ASTRONOMICAL NOTES.

BY BERLIN H. WRIGHT.

PENN YAN, N. Y., Saturday, June 8, 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.
Mercury rises	3 27 mo.	Jupiter in meridian	3 31 mo.
Venus rises	2 29 mo.	Saturn rises	0 59 mo.
Mars sets	9 50 eve.	Uranus sets	11 33 eve.
Jupiter rises	10 40 eve.	Neptune rises	2 35 mo.

FIRST MAGNITUDE STARS.

	H.M.		H.M.
Alpheratz rises	11 01 eve.	Regulus sets	11 36 eve.
Algol (var.) rises	0 45 mo.	Spica in meridian	8 10 eve.
7 stars (Pleiades) rises	5 04 mo.	Arcturus in meridian	9 01 eve.
Aldebaran rises	4 34 mo.	Antares in meridian	1 27 mo.
Capella sets	10 07 eve.	Vega in meridian	11 12 eve.
Rigel rises	8 27 eve.	Altair rises	8 06 eve.
Betelgeuse sets	7 05 eve.	Deneb in meridian	3 31 mo.
Sirius sets	6 32 eve.	Fomalhaut rises	1 45 mo.
Procyon sets	8 43 eve.		

REMARKS.

The conjunction of Mars with the moon alluded to last week will be witnessed as an occultation throughout Western Europe. Their conjunction in right ascension, Greenwich, England, occurs at 9h. 17m. 29·2sec., evening. Jupiter and the moon are in conjunction June 18, 1h. 3m., morning. This will be an occultation on this continent south of 24° north latitude. The star Φ *Sagittarii* (3d mag.) is occulted by the moon June 15, 9h. 26m., evening, the star passing very nearly behind the moon's center. This star is in the Milk Dipper, a conspicuous figure composed of five 3d and 4th magnitude stars. The handle, a short, straight one, projects westward into the Milky Way, hence the name, and the bowl is nearly bottom upwards. φ is the star which forms the junction of the handle to the bowl. The minima of Algol are still invisible.

One Source of Tramps.

The secretary at Castle Garden Emigrant Depot, New York city, reports an encouraging falling off in the number of undesirable immigrants received at this port; still they continue to come in large numbers. All are examined, and if there is reason to think that any are likely to become public charges they are invited to return whence they came; but they cannot be compelled to go. Since 1847 six million immigrants have been landed at this port. Most of these have become profitable citizens; yet very many, having no trade or profession, nor any habits of thrift, have resorted to beggary, and formed the nucleus if not the rank and file of the great army of tramps and professional beggars that have become such a dangerous nuisance throughout the land. In a single twelvemonth, a few years ago, about 7,000 of this class were received at this port. Two years ago a large number of Danish convicts arrived, but their character was discovered in time to secure their immediate return. It is less easy to detect those who are or are likely to become paupers, and when they are detected there is no law compelling their return. Last year the Emigration Commissioners found employment for over 10,000 persons.

PROPOSED THAMES BRIDGE.

On page 329 of the SCIENTIFIC AMERICAN of May 25, 1878, was presented an illustration of one of three alternative plans proposed by Sir Joseph Bazalgette for the new bridge which it is intended to throw across the Thames at London, near the Tower. We now copy from the London *Engineer* another design, considered the most advisable of the three. This involves the construction of an arch of 850 feet, the largest in the world, the bridge thus crossing the river at a single span. To those unfamiliar with the progress of modern bridge work the scheme is a startling one, but it is pronounced by good authority to be perfectly practicable. Although enormously expensive, to offset this such a bridge would be correspondingly substantial and lasting, would not obstruct navigation, and would dispense with the space required for the anchorages of a suspension bridge.

