ASPECTS OF THE PLANETS FOR MAY.

VENUS

is evening star. She takes the lead among her brethren, not only for being fairest, brightest, and largest of the stars, but also for the occurrence of one of the four great epochs in her course.

On the 2d, at 5 o'clock in the evening, she reaches her greatest eastern elongation, when she is 45° 33′ east of the sun. Not a second farther can she go. The invisible chain that binds her to the sun has reached its limit. The fair planet then rests from her labors, and stands still in her course as if conscious of her surpassing loveliness, and willing that observers on this planet should have a chance to admire the fascinating grace of her presence. But she remains not long inactive. She turns her course westward and approaches the sun, or retrogrades, at a more rapid pace than she receded from him. Any intelligent observer can see this, for her westward movement or approach to the sun is easily traced from night to night as she threads her way among the stars. This she will do until she reaches inferior conjunction in July, when, passing between us and the sun, she reappears on his western side as morning star, and will be seen no more in the evening sky for 292 days.

The apparent course of Venus as viewed from the earth is as follows: From superior conjunction she moves in a straight line eastward from the sun till eastern elongation—her aspect on the 2d—and approaches him till inferior conjunction. The process is then reversed. She moves in a straight line westward from the sun to western elongation, and completes the circuit by approaching him till superior conjunction. She is then hidden in his dazzling rays, to emerge again as evening star, and recommence the same series of oscillations till another synodic period of 584 days is completed.

This is her apparent course. Her real course is a revolution around the sun in an almost circular orbit from west to east and at an almost uniform rate of speed.

The reason her apparent path in the heavens differs so much from her real path is easily explained. The earth, from which she is viewed, is moving in her orbit with a velocity of 18 miles a second. Venus is moving in a smaller orbit with a velocity of 21 miles a second. The result of these complicated movements is that Venus, to an observer on the earth, moves in straight lines east and west of the sun and follows closely in his steps. As Venus appears to terrestrial observers, so the earth appears to Martian observers, oscillating east and west in the same way, and sometimes like Venus making a transit over the sun's disk.

Venus will be the loveliest star in the heavens during the month. She will be an object of peerless beauty as, after elongation, she turns her steps westward, moves rapidly toward us, and shines benignantly in the glowing west, scarcely heeding the presence of the departing sun. The fairest of the stars is now a delightful planetary study for the naked eye and for the telescope. Observed in the telescope at elongation or a few days after, half her disk is illumined like the moon at her last quarter. Soon after, she takes on the form of the waning crescent, growing "fine by degrees and beautifully less" with every reappearance. Venus in crescent form near inferior conjunction is a beautiful telescopic object. Her high northern declination adds greatly to the brilliance of her present appearance.

The beautiful planet is especially interesting on account of the striking resemblance she bears to the earth. In size, density, position, the possession of an atmosphere, the time of her rotation, the length of her seasons, the form of her orbit, the amount of light and heat she receives from the sun, she is more like the earth than any other member of the solar system. She is our nearest planetary neighbor, and, if only a moon were following in her track, Venus and the earth would be the twin sisters of the sun's family. Indeed, the planets seem to be linked in pairs. Jupiter and Saturn are the giants of the system. Neptune and Uranus follow in their train, and Mars and Mercury complete the roll.

The right ascension of Venus on the 1st is 5 h. 48 m.; her declination is 26° 45′ north; and her diameter is 23·6″.

Venus sets on the 1st a few minutes before 11 o'clock in the evening; on the 31st she sets at half past 10 o'clock.

NEPTUNE

is evening star until the 10th, when, leaving his brethren behind, he crosses to the sun's western side, and becomes morning star. This event occurs on the 10th, at 10 o'clock in the evening, and is called his conjunction with the sun. It is as important an event in his course as the eastern elongation of Venus is in hers. Neptune is then at his farthest point from the earth, and nearest to the sun. He is "joined" to him, as the word conjunction means rising and setting at the same time, and as completely hidden in the sun's rays as he was from terrestrial observers before his discovery in 1846.

On some accounts, Neptune will be a pleasant planet to dwell in, when, in the progress of ages, he becomes fit for the abode of animate life. All the other known planets are inferior or inner as viewed from his domain, and move in straight lines east and west of the sun, as Venus and Mercury move in our sky. But if the Neptunians have eyes like ours, they are at such an immense distance that only Uranus, Saturn, Jupiter, and perhaps Mars will be visible. Their best telescopes will hardly pick up the earth, and our beautiful Venus and fleet-footed Mercury will be forever unknown. All the planets will make transits, but at such long intervals that Uranus, the nearest neighbor, makes one only once in 40,000 years. The sun is no larger than Venus when largest, and is but a brilliant day star.

