ASTRONOMICAL NOTES.

OBSERVATORY OF VASSAR COLLEGE.

The computations and some of the observations in the following notes are from students in the astronomical department. The times of risings and settings of planets are approximate, but sufficiently accurate to enable an ordinary observer to find the objects mentioned. M. M.

Positions of Planets for November, 1875.

Mercury.

Mercury rises on the 1st of November at 6h. 8m. A. M., and sets at 4h. 37m. P. M. On the 30th, Mercury rises at 5h. 58m. A. M., and sets at 3h. 45m. P. M.

Mercury should be looked for about the middle of the month, in the early morning, south of east. It will rise some time before the sun, and may be known by its soft white light.

Venus.

On the 1st of November, Venus rises at 7h. 28m. A. M., and sets at 5h. 20m. P. M. On the 30th of November, Venus rises at 8h. 39m. A. M., and sets at 5h. 27m. P. M. It should be looked for after sunset, a little south of the place where the sun was last seen.

Mars.

On the 1st of November, Mars rises at 1h. 12m. P. M., and sets at 10h. 33m. P. M. On the 30th, Mars rises a little after noon, and sets at 10h. 27m, P. M.

Mars can be seen from night to night to change its place among the fixed stars. Its path has lain among the stars of *Sagittarius* and *Capricornus*, and in November it reaches the smaller stars of *Aquarius*. Mars and Saturn are in conjunction on the 21st.

Jupiter.

Jupiter is very unfavorably situated for observation. It rises at 6h. 48m. A. M., and sets at 5h. 2m. P. M. on November 1st. On November 30th, it rises at 5h. 26m. A. M., and sets at 3h. 25m. P. M.

Saturn.

Although low in altitude, Saturn is still well situated for recognition. On the 1st, it rises at 1h. 46m. P. M., and sets at 11h. 46m. P. M. On the 30th, Saturn rises at 11h. 55m. A. M., and sets at 9h. 57m. P. M.

On the 21st Mars and Saturn are in conjunction; Saturn is a few minutes of arc above Mars. They can be seen directly south at about half past five at an altitude (in this latitude) of 32½°.

Uranus.

On the 1st, Uranus rises at 11h. 47m. A. M., and sets at 1h. 41m. P. M. of the next day. On the 30th, Uranus rises at 9h. 45m. P. M., and sets at 11h. 48m. P. M. of the next day. It is among the small stars of *Leo*, which rise before the well known stars of the Sickle.

Neptune.

Neptune rises at 4h. 38m. P. M. on the 1st, and sets at 5h. 52m. A. M. On the 30th, Neptune rises at 2h. 43m. P. M., and sets at 3h. 56m. next morning. It is so remote that it cannot be seen without the aid of a good telescope.

Sun Spots.

The report is from September 29 to October 20, inclusive. The picture of September 29 shows a group of spots near the center. In the photographs of September 30, October 2, and October 4, the only change shown is that caused by the revolution of the sun on its axis. On October 5 this group was still visible with a glass, while another group and two small spots, near the center, which had not been seen the day before, were observed.

Photographing and observations of the sun were interrupted by clouds from October 4 to October 8; and from that date to October 19, no spots have been seen.

The picture of October 20 shows, near the eastern limb, two elongated spots, followed by two very small ones.

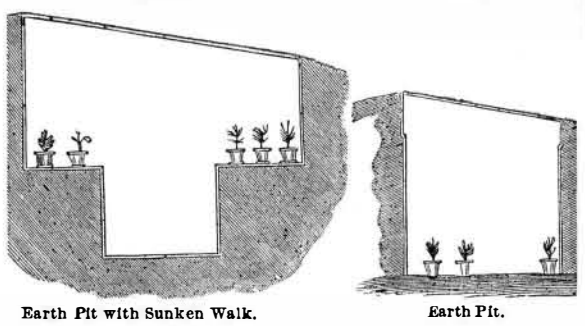
Cork-Leather—A New Fabric.

