ASPECTS OF THE PLANETS FOR FEBRUARY. VENUS

is morning star, and stands first on the February list, not only because she crowns "the smiling morn with her bright has been referred to. circlet." but also for the incidents she contributes to diversify the planetary history of the month. On the 16th, at tion is 11° 37' south, his diameter is 98", and his place is in 2 o'clock in the morning, she reaches her greatest western Capricornus. elongation. She is then 46° 52' west of the sun, and, bound to him by an invisible chain, can go no farther. The inner at the end of the month he rises about half past 5 o'clock are favorable to their encouragement by horticulturists, and or inferior planets move in this way, oscillating in straight lines east and west of the sun. It is easy to keep the run of these movements, especially in the case of Venus. Those who were eye-witnesses of the transit have a tangible standpoint from which to commence observation, and can readily follow the planet's path until in September she reaches superior conjunction with the sun, and is hidden from view in his radiant beams. Half of her synodic period is completed, as well as her role of morning star. She then passes to the sun's eastern side, becomes evening star, and repeats the same phases in reversed order until she again reaches inferior conjunction. Her whole course is then completed, that is, as she appears to move when viewed from the earth, and she begins over again her unswerving routine among the stars. Thus, on the 6th of December, Venus passed between the earth and the sun, the passage being witnessed by millions of observers. Since that time, she has been moving westward from the sun, rising earlier every morning, passing her period of greatest brilliancy, and turning, like the new moon, more of her illumined face toward the earth.

western limit, ceases her retrograde or backward motion, ens, glowing with soft. serene light, is perceptibly decreas. of ant domiciliated upon it, of which Dr. Fritz Muller has and becomes stationary for a time, as she is traveling directly from us. She then takes on her direct motion, proaches the sun. This is not strange, for on the 8th, at 6 und ihre Beschutzer" (vide Kosmos, vol. iv., pp. 109-115). making her way back toward the sun. Observers who o'clock in the morning, he arrives at quadrature, being just This species, already observed by Humboldt, inhabits the watch her course will see that from inferior conjunction to half way on his course from opposition to conjunction. He western elongation she rises earlier every morning, and is then 90° from the sun, rises about noon, and sets about or candelabra trees (Cecropia) in South America. Almost moves with rapid pace. After elongation, she rises later midnight. His motion during the month is direct, and he is every full grown tree contains, according to Fritz Muller, every morning, and moves more slowly, until, at superior : conjunction, she rises and sets with the sun.

until elongation, when she takes on the beautiful phase of a the border line between Aries and Taurus. half-moon. After that, she appears in gibbous form until superior conjunction, when her whole disk is illumined like: at the end of the month he sets at forty-nine minutes after : the full moon. She would then be a glorious object in our 11 o'clock in the evening. sky, but she dwindles to small proportions on account of her great distance. For she isone hundred and sixty million is evening star, and reaches quadrature on the 4th, at 11 miles away, instead of twenty-five million miles, her least distance, and her apparent diameter is 10" instead of 64".

On the 20th, at 5 o'clock in the morning. Venus is in conjunction with the small star, Pi Sagittarii, passing 1° 30' torth. The right ascension of Venus on the 1st is 17 h. 49 m., her declination is 19° 10' south, her diameter is 29.8", and her place is in Sagittarius.

Venus rises about eight minutes after 4 o'clock in the morning; at the end of the month she rises at a quarter after 4 o'clock.

MARS

is morning star, and gets up a small incident to enliven his monotonous way. He is in conjunction with swift footed the month he sets about a quarter after 11 o'clock in the Mercury on the 13th, at 6 o'clock in the morning, being 4° evening. 23' south. The conjunction ranks among invisible phenomena, both planets being too near the sun to be seen. But none the less surely does it take place, for in the risings and settings, the meetings and partings of the planets, there is no change, no shadow of a turning from the accurate calculations that astronomers are able to make for years ahead.

The right ascension of Mars is 20 h. 4 m., his declination is 21° 21' south, and his place is in Capricornus.

Mars rises now about half past 6 o'clock in the morning; at the end of the month he rises a few minutes before 6 o'clock.

