ASPECTS OF THE PLANETS FOR JANUARY.

JUPITER

is evening star, and easily wins the place of honor on the January list, not only among his brother planets that play the same role, but also in comparison with every other star that twinkles in the sky, during his presence there.

It is true that he passed his brightest and nearest point on the 18th of December, and, since that time, has been traveling away from us and approaching the sun. But his light has not yet perceptibly paled to the eye. No one can behold him without a feeling of admiration, as he appears in the eastern sky soon as it is dark enough to see him rise with stately step to the zenith, and sinks slowly to the west, glowing in the celestial dome during nearly the whole night.

The galaxy of stars surrounding the distinguished chief is also to be noted. Among them may be easily traced the magnificent cluster of Orion, the beaming Sirius, the red stars, Procyon and Aldebaran, and the white Capella. The giant planet can find no fairer portion of the sky in which to track his wandering steps, and no more brilliant retinue to grace his court.

Jupiter plays no prominent part on the records of the month. There are specialties that distinguish each separate planet, as marked and diverse as those found in different members of the same family

The great planet, the pride of the system, seems to have a consciousness of his princely bearing, and to be contented with looking his best as he leads the celestial host, outshining them all. A vein of egotism and self-conceit are, to the eye of fancy; as apparent in his appearance as gentleness and feminine grace are in that of Venus, or a warlike aspect in Mars.

The right ascension of Jupiter is 5 h. 36 m., his declination is 23° north, his diameter is 45″, and his position in the heavens is on the border of Taurus near Gemini.

Jupiter sets at a quarter after six o'clock in the morning; at the close of the month he sets about seven minutes after four o'clock.

SATURN

is evening star during the month, ranking next to Jupiter in size and brightness among the evening stars. His soft light is now very attractive, especially in comparison with the murky hue that distinguishes him in less favored aspects, and was interpreted by astrologers as ominous of ill to those whose horoscopes were cast when he was in the ascendant, hence he was called ill-boding Saturn. If astrologers had seen this planet in a modern telescope, nothing but good fortune could have been associated with a brother world so magnificent and complex in structure.

Since September, Saturn has been apparently retrograding or moving backward, and also traveling south. Toward the end of the month, he will begin to move in a direct course or forward. The planets all travel in this way, sometimes direct, sometimes indirect, and sometimes stationary. The reason is that they are moving and the earth is moving, and this is the way they appear projected on the sky as seen from the earth, which is a moving observatory. In reality all the planets revolve in elliptical orbits round the sun, and they would appear to move in this way, if we could see them from the sun. If Saturn's position in regard to the Pleiades be carefully noted, the proof of the way in which he seems to travel will be plainly perceived.

The right ascension of Saturn is 3 h. 11 m., his declination is 15° 26′ north, his diameter is 18″, and his place is in Aries.

Saturn sets at twenty minutes past three o'clock in the morning; at the end of the month he sets at twenty-two minutes past one o'clock.

NEPTUNE

is evening star, and though taking precedence of the trio in the order of appearance above the horizon, he does not arouse the same interest because he is too far away to be visible. He is still near Saturn, there being now only ten minutes difference in the time of transit.

The right ascension of Neptune is 2 h. 57 m., his declination is 14° 58′ north, his diameter is 2·6″, and his place is in the constellation Aries.

MERCURY

is evening star during the whole month. He reaches his greatest eastern elongation on the 22d, at two o'clock in the morning. He is then 18° 32′ east of the sun, and this is one of the three occasions when he may be seen during the year as evening star. His southern declination at that time is 14° 21′, which will make it more difficult to find him. Mercury at elongation on the 22d sets about half-past six o'clock, an hour and a half before the sun, and will be visible for a week before and after that time. He must be looked for in the southwest, three-quarters of an hour after sunset, and 5° north of the sunset point. Fine views of Mercury are often obtained in the clear winter evening sky, but there must be no clouds around the horizon, or he will fail to appear.

The right ascension of Mercury is 19h. 21m., his declination is 24° 17′ south, his diameter is 4·8″, and he is in Sagittarius.

Mercury sets about a quarter after five o'clock in the evening; at the end of the month he sets at ten minutes after six o'clock.

VENUS

is morning star, and will continue in this role until the 20th of September, when she is in conjunction with the sun. She has lost the prestige that attended her movements before and during the transit, and has returned to the rank of an ordinary planet, the most beautiful one, however, that graces the sky.