M. Horeau exhibits, at the French Maritime Exhibition, what may be regarded as a new fabric, under the name of *cuir-liége*, or cork-leather, which possesses a somewhat remarkable combination of qualities, adapting it for many and various special applications and uses, of which the most important relates to military equipments. *Cuir liége*, as its name implies, is prepared mainly from cork, and has all the characteristics of leather, for which primarily it is a substitute; its most singular peculiarity consists in the change operated in the cork by the treatment adopted. Thin sheets, or pieces of cork, are covered on each side by an extremely fine india rubber skin, with any ordinary textile fabric outside of all, the whole becoming one *quasi* homogeneous tissue; and whereas the cork sheets in their primal condition are porous and penetrable by water, friable and brittle, and endowed with very little strength and cohesion, having only the positive qualities of lightness and non-conduction of heat: yet when treated as above described, the resulting product, *cuir-liége*, is extremely supple, and, so to say, malleable, endowed with great strength to resist tensile strain, and, while retaining its comparative lightness and impenetrability to heat, it is rendered waterproof and impermeable to moisture. This new material may be crumpled up, rubbed and wrung like linen and calico in the wash, doubled up any number of times and hammered with a mallet, without injury; the interior web of cork, which is the basis of the fabric, neither cracks nor tears in any way, but preserves its unity and entirety. In regard to its waterproof character, the *experimentum in corpore vilo* is perfectly conclusive; boots, shoes, and other articles, formed out of *cuir liége*, are seen swimming in water, without the wet penetrating, or at all deteriorating them; aquaria are formed of *cuir-liége*, either in one piece or in several pieces, sewn together, and there is no penetration, no exudation, no trace of moisture on the external surface, nor leakage at the seams. In evidence of the strength of the material, a weight of nearly half a tun remains suspended indefinitely by a strap about 2 inches in width and ⅛ inch in thickness, which has an external resemblance to leather, but is only *cuir-liége*. Externally, according to the textile material used in combination with the cork, the appearance varies, resembling leather, American cloth, macintosh, or other waterproof materials, but endowed with far superior qualities.

EARTH PITS.

The object of a cold pit is to get heat from the earth below and to shut out the cold above. The degree of heat thus obtained will vary with the shape. A broad sash, for instance, which rests on the top of the ground, with the sides of the frame considerably exposed, and where the warmth of the earth comes up only from the bottom of the shallow space, will afford only partial protection, and may be employed to cover half hardy plants. In Fig. 2, while the glass is much less exposed to the sweep of winds by being nearer the earth's surface, and the sides of the frame are banked up and protected, there are three times the warmth derived from the earth at the two sides as well as on the bottom. To this style of pit, the drawings of which we take from the Albany *Cultivator*, may well be given the name of earth pit. By covering the glass sufficiently with mats, etc., in severe weather, such a pit as this will preserve plants from great cold. Fig. 1 represents a good pit, so arranged that the attendant may enter through a door at the end and

Fig. 2. Fig. 1.



Earth Pit with Sunken Walk. Earth Pit.

pass through the whole length. Such a pit may be from 10 to 12 feet wide, and of any desired length. One of the first requisites of a pit is perfect drainage.

FLOWER POTS.

As many of our readers, agriculturists and others, live far from the large cities, and have to depend on their own skill for many minor articles of household economy, a few simple directions for making flower pots will be useful to them. They are published by Mr. McIntyre, gardener in one of the London parks, in the *Journal of Horticulture*.

Fig. 1 is the model, which is made of tin, copper, or zinc, either of the two latter being cheaper in the long run. It is 2¼ inches in width at the top and 1½ inches at the bottom, inside measure, and about 2¼ inches in depth. Fig. 2 is the pot when made. Fig. 3 is the bolt, which is about 5 inches in length of half inch round iron, to which is soldered a shield of stout tin an inch in diameter; this shield is an inch from the end of the bolt. Fig. 4 is the mold (inverted), which is made of wood; the size of the plug is 1¾ inches across the top, and 1 inch across the bottom, and 2½ inches deep.