URANUS

is morning star, and is fast approaching the point where he is in the most favorable condition for being seen with the naked eye. He is on the border land between Leo and Virgo. Those who have small telescopes will easily pick him up by sweeping the sky in the vicinity, for he will fulfilling her course for the present month, passes near the To return to the particular case of the proposed protection show a pale sea green disk as soon as he comes into the field morning stars-Venus, Mars, and Mercury-on the sun's to our orange tree by the introduction of the Chinese ant, it of vision, entirely different from the twinkling points around him. Denebola is the nearest bright star in his is near the evening stars-Neptune, Saturn, and Jupiter-on our country are not "worms," but various species of scale vicinity, several degrees north.

the sun's eastern side, and completes the list by her conjunc- insects, all other orange insects being of secondary import-The right ascension of Uranu 34 m his decli tion with Uranus two days after the full. The various ance. It has never been proved that ants prey upon and detion is 3° 35' north, his diameter is 3.8" phases and motions of the moon form an astronomical study stroy scale insects, and for this simple reason the introduc-Uranus rises about half past 8 o'clock in the evening; as easily understood and plain to the unassisted eye as it is tion of the Chinese ant would not be likely to produce any at the end of the month he rises about a quarter before 7 varied and interesting. favorable results. o'clock.

comes morning star. The last week in the month, he may lard and applied with their orifices to the extrance of the be seen rising an hour before the sun, four degrees north of ants' nest. When the ants have entered the bladders, they the sunrise point. His conjunction with Mars on the 13th can easily be transported and colonized on the orange trees.

The right ascension of Mercury is 21 h. 31 m., his declina-

in the morning.

JUPITER

is evening star, and ranks facile princeps among the three thousand stars that are visible at one time on exceptionally clear nights to observers blessed with good eyes, well trained to note the stars. Nothing on starry pages now open before us is more beautiful than the view he presents through nearly the entire night, as he leads the glittering host of twinkling mysteries from east to west in the grand procession of the azure vault of the sky. He was brighter at perihelion in 1880, but he never was more beautiful, and never trod the heavens with more regal step than he has done and will do in the first two months of the present year

The right ascension of Jupiter is 5 h. 23 m., his declination is 22° 57' north, his diameter is 42.4", and his place isin Taurus.

Jupiter sets about 4 o'clock in the morning; at the end of the month he sets about a quarter after 2 o'clock.

SATURN

ing in size and luster as he travels from the earth and ap- given us such a vivid picture in his paper, "Die Imbauba traveling northward.

Seen in the telescope, Venus retains the crescent form is 15° 32' north, his diameter is 17'4", and his place is near defoliate young imbaubas not yet inhabited by the azteka.

NEPTUNE

o'clock in the evening, four days before Saturn and under similar conditions. He is still very near Saturn, there being only thirteen minutes' difference in the time of trausit. Neptune will be of little account until September, except to fol low in the mind's eye his unseen course in the heavens. Discovered in 1846, he will not complete a revolution round the sun since he became a known member of the solar brotherhood until 2011, seven years after the next transit of Venus.

The right ascension of Neptune is 2 h. 56 m., and his declination is 14° 57' north.

Neptune sets at 1 o'clock in the morning; at the end of

THE MOON.

The February moon fulls on the 21st, at thirty-four minpoint to Jupiter, and on the 23d she is near Uranus.

the same right ascension or longitude, though she may be of introducing the red ants, which feed greedily upon the several degrees north or south of the planet. As the moon coccus. But the remedy threatened to be attended with moves eastward at the average rate of 13° a day, she must, some inconvenience, for the Malabar coolies, with bare and during a revolution, pass near all the planets, in the order oily skins, were so frequently and fiercely assaulted by the of their position in regard to the sun. Thus the old moon, ants as to endanger their stay on the estates " western side. The new moon of the 7th, in the same way, is to be remarked that the principal enemies to that tree in

Bamboo rods are then stretched between the different trees; so as to give the ants easy access to the whole orchard.

Speaking first of the advantage which plants derive from the domiciliated habits of ants, Dr. McCook first raises the Mercury sets a few minutes after 6 o'clock in the evening; question as to whether the known domicile habits of ants brings together a number of interesting facts as to nest-building species. He enumerates the arboreal species which are known to science, and among the few that construct nests like the Chinese species, only two belong to the North American fauna, both occurring in Mexico. No mention is made, however, of the nest-like structures built by several ants occurring in the United States around twigs or among leaves. Mr. Walsh (Practical Entomologist, ii., p. 41) thus observed a species of Myrmica (" probably the lineolata of Say") building cases around the twigs of the red osier dogwood, and another undetermined species of Formica surrounding willow twigs with tent-like structures. Another undetermined species I find quite commonly making nest-like structures on blackberry bushes infested with the blackberry flea louse (Psylla tripunctata) and a pale aphid, which live in the crumpled leaves. While these structures may not be called perfect nests, and appear to be built mainly for the protection of aphides, still the fact that the ants are thus "domiciliated " bears on the subject here under consideration. Nor is any mention made by Mr. McCook of the Azteka mirabilis, Smith, perhaps the most striking in-On the 16th, a change occurs. She reaches her extreme is evening star, and, though still a lovely object in the heav- stance on record of protection afforded to a tree by a species natural capacious cavities in the stems of the older imbauba its colony of azteka, and no such tree is ever known to be The right ascension of Saturn is 3 h. 10 m., his declination attacked by the formidable leaf cutting ant which likes to Other enemies of young imbaubas, especially a weevilof the Saturn sets at a quarter after 1 o'clock in the morning; genus Baridius, are kept away from older trees by the aztekas, which derive from the tree shelter as well as nourishment, both without injury to the tree.

