

## Correspondence.

[FOR THE SCIENTIFIC AMERICAN.]  
ASTRONOMICAL NOTES.

OBSERVATORY OF VASSAR COLLEGE.

For the items of meteorological observations, for nearly all relating to meteors, and for some of the computations, in the following notes, I am indebted to students.

The places of the planets are given approximately only, the aim being to furnish to everyday readers such information as will enable them to recognize the principal planets.

M. M.

## Meteors.

The evening of November 27 was marked by an unusual number of meteors. The period which includes the last week of November and the first of December is known to be one in which meteors are frequently seen, but there was no reason to locate the maximum of this period on any particular evening. At 5h. 15 m., before the daylight was over and when the sky was so much overcast by thin clouds that very few stars could be seen, a brilliant meteor, starting from the zenith, passed toward the west leaving a bright yellow train.

At 5h. 40 m. another, so brilliant that it attracted the attention of a student who was not near a window, passed from a point near the pole star to the horizon. Before 6 P. M. so many had been seen that, as soon as it could be arranged, a systematic look-out was instituted. Two students began at 6h. 20 m. to keep a record. They were aided, after half an hour, by three others, and the count was kept up until 8h. 45 m., when it became cloudy.

From 6h. 20m. to 7 P. M., more than 200 were seen. The frequency diminished after 7 P. M., but, in the 2h. 20m. during which the watch was kept up, 795 were recorded. It is not an easy task to trace the course of meteors in the few seconds of their apparition, but an effort was made to determine the radiant point. The constellations *Cassiopeia* and *Perseus* were named by the observers, but the greater number must have radiated from the latter.

More than ordinary interest is felt in the meteors of this period because they are supposed to be connected with Biela's comet.

The evenings of December 7, 10, and 11 have also been reported to me (by students) as the dates of remarkably bright meteors.

## Position of Planets for January, 1873.

## Mercury.

Mercury rises on the 1st at 5h. 45m., comes to meridian, or souths, at 10h. 27m. in the forenoon, and sets at near 3 P. M. It is at its greatest elongation on the 5th. January 31, Mercury rises at 6h. 40m., comes to meridian about half past eleven and sets at near 4 P. M.

## Venus.

January 1, Venus rises a few minutes before 10 A. M., comes to meridian, or souths, at 2h. 55m., and sets near 8 P. M.

January 31, Venus is nearly in the celestial equator; it rises at nine in the morning, comes to meridian a little after 3 P. M., and sets at 9 in the evening.

## Mars.

Mars is still very small, but its ruddy light makes it easily known. When it souths on the 1st, it is 4° above *Spica*, the star being east of the planet. Mars rises on the 1st about 1 A. M. On the 31st it rises soon after midnight, comes to meridian at 5h. 26m., and sets at about 11 A. M.

## Jupiter.

Jupiter rises before 9 P. M. on the 1st, souths at 3h. 30m. A. M., and sets about 10 A. M.

On the 30th Jupiter rises at 6h. 24m., comes to meridian at 1h. 22m. on the morning of the 31st, and sets about 8 A. M.

All through the month Jupiter increases in apparent size, and its position becomes more and more favorable for observers. On the 31st, at 1h. 22m., it has, in the latitude of Vassar College, an altitude of more than 61°.

The Nautical Almanac gives the time of the eclipses of the satellites, and according to that, the 3rd satellite, which is the largest, passes into the shadow of Jupiter, or is eclipsed, on the 1st at 6h. 42m. 7.5s. (Washington time) and reappears at 10h. 15m. 38.5s. A glass of very small magnifying power will show this phenomenon at places above whose horizon Jupiter has risen.

On the 1st, Jupiter is east of the bright star *Regulus*, in *Leo*, and they will have nearly the same altitude when on the meridian. On the 31st they will be nearer together in right ascension, and further apart in declination.

## Saturn.

Saturn has been a parently very near to Venus, during the first half of December, especially on the 4th. It sets on the first at half past five, having passed meridian 10 minutes before one.

On the 31st, Saturn rises before the sun and sets before 4 P. M., coming to meridian before the sun.

## Uranus.

January 1, Uranus comes to meridian at 1h. 45m. A. M., sets about 9 A. M., and rises at about 6½ P. M. It is among the small stars of *Carcer*.

January 31, It comes to meridian at 11h. 38m., having risen 20 minutes after 4 P. M.

## Neptune.

This planet, unlike the others, requires a large telescope. It souths on the 1st at 6h. 42m. at an altitude of (in this latitude) of 55° 50'.

On the 31st, it rises in the morning, comes to meridian before 5 P. M., and sets at about 11 P. M.

