

POSITION OF THE PLANETS IN OCTOBER.

VENUS

is evening star. The distinguishing feature of the month is her arrival at her period of greatest brilliancy. This event occurs on the 29th, at 8 h. A. M., 36 days before her inferior conjunction. She is now passing through the phase of the moon in her last quarter. Before the 29th, her increasing diameter as she approaches the earth more than counterbalances the decrease in her illumined disk, and her luster increases. After the 29th the still increasing diameter fails to counterbalance the decrease in her illumined disk, which has become a rapidly narrowing crescent, and her luster decreases. Observers are fortunate who command a view of the southwestern horizon, and can watch this peerless star as night after night she moves with charming grace, low in the south, and disappears in the west almost before the twilight fades.

Venus sets on the 1st at 7 h. 15 m. P. M. On the 31st she sets at 6 h. 26 m. P. M. Her diameter on the 1st is 27".6, and she is in the constellation Libra.

JUPITER

is evening star. He passes, during the month, an interesting epoch in his course, his quadrature with the sun. This event occurs on the 26th, at 9 h. P. M. He is then 90° east of the sun, is on the meridian at sunset, and is in fine position for observation. Jupiter on the meridian, and Venus near her greatest brilliancy at the same time, form a combination that lovers of the stars will greatly enjoy.

Jupiter sets on the 1st at 0 h. 17 m. A. M. On the 31st he sets at 10 h. 29 m. P. M. His diameter on the 1st is 41".2, and he is in the constellation Capricornus.

MARS

is evening star. He is advancing on his eastward course, and approaching Jupiter, the space between them rapidly lessening. At the close of the month the two planets are about 8° apart. Mars will be near the moon on the evening of the 19th, though the conjunction occurs on the morning of the 20th, when moon and planet are only 33' apart. Venus, the moon the day before the first quarter, Mars and Jupiter will then form a celestial picture of exceeding beauty.

Mars sets on the 1st at 9 h. 57 m. P. M. On the 31st he sets at 9 h. 42 m. P. M. His diameter on the 1st is 10".0, and he is in the constellation Sagittarius.

MERCURY

is morning star. He reaches his greatest western elongation on the 15th, at 1 h. A. M., when he is 18° 10' west of the sun, and may be easily found by keen-eyed observers. He rises at that time an hour and a half before the sun, and is 9° north of the sunrise point.

Mercury rises on the 1st at 5 h. 31 m. A. M. On the 31st he rises at 5 h. 40 m. A. M. His diameter on the 1st is 9".8, and he is in the constellation Virgo.

URANUS

is evening star until the 20th, when he becomes morning star. He is in conjunction with the sun on the 20th, when, passing to the sun's western side, he commences his course as morning star.

Uranus sets on the 1st at 6 h. 18 m. P. M. On the 31st he rises at 5 h. 30 m. A. M. His diameter on the 1st is 3".4, and he is in the constellation Virgo.

SATURN

is morning star. He is a conspicuous object in the morning sky, rising about 2 h. A. M. when the month closes.

Saturn rises on the 1st at 3 h. 33 m. A. M. On the 31st he rises at 1 h. 52 m. A. M. His diameter on the 1st is 15".4, and he is in the constellation Leo.

NEPTUNE

is morning star. He rises on the 1st at 8 h. 22 m. P. M. On the 31st he rises at 6 h. 18 m. P. M. His diameter on the 1st is 2".6, and he is in the constellation Taurus.

Venus, Mars, and Jupiter are evening stars at the close of the month. Uranus, Mercury, Saturn, and Neptune are morning stars.

THE HORSE HAIR SNAKE.

BY NICOLAS PIKE.

Much has been written of late in relation to the so-called horse hair snake, the *Gordius aquaticus*. One of the New York journals has recently published a very remarkable account from Ansonia, Conn. The question is asked, "Will a hair from a horse's mane or tail develop into a snake if placed in water?"

Science says not; but Mr. T. H. Pierce, of Mount Pleasant, Derby, says: "Scientific men don't know everything." Then follows the astounding statement that Mr. Pierce claims under certain conditions he can and has produced from horse hairs perfectly formed snakes!

