

ASPECTS OF THE PLANETS FOR JUNE.

VENUS

is evening star, and takes on her most beautiful aspect during the passage of the loveliest month in all the year. On the 3d, at noonday, she reaches her period of greatest brilliancy, and shines resplendent among the stars as their acknowledged queen. Her present high northern declination makes her an unusually conspicuous object. It will be no difficult matter to find her at noonday if her position is well known. A careful observation will bring her out as an intense white point in the sky. It will also be found that her light is so brilliant that objects illumined by her rays will cast perceptible shadows.

Her period of greatest brilliancy as evening star occurs thirty-six days before her inferior conjunction, and is accounted for in this way. The variations in her aspects and apparent magnitude are very great. At superior conjunction, or when beyond the sun, she is 160,000,000 miles distant from the earth, and presents the appearance of a small round disk, 10 inches in diameter. When nearest the earth she is only 25,000,000 miles distant, and if her illumined face were visible she would be more than 60 seconds in diameter. Between these two points she passes through various phases like the moon from full to new moon, approaching the earth all the time.

The nearer she comes the less is the portion of her illumined disk turned toward us, but her increasing size more than compensates for her lessened light, and her brilliancy steadily increases. When she is within 40 degrees of the sun, and the enlightened part of her disk is about one-quarter of the whole, her culminating point is reached, and she rejoices in her period of greatest brilliancy. This is the case on the 3d. After that time, though increasing in size as she approaches the earth, the gain in dimensions does not compensate for the lessened light, and the luster of the fair planet grows dim. These changes in the appearance of Venus may be watched and verified by interested observers, who will find the results more tangible than they are in many astronomical observations that are less easily attained and more minute.

Venus is now a superb object in the telescope, where she takes on the phase of the waning crescent. A good instrument will bring her out as large as the moon, her beautiful crescent rapidly lessening in size as she draws nearer to the great luminary in whose rays her lesser light will soon be absorbed. It is better to observe her in the daytime, for her light, unpleasantly dazzling on a dark sky, is softened by daylight into a pearly haze of indescribable beauty. The present opportunity should be improved for a telescopic view of the queen of the stars, for the coincidence of her high position in the north and her period of greatest brilliancy afford most favorable conditions for satisfactory observation.

The right ascension of Venus on the 1st is 7 h. 38 m.; her declination is 24° 9' north; and her diameter is 35'.

Venus sets on the 1st about half past 10 o'clock in the evening; on the 30th she sets about half past 8 o'clock.

SATURN

is evening star until the 3d, when, following Neptune's example, he deserts the ranks and becomes morning star. On the 3d, at 4 o'clock in the afternoon, Saturn is in conjunction with the sun, passing apparently beyond him, and reappearing on his western side. Just as surely as he is lost to sight in the evening sky, just so surely will he soon become visible in the morning sky, pursuing his appointed path in the heavens, and holding in place his complex system of rings and moons in obedience to the same simple law by which in turn his huge mass is swayed by the sun. His coming circuit around the sun will be even more interesting than the one now completed, for he will be nearly at perihelion when it closes. His next conjunction occurs in June, 1885, and his perihelion in October of the same year, when he will be nearly 100,000,000 miles nearer the sun than he is at aphelion. His high northern declination will continue during the coming year, and his rings will be open to their widest extent.

Saturn, therefore, for two or three coming years will appear in his most propitious aspect. Observers will find the most favorable opportunity for studying this magnificent and complicated system. Astronomers will use their utmost endeavors to learn what the rings are made of, how they are held together, if they are really approaching the planet, and will seek to discover new satellites. Mr. Lockyer has recently made some interesting and satisfactory studies of the Saturnian rings, which will probably soon be made public.

If human beings, when they shuffle off this mortal coil, were permitted to choose another planet for an abode, there would be a great flocking to the planet whose beauty surpasses that of any other member of the system, whose sky is spanned by a golden arch, and adorned and illumined by eight moons, taking on all manner of phases.

The right ascension of Saturn on the 1st is 4 h. 48 m.; his declination is 21° north; and his diameter is 15'.

Saturn sets on the 1st about half past 7 o'clock in the evening; on the 30th he rises about 3 o'clock in the morning.

MERCURY

is morning star throughout the month. He reaches his greatest western elongation on the 12th, at 11 o'clock in the evening, being then 33° 19' west of the sun. About that time he is in a favorable position for observation with the naked eye.