The composition of which the pots are molded may consist of various ingredients, provided they do not destroy its adhesive character. Strong loam, of the fat greasy kind, as we believe it is termed, is the best staple, and to this is added a little leaf mold and cow dung. Cocoa nut fiber (not the dust), wool threads, fragments of straw, hay and chopped turf, may also be mixed with the mass, which must be thoroughly incorporated, and worked up to the proper consistence with water. In making the pots a hole is made in the bench, through which the spindle of the bolt, Fig. 3, passes, having previously been put through the hole in the model, Fig. 1. Some of the composition is then placed in the model, pressing it around the edges, but always taking care to have a superfluity of the composition. The plug, Fig. 4, is then placed in the center of the model, a slight indentation in its bottom being made to fit over the end of the spindle of the bolt, Fig. 3. The plug is then pressed home, and turned gently to the right, while the model is turned to the left. The superfluous composition is then removed with a knife, and the pot removed by pushing up the bolt. If the composition is at all sticky, it will be found advisable to dip the plug in water before pressing it into the model, and the latter will also require an occasional dip. The pots as molded are placed in an oven, or in the hot sun, where they speedily dry, and if the composition has been well tempered they will stand a good deal of storing. The dimensions given are only approximate, and for small pots; other sizes can easily be estimated from them, and the thickness of the pots can be varied to suit the wants, or according to the judgment, of the maker. When well made and of proper materials, these pots will stand the winter and spring in frames, though the roots of the plants often work through them. Of course, when bedding out, the pot is put in the ground as well as the plant, and thus, while avoiding any check from shifting, the plants are provided by the rapid softening of the pot in the damp soil with food which they speedily appropriate. These pots are so easily made, and the implements cost so little, that we recommend a trial of them to all who practise the bedding-out system.

The Brotherhood of Locomotive Engineers.

The annual convention of the Grand International Division of the Brotherhood of Locomotive Engineers opened at Irving Hall, in this city, on the 20th of October. The attendance was large, including delegates from all parts of the United States and Canada. An address of welcome was delivered by Mr. Clarkson N. Potter, which was responded to by First Grand Engineer F. S. Ingraham, of Ohio. Grand Chief Engineer Arthur, of Cleveland, in his opening speech noted the growth of the brotherhood, and very justly condemned the efforts which some railroad managements have directed toward lowering the wages of the engineers. He mentioned several cases of disagreement between railroad authorities and engineers which had been amicably settled through the arbitration of the Society.

Occupation of New Houses.

It is possible to avoid danger from dampness of new houses by passing air through them rapidly enough to prevent its becoming saturated with moisture. Air which contains no watery vapor is neither pleasant nor wholesome. It should be two thirds saturated; and if this proportion be not much exceeded no injury can arise from such vapor only, and there seems no reason why, if it be derived from a damp wall, it should be injurious if not in excess—that is, if the air be changed rapidly enough to prevent it becoming too damp.

DECISIONS OF THE COURTS.

United States Circuit Court.---Southern District of New York.

PATENT PLANER MACHINE.—H. D. STOVER AND J. A. FAY & CO. *vs.* E. S. HALSTED AND G. W. MERRITT.

[In equity.—Before Shipman, J.—Decided August, 1875.]

Shipman, J.:

This is a bill in equity praying for an injunction and an account, and is founded upon letters patent of the United States, for an Improvement in Planing Machines, which patent was issued to Henry D. Stover, one of the complainants, on July 23, 1861. The other complainants, J. A. Fay & Co., are a corporation and the assignees and owners of an undivided half interest in so much of the patent and of the invention covered thereby as is embodied in the third claim of said patent. The assignment was executed September 14, 1868.

The third claim of the patent of H. D. Stover—improvement in planing machines, July 23, 1861—namely, "The arrangement of matching cutters to be adjusted both laterally with each other and vertically upon the bed piece, essentially as described, in combination with the platen, so that the planing and matching of the piece may both proceed at the same time, or either the planing or matching may be done separately, whether the platen be made movable with the piece secured thereupon or the platen be fixed and the piece be made to move thereon," held valid.