The heads were perfectly developed, with eyes and mouth, the reptile having life and motion and progressed in length and thickness. He has at present three in process of evolution, with which he expects to silence doubts as to his statement. Mr. Pierce has exhibited two horse hair snakes, as he calls them, and those who saw them are divided in opinion as to

whether they are a species of water snake or really produced from a horse hair! The gentleman says it takes about three months to develop the snakes! Oh, shade of Darwin! is evolution come to this?

I will give a slight resume of the life history of the horse hair snake, which is the *Gordius aquaticus* or hair worm, a true entozoon. It is common in most of our fresh ponds and rivulets, being well known to nearly every farmer's boy in the country, and they mostly believe in its development from a horse hair. These worms are, when full grown, from 5 to 7 inches long, and about as large round as a coarse cotton thread, and have a golden stripe down both sides of the body. It has no jointed skeleton internally, but a jointed coverings, as in insects, and the male is distinguished from the female by having the tail bifid.

Nothing is known of their reproductive powers. The eggs are found, but whether they are vivified before or after passing the female is not known. The ova are deposited in strings like a chain on the sides of shallow ponds or creeks, and they are greedily swallowed by various aquatic insects. Thus from the time the egg is hatched, the first part of the worm's life is spent as a parasite, absorbing nutriment from the body of its unlucky host. For a long time it was supposed these creatures had no mouths, but science at length decides that they have not only one, but a minute circular mouth or sucker on each side of the head. From each of these a cone-shaped tube extends toward and at its base joins the alimentary canal. At times the whole body seems filled with ova, and under the microscope they have been found to contain from a few scores to thousands.

The large water beetles, the *Dytiscus marginalis* and *D. niger*, are very subject to these parasites. They have been found in a cricket (*Gryllus sp.*), and once when dissecting a large water snake, the *Tropidonatus sipedon*, between the outer and inner epidermis lay some of these worms. They are graceful swimmers, but when taken from the water it irritates them so much that they twist themselves into such an intricate knot that it is almost impossible to unloose it. These worms are aptly named from Gordius, that old Phrygian king who tied the world-famous knot on which the empire of Asia depended. I can only say if I possessed the complications the bodies of the *G. aquaticus* are thrown into, I do not wonder at that choleric young conqueror Alexander solving the puzzle by cutting it in pieces with his sword.

When the ponds dry up in the long droughts of summer, such as we had a few years ago, all the usual inhabitants of such places totally disappear, and the clayey bottoms become so parched and dry they can be walked over. I was once digging in a dried-up pond, for I was curious to see if I could find any of the abundant animal life that had so recently swarmed there in the muddy water. Among other things I found quite a number of the Gordius worms stiff and dry in the clay. They were carefully removed and carried home in a box by themselves, that they might not be injured. My intention was to dissect and examine them microscopically at my leisure, and they were laid away for some days, as I had no time then to attend to them. When at last I thought about them, I was going to soak them in a weak alcoholic preparation I keep for such purposes, before dissecting them. I found my bottle empty, so laid the worms in a bowl of water, and left them overnight. To my surprise, in the morning they were alive, and swimming about in a very lively fashion. I took one out, when the furious knotting process began, and I placed it on a plate in the broad sunlight, and left it for two days, when it was again dried up, but on putting it in water it was all activity again in a few hours. Thus it will be seen how tenacious of life the creature is. I only know of one species of Gordius inhabiting the United States, but it is possible there may be another worm here of a closely allied genus, the *Mermis*.

In England both genera exist, and they so closely resemble each other, only an expert who has studied both can determine them. The ova of the *Gordius* worms are found in water or mud, and those of *Mermis* in damp earth, and even on low plants. Both are developed in the intestines of insects who swallow the ova—to their own utter destruction.

A curious case was told me by a friend that led me to suspect the presence here of both genera. He was breeding a number of the larvæ of the large Cecropia moth in a cage. All thrived but one, that looked sick and turned dark. The others completed their cocoons, but the sick one lay dead at the bottom of the cage, with some small white worms around it, and on examination the whole body was found to be filled with them. Some were sent to an authority on the subject, and they were determined as *Gordius aquaticus*. It was difficult to account for their presence, as the Cecropia larva was hardly likely to go to water. Now it occurred to me that they might be worms of a *Mermis*, and the larva had swallowed the minute ova when devouring the leaves of some low-lying plant, in its early stages. I leave the question for experts to decide.