Mercury rises on the 12th shortly before half past 3 o'clock,

and must be looked for soon after that hour. He will be 6 degrees south, and four times that distance west of the sun. The sky must be cloudless and the atmosphere clear, or the effort of early rising will be in vain; for under no other conditions will the "Sparkling One" deign to appear "under the opening eyelids of the morn." We give the middle of the period of visibility, but the planet may be seen for a week before and a week after the elongation. Mercury will be visible to the naked eye as morning star only once more during the year, in October.

On the 25th, at 6 o'clock in the evening, Mercury is in conjunction with Saturn, the planets being but one minute apart. Unfortunately, they are invisible at the time of conjunction, and when they rise on the next morning too near the sun for the observation of their near approach.

The right ascension of Mercury on the 1st is 3 h. 26 m.; his declination is 14° 43' north; and his diameter is 10'.

Mercury rises on the 1st at a quarter before 4 o'clock in the morning; on the 30th he rises soon after half past 3 o'clock.

JUPITER

is evening star, and is a lovely object to behold in the western sky, where he reigns conjointly with Venus as leader of the bright congregation of glowing stars. He will no longer approach his fair rival, for after the elongation of Venus both planets are apparently moving westward, Venus outstripping her companion in the race. When the month closes she will disappear from view in her near approach to the sun, leaving him master of the field.

The right ascension of Jupiter on the 1st is 8 h. 16 m.; his declination is 20° 22' north; and his diameter is 32'.

Jupiter sets on the 1st a few minutes before 11 o'clock in the evening; on the 30th he sets about a quarter after 9 o'clock.

MARS

is evening star, and is rapidly dwindling into insignificance as he travels from the earth and approaches the sun. It seems almost impossible that he can be the same grand and imposing planet that looked down from the sky at the opposition of 1877, when his two moons were discovered. But, in 1892, he will appear again in imposing size and martial aspect, for planets return from their wanderings to the same starting point in obedience to the same laws that hold the stars in their courses, compel millions of meteors to fall upon the earth every day, and determine the paths of the comets that visit the domain of our sun in their flight from star to star. Mars does nothing during the month but grow dim, travel slowly eastward in direct motion, and almost plunge southward.

The right ascension of Mars on the 1st is 10 h. 4 m.; his declination is 13° 20' north; and his diameter is 6'.

Mars sets on the 1st soon after midnight; on the 30th he sets about 11 o'clock in the evening.

URANUS

is evening star. He remains almost stationary during the month, and is being rapidly overtaken by Mars. As Uranus is invisible, the approach cannot be observed with the unaided eye, and is not entertaining.

The right ascension of Uranus on the first is 11 h. 39 m.; his declination is 3° 4' north; and his diameter is 3'.

Uranus sets on the 1st soon after 1 o'clock in the morning; on the 30th he sets at a quarter after 11 o'clock in the evening.

NEPTUNE

is morning star as well as Mercury, and Saturn joins them on the 3d. Therefore three of the sun's family are on his western side, anticipating his rising as morning stars, and four still remain on his eastern side as evening stars.

The right ascension of Neptune on the 1st is 3 h. 18 m.; his declination is 16° 30' north; and his diameter is 2'.

Neptune rises on the 1st about half past 3 o'clock in the morning; on the 30th he rises about a quarter before 2 o'clock.

THE MOON.

The June moon fulls on the 8th at 49 minutes after 2 o'clock in the evening, standard time. The moon, the day after her first quarter, is in conjunction with Uranus. On the 20th the waning moon is in conjunction with Neptune, and on the 21st with Mercury and Saturn. On the 24th the new moon, one day old, is near Venus, on the 25th near Jupiter, and on the 28th near Mars and Uranus.

Measurement of Milk.

If the tests of noted cows were made known in quarts instead of pounds, the experiments would be more easily understood. It may be supposed that every farmer knows how many pounds of milk are contained in a gallon, but the common custom of measuring with the liquid system is not easily usurped, and we may safely assert that there are hundreds of farmers who read of the yields of cows, given as so many pounds of milk, and yet do not feel competent to state what that quantity should be in liquid measure. The method of weighing by the scales also misleads, as the quantity is usually seemingly larger than that from good dairy cows; but give the record in quarts, and every farmer understands the quantity at once.