The claim, though not expressed with accuracy, should be construed *ut res magis valeat quam pereat.*

The inventor intended to claim a surfacing and matching machine, in which the matching cutters were adjusted laterally and vertically, in combination with the platen, and were so adjustable vertically that the matching mechanism could be mechanically dropped below the platen when surfacing alone was to be done.

The movable or fixed character of the platen is not a necessary part of the improvement to which the third claim relates, and might have been omitted therefrom.

The term "matching-cutters" in the claim signifies "matching mechanism;" and the claim is infringed by the Merriam machine, in which the matching spindles alone are dropped below the bed, the heads with the cutting blades having been first removed.

The corporate character of a corporation complainant being averred under oath in the bill of complaint, and the same not being denied in the answer, but simply proof thereof being called for: Held, that the fact of incorporation was in effect admitted by the pleadings.

[*S. A. Duncan* and *George Gifford*, for complainants.
W. J. A. Fuller, for defendants.]

Inventions Patented in England by Americans.

[Compiled from the Commissioners of Patents' Journal.]

From September 10 to September 30, 1875, inclusive.

AIR ENGINE.—A. K. Rider, Walden, N. Y.
BALE HOOP, BUCKLE, ETC.—J. M. Seymour, Newark, N. J.
BLASTING POWDER.—H. Courtelle, New York city.
BOILER FURNACE.—Z. S. Durfee, New York city.
BUTTON FASTENER.—Z. Young, Philadelphia, Pa.
CABINET, ETC.—H. Smith, Jamestown, N. Y.
COMPRESSING INGOTS, ETC.—G. W. Billings, Cleveland, Ohio.
COMPRESSING SCRAP METAL.—L. J. Atwood, Waterbury, Conn.
CORSET SPRING, ETC.—H. Kellogg, Milford, Conn.
GENERATING OZONE.—F. W. Bartlett, Buffalo, N. Y.
HARVESTER.—S. Johnston, Brockport, N. Y.
HEATER.—A. H. Mershon, Philadelphia, Pa.
HYDROCARBON FURNACE.—R. B. Borland, New York city.
LOOM.—C. H. Chapman, Shirley, Mass.
LOWERING BOATS.—J. Ferguson, Chicago, Ill.
MAGNETO-ELECTRIC MACHINE.—J. B. Fuller, Brooklyn, N. Y., *et a.*.
MAKING GAS.—W. H. Spencer, Brooklyn, N. Y.
PRISON ALARM, ETC.—J. B. Cook *et al.*, Memphis, Tenn.
PUMP.—J. N. Rowe, Rockland, Me.
PURIFYING GAS.—P. Sweeney, New York city.
RAILWAY BEARING.—B. M. Livermore, New York city.
REFRIGERATOR.—I. Allegretti, New York city.
RETORT LID, ETC.—H. Collinson, Boston, Mass.
SEED DRILL.—W. A. McClintock, Pittsfield, Ill.
SEWING BOOTS, ETC.—C. Goodyear, Jr., New Rochelle, N. Y.
SEWING MACHINE.—C. S. Cushman *et al.*, Philadelphia, Pa.
SOAP.—S. S. Lewis (of Brooklyn, Mass.), London, England, *et al*
STITCHING BOOKS, ETC.—H. G. Thompson, Milford, Conn.
TACK-ROLLING MACHINE.—H. A. Williams, West Medway, Mass
TYPE-SETTING MACHINE.—A. C. Richards, New York city.
VALVE.—W. B. Chisholm, Cleveland, Ohio.
VEHICLE SPRING.—G. Godley, Philadelphia, Pa.
WAGON, ETC.—G. P. Carr, Altoona, Pa.
WATCH, ETC.—A. H. Potter, Chicago, Ill.
WELDING CHAIN, ETC.—Pittsburgh Chain Company, Pa.
WHEEL.—G. Leverich, New York city.