Planets beyond our ken may shine in the Neptunian sky, and astronomers there have a broad base line, thirty times as large as ours, for measuring the distance of the fixed stars. The temptation to a change of planets is not alluring. The earth with her glorious sun, her solitary moon, the six brother planets visible to the unaided eye, her favorable position in the system, and her perfection of physical development, affords all the conditions that can be desired, and the inhabitants of this fair planet are so well contented that they seldom desire to leave it.

The right ascension of Neptune on the 1st is 3 h. 14 m.; his declination is 16° 13′ north; and his diameter is 2·5″.

Neptune sets on the 1st about half-past 7 o'clock in the evening; on the 31st he rises about half past 3 o'clock in the morning.

MARS

is evening star, and contributes two incidents to enliven the planetary routine during the month. On the 5th, at midnight, Mars is in quadrature with the sun, following Neptune, Saturn, and Jupiter, and preceding Uranus in arriving at this point in his course. He then takes his turn in looking down from the meridian at 6 o'clock, and setting at midnight.

On the 31st, at 11 o'clock in the morning, Mars is in conjunction with Regulus, or Alpha Leonis, the bright star in the handle of the Sickle, the planet being 58 minutes north of the star. The conjunction or nearest approach of the bright actors in the celestial drama will not be visible, but planet and star will be near together on the evening of the 30th, and will be found to have passed each other on the evening of the 31st. The conjunction of a planet and a bright star is always interesting, and so is their gradual approach, which may be observed during the month.

Mars is the red planet east of Jupiter, and Regulus the bright star east of Mars.

The right ascension of Mars is now 9 h. 9 m.; his declination is 18° 32′ north; and his diameter is 8″.

Mars sets on the 1st at half-past 1 o'clock in the morning; on the 31st he sets a few minutes after midnight.

JUPITER

is evening star, and takes no active part in the events of the month, contented with looking his best, as with stately step he descends slowly toward the west and draws nearer, like the other superior planets, to conjunction with the sun. Jupiter is near enough to Venus during the month to bring out the fine contrast in coloring and brilliancy between the two planets.

The right ascension of Jupiter on the 1st is 7 h. 57 m.; his declination is 21° 20′ north; and his diameter is 34·2″.

Jupiter sets on the 1st about a half an hour after midnight; on the 31st he sets a few minutes before 11 o'clock in the evening.

SATURN

is evening star, and, like Jupiter, contributes nothing to the incidents of the month. He moves serenely on his way, surrounded by a bright galaxy of stars, and disappears at an early hour in the evening from the starlit conclave that has been the scene of his beaming presence during the long winter nights. He makes his bow to his terrestrial audience at the close of the month, for he is then too near the sun to be visible.

The right ascension of Saturn on the 1st is 4 h. 32 m.; his declination is 20° 25′ north, and his diameter is 15·8″.

Saturn sets on the 1st a few minutes after 9 o'clock in the evening; on the 31st he sets at half past 7 o'clock.

MERCURY

is evening star until the 17th, when he joins Neptune in deserting the ranks of the evening stars. On the 17th, at 5 o'clock in the afternoon, Mercury is in inferior conjunction with the sun. He is then between us and the sun, and, passing to his western side, becomes morning star. He is visible for the first few days of the month as evening star in the vicinity of the Pleiades, but after that time is of little importance on the monthly record.

The right ascension of Mercury on the 1st is 3 h. 50 m.; his declination is 22° 43′ north; and his diameter is 10·2″.

Mercury sets on the 1st about half past 8 o'clock in the evening; on the 31st he rises a few minutes before 4 o'clock in the morning.

URANUS

is evening star, and plods on his slow course in the constellation of Virgo, far removed from his brother planets at present, though some of them will overtake and pass him in the course of the year.

The right ascension of Uranus on the first is 11 h. 40 m.; his declination is 2° 57′ north; and his diameter 3·7″.

Uranus sets on the 1st at 10 minutes after 3 o'clock in the morning; on the 31st he sets a few minutes after 1 o'clock.

THE MOON.

The May moon fulls on the 9th at 7 minutes after 11 o'clock in the evening, standard time. On the 2d, the day of her first quarter, she is in conjunction with Mars, and on the 5th with Uranus. She then keeps clear of the planets until the 23d, the day before her change, when she passes near Neptune. On the 24th, a few hours before new moon, a beautiful phenomenon occurs. At 37 minutes past 1 o'clock in the morning, the moon is in close conjunction with Mercury, passing one minute north. Moon and planet are then below the horizon and invisible. If they were only above the horizon, and were not too near the sun to be seen, the waning moon diminished to a slender thread of silver light, and the sparkling planet almost touching her bright limb, would form a lovely picture. In some localities lying between the limiting parallels of 36° north and 25° south latitude Mercury is occulted by the moon.