Milk does not weigh the same under all conditions. A gallon of new milk should weigh eight pounds and eight ounces, or two pounds and two ounces per quart. It requires a pencil and paper for the farmer to reduce a certain number of pounds to the more familiar quarts, owing to the weight of a quart exceeding two pounds, and with a fraction to contend against. Again, skimmed milk weighs an ounce

more to the gallon, or eight pounds and nine ounces, while cream weighs only eight pounds and four ounces. Butter-milk, however, weighs eight pounds and eight and a half ounces, and the fraction in that case is a bother. Few farmers read milk records closely when pounds are given, for they do not wish too much arithmetic in simple statements, although the weight system may be preferable at times; but give the production in quarts, and greater interest will be created in the tests, for the easier and more thoroughly understood the experiments, the better for those who make them and for those who are indirectly interested.—*The Farm, Field, and Fireside.*

A Feat of Telegraphy.

We have often heard of the wonderful line between this country and Teheran, the capital of Persia, a distance of 3,800 miles, but we scarcely realized the fact that good signals were obtainable through so great a length of wire until recently, when we availed ourselves of an invitation from Mr. W. Andrews, the managing director of the Indo-European Telegraph Company, to make a visit of inspection. It was between 7 and 8 on Sunday evening, April 13, when we reached the office. In the basement of an unpretentious building in Old Broad Street we were shown the Morse printer in connection with the main line from London to Teheran. The courteous clerk in charge of the wire, Mr. Blagrove, informed us that we were through to Emden, and with the same ease with which one "wires" from the City to the West End we asked a few questions of the telegraphist in the German town. When we had finished with Emden, we spoke with the same facility to the gentleman on duty at Odessa. This did not satisfy us, and in a few seconds we were through to the Persian capital (Teheran). There were no messages about, the time was favorable, and the employes of the various countries seemed anxious to give us an opportunity of testing the capacity of this wonderful line.

T. H. N. (Teheran) said, "Call Kurrachee," and in less time than it takes to write these words we gained the attention of the Indian town. The signals were good, and our speed must have equaled fifteen words a minute. The operator at Kurrachee, when he learnt that London was speaking to him, thought it would be a good opportunity to put us through to Agra, and to our astonishment the signals did not fail, and we chatted pleasantly for a few minutes with Mr. Malcom Khan, the clerk on duty. To make this triumph of telegraphy complete, Agra switched us on to another line, and we soon were talking to a native telegraphist at the Indian Government Cable Station, Calcutta. At first the gentleman "at the other end of the wire" could not believe that he was really in direct communication with the English capital, and he exclaimed in Morse language, "Are you really London?" Truly this was a great achievement. Metallic communication without a break from 18 Old Broad Street, London, to the telegraph office in Calcutta! Seven thousand miles of wire! The signals were excellent, and the speed attained was not less than twelve, perhaps fourteen, words per minute.—*Telegraphist.*

The Magnetic Polarity of Iron.

Captain John Hayden, of Bath, Me., author of "The Requisite Nautical Assistant," writes us that as long as forty years ago he practically tested, on shipboard, the influence of upright iron bars or masses of iron on the needle. He says: "Iron rods or bars, in a horizontal position, exert but little force on the compass, but the same amount and form of iron placed vertically produce an immense effect on the needle. The iron rod immediately becomes magnetic when placed in a vertical position, its magnetism increasing with the length of time it so remains, although it manifests no magnetism when parallel with the horizon. This effect on iron is most marked when the rod is held or placed in the magnetic meridian, and in the direction of the tipping needle, which is in this country with the bottom end swung to the north about thirty degrees from the perpendicular."

Remedy for Phthisis.

Aluminum and its compounds are affirmed by Dr. Pick, in the *Pharmaceutical Journal*, to constitute a most effective remedy against pulmonary tuberculosis, this opinion being based on experiments upon rabbits as well as on clinical observations. In one case, where infiltration of the apices of the lungs had occurred, removal of the lesion and all the morbid symptoms is said to have followed the administration of aluminum in the following form: Metallic aluminum, 8 grammes; aluminum hydrate, 5 grammes; calcium carbonate, 5 grammes; gum tragacanth in sufficient quantity—divided into sixty pills, one pill being taken three times a day.

A Highly Elevated Railroad.

The Pike's Peak Railway, which will be in operation next year, will be the most notable piece of track in the world. It will mount 2,000 feet higher than the Lima & Oroya Railway, in Peru. It is now in operation to a point over 12,000 feet above the sea level. The entire thirty miles of its length will be a succession of complicated curves and grades, with no piece of straight track longer than 300 feet. The maximum grade will be 316 feet to the mile, and the average grade 270 feet. The line will abound in curves from 500 to 1,000 feet long, in which the radius changes every chain.