M. BECQUEREL.

M. Becquerel, the distinguished French physicist, whose portrait we present herewith, and who died, as we have already announced, in January last, at the advanced age of ninety years, was the founder of the science of electro-chemistry. He was the first to discover that electricity is one of the results of chemical combination, and that it is produced by the action of acids on metals, and the first to construct elements of two liquids separated by a partition, thus inventing a battery possessing a constancy and regularity of action hitherto unknown. He invented the electric thermometer, by which from a distance the temperature of the interior of animals and vegetables, as well as that of elevated regions of the atmosphere, may be determined, and also the electro-magnetic balance and the differential galvanometer. He also made investigations of great importance in meteorology, notably on the climatic changes due to forests. He was a most indefatigable worker, continuing his elaborate researches, despite his great age, up to the period of his death. We are indebted to *La Nature* for our illustration.

M. BECQUEREL.

Fish Notes.

Professor Baird intends to stock all the muddy bottomed waters of the United States with carp, an excellent hardy fish, which always remains where raised. A few days ago about 50,000 young carp were put into Lake Babcock, near Washington monument, Washington. They were hatched in Baltimore.

Commissioner Roosevelt complains that shad are being caught in the Hudson River and New York Bay at an age when they are entirely too small. They weigh from half a pound to a pound and a half, and are sold for five cents. If let alone they would in a year or two weigh from three to five pounds and be fit for the table. Such a destruction of half grown shad must lead to a diminution in the supply, in spite of all efforts to replenish the fisheries, and should be prevented if possible. There is great danger that unless the fishing is regulated, both as to the times when it is permitted and the size of the meshes of the nets, many of our most valuable seacoast and migratory fishes will soon be things of the past. Since the legislature will not pass the needed laws, the public can do something to protect the fish by refusing to buy those that are undersized.

A few years ago the Fish Commission began the experiment of restocking the Connecticut river with salmon. Results are beginning to appear in the form of ten and fifteen pound fish, quite a number of which have been taken in shad nets in the lower part of the stream this spring. It is to be hoped that the fishermen will be sufficiently lenient to the new comers to allow them an opportunity to multiply as of old.

New Mechanical Inventions.

Mr. O. E. Davidson, of Clarksville, Tenn., has invented a machine for Making Paper Bags, which pastes a continuous strip of paper along both edges and cuts off a blank of proper length to form a bag; then a vertically acting blade or former descends and bends the blank at the middle; hinged side folders fold the sides of the blank around the former; bottom folders then come into operation, after which the former rises, leaving the bag supported on a hinged table, which at once falls and allows the bag to slide down to the pressing and delivery rolls.

The same inventor has also secured a patent for the Paper Bag made by the machine described above. The bottom is made continuous by folding the middle of the blank, and the side edges are double seamed, thus giving unusual strength.

An improved Cloth Measuring and Pressing Machine has been invented by Mr. C. Q. Smith, of Maryville, Mo. The frame is adjustable in width, to adapt it to receive bolt boards of different lengths. A tape line on a reel attached to the machine is unwound and measures the cloth as the latter is rewound upon the bolt board.