She makes a superb appearance now in the eastern morning sky, rising nearly three hours before the sun, and being far more worth getting up to see than the fading comet. Every one should endeavor to behold her shining face near the 9th of the month. She then reaches her period of greatest brilliancy on the western side of the sun. She has two of these periods, one thirty-six days before inferior conjunction when she is evening star, and the other, thirty-six days after inferior conjunction, when she is morning star. In the former case, seen in the telescope, she takes on the aspect of a waning crescent, like the old moon; in the latter, as at present, she is a waxing crescent, like the new moon.

On the 19th, Venus is in conjunction with the star Eta Ophiuchi, being 2° 21′ north. The stars will be nearest at eleven o'clock in the evening, but they will be sufficiently near to make an attractive picture on the morning of the 20th, when Venus rises not far from four o'clock. If Jupiter is prince of the evening stars, Venus is queen of the morning stars, only needing one condition, that of being farther north, to present her fairest and brightest phase.

The right ascension of Venus is 16 h. 27 m., her declination is 17° 4′ south, and her diameter is 48·6″.

Venus rises about a quarter before five o'clock in the morning; at the end of the month she rises a few minutes after four o'clock.

MARS

is morning star, but moves at a slow pace and keeps near the sun. He is of little account at present, excepting to those who wish to keep track of his course.

The right ascension of Mars is 18 h. 21 m., his declination is 24° 6′ south, his diameter is 6″, and he may be found in Sagittarius.

Mars rises nine minutes after six o'clock in the morning; at the end of the month he rises not far from half-past six o'clock.

URANUS

is morning star, although he rises before midnight. Like all the outer planets, he is morning star from conjunction to opposition, a goal that he will reach in March. His right ascension is 11 h. 37 m., his declination is 3° 21′ north, and he may be found in Virgo.

Uranus rises about a quarter before eleven o'clock in the evening; at the end of the month he rises about half-past eight o'clock.

THE MOON.

The January moon fulls on the 23d at thirty-one minutes past 2 o'clock in the morning. The old moon is in conjunction with Venus on the 6th, passing 3° 5′ south. Planet and crescent, if not very near, will be fair to see on the morning sky. On the 8th, the moon is near Mars, but both are invisible. The new moon of the 9th pays her respects to Mercury on the 10th, and draws near Neptune and Saturn on the 17th. She passes 2° north of Jupiter on the 19th, and is at her nearest point to Uranus on the 27th.

The moon is in perigee or nearest to the earth on the 12th, and the moon "runs high" on the 19th. The winter nights will be superb about this time, for the moon, rising high in the heavens, near the full, and near the brilliant Jupiter, will, on cloudless nights, flood the frost bound earth with silvery light. At such times she is so radiantly beautiful that we can forgive her for paling the luster of the stars.

THE MODIFIED INSTINCTS OF A BLIND CAT.

BY H. C. HOVEY.

The family favorite whose misfortunes have afforded an opportunity to observe the workings of instinct under difficulties is a noble specimen of the genus *Felis*. "Dido" is his name—given for simple euphony, without regard to gender. During the four years of his life he has never been known to do anything wrong, unless it be to fight most desperately against all feline intruders. In some one of his many encounters, Dido met with an injury to one of his feet that made a surgical operation necessary, from which he recovered, but shortly afterward went totally blind. A cataract was formed over each eye, by which, as repeated experiments proved, vision was thoroughly obscured.

This calamity came on suddenly, and placed the cat in circumstances not provided for by the ordinary gifts of instinct. What to do with himself was plainly a problem hard to be solved. He would sit and mew most piteously, as if bemoaning his condition; and when he attempted to move about, he met with all the mishaps that the reader will be likely to imagine. He ran against walls, fell down stairs, stumbled over sticks, and when once on the top rail of the fence he would traverse its entire length seeking in vain for a safe jumping off place. On being called, he would run about bewildered, as if not knowing whence the voice came nor whither he should go to find the one calling. In short, Dido's life seemed hardly worth living, and we were seriously plotting his death, when the cat himself clearly concluded that he must make his other senses atone for the loss of sight.