## Meteorology.

OBSERVATORY, VASSAR COLLEGE.

THERMOMETER AND BAROMETER FROM NOVEMBER 15 TO NOVEMBER 30.

Highest thermometer at the time of recording was at 2 P. M., November 25.....	51°
Lowest thermometer 7 A. M., November 30.....	12°
Highest barometer 9 P. M., ".....	30.58"
Lowest " 7 A. M., ".....	29.55"

The highest wind was from the southwest, on November 30 at 2 P. M. There was no rain.

DECEMBER 1 TO DECEMBER 15.

Highest thermometer at the time of recording was at 2 P. M., December 27.....	7°
Lowest thermometer 9 P. M., December 12.....	30.37
Highest barometer 9 P. M., ".....	29.63
Lowest " 2 P. M., ".....	29.63

The highest wind was from the northwest December 10, at 2 P. M. Fall of rain very slight.

## The Unknown Planet Actually Seen.

To the Editor of the Scientific American:

In your issue of December 14, I see a statement, which I saw before in *Nature*, that Mr. J. R. Hind, the astronomer, was demonstrating that there was a probability that a planet is situated between Mercury and the sun. As I do not know Professor Hind's address, nor the facts upon which he bases his opinion, I address you in hopes that the statement I make will, by this means, fall under his eye. I do not know whether it will add to his store of knowledge, but it is a fact vital to his theory. In the latter half of September, 1859—I cannot now fix the exact date, though it may have been about the 20th—I saw the planet pass over the disk of the sun. I first saw it about 9 o'clock, my attention being called to it by some boys who were looking at the sun through smoked glass. It was then on the eastern limb, and its apparent diameter was about 2½ inches. It took it about two hours to pass over the sun. As it is impossible for any of the known interior planets to pass over the sun in the month of September, it must have been an unknown planet. I communicated this fact to the naval professors in 1869, requesting that search be made for this interior planet at the eclipse of that year, but nothing was ascertained.

Hoping that this fact may be of service to Professor Hind, I make this statement through your valuable paper.  
St. Louis, Mo. JOHN H. TICE.

## Sulphite of Lime in Cider.

To the Editor of the Scientific American:

I wish to give my experience in the use of sulphite of lime in cider:

One writer thinks it may be injurious to the health; if he will study the chemical effects of its use, he will see that it has no disposition to appropriate the oxygen already combined, but prevents further combination, its own appetite for oxygen being stronger than that of the cider. There is, possibly, an electrical action besides, as the sulphite does not chemically combine with the cider; being insoluble, or very slightly soluble, it sinks to the bottom as so much sand.

What the effect would be on the blood I do not know; but I should think, as the blood was vitalized in the lungs, if it should come in contact with sulphite in the stomach, no harm would be done, especially as a very doubtful quantity is ever taken into the stomach.

The greatest danger would arise from an impure article; if the lime used was impure, especially if magnesia was present, it would have the effect of Epsom salts, as I have known in several instances. If the sulphite is not neutral, it will spoil the cider. It had better be acid than the opposite, as free lime kills the life of the cider. This can be ascertained from the taste; if it has a caustic taste, discard it. It should have, very little flavor, and nothing that is in the least unpleasant; it ought to taste very much like wheat flour.

During the years 1861, '62, and '63, I made large quantities of it; I had a boy to help me, and in the season for it, about two months each year, there were few days in which he did not eat enough for a common forty gallon cask, and many days much more. I never knew of its doing him any harm, unless, perhaps, it stopped his working as much as he could without it.

WM. A. BARNES.

Bridgeport, Conn.

REMARKS BY THE EDITOR:—The use of sulphites to prevent the fermentation of liquors was early suggested by Liebig, and has long been practiced in Europe and this country. At first the sulphite of soda was employed, but so much alkali in the wines was found to be deleterious, and recourse was had to sulphite of lime. This latter salt, when pure and neutral, contains, in 100 parts, 41 parts of sulphurous acid. The sulphurous acid absorbs the oxygen and thus stops fermentation. Sulphate of lime, or gypsum, is formed, which settles in an insoluble paste to the bottom and thus imparts no taste to the liquid. There is very little cider in the market which has not been kept sweet by the use of sulphite of lime; and as this salt has long been recommended, there appears to be no objection to its use.

DOCTOR PITHA, of Vienna, it is stated, has just received a fee of 100,000 florins (\$50,000) on the recovery of the young Baron Todesco, the only son of a millionaire. The case entailed an attendance of about two months, and the patient remained entirely unconscious during 23 days. Professor Pitha's assistant also received a large sum of money.

