

## ASPECTS OF THE PLANETS FOR JUNE.

## SATURN

is evening star until the 18th, when he takes his turn in swelling the ranks of the morning stars. On the 18th, at 6 o'clock in the afternoon, Saturn is in conjunction with the sun, sweeping with his attendant rings and moons beyond the sun, and reappearing on his western side as morning star, hidden for a time in the sun's blinding rays, but keeping steadily on his westward course, until, when midsummer reigns, he becomes a beautiful object in the morning sky, one of the fairest gems that dot the firmament in the small hours that precede the summer dawn. He wins the place of honor on the annals of June, not so much for his arrival at the least interesting epoch of his course as for the fact that between his conjunction and the following opposition he will pass his perihelion, when he is nearly 100,000,000 miles nearer the sun than when in aphelion. Just now, however, Saturn is only the planet of promise. Safely hidden from mortal eye, he travels on his unseen path, coming toward us, and growing slightly brighter until his time comes to take on a visible presence.

Saturn, before conjunction with the sun, pays his respects to Venus, the former traveling toward and the latter receding from the sun on the star-strewn pathway. The planets are in conjunction on the 7th, at 5 o'clock in the afternoon, Saturn being  $1^{\circ} 32'$  south when passing west of Venus.

Saturn, after conjunction, meets Mercury, the former receding from and the latter approaching the sun. The planets are in conjunction on the 23d, at 11 o'clock in the evening, Saturn being  $1^{\circ} 41'$  south, when they meet and change places on the celestial road. The three planets have their meetings and partings all to themselves, for when these events occur the celestial actors are safely enshrouded in the dazzling halo of light that surrounds the sun, and are unseen by terrestrial observers.

The right ascension of Saturn on the 1st is 5 h. 40 m.; his declination is  $22^{\circ} 24'$  north; his diameter is  $15.6''$ ; and he is in the constellation Taurus.

Saturn sets on the 1st a few minutes after 8 o'clock in the evening; on the 30th he rises about half-past 3 o'clock in the morning.

## JUPITER

is evening star during the month. He is a superb object in the evening sky of June, the brightest of the three thousand stars visible on clear moonless nights. His course will be interesting to watch, for he is now moving eastward among the stars, or in direct motion, after having been for a long time either stationary or moving westward in retrograde motion, as it is technically called. Proof of this is easily discerned by observing the slowly increasing distance between him and the star Regulus, which he has now deserted for good.

At a recent meeting of the Royal Astronomical Society, in London, the Earl of Crawford made a very interesting statement in regard to one of the satellites of Jupiter. Dr. Copeland, he said, had recently observed a transit of Jupiter's fourth satellite, that is, the passage of the satellite across the planet's disk. While closely watching the phenomenon, he saw the satellite overtake and occult its own shadow on the body of the planet. Therefore, at the time of observation, the sun, the earth, the satellite, and the part of Jupiter's disk occulted must have been in one straight line. Under these conditions an observer on the huge planet, at the right point of view, would behold our earth, dwindled by distance to a tiny black sphere, making a transit on the sun's bright surface. But we fear that the grand phenomenon of a transit of the earth was invisible to observers on the Jovian disk, for there is hardly a possibility that life, even in its lowest forms, has yet developed on the gigantic globe, where primeval chaos still reigns.

The right ascension of Jupiter on the 1st is 10 h. 3 m.; his declination is  $13^{\circ} 8'$ ; his diameter is  $34''$ ; and he is in the constellation Leo.

Jupiter sets on the 1st shortly before midnight; on the 30th he sets a few minutes after 10 o'clock in the evening.

## URANUS

is evening star. On the 19th, at 10 o'clock in the evening, he is in quadrature with the sun on the eastern side. He then, as his three giant brothers have done before him, reaches the half-way house between opposition and conjunction, and thenceforth must be looked for in the western sky after the stars come out. He is nearly stationary during the month, and presents no other aspects worthy of record.

The right ascension of Uranus on the 1st is 11 h. 56 m.; his declination is  $1^{\circ} 9'$  north; his diameter is  $3.5''$ ; and he is in the constellation Virgo.

Uranus sets on the 1st about 1 o'clock in the morning; on the 30th he sets about 11 o'clock in the evening.