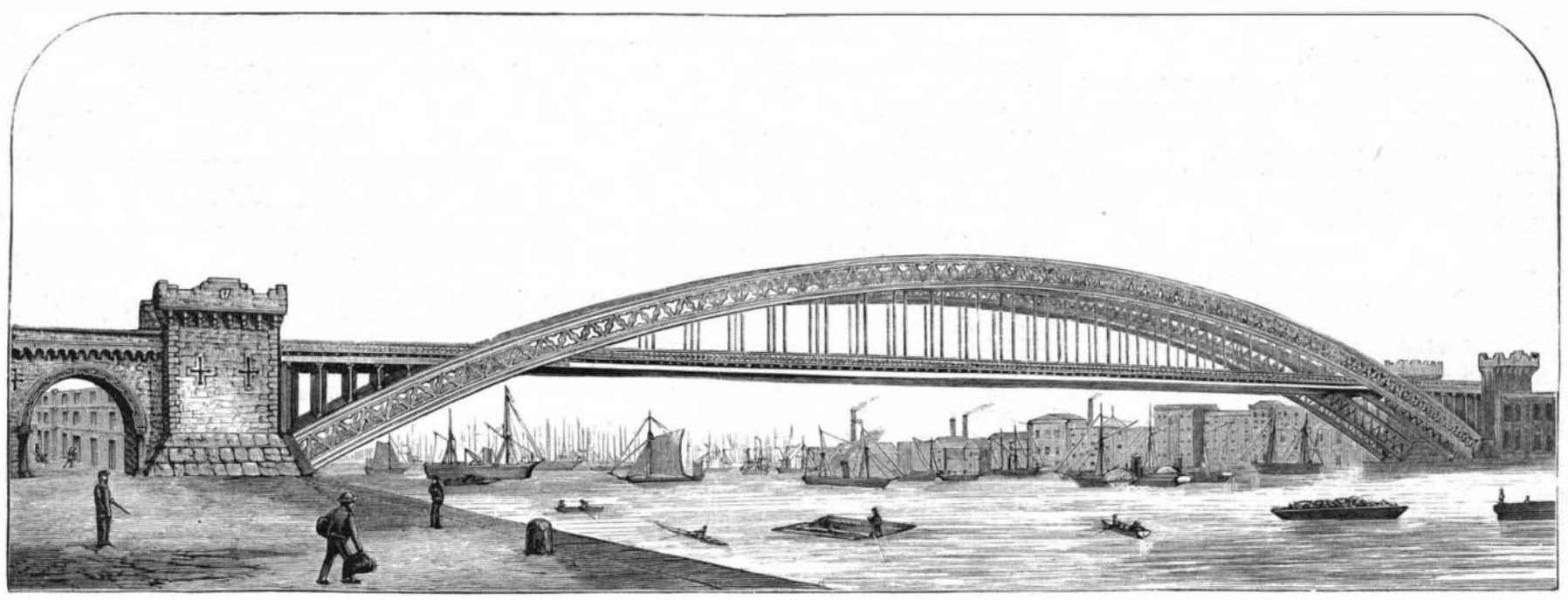
In a new Log Carrier, invented by Mr. W. Lamb, of Green Bay, Wis., the construction and arrangement of parts admit of the power of an independent steam engine being applied direct to the shaft of the winding drum, instead of being derived from the main shaft of the sawing machine through belting or other similar means.

Mr. A. K. Waddill, of Denison, Texas, has improved upon the ordinary mode of Locking Car Seats, by placing the locking rod in a lengthwise recess in the side of the car, and in providing it with lugs, which catch over the pivot arms of the reversible backs, and with a rigid arm, which serves both as a means for operating the locking bar and also for securing or fastening it when properly adjusted for locking the seat backs.

Mr. D. Hess, of Evansville, Ind., has made an improvement in Grinding Mills, which consists in constructing the buhr of a series of concentric cylindrical saws combined with a flanged disk, and secured therein by pins passing through the flanges of the disk, so that the saws may not only be separately sharpened by filing, but may be worn down indefinitely without interfering with the attachment of the saws, and without the necessity of renewing the buhrs.

In Operating Oil Wells it is sometimes the practice to allow a steady stream of oil to escape from the side of the pump or tube, which, owing to the pressure of the column of oil above it, has a great effect in enlarging the hole in the rock through which the pump passes, and in breaking up any accumulation of matter that would tend to prevent successful pumping. Mr. L. W. Young, of Elk City, Pa., has, however, found that an intermittent stream accomplishes these objects to a better advantage, besides allowing a part of the oil to pass upward, which returns into the well when the stream is continuous. He has, therefore, invented an automatic valve action, attached to the pump rod, which regulates this intermittent stream.

Mr. Wm. Coupe, of South Attleborough, Mass., has improved upon the Machine for Boarding or Breaking Raw Hides previously patented by him, by making the cribs in



PROPOSED SINGLE-ARCH BRIDGE OVER THE THAMES.