunction with the sun on the 20th at 11 h. 44 m. A. M., when he appears on the sun's eastern side, as evening star, and makes a rapid approach to Venus, whom he almost overtakes when the month closes. He is in conjunction with Neptune on the 10th at 11 h. 50 m. P. M., being 1° 2' north, neither of the actors in the scene being visible.

The right ascension of Mercury on the 1st is 3 h. 26 m., his declination is 16° 42' north, his diameter is 6".0, and he passes during the month through the constellation Taurus and nearly through Gemini.

Mercury rises on the 1st at 3 h. 35 m. A. M. On the 30th he sets at 8 h. 20 m. P. M.

URANUS

is evening star. The moon, four days after her first quarter, is in conjunction with Uranus on the 6th, at 9 h. 22 m. A. M., being 0° 53' north. The resulting occultation is visible in China, but not in America. It is worthy of note that the moon's present path lies so near to where Uranus is now that the moon has occulted Uranus (when the June occultation has passed) in every month of the present year, one occultation only being visible here.

The right ascension of Uranus on the 1st is 14 h. 2 m., his declination is 11° 54' south, his diameter is 3".8, and he is in the constellation Virgo.

Uranus sets on the 1st at 2 h. 37 m. A. M. On the 30th he sets at 0 h. 41 m. A. M.

NEPTUNE

is morning star, a role he assumed on the 29th of May. He is, therefore, at the beginning of June, too close to the sun to be seen.

The right ascension of Neptune on the 1st is 4 h. 30 m., his declination is 20° 18' north, his diameter is 2".5, and he is in the constellation Taurus.

Neptune rises on the 1st at 4 h. 29 m. A. M. On the 30th he rises at 2 h. 39 m. A. M.

Venus, Saturn, and Uranus are evening stars throughout the month. Mars, Jupiter, and Neptune are morning stars. Mercury is morning star at the beginning of the month, and evening star at the close.

The Egg of Columbus.

BY DR. P. H. VANDER WEYDE.

When we carefully, with an unprejudiced mind, examine the traditional anecdote of the egg of Columbus, we are driven to the conclusion that there is even less truth in it than there is in that other traditional story that Newton discovered the theory of gravitation by accidentally seeing an apple fall from a tree. Gravitation was not discovered, neither must we ever speak of the "theory of gravitation," because gravitation is not a theory but a stubborn fact, which everybody understands by experience. Surely the apple was not the first thing which Newton ever observed to fall down. He discovered nothing new, but what he did was that, by his inventive genius, aided by his mathematical knowledge, he detected the link of connection between the amount of centrifugal force generated by the motion of the moon in its elliptical orbit around the earth with the amount of velocity which it would obtain by the earth's attraction when it were left to itself without revolving, and he found that these two forces balanced each other, so that the velocity of falling to the earth and the velocity of flying off from the earth generated by the centrifugal force were alike, and kept the moon at the same average distance.

The result of Newton's labors were as much invention as discovery. He first invented a mathematical theory, and when applying it to the motion of the moon he found it to be verified by the facts, and this was a discovery.

This leads me to call attention to the difference of the meaning of these two words, which are frequently confounded, as well in England as in our country. So I find, for instance, the London *Illustrated News* mentioning "the discovery of the sewing machine in America," as if the sewing machine had been lying loose in our Western States and had been discovered, like we discover coal mines or like De Soto discovered the Mississippi River.

The above reasoning will make it clear that an invention is to create a thought, theory or material object which was not known or did not exist before, while a discovery is to unveil to the world something which existed, but was unknown to mankind.

Applying these truths to what Columbus did, we find that he discovered a new world, and, considering the results, he did, in fact, more than was done by any man who ever lived. Comparing this with the stupid anecdote of the egg, it is clear that this had nothing to do with his grand discovery, as it was no discovery at all. It was a mere trifling invention, in fact a trick; and it is surprising that intelligent men have for so many years thoughtlessly been believing and repeating such nonsense. For my part, I cannot believe that Columbus did ever lower himself so far as to compare his grand discovery to a trick. Surely it was no trick by which he discovered a new world, but it was the result of his earnest philosophical convictions that our earth is a globe floating in space, and it could be circumnavigated by sailing westward, which most likely would lead to the discovery of new lands in the (before him) utterly unknown hemisphere beyond the western expanse of the great and boisterous Atlantic Ocean; while thus far no navigator ever had the courage to sail toward its then utterly unknown, apparently limitless, western expanse.

Columbus is the most illustrious example which the world ever saw of faith in his own philosophical deductions, and of perseverance in his attempts to verify that which he had faith in, and all mankind must glory in his triumph, in the same sense as that which our illustrious poet Whittier describes in his poem entitled "My Triumph."

But suppose that the most undeniable evidence were forthcoming that it really happened that Columbus illustrated his method of the discovery of a new world by the smashing of the point of a hard-boiled egg, I will say that his comparison was a most unfortunate one, considering the obstacles in the way of his grand discovery, obstacles which his perseverance did overcome, such as hardships by stress of weather, privations, and even mutiny of the crew on board of his ship—all these and many more he had to vanquish; and when we compare the ultimate results of his discovery with that of crushing the shell of a hard-boiled egg, the only reasonable explanation I can find is that Columbus was an old sailor, and cracked the egg shell after a dinner party.

Shade Plants.

In addressing the Association of American Cemetery Superintendents at Chicago last autumn, Mr. Eurich, of Toledo, Ohio, said, with regard to plants that can be used to cover the ground beneath trees where grass will not grow, that he had experimented successfully with two "sod-forming" plants, *Herniaria glabra* and *Veronica repens*. The first named, he explained, "is a moss-like, creeping plant which covers the ground in a very short time, and surpasses a grass sward in beauty. A strip of ground was planted in April with one hundred such plants set apart, and in less than two months the entire surface was covered closely. The plants were thinned out, so that we obtained more than twice the original number, and an adjoining new piece was planted with the same result. This procedure was repeated in August, and before winter set in we had a beautiful greensward of *Herniaria* growing. A very cold winter followed, and the plants were tinged slightly brown, but by April were again charmingly green. *H. glabra* will thrive in any soil in the open sun or in the shade." *Veronica repens*, the speaker, said, "has somewhat larger leaves of shining green and generally the same characteristics as *Herniaria glabra*. A grave mound planted with it in August was completely covered by fall, and with a slight protection during the winter was brighter and fresher than the mounds covered with myrtle (*Vinca*) and ivy. The special feature of this plant is that in May it is completely covered with very light blue flowers as low as the plant itself."

Satisfactory Test of New Armor Plates.

A satisfactory test of 14 inch nickel-steel armor was held at the Indian Head proving ground on the 21st ult. This is the thickest armor plate yet tested by the Naval Ordnance Bureau.

The plate came from the Bethlehem Works, in Pennsylvania, where the armor for the battle ships is being manufactured under contract. The present plate was the first, the test plate, of the 800 tons of 14 inch diagonal armor intended for the Massachusetts, Indiana, and Oregon. The usual severe conditions which surround the acceptance tests of armor obtained at the trial, and, after the firing, an order was sent to Bethlehem by Commodore Folger, the Chief of Ordnance, to complete the order and deliver the material.

Three shots were fired at the plate. There was not a crack anywhere visible after the shots, nor a perforation. It is said this is the best showing made by any armor in any recorded test.

Aluminum in the Galvanizing Process.

According to Mr. J. W. Richards, the addition of a mere trace (0.08 oz.) of aluminum to a ton of zinc makes a galvanizing base which insures a highly crystalline and permanently brilliant and adhesive coating.