## MERCURY

is morning star until the 27th, and then evening star. On the 27th, at 10 o'clock in the morning, he is in superior conjunction with the sun. Since his previous superior conjunction he has made one of his swift circuits round the central orb in 88 days, and whirled on in

his course till he has overtaken the slower moving earth, thus completing his synodic revolution in 115 days, and is in line with the sun and the earth. At this time he is beyond the sun, but he quickly reappears on the sun's eastern side, and speedily passes through his varied aspects as evening and morning star till he has completed another synodic period in less than four of our months. Years are short on the swift-footed little planet, one of them numbering but 88 terrestrial days, not quite three months as we count time!

On the 5th, at 2 o'clock in the afternoon, Mercury, approaching the sun, encounters Neptune slowly receding from the great orb. They are in close conjunction, Mercury being  $48'$  south. On the 23d, at 11 o'clock in the evening, Mercury, very near the sun, meets Saturn, also very near the sun. The conjunction of these planets has been already referred to. Mercury is the agitator of the brotherhood, and contributes largely toward making things lively in the sun's family.

The right ascension of Mercury on the 1st is 3 h. 10 m.; his declination is  $14^{\circ} 44'$ ; his diameter is  $7''$ ; and he is in the constellation Aries.

Mercury rises on the 1st about a quarter after 3 o'clock in the morning; on the 30th he sets soon after half past 7 o'clock in the evening.

## VENUS

is evening star. She is slowly and surely making her way to visibility, and her presence in the glowing west will be warmly welcomed. She sets an hour after the sun on the last day of the month, and bright eyes may then discern the fairest of the stars before she disappears below the western horizon.

She must be looked for in the northwest, half a degree south of the sunset point, in the constellation Gemini, south of Castor and Pollux and north of Procyon. Her high northern declination will aid the observer in his search. Venus is in conjunction with Saturn on the 7th, as previously referred to.

The right ascension of Venus on the 1st is 5 h. 11 m.; her declination is  $23^{\circ} 19'$ ; her diameter is  $10''$ ; and she is in the constellation Taurus.

Venus sets on the 1st about a quarter before 8 o'clock in the evening; on the 30th she sets a few minutes before half past 8 o'clock.

## NEPTUNE

is morning star. His path lies near that of Mars throughout the month. The planets are in conjunction on the 10th, at 6 o'clock in the evening, Neptune being  $1^{\circ} 29'$  south.

The right ascension of Neptune on the 1st is 3 h. 27 m.; his declination is  $17^{\circ} 5'$  north; his diameter is  $2.5''$ ; and he is in the constellation Taurus.

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

## MARS

is morning star. At the end of June, Saturn, Neptune, and Mars are morning stars; Mercury, Venus, Jupiter, and Uranus are evening stars.

The right ascension of Mars on the 1st is 3 h.; his declination is  $16^{\circ} 45'$  north; his diameter is  $4.4''$ ; and he is in the constellation Taurus.

Mars rises on the 1st about 3 o'clock in the morning; on the 30th he rises at a quarter after 2 o'clock.

## THE MOON

The June moon fulls on the 29th, at 14 minutes after 1 o'clock in the morning. She is in conjunction with Neptune on the 10th, and with Mars on the same day, six minutes later, showing how near together the planets are. On the 11th, the day before new moon, she is at her nearest point to Mercury; on the 13th, the day after new moon, she pays her respects to Venus, on the 17th to Jupiter, and on the 19th to Uranus.

The moon occults Uranus for the fifth time since the year began. The occultation occurs on the 19th, and can be seen between the limiting parallels of  $20^{\circ}$  and  $80^{\circ}$  south latitude by those favorably situated in time and place. She also occults Alpha Tauri or Aldebaran on the 11th, for fortunate observers between the limiting parallels of  $90^{\circ}$  and  $26^{\circ}$  north latitude. The star and waning moon are both invisible when the phenomenon occurs.

## OCULTATION OF OMICRON LEONIS.

The moon, on the 16th, occults Omicron Leonis, a star of the  $3\frac{1}{2}$  magnitude in the constellation Leo. The immersion or disappearance of the star behind the moon takes place 7 minutes before 7 o'clock, a half hour before sunset. The emersion or reappearance of the star occurs 1 minute before 8 o'clock, 37 minutes after sunset. The emersion will be easily observed in a small telescope. The occultation continues 1 hour and 6 minutes.

