

TAKE HOOD'S SARSAPARILLA

ONE HUNDRED DOSES ONE DOLLAR.

ALL TIRED OUT

From the Depressing Effect of the Changing Season, or by Hard Work
and Worry---You Need the Toning, Building Up,
Nerve-strengthening Effect of HOOD'S SARSAPARILLA.

Will give you a feeling of health and strength again.

It Purifies the Blood, Cures Biliousness, Dyspepsia, Headache, Etc., Etc.

HOOD'S SARSAPARILLA is sold by all druggists. Prepared by

C. I. HOOD & COMPANY, Lowell, Mass.

JUPITER WILL HIDE HIS FACE.

An Astronomical Phenomenon to be Witnessed in Omaha.

BEHIND THE BEAMING MOON.

The Great Planet and His Glittering Train of Obsequious Satellites One by One Will Pass From Sight.

A Celestial Panorama.

Tuesday, the 3d inst., at 8 p. m., the citizens of Omaha may feast their eyes upon a rare astronomical phenomenon.

Anyone who has occasionally glanced heavenward on a clear night must have seen a brilliant star in the southeastern sky. Just at dusk it makes its first appearance, and as night advances and darkness covers the land its clear light makes it a conspicuous and beautiful object to behold. Even the brightest of its companion stars seem dim beside its sparkling brilliancy. A casual observer must have noticed that each night its position was higher in the heaven than when first observed. A closer scrutiny, however, will reveal another and more interesting fact. Each star in the "Great Bear," for instance, always holds the same relative position it held years ago, when as children, this brilliant constellation was pointed out to us as the "Big Dipper," and now, as then, the two largest stars in the cup of the "Dipper" point out with unerring accuracy to the mariner's great guide, the North star.

This beautiful star, however, is not governed by the common law that determines the positions of other stars. It moves about among its companions as if on a visit of inspection, and completes its tour of the heavens in about eighteen years. On account of this wandering about through space, it is called a planet, and is known as Jupiter. It is the largest planet in our solar system. Its diameter is about 86,000 miles; it weighs twice as much as the total weight of all the other planets, and the volume of its sphere is more than 1,300 times the volume of "this great world of ours." Its speed in revolving about its axis is marvelous; for, while our earth completes its day in twenty-four hours, Jupiter completes its day in ten hours. By reason of this rapid motion, the clouds on its surface are thrown into parallel lines above its equator, and, like huge girdles, completely encircle the planet. These clouds are distinctly visible through a moderate-sized, but well defining telescope, and are known as the "Belts of Jupiter." The distance of the planet from us at present is over five hundred millions of miles.

Our earth, which is also a planet, has but one moon to accompany it, as a faithful satellite, in its lonely way about the sun. Jupiter, however, is accompanied by four moons, or satellites, and the solar and lunar eclipses visible from its surface are everyday occurrences even in its short day of ten hours. These eclipses are also visible from the earth, and, as it requires only a small telescope or good eyes to see the sun, the most interesting sights in the heavens. Anyone who has had the good fortune of looking at the planet through the large telescope of Creighton college observatory, will recall these facts with pleasure. The four satellites, or moons, of Jupiter are constantly and rapidly changing their positions, at one time disappearing in the shadow of the great planet, only shortly to reappear with seemingly renewed splendor; at another, passing behind and then in front of the disk; and in each of these two positions as effectively lost to view as if they were completely annihilated. Large telescopes will even show the shadow of the moon moving across the disk, when the moon passes between the planet and the sun.

The moons of Jupiter can readily be found and identified, since all four are generally in the same straight line passing through the center of the planet. On Tuesday evening

at twenty minutes to 8, the moons will have the exact positions given in the diagram:

EAST 1 2 3 4 WEST

The small circle represents the planet, the dots are the moons, the figures 1, 2, 3, 4, are the numbers of the moons. No. 1 is nearest the planet in actual distance, and No. 4 the most remote, although, owing to the perspective, No. 4 at times appears nearer than No. 1. The moons move towards the numbers, hence if we look at Jupiter after the instant given above (7:40 p. m.), No. 1 will have moved nearer to the planet's disk and towards the west, while numbers 2 and 3 will also have approached the disk but towards the east, and number 4 will have moved away to the west. It will be of interest to know that No. 1 completes a revolution about the planet in 1 day and 18 hours; No. 2 in 3 days and 13 hours; No. 3 in 7 days and 4 hours; and No. 4 in 16 days and 18 hours, while our moon requires 29½ days to complete a lunar month.