Both, as far as I know, are innocuous to man, but

there is a species of Gordius, the *mediensis*, very common in the East Indies and Africa, often measuring several feet in length, yet not larger round than our *aquaticus*. We may rejoice that it is not here, for it is very dangerous to man, frequently producing ulcers, gangrene, and even death, when it enters the human body. It usually inserts itself when very small in some part of the lower extremities, often just above the ankle, and the flesh closes rapidly over it. Indians who stand long in fresh water pools, fishing, frequently get them.

During my sojourn in the East I met with several severe cases, and on one occasion extracted a worm from a Malabar's leg. It had entered near the foot and worked its way up the leg to the trunk of the body, rapidly increasing in length, and would doubtless have killed him in time. He had been strong and healthy, and that, with youth on his side, had enabled him to battle against the terrible scourge. It was, however, beginning to tell upon him, when I told him I could cure him if he would consent to an operation. He was informed that certain death was before him unless the worm was extracted, and he even expressed a willingness to lose his leg if he could be cured, but that was needless.

I made a small incision and secured the end of the worm, which I carefully fastened with a thread to a piece of pine wood some inches long, as large round as a pen holder. After the end of the worm was safely fixed, I began to turn the stick till the tension of the worm was all it could bear without breaking. This operation was done carefully many times for about eleven days, when success crowned my efforts, and the worm was taken whole from the man. It was a work of considerable patience on both our parts, and the agony of mind the man endured every time I turned the stick lest the worm should break was very great. Had a small piece of it been left in the flesh, it would have grown again, and as it was approaching vital parts, it would have been worse than ever, and all the trouble for nothing. He, however, stood it well, and though greatly emaciated when it was all over, with a little care he was soon well and strong again. The worm is now in the Museum of Comparative Zoology, at Cambridge, Mass., as I sent it in one of my *envois* to the late Professor Louis Agassiz, with a full description of its habits.

I have no doubt that one reason why the idea of the horse hair snake has been propagated is from ignorant persons who have had various aquatic insects in clear water, watching them for study or curiosity. Knowing they put in only certain live creatures, and some day finding these live worms, they were astonished, but they must be accounted for in some way. The chances are they developed from a pet beetle that in its native pond made a feast of some ova of the Gordius, to be paid dearly for later when they were hatched. The watchers little knew, when the beetle lay dead, it had given life to these worms that had fed on its vitals—but so it is, in this as in all creation, in the midst of life we are in death, and from death still comes life.

Electricity in the Printing Office.

A new use for electricity has been found at the Cook publishing house. In the office of the superintendent ten electric lamps are arranged in separate compartments of a frame or box, somewhat similar in appearance to the annunciators seen in hotel offices. The lamps are concealed from view, apertures in front of the compartments being covered with colored glass, each having its distinguishing color. The lamps are connected by means of electric wires with the automatic counting machines on the ten large printing presses located in an adjoining building. When the presses are in operation, the electric circuit is opened and closed by the working of the counting machines, causing quick flashes of light in the lamps. Thus every sheet of paper printed in the establishment telegraphs its record to the office, where the operation of each machine can be seen and its speed or delays noted.

In this connection it may be interesting to note that the speed of the large perfecting press is so great that it was found necessary to record each two sheets printed instead of single sheets, and even then the flashes of its lamp are almost continuous in appearance, showing that while the press is not quite as quick as lightning, it is too fast for the eye to follow.

It is believed that this is the first application of electricity to purposes of this kind, and may serve as a valuable hint to managers of large establishments who wish to be enabled to see the operation of their machinery while working at their desks.—*Elgin, Ill., Daily News.*

Progressive Knowledge.

Some one says: At ten years of age a boy thinks his father knows a great deal, at fifteen he knows as much as his father, at twenty he knows twice as much, at thirty he is willing to take his advice, at forty he begins to think his father knows something, after all, at fifty he begins to seek his advice, and at sixty—after his father is dead—he thinks he was the smartest man that ever lived.