## JUNE

contributes an interesting budget of planetary events. The great sun himself is joint actor with the members of his family in three of them—the conjunction of Saturn, the quadrature of Uranus, and the superior conjunction of Mercury. Five of the planets, grouped near the sun and near each other, make matters lively, as they meet and pass on the celestial track, Saturn being in conjunction with Venus and Mercury, and Neptune with Mercury and Mars. The moon is not

outdone by the more imposing members of the family, for besides paying her respects to each planet in turn, she occults Uranus, Aldebaran, and Omicron Leonis for the pleasure of fortunate observers in some portion of the terrestrial domains. Thus the month bears witness, as all previous months have done, and all coming months will do, to the never-ending succession of interesting phenomena, the wondrous variety, and the spiritual exaltation that rewards the faithful study of the queen of the sciences.

## Prize for a Model of a Movable Ambulance Barrack.

The Empress of Germany offers \$1,000 and a gold medal as prizes in a competition for a model of a movable ambulance barrack, subject to the following requirements:

The barrack must be suitable for use on the field of battle, or for epidemics, and so arranged that it can either form part of a larger hospital or an independent hospital. To be taken down easily, transported, and quickly erected.

It must form a stable building; arrangements for winter use should be added. Walls and floor must be capable of disinfection without difficulty.

The barrack should be large enough to contain twelve beds, allowing for each bed a cubic space of at least twelve meters. The only annex required is the closet, which may form a part of the barrack, or may be separate. The different parts must fit so that special workmen will not be required, either for erecting or taking down the building.

The floor, of planed boards, should not shake when walked upon, and should not come in direct contact with the ground. The intermediate layer between the ground and the floor should be such as to receive easily and promptly the nails of an improvised floor, in cases where the floor previously prepared cannot be used.

There should be sufficient ventilation, even in the cold season, when the windows and doors are closed.

The heating apparatus should be such as to keep the temperature of the interior at about  $60^{\circ}$  Fahrenheit. The heating apparatus might be made to assist in the ventilation.

Designs presented may be full sized specimens of the barrack, or models reduced one-fifth.

If a barrack is to be composed of a certain number of similar elements or parts, only one of these parts need be presented, provided that from it the whole can easily be understood. This condition applies only to full sized samples, and not to the reduced models.

Each competitor must present a plan of his whole building, with transverse and longitudinal sections, on a scale of one twenty-fifth; besides special plans for each part of the construction, for the systems of heating and ventilation, the manner of erection, the closet, etc., which may be either full-sized, or, according to the object represented, on a scale of one-fifth or one-tenth. The places for the beds must be indicated in the plan.

With the plan, there must be an exact description of the whole establishment, which must be written in French, German, English, and Italian. This description must cover the materials used, the particulars and details of construction, as well as the maneuvers necessary for pulling down, transporting, and erecting the barrack, also the time required for erection. It must also state the motives which guided the designer in his choice of materials and manner of construction. The designer should state what advantageous modifications could be brought to bear on his system, according to the country in which it was used, in relation to special climatic conditions, relative facility in procuring certain materials, and other local particulars.

The description should close with an approximate estimate of the cost and the weight of the barrack, a technical explanation of the sections used to show the different parts of the building, and finally a calculation of the operation of the heating apparatus and the system of ventilation.

Competitors will be allowed to represent their designs by plans only, provided such plans are accompanied by a description which fulfills all the above requirements. But those who send only plans will receive only honorable mention, not being allowed to compete for the prize of 5,000 francs.

Competitors should send their designs, etc., to Antwerp by Sept. 1, 1885, where they will be exhibited from Sept. 10 to Sept. 20.

The competitors should announce their intention of sending designs before July 15, to the "Commissariat General" of the Belgian Government, for the Exposition at Antwerp, 10a Rue de la Loi, Brussels.

For further information address the "International Committee of the Red Cross, Geneva," Switzerland.

SCIENCE has come to the aid of baseball players, and announces, for the benefit of batsmen who are ambitious to make heavy hits, that the ball should be struck at the angle of twenty-three degrees in order to send it to the greatest possible distance. Repeated experiments in artillery have proved that a ball fired from a cannon at this angle will carry farther than if fired at any other angle with a like charge of powder.