The phenomenon which we will have the pleasure of witnessing on Tuesday evening (if the weather permits) is the disappearance of this great planet behind our moon. It will remain hidden from our view for one hour and a quarter. In astronomical language this phenomenon is styled an occultation of Jupiter.

The moon is our nearest celestial neighbor, and yet her distance from us is 240,000 miles. This distance will certainly appear small when we compare it with the millions of miles through which the planets and the fixed stars transmit their light to us. It is, in fact, a distance only ten times around the earth, and many an engineer and astronomer during their service on our railroad trains have run that distance. The sun is 400 times as far away and 70,000 times as large as the moon, and yet on account of her closer proximity to the earth the moon seems to be of the same size as the sun. While the moon hurries on her way, among the stars she is continually intercepting the light from some of them just as effectually as a person would do if he passed between us and a row of lights. The lights would successively disappear for a time proportionate to his speed, and then reappear. This is called occultation, or interception of the light of a distant body. Occultations, eclipses and transits are three terms which mean essentially the same thing, and any difference that may exist is solely due to the apparent size of the bodies. This phenomenon occurs when two heavenly bodies are in the same straight line with our position on the earth. If the nearer one is the greater we say there is an occultation of the farther one. Thus we have occultations of stars and planets by the moon, and sometimes, though very rarely, occultations of stars by planets. If both bodies are about the same size, or if one enters the strong shadow of the other so as to lose its own light and disappear from view, the phenomenon is called an eclipse, such as the eclipses of the sun by the moon and of the moon by the earth. Lastly, if the nearer body be so small that its light cannot hide the light of the larger, and appears only as a small spot upon its disc, we say there is a transit, such as the transits of Venus and Mercury across the disc of the sun.

All these various phenomena of occultations, eclipses and transits are continually shown by the moons of Jupiter, and a few hours of patient observation, sometimes even a few minutes, will be amply repaid by the sight revealed to our eyes. Another world will be laid open to our gaze, and we can see with what faithful accuracy the satellites revolve around the central planet obedient to the laws which the creator has fixed for them, and which He alone can ever change. Jupiter and his moons are as complete a system in themselves as the solar system of sun and attendant planets. As the astronomer Galileo discovered the wonderful harmony of the Jovian system, the true construction of the solar system and the law which ruled its every motion, could not remain unknown and sealed to thinking minds.

The American Ephemeris gives the following times of the phases of the satellites of Jupiter:

Transit: 7:40 p. m. I Tr. in. 11:57 a. m. I Sb. in. 12:30 a. m. I Tr. Eg. 3:40 a. m. I Sb. Eg. 4:45 a. m. IV Oc. Dis. 4:45 a. m. IV Oc. Re. 5:50 p. m. I Tr. in. 7:41 p. m. I Tr. in. 7:41 p. m. I Tr. in. 7:41 p. m. I Tr. in.

But, to return to the occultation of Tuesday night, the beginning of this article we said that the phenomenon was a rare one, and this will be evident from what follows. The moon's orbit is gradually shifting, so that she never returns to exactly the same place, but is moving farther and farther from it at each revolution around the earth, until after about nineteen years the orbit is restored to its former position. Its motion is very like screw-threading, and owing to this fact her lower limb first grazes the upper limb of the sun. Then at the next revolution she descends and hides a small portion of the sun's disk, causing a partial eclipse. Gradually the eclipses become greater and finally total, after which they begin to decrease and the cycle is at an end. This celebrated eclipse-period was discovered by the Arabian astronomers and called the Saros. A similar cycle applies to the stars occulted by the moon, for as remarked above, an eclipse of the sun is essentially an occultation by the moon. But while the occultation period of the stars is even more regular than that of the sun, that of the planets becomes very complicated on account of their seemingly erratic motions. The planets, as seen from the sun, remain always in the same plane, and always move in the same direction, but from a traveling observatory like the earth we see—

"Their wandering course now high, now low, then hid, Progressing, retrograde, or standing still."

While the moon advances on its ever-shifting orbit, the planets perform their apparently most lawless evolutions, and although the moon may happen to occult them now, a long time may elapse before the sight may present itself again. Taking into account in our calculations the chances of the weather and the unequal odds of having the occultation in the daytime or below our horizon, we have reason to wonder at the rare spectacle in store for us on Tuesday night. Twelve times this year Jupiter is occulted by the moon, but the phenomenon occurs above the horizon of Omaha only once. The first time was on Feb. 24, at sunrise, but the occultation was not visible on account of the sun's brightness. The only chance remaining is Tuesday night; the hour is a convenient one, the moon is not too bright, and if only the sky be clear, all other chances are in our favor.

