ASTRONOMICAL NOTES.

BY BERLIN H. WRIGHT.

PENN YAN, N. Y., Saturday, July 6, 1878.

The following calculations are adapted to the latitude of New York city, and are expressed in true or clock time, being for the date given in the caption when not otherwise stated.

PLANETS.

	H.M.		H.M.
Venus rises	2 13 mo.	Saturn rises	11 18 eve.
Mars sets	8 57 eve.	Uranus sets	9 46 eve.
Jupiter rises	8 40 eve.	Neptune rises	0 47 mo.
Jupiter in meridian	1 32 mo.		

FIRST MAGNITUDE STARS.

	H.M.		H.M.
Alpheratz rises	9 11 eve.	Regulus sets	9 46 eve.
Algol (var.) rises	10 51 eve.	Spica in meridian	6 20 eve.
7 stars (Pleiades) rises	1 15 mo.	Arcturus in meridian	7 11 eve.
Aldebaran rises	2 34 mo.	Antares in meridian	9 22 eve.
Capella sets	8 17 eve.	Vega in meridian	11 33 eve.
Rigel rises	4 41 mo.	Altair in meridian	0 49 mo.
Betelgeuse rises	4 26 mo.	Deneb in meridian	1 41 mo.
Sirius	invisible.	Fomalhaut rises	11 51 eve.
Procyon	invisible.		

REMARKS.

Venus is directly north of *a Tauri* (Aldebaran). Jupiter's satellites will present the most interesting appearance July 8, 3h. 11m. morning. At this time but three of the satellites will be visible: the first being in the act of making a transit, and 27 minutes later appears at Jupiter's western limb; the second may be seen very close upon the west, disappearing in Jupiter's shadow one minute later, and passing from the eclipse into an occultation; the third is twice as far west of the planet as the second, and is rapidly approaching superior conjunction; the fourth is nearly at greatest western elongation, and its apparent motion is from the planet

Astronomical Notes.

OBSERVATORY OF VASSAR COLLEGE.

The computations in the following notes are by students of Vassar College. Although merely approximate, they are sufficiently accurate to enable the observer to find the planets.

M. M.

Positions of Planets for July, 1878.

Mercury.

On July 1 Mercury rises at 4h. 14m. A. M., and sets at 7h. 24m. P.M., keeping nearly the path of the sun, and of course it will be invisible. On July 31 Mercury rises at 7h. 1m. A.M., and sets at 8h. 20m. P.M.; it may perhaps be seen in the evening twilight, some 7° south of the place of sunset.

Mercury and Mars are in conjunction on July 22; Mercury and Uranus on the 28th.

Venus.

On July 1 Venus rises at 2h. 11m. A.M., and sets at 4h. 29m. P.M. On July 31 Venus rises at 2h. 25m. A.M., and sets at 5h. 18m. P.M.

Venus is far from us and small, but is very brilliant a few hours before sunrise.

Mars.

On July 1 Mars rises at 6h. 38m. A.M., and sets at 9h. 10m. P.M. On the 31st Mars rises at 6h. 18m. A.M., and sets at 8h. 4m. P.M.

Mars and Mercury are in conjunction on July 22. Mercury is further north than Mars.

Jupiter.

In July Jupiter will light up the evening sky. On July 1 this planet will rise at 9h. 8m. P.M., and set at 6h. 40m. the next day. On the 31st Jupiter will rise at about 7 P.M., and set after 4 the next morning.

Jupiter's four moons revolve around the planet in so short a time that they are often lost to sight by passing across the planet in transit, by getting behind the planet as in occultations, and by passing into the shadow of Jupiter and becoming eclipsed.

The 1st satellite, or the one nearest to Jupiter, will be invisible for a time, from one or the other of these causes, during the evenings of July 8, 9, 16, 17, 23, 24, 25, and 31.

The 2d satellite is less exposed to these phenomena, but will be invisible for a time on the evenings of July 2, 9, 18, and 25.

The 3d satellite is large, and a glass of very small power will show it approaching the planet on the evening of the 11th, and passing in front of it, coming out from behind the planet early in the evening of the 22d, and disappearing by going into Jupiter's shadow late in the evening on the 29th.

The 4th satellite is rarely seen to make a transit, but on July 21 it may be seen in the evening to approach Jupiter, and a good glass will show that it enters upon the disk.

Saturn.

On July 1 Saturn rises at 11h. 40m. P.M., and sets at 11h. 33m. A.M. of the next day. On the 31st Saturn rises at 9h. 38m. P.M., and sets at 9h. 30m. A.M. of the next day.

Saturn will come into better and better position for evening observers. It can easily be recognized, as it is brighter than the stars around it, and rises but very little south of east.

Uranus.