## Rocky Mountain Geological Explorations.

In October last a party, under the lead of Professor O. C. Marsh, of Yale College, started from New Haven for the purpose of procuring fossils in the almost unknown region near the Rocky Mountains. Several expeditions have been made in former years by Professor Marsh and scientific students, and they have resulted in some important discoveries of fossil remains, which have shed a good deal of light upon the ancient animal inhabitation of the continent, as well as given some important hints as to its geological formation.

The October party went out with the intention of continuing these researches. They have lately arrived home in good health, satisfied with the successful results of the expedition.

At Fort Wallace they were joined by a military escort consisting of Lieutenant Pope and eight soldiers, army wagons, and mules for riding. The whole party had a competent guide, Edward S. Lane. They started from Fort Wallace and proceeded down the Smoky Hill Fork, and in this neighborhood camped out for twenty-five days. In this region there were immense quantities of buffaloes, and the party shot while camping, about fifty of them. One herd was seen which it was estimated numbered about fifteen thousand. There were also great quantities of deer and antelope. The time of the party was spent mainly in discovering fossils, and quite a lot of valuable saurians, pterodactyls and birds were found. Of the first two classes, there was an especially good collection obtained, and there were also some valuable bird fossils found. The largest bird fossil, Professor Marsh said, stood fully six feet high. A large number of fossil fish were found, not valuable enough to pick up.

The daily life of the party was something as follows: They usually arose at from seven to eight o'clock, and, after looking after their mules, prepared breakfast, which consisted generally of buffalo meat, sometimes deer and prairie hens. They were obliged to depend upon the government for such supplies as tea, coffee, flour, etc., obtaining them at wholesale government price. After breakfast the party generally started for the cañons and spent the rest of the day in diligent search for fossils, not returning to the camp till supper time. On the prairie they were thoroughly armed, each one carrying a rifle, revolver, knife and cartridge belt. The evening was generally spent in arranging the collection of fossils found during the day, under Professor Marsh's direction. The party slept at night in the regular Sibley tent, heated with the Sibley stove. At Cheyenne they found the thermometer standing at fifteen degrees below zero, and very naturally did not care to do much outdoor work in such an atmosphere. Water was all frozen up, and the most bitter winter weather was experienced. From Cheyenne they took a southeasterly direction to Crow Creek in Colorado. Here they camped seven days and explored the country toward the Rocky Mountains. At this point Pike's Peak was in sight. The explorations were not very successful, except near the camp where they found one or two cañons full of bones. There were found some rhinoceros' teeth, as well as bones of various rodents, and fossil turtles in plenty.

## Snow Plowing.

A correspondent, W. W. of Evanston, Wyoming Territory, states that a plow 32 feet long, 11 feet wide, and 12 feet high, plus 58 feet for trucks and platform, is well proportioned; and a weight of 50 tons is enough. But, he says, "the first side drift it strikes, it will throw something (I think it will be the rail). The rail we use here is 4 inches high plus 3½ inches wide, and some of the old pine ties are two feet apart and spiked with a smooth spike. I have shoveled snow in the same drift as John Chinaman. He told me: 'Irishman all same as Hong Kong man, no count to keep track clear of snow when it drifts 40 knots an hour, snow plow and locomotive on *larbert* side' (topsy turvy)." "I see," continues W. W., "no better method for clearing away snow than the one the aboriginal American used before the pale face borrowed his corn."

BE CHEERFUL.—"Be cheerful," says the man who is easy in his circumstances, missing no loved face at the table, nor by the hearth. But does he ever consider how hard it may be to be cheerful when the heart aches, and the cupboard is empty, and there are little fresh graves in the churchyard, and friends are few and indifferent, and even God, for the time being, seems to have forgotten us, so desolate is our lot? How difficult for one man to understand another in such different circumstances! How easy to say "Be cheerful!" How hard he would find it to practice, were he stripped of all life's brightness!

A NEW GALVANIC BATTERY.—GaiFFE's new galvanic battery consists of a vessel in which are contained a plate of lead and a plate of zinc. The lead reaches to the bottom, while the zinc is but half as long. The bottom of the vessel is covered with a layer of red oxide of lead, and the exciting fluid is water containing 10 per cent of sal ammoniac. The electro-motive power of this battery is estimated at one third of that of a Bunsen cell. Its internal resistance is very slight and it is said to be very constant. It has the merit of cheapness.

A PECULIAR LOCOMOTIVE.—A new locomotive, named the Anthracite, which has been placed on the Albany and Susquehanna Railroad, has six driving wheels and carries its water above the boiler. A tender is thus dispensed with. The firing apparatus is stated to be so arranged that the fires last all day without replenishing, and the furnaces only require damping once a week.