> Dr. McCook further shows that ants are generally carnivorous; that there are species beneficial to agriculture, e.g., the cotton ant, Solenopsis xyloni. McC.; and finally that there would be no serious obstacles in the way of successful introduction and colonization of the Chinese ants.

While I agree with these statements, and while I take it for granted that the Chinese arboreal ant is beneficial to orange culture in its native home, still, the question of its introduction is a more serious one than would appear at first glance. The introduction of any species of insect involves many consequences that cannot be predicted with certainty, as experience has already demonstrated. Not only does change of conditions often produce change in habit, but the introduction of a species sometimes very curiously affects the native species. There are species in which we cannot imagine that any change of habit would take place in consequence of their being transplanted to foreign countries, e. g., hymenopterous parasites, and I would unbesitatingly favor their introduction. But in the case of a formicid it would utes after 7 o'clock in the evening. She appears in only three be impossible to predict the consequences of its introduction. phases during the shortest month of the year -as new moon, There is already one instance on record of an unforeseen in at ber first quarter, and as full moon. The waning moon is convenience resulting from the introduction of an ant. A near Venus on the 4th, the crescent and the morning star correspondent of Nature (June 15, 1882, pp. 159-160) calls being only one degree apart. On the 6th she is near Mars, attention to the following extract from Tennent's "Natural and on the 7th she is near Mercury. On the 13th she is near History of Ceylon," taken from the Ceylon Observer for April Neptune and Saturn. On the 16th she passes at her nearest 26: "To check the ravages of the coffee bug (Lecanium coffee, Walker), which for some years past has devastated When the moon is in conjunction with a planet, she is in some of the plantations in Ceylon, the experiment was made

MERCURY

UTILIZATION OF ANTS IN HORTICULTURE.

BY PROF. C. V. RILEY.

CUT OR UNCUT.

is evening star until the 5th, and morning star the rest of the The appearance of the SCIENTIFIC AMERICAN is so much Rev. Dr. H. C. McCook has published in the "Proc. Ac. improved when delivered to subscribers with the leaves unmonth. On the 5th, at 6 o'clock in the evening, he is in Nat. Sc., Phil.," 1882, pp 263-271, a most interesting paper cut that for the last two or three issues we have followed inferior conjunction, passing between the earth and sun. If he were then at or near one of his nodes, he would make on "Ants as Beneficial Insecticides.' He was led to discuss that mode of publication. The uncut form is also quite dea transit precisely as Venus did on the 6th of December. the question by an article from Dr. C. J. Magowan, which sirable for the neat binding of the paper. We have re-As be will not reach his descending node until twenty three appeared in the North China Herald of April 4, 1882, and of ceived, however, a few letters from subscribers and adverdays later, he will pass above the sun and the passage will which I published a short abstract in Nature of June 8, 1882. Itisers who say that they much prefer to have the edges of be invisible. Mercury will not make a transit until the 9th It appears that in parts of southern China the custom has the paper trimmed, as heretofore, owing to its greater conof May, 1891. Transits of Mercury, though much more fre- long prevailed of using ants as a means of protecting the venience. If there are others who share in this preference, quent, are considered of far less importance than those of orange trees from the ravages of certain worms. For this we shall be glad if they will signify to us their wishes by a Venus. Mercury looks much smaller than his fair neighpurpose the orange growers import from the neighboring postal card. We should like to have as general an expresbor as he makes his way over the sun's face, and can never hills two species of ants which construct bag-like nests sus-bor as he makes his way over the sun's face, and can never hills two species of ants which construct bag-like nests sus-be seen with the naked eye in transit. After inferior con-pended from the branches of various trees. These ants are that any considerable number of them prefer to have the junction, Mercury passes to the sun's western side, and be trapped by means of pig or goat bladders baited inside with leaves cut, we shall try to accommodate them.