Uranus rises on July 1 at 8h. 30m. A.M., and sets at 10h. 7m. P.M. On the 31st Uranus rises at 6h. 40m. A.M., and sets at 8h. 13m. P.M.

Mercury and Uranus are in conjunction on the 28th, both of them near Regulus.

Neptune.

On July 1 Neptune rises at 1h. 5m. A.M., and sets at 2h. 39m. P.M. On the 31st Neptune rises at 11h. 4m. P.M., and sets at 40m. after noon of the next day.

Sun Spots.

The year 1878 is the time for the recurrence of the minimum period of the sun spots, and since last November only six groups of these spots have been seen. On November 30 a very large double spot was seen, which was visible for the last time on December 3. On February 5, a chain of about twelve small spots was seen near the center of the sun's disk. These were again observed on February 6 and 7. On March 5 two very small spots were seen passing off the disk of the sun. On March 15 three spots, one of them double, were seen between the center and edge of the sun, passing off. On the 16th these were again seen, but they were much fainter. On May 27 two large spots were visible. On the 29th they appeared as one single spot, and one group consisting of three individual spots. These were last seen on June 3, passing off the disk.

Removing Spots from Cloths.

Spots of Sugar, Glue, Blood, Albumen.—On white goods, on dyed tissues of cotton and wool, and on silk, simple washing with water.

Spots of Grease.—On white goods, soap water or alkalies; on dyed tissues of cotton, hot soap water. Ditto of wool, soap water or ammonia. On silk, benzine, ether, ammonia, magnesia, chalk, yolk of egg.

Colors of Varnish, Resins.—On white goods, and on dyed tissues of cotton and wool, turpentine, benzine, then soap. On silk, benzine, ether, soap; rub with care.

Stearine, Tallow.—On white goods, and on dyed tissues of cotton and wool, and on silk, alcohol at 95°.

Vegetable Colors, Wine and Fruit Stains, Red Ink.—On white goods, vapors of sulphurous acid; hot bleaching powder solution, weak. On dyed tissues of cotton and wool, wash with warm soap water, or ammonia. On silk, same; rub softly and carefully.

Alizarine Ink.—On white goods, tartaric acid; more concentrated as the spot is older. On dyed tissues of cotton and wool, weak solution of tartaric acid if the color allows. On silk, same, with care.

Rust, Black Ink.—On white goods, warm solution of oxalic acid; weak muriatic acid. On dyed tissues of cotton, repeated washings with citric acid if the color is well dyed. Ditto of wool, same; weak muriatic acid if the wool is of the natural color. On silk, no remedy.

Lime, Lyes, Alkalies.—On white goods, simple washing with water. On dyed tissues of cotton and wool, and on silk, weak nitric acid poured drop by drop, and rub with the finger the spot previously moistened.

Acids, Vinegar, Fruit Acids, Mould.—On white goods, washing with water or hot solution of bleaching powder, weak. On dyed tissues of cotton and wool, and on silk, ammonia, more or less weak, according to the tissue and the color.

Tannins, Walnut Shell Stains.—On white goods, Javelle water; bleaching powder water; concentrated tartaric acid. On dyed tissues of cotton and wool, and on silk, chlorinated water, more or less dilute, according to tissue and the color, and alternately washing with water.

Tar, Wagon Grease.—On white goods, soap, turpentine and jet of water alternately. On dyed tissues of cotton and wool, rub with pumice stone, then soap, then let stand; wash alternately with turpentine and water. On silk, same, but use benzine, and let a jet of water fall from a height upon the back of the spot.

"American" New Process Milling.

The germ of the "New Process" system of milling in America is to be found in the old French *Mouture Economique*, which is described by Rollet as follows: "The first time the wheat passes between the stones, the upper millstone, which is movable, is raised much higher than in subsequent operations, for the reason that it is sought at first, by merely crushing and rubbing the outer coating of the berry, to sever the teguments in order that they may be separated the better in the operation of bolting. After this pounding is accomplished, the first flour is taken out, and the coarsest middlings and the bran separated. The middlings are then reground on the stones brought nearer together, and this grinding gives a second white flour and second middlings. These, on being reground, likewise yield a certain quantity of white flour and some middlings. The grinding of the fourth and fifth middlings gives a flour which is called *bise* (an inferior flour), and offal called *remoulage*, which contains the hard and grayish parts near the coating of the berry." This method resulted in flour of a quality greatly superior to the ordinary system of milling practiced at the time in France, and its basis—the gradual granulation of the wheat berry by repeated operations instead of crushing it by one—forms that of the American "New Process" milling. In this respect it is similar to the Hungarian system, of which indeed it is confessedly a modification.

The preliminary operations of cleaning the wheat which is to be converted into flour holds as prominent a place in the "New Processes" as in the Hungarian system.