The waning moon, after paying her respects to the morning stars Neptune and Mercury in the eastern sky, reappears in the western as the new moon one never tires of seeing. On the 25th she is in conjunction with Saturn, the first planet in her pathway. On the 27th she is at her nearest point to Venus, but as she is 8° 7′ south, the conjunction will hardly be noticed. On the 28th she is at her nearest point to Jupiter, and on the 30th to Mars. The conjunctions with Saturn, Venus, Jupiter, and Mars occur between new moon and the first quarter, and show how near these planets are together and the order of their distance from the sun.

Copyrights for Photographs.

In the case of Sarony *vs.* Burrow Giles Lith. Co., the Supreme Court of the United States holds that in certain cases photographs are to be regarded as art works, and copyrights therefor will be sustained.

The original suit was commenced by an action at law in which Sarony was plaintiff and the lithographic company was defendant, the plaintiff charging the defendant with violating his copyright in regard to a photograph, the title of which is "Oscar Wilde, No. 18." A jury being waived, the court made a finding of facts on which a judgment in favor of the plaintiff was rendered for the sum of $600 for the plates and 85,000 copies sold and exposed to sale, and $10 for copies found in his possession, as penalties under section 4,965 of the Revised Statutes.

Among the finding of facts made by the court the following presents the principal question raised by the assignment of errors in the case:

3. That the plaintiff, about the month of January, 1882, under an agreement with Oscar Wilde, became and was the author, inventor, designer, and proprietor of the photograph in suit, the title of which is "Oscar Wilde, No. 18," being the number used to designate this particular photograph and of the negative thereof; that the same is a useful, new, harmonious, characteristic, and graceful picture, and that said plaintiff made the same at his place of business in said city of New York, and within the United States, entirely from his own original mental conception, to which he gave visible form by posing the said Oscar Wilde in front of the camera, selecting and arranging the costume, draperies, and other various accessories in said photograph, arranging the subject so as to present graceful outlines, arranging and disposing the light and shade, suggesting and evoking the desired expression, and from such disposition, arrangement, or representation, made entirely by the plaintiff, he produced the picture in suit, Exhibit A, April 14, 1882, and that the terms "author," "inventor," and "designer," as used in the art of photography and in the complaint, mean the person who so produced the photograph.

Other findings leave no doubt that plaintiff had taken all the steps required by the act of Congress to obtain copyright of this photograph, and section 4,952 names photographs among other things for which the author, inventor, or designer may obtain copyright which is to secure him the sole privilege of reprinting, publishing, copying, and vending the same. That defendant is liable under that section and section 4,965 there can be no question, if those sections are valid as they relate to photographs.

The findings, we think, show this photograph to be an original work of art, the product of plaintiff's intellectual invention, of which plaintiff is the author, and of a class of inventions for which the Constitution intended that Congress should secure to him the exclusive right to use, publish, and sell, as it has done by section 4,952 of the Revised Statutes.

Manganese in Marble.

M. Dieulafait has shown that manganese in the state of bicarbonate exists in the waters of all seas and oceans; and M. Berthelot has pointed out that in contact with oxygen, this bicarbonate becomes bioxide. It follows that oxides of manganese must be produced in large quantity in the ocean, and sinking by their weight must accumulate on the ocean bed. This corollary explains the existence of the large quantities of bioxide of manganese concretions and manganiferous mud found in the sea bed. It also explains the existence of manganese in the French and English chalks of the secondary period; also the fact recently discovered by M. Dieulafait, that the well known artistic marbles of Carara, Paros, and the Pyrenees are comparatively rich in manganese. There are two kinds of Carara marble: the ordinary, which has a bluish tinge on fracture, and the statuary marble, which is very pure and white. The well known chemical reaction showed manganese in both kinds. Parian marble, which has larger grains than Carara, also showed manganese in even greater proportion than the Carara; and the Pyrenean marbles, which resemble the Carara in being of two qualities, also contain manganese in about the same proportion. The agreement in proportion seems to indicate a similarity of cause for the presence of the manganese.

THE *Lancet* informs a correspondent that "the possibility, nay the certainty in many cases, of flies being a medium of infection, especially in warm climates, has been repeatedly pointed out, though perhaps the fact is not sufficiently borne in mind."