It was very curious to watch his experiments. One of the first of these was concerning the art of going down stairs. Instead of pawing the air, as he had been doing on reaching the top step, he went to one side till he felt the banisters touch his whiskers, and then, guided thus, he would descend safely and at full speed, turning into the hall on gaining the last step. One by one he made each familiar path a study, determined the exact location of each door, explored anew all his old haunts, and seemed bravely resolved to begin life over again. The result was so unexpectedly successful that we were deceived into the notion that sight had been restored. But by placing any obstacle in the path, and then calling him eagerly to his customary feeding place, it was evident that he was entirely blind, for he would run with full force against the box or other obstruction, and then, for some time afterward, he would proceed with renewed caution.

Dido's "voice is still for war," and his blindness does not make him any less successful in his duels with intruders. He even goes abroad in quest of adventures, and comes safely home again.

His value as a mouser does not seem to be in the least diminished. One of my experiments as to his capacity in this direction came near costing me dear. I had heard the gnawing of a rat in an old closet where there lay a quantity of newspapers. Here it was decided to leave Dido over night, and while arranging the papers for that purpose, my hand was suddenly caught by the claws and teeth of what at the moment seemed like a small tiger. Poor Dido! He really looked ashamed of his blunder in mistaking my hand for his anticipated victim. Fortunately the papers served as a shield, or the injury inflicted might have been more serious. I may add that, on opening the closet the next morning, there was Dido mounting guard over a slain rat as big as ever spoiled good provisions or tried a housekeeper's temper.

It is well known that the house-cat will find its way back from distant places to which it has been carried blindfolded; and how it performs such feats naturalists have never satisfactorily explained. The theory accepted by some of them is that the animal takes note of the successive odors encountered on the way, that these leave as distinct a series of images as those we should receive by the sense of sight, and that, by taking them in the inverse order from that in which they were received, he traces his homeward route.

But, in the cat now described, the sense of smell is by no means acute, as has been proved by a variety of methods; and moreover, although, as one might say, perpetually blindfolded, he quite uniformly chooses the shortest road home, without reference to the path he may have taken on leaving the house. Curious to see how far this homing instinct would extend, I took advantage of a fall of snow that wrapped under its mantle every familiar object, concealed all the paths, and deadened every odor and sound. Taking Dido to a considerable distance from the house, and making a number of turns to bewilder him, I tossed him upon a drift and quietly awaited results. The poor creature turned his sightless orbs this way and that, and mewed piteously for help. Finding, at length, that he was thrown entirely on his own resources, he stood motionless for about one minute, and then, to my amazement, made his way directly through the untrodden snow to the house door—which, it is needless to add, was promptly opened for the shivering martyr to scientific investigation, to whom consolation was forthwith offered in a brimming bowl of new milk.

My conclusion, therefore, is that Wallace's ingenious theory of accounting for orientation by what he calls "brain registration," will not explain what has been described; but that the mysterious homing faculty is probably independent of such methods of gaining knowledge as have been ordinarily observed, and is analogous to the migratory instinct controlling the long flights of some species of birds.

The Last of the Year.

This issue closes another volume of this paper, and with it several thousand subscriptions will expire.

It being an inflexible rule of the publishers to stop sending their publications when the time is up for which subscriptions are prepaid, present subscribers to the SCIENTIFIC AMERICAN or SCIENTIFIC AMERICAN SUPPLEMENT will oblige us by remitting for a renewal without delay.

By heeding this request to renew immediately, it will save the removal of several thousands of names from our subscription books, and insure a continuance of the papers without interruption.

Employers cannot invest $3.20 better than by subscribing for the SCIENTIFIC AMERICAN for a trusty superintendent, foreman, or other employes whose good services they wish to recognize.

It would be a weekly reminder of the donor's generosity during the entire year 1883.

Mails Burned.

On the 21st of December, one of the postal cars bound west, on the New York Central Railway, was destroyed by fire. It is estimated that upward of fifty thousand letters and many thousands of newspapers from this city were lost. Among the latter, doubtless, were copies of the SCIENTIFIC AMERICAN. Should any of our subscribers miss a number, they will know the reason; and if they will send us a postal card, we will at once supply them. Those, also, who fail to receive expected answers from us to their letters, by reason of this mishap, will oblige us by informing us of the fact, and we will write again.

M. NORDENSKIOLD maintains that the aurora is a permanent phenomenon in polar regions, being always seen when the sun is below the horizon and when the moon is invisible.