Not only is the greatest care taken to remove all the grosser impurities that are mixed with the grain in the process of harvesting, and the foreign seeds which result from the cotemporaneous growth of weeds with the legitimate crop, the smutty and diseased grains which exist in the general bulk, but the berry itself is subjected to a more or less energetic cleaning by a variety of processes for the purpose of removing every particle of matter which is foreign to its organism. In these processes means and appliances are adapted, not only to the work that has to be done, but to the differences in character of the materials to be operated upon. Not only do wheats differentiate into hard and soft, but the character of winter and spring sown wheat varies, physically speaking, and the cleaning agencies that may be best adapted, say for hard and spring wheats, are not necessarily equally well adapted to soft and winter wheats. The new process miller carefully studies their differences and selects his wheat cleaning machinery accordingly. In some years he finds that wheat is harder and has a thicker bran than the same variety in other seasons, and in cleaning these different varieties he deems it indispensable that his machine should be adjustable, so that the scouring should be more or less energetic as may be required. Above all he is careful not to break the bran or fracture the kernel, and machines which beat and whip the wheat are not in favor with him. He prefers the frictional action of machinery of the scouring and brushing class to those of the beating and whipping order, but in practice both classes of machines are used. The chief object is to clean the wheat thoroughly, but, at the same time, to leave the structure of the berry perfectly intact, so that when it comes to be granulated by the millstones the granulation may be as uniform and perfect as possible.

In the new process, as practiced in America, heating the wheat previous to grinding is an indispensable operation. In his work upon the subject Mr. Brown says: "Ask a first-class miller which is the best time of the year to mill wheat, and he will invariably answer you, the months of June and July. If such be the case (and of the fact there can be no doubt), what must be the condition of the wheat during the remainder of the year? It certainly cannot be in a proper state to be ground. Then what is to be done? Simply to force the conditions and prepare the wheat for milling by artificial means."

Several modes of forcing such natural conditions are used: that recommended by Mr. Brown is the passing of the wheat over a coil of pipe or corrugated cylinder in the interior of which steam is applied. The application of the heat is recommended just before the wheat enters the millstones, a separate heater being used for each pair of stones. The result is the driving of the moisture contained in the inner substance of the wheat more or less into the bran, which is thus toughened, while the flour is left dry, its color being improved, and its condition is more favorable to packing and shipping.—*The Miller.*

New Agricultural Inventions.

Mr. Joshua Davies, of Muskegon, Mich., has devised a new Grain Separator, which is intended to be used in stables to clean grain in small quantities before it is fed to horses. A blast is used, and the grain is rubbed by a flexible rubber lip as it passes out of a hopper.

A novel Scythe Snath Fastening has been patented by Mr. Manlius Hewitt, of St. Louis, Mo. It consists in constructing the swing socket with teeth upon the curved edge of its swinging end, and combining them with a bolt having beneath its head a corresponding set of teeth which mesh with the teeth of the socket plate to hold the latter rigidly in position.

Messrs. Wiley H. Tate and John E. Curtis, of Jacksonville, Ark., have patented a new Cotton Press. Two horizontally acting levers, connected with the follower levers by toggles, are operated by a windlass and ropes, so located and connected with such horizontal levers that their free ends are caused to approach each other, or separated more widely, according as the windlass is turned in one direction or the other.

A new Thrashing Machine has been invented by Mr. John E. Glover, of Lonoke, Ark. The improvement relates to a dust chimney and fly door hinged to the cap of the machine for preventing annoyance to the workmen from the dust from the cylinder. The chimney will also fold down out of the way. A gauge board is arranged to intercept the cut heads and waste grain and turn them into the shoe.

A Defense of Sludge Acid.

Professor Chandler says that the complaints of bad smells from factories in this city are groundless; that the stenches all come from the factories where sludge acid is used at Hunter's Point. Professor Seeley retorts that sludge acid is entirely innocent; that the Hunter's Point smells arise from the materials used in making artificial guano, into which process sludge acid enters only at the final stage. The real offenders are rotten fish and pork and manure. To clinch his argument, Professor Seeley lets out the secret that the chief element in the compound used by the Board of Health as a disinfectant—a compound furnished by Professor Seeley—is sludge acid! It is simply a solution of iron made by the use of sludge acid, and containing sludge oil.

Shad Hatching at Havre de Grace, Md.

Professor Baird reports that the work going on at the headquarters of the United States Fish Commission at Havre de Grace, Md., is the most extensive and important undertaken during the history of the service. At the beginning of June they were taking over a million shad eggs a day, hatching them promptly, and sending them out to the head waters of the principal streams of the South and Southwest. It is expected that from twelve to fifteen million young fish will be secured. Toward the end of July, salmon hatching will begin, and the Commission hope to make a successful solution of the problem of stocking the streams of the Mississippi valley with California salmon.