The smaller of the two diagrams given in this article will give us all the details necessary for enjoying so rare a sight. The circle represents the moon as it would be seen when full, but as the moon year be but 15 days past the first quarter, a little over half its disc will be illuminated, and our imagination must supply what is wanting to complete the full circle. This is rather an advantage, because the planet will disappear at the dark limb of the moon where the glare will not fatigue our eyes. The four points marked N, S, E, W, are the cardinal points of the disc. Since the celestial meridians become more inclined as they approach the horizon, the north point of the moon will also incline from the vertical. The point marked A will be uppermost at the beginning, and the point B at the end of the occultation. If we hold the paper in such a manner that B will be

above, we shall have little difficulty in knowing where to expect the planet to emerge from behind the disk. It is clear that such precautions are not necessary for the immersion. Jupiter's diameter is about one-fiftieth that of the moon. The planet will disappear behind the dark edge of the moon at about nine minutes after 8, and remain hidden until about twenty-one minutes after 9. At this latter instant a sharp look-out will be necessary to separate it from the moon's bright limb. The disappearance will be gradual, because Jupiter, unlike our first named star, is not a mere point but presents a disk of considerable size, even in a small telescope. Gradually, then, it will fade from our sight, and its brightness will be missed in the sky. In a telescope the sight will be superb. About twelve minutes before the planet hides itself behind the invisible dark edge of our moon, the moon No. 3 will disappear so suddenly as almost to startle one who witnesses the immersion for the first time. Five minutes later moon No. 2 will share the fate of its companion, only to be followed after five minutes by No. 4. Then the invisible and opaque veil of the moon will begin work on the great planet itself, and after a minute's struggle its light, too, will be removed from our eyes. The only light left will be that of the small circle in the moon, and the last trace of the grand Jovian system will be completely lost to our view. Though hidden to our eyes for a time, they are beaming as brightly as ever to the telescopes of Mexico, the West Indies and all of South America; and if we patiently wait for an hour and a quarter we, too, shall see the giant planet again as he emerges with undiminished splendor from the obstacle that shut out his light from our admiring eyes.

The large diagram given represents the earth as seen from Jupiter at the moment of occultation. The earth is tilted at an angle of 23½ degrees, with the south pole well in view. The uppermost curved line on the terrestrial globe shows the path pursued by Omaha across the earth's disc. The upper small circle is the moon, and the long straight line is the path of its center. The marks on this straight line represent the meridian, as seen in Omaha, that same instant Omaha crosses the central meridian, as seen from Jupiter. What we therefore call an occultation of Jupiter by the moon, is called by the inhabitants of Jupiter, if there be any, an occultation of Omaha by the moon, or, rather, as both earth and moon appear smaller than Jupiter

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are one hour apart, we can easily find the positions of the moon and of Omaha at any given time. From a diagram similar to the one given, the times of disappearance and reappearance of Omaha as seen from Jupiter, or of Jupiter as seen from Omaha, have been found to be as given above—that is, at 9 minutes past 8 and at 21 minutes past 9 o'clock.

An exhaustive investigation of the diagram given would answer all the questions that could be asked on the subject. We will point out only a few and with them bring our paper to a close. Everything will convince us that if eleven occultations out of twelve this year are lost to us, this only remaining one shares some of the hazards of the others. We see, in the first place, how high the moon passes above the earth's disc, and to what small portion of the world the occultation is visible at all. Then, as the diagram gives us the position of the moon at the instant the occultation begins at Omaha, we see that the planet is disappearing at the same instant at all the places in the United States and a very small portion of Mexico.

IMPIETIES.

Sunday news from Cincinnati: All quiet on the Rhine. Adam was the first man to be hung in f-g. A preacher's trust is now talked of. No scandal in the choir has occurred for some time. The country must be getting dull.

The clergyman doesn't pay much attention to the stock exchange, but he is frequently "long" in sermons. "We are all worms," exclaimed a preacher in his sermon. Little Bobby, who was following the discourse attentively, whispered to his mother: "Then that's the reason why the great big fish swallowed Jonah, isn't it?"

The congregation of the Evangelical church of Lansing, Mich., is shocked at the news that its pastor, Rev. Frederick Mayer, has drawn a lottery prize of \$5,000. Mr. Mayer bears the shock, it is needless to say, with great equanimity. Sunday School Teacher—Now, Bobby, why did Moses strike the rock? Bobby—'Cause he wanted water. "Well, we don't have to hammer on the rocks for water now, do we?" "No, ma'am, but you have to knock three times for beer on Sunday."

In a lecture in Kansas City, Robert Ingersoll, the infidel lecturer, in trying to explain the faith, said: "What do I believe in? I

SINGULARITIES.

Mrs. Kesterson, of Fulton, Ky., has five sons, and the birthday of each is July 24.

A toadstool three feet across and very beautifully colored was found in the woods above Martin's Ferry recently.

A quercus animal, described as "a cross between a kangaroo and a possum," was captured by a "York man" the other day.

A fish-hawk has built its nest on a chimney on Jonathan Hoffman's house, in Fishing Creek, Cape May county, New Jersey.

On the arrival of a train at Derby, England, the other day the wheel tapper found in the spring of a box a thrust's nest full of eggs in process of incubation.

At Galveston recently a carpenter named Edward Johnson, while fishing with an ordinary hand line, caught a redfish weighing 100 pounds. It required the assistance of two men to land the monster.

A weening peach tree is one of the curiosities of Denison, Tex. It is visited by many persons daily. At times a perfect mist, or spray surrounds it. A number of superstitious persons think that spirits operate upon the tree.

Three sisters, all under fifteen years of age, in Missouri, weigh together 393 pounds. Lydia, thirteen years old, is the heaviest, tipping the beam at 130 pounds. Two of the trio have six fingers on each hand and the same number of toes on each foot. Their parents are of ordinary size.

A queer freak of lightning occurred at Kirkwood, Ga., a few days ago. A young man named Guy was struck by lightning and the shock was so great that it tore the eyelids out of his shoes. Strange to say Mr. Guy was not injured beyond the shock of the stroke, and is as well as ever.

A homeless dog in Stamford, Conn., has a habit of following baby carriages about town, as if to protect the innocent little occupants. The brute is of a yellowish brown color, part shepherd, of medium size, and will not allow man or boy to touch him. All he seems to care is a baby to guard.

A good many of the shade trees in Port Jervis, N. Y., seems to be in a drooping condition. The "Port Jervis Union" says that most of the affected trees are in the immediate vicinity of electric lights, and suggests that the darkness of night is as needful to trees for rest as it is to human beings.

A very rare specimen of animal life was discovered in Pennsylvania recently on the farm of Henry H. Davenport, father of George H. Davenport, of Meadville. Mr. Davenport set a trap for what he supposed to be a white skunk, and caught what turns out to be a genuine woodchuck.

RELIGIOUS.

Twelve hundred converts have been baptized in the Baptist mission in Russia the past two years. The mission is principally among the German colonists in south Russia. There is also a successful mission in Roumania and Bulgaria.

Persecution of dissenting Christians seems to be increasing in all the countries of central and eastern Europe. Their rapid progress has alarmed the clergy of the established churches and they are putting forth every effort possible to suppress them.

The appropriations of the American Baptist Missionary union for the year ending March 31, 1890, amount to \$402,785.71. Much new work is provided for, and the schedule is more nearly in accordance with the estimates from the missionaries than for many years.

The Roman Catholic bishop of Havana appealed to the governor of the island to close the cemetery which the Baptists had opened in that city, but the government of Spain has decided that the Baptists were acting according to the laws and may have their place of burial.

A new station on the upper Congo river has been opened by the American Baptist mission. It is 170 miles above Stanley Pool. Lieutenant Taunt, United States commercial agent on the Congo, says this is the only mission on the river which has been successful.

There are forty-seven organizations engaged in the evangelization of the Jews with 377 workers and 195 stations. At least 150 of the missionaries are converted Jews.

A navigable channel has been discovered in the delta of the Zambezi river, southeast Africa, by which vessels can enter the main river. This will greatly facilitate the advance of missions and civilization in that region.

EDUCATIONAL.

Harvard university expects to have a large entrance class this fall.

The requests to the schools of the country during the past year were up into the millions. American colleges never were better patronized and in more flourishing condition than they are to-day.

Students who use tobacco in any form are denied admission to the University of the Pacific at San Jose, Cal.

The school of medicine of Boston university has graduated 478 physicians. Nearly one-half of these are women.

Victoria university is this year headed by a lady, Alice Crompton, of Manchester, standing alone for first classical honors.

During the recent commencement season the gifts to colleges and other educational institutions amounted to nearly \$5,000,000.

It is stated in the Russian papers that new professionals in the Japanese, Korean and Hindustani languages have been founded at the University of St. Petersburg, and that the course of studies in these subjects will begin next session.

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