

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.

Mercury rises.....	H.M.	Jupiter in meridian.....	H.M.
Venus rises.....	3 27 mo.	Saturn rises.....	3 31 mo.
Mars sets.....	2 29 mo.	Uranus sets.....	0 59 mo.
Jupiter rises.....	9 50 eve.	Neptune rises.....	11 33 eve.
	10 40 eve.		2 35 mo.

FIRST MAGNITUDE STARS.

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

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 regular-



M. BECQUEREL.

ity 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.

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

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.

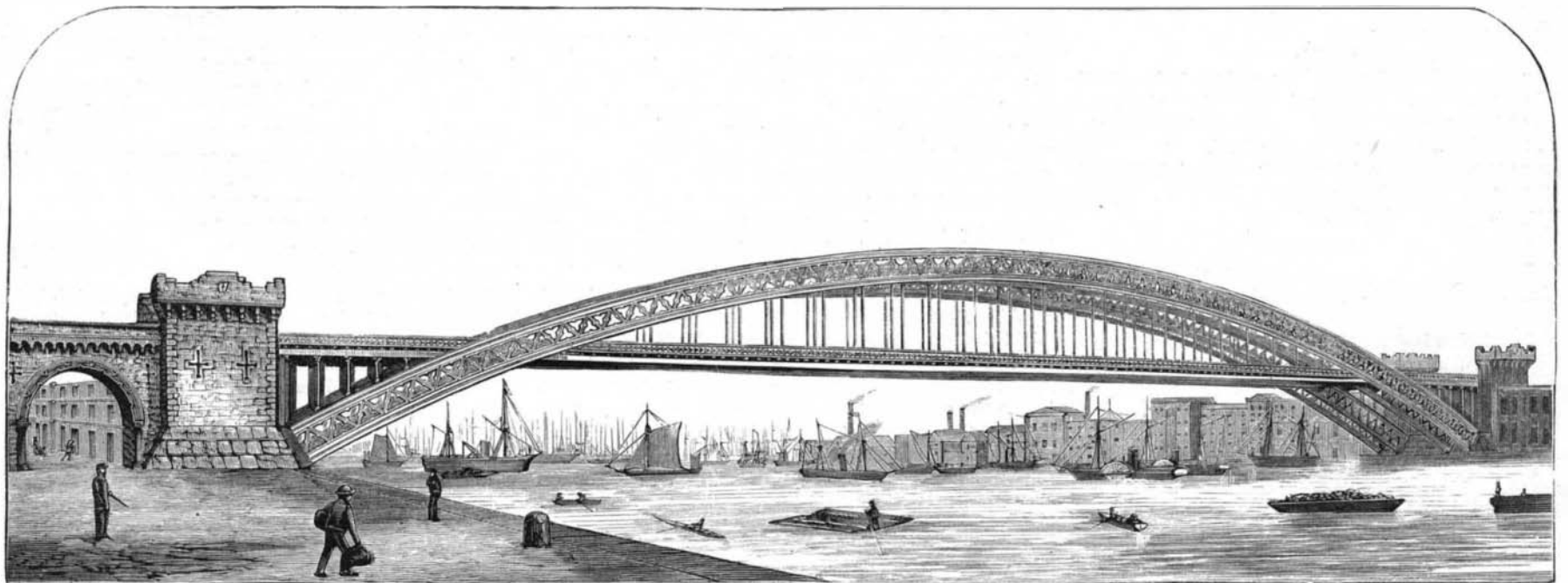
An improved Cloth Measuring and Pressing Machine has been invented by Mr. C. Q. Smith, of Maryville, Mo. The frame is adjustable in width, to adapt it to receive bolt boards of different lengths. A tape line on a reel attached to the machine is unwound and measures the cloth as the latter is rewound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



PROPOSED SINGLE-ARCH BRIDGE OVER THE THAMES.

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

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

cumulation 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

which the hides are treated capable of exact adjustment to the number and size of the hides, so as to fully control the degree of boarding to which they are to be exposed.

An improved Tile Machine, invented by Mr. Miles Moore, of Liber, Ind., consists of a mixing mill in combination with an eccentric plunger, the latter working in a chamber having two discharge spouts, which are provided with suitable moulds for forming the tiles.

Mr. H. Mortensen, of Alma, Col., has designed a Torpedo Boat intended to be operated at the surface or wholly under water, according to circumstances. Compressed air is used to drive the greater part of the machinery, and the special improvements relate to the mode of loading and projecting the torpedo spars, excluding the water, and operating the rudder.

Mr. J. Doyle, of Lowell, Mass., has invented an improvement in Thread-Guard Supports for Ring Spinning Frames, intended to hold the guards between adjustable spindles, so that they can prevent the yarn of two adjacent bobbins from coming in contact, and also avoiding attachment to the ring rail. The guards are held in pendent position and regulated by means of a weighted arm and stop bar.

In a new Traction Engine, invented by Mr. M. Fortin, of Stillwater, Minn., the arrangement is such that in winter runners may be used instead of wheels, thus converting the engine into a steam sleigh; and the water in the boiler is so distributed as not to be thrown all at one end or side, exposing the flues at the other end or side to burning, in going up or down hill or over uneven roads.

An improved Blind Adjuster and Fastener, invented by Mr. T. Corrigan, of Brooklyn, N. Y., is designed to enable window blinds to be opened, closed, adjusted at any desired angle, and securely fastened in the various positions without it being necessary to raise the sash.

MM. R. Seillière and L. Riot, of Paris, France, have secured an American patent on a system of Using Superheated Steam, in which the steam is superheated during its passage from the generator to the engine, without the interposition of any valves between the superheater and generator, the outlet from the boiler being reduced in area, and the size of the superheater augmented to the utmost extent possible. The superheater consists of a number of very small tubes in the smoke box, a secondary superheating coil in the fire box, and a storage reservoir, from which the superheated steam goes to the cylinder.

Mr. S. Cottle, of New York city, has invented an improved process of making Collar or Sleeve Buttons, which consists in striking up and drawing out the central portion of a circular metallic disk to form a hollow post, then severing the conical end of the post and soldering the head upon it.

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.

Position of Planets for June, 1878.

Mercury.

Mercury, having come between the earth and the sun, passed across the sun from east to west, and is therefore in June west of the sun. It rises on June 1 at 3h. 33m. A.M., and sets at 5h. 11m. P.M. Early in June it can be well seen before sunrise. On June 30 Mercury rises at 4h. 8m. A.M., and sets at 7h. 18m. P.M.

Venus.

Venus rises early all through June, and can be beautifully seen in the morning. On June 1 Venus rises at 2h. 34m. A.M., and sets at 3h. 35m. P.M. On June 30 Venus rises at 2h. 11m. A.M., and sets at 4h. 27m. P.M.

Venus comes to the meridian a little after 9 A.M. throughout the month at an altitude between 57° to 67°. A small telescope will bring it to view.

Mars.

On June 1 Mars rises at 7 A.M., and sets at 10h. 4m. P.M. On June 30 Mars rises at 6h. 39m. A.M., and sets at 9h. 12m. P.M.

On June 1 Mars is about 1½° above δ Geminorum; it passes to the east of that star and farther south in declination; its motions can be watched in the early evening hours. On June 30 Mars sets as Jupiter rises.

Jupiter.

Jupiter rises on June 1 a few minutes after 11 P.M., and sets at 8h. 45m. the next morning. On June 30 Jupiter rises at 9h. 7m. P.M., and sets at 4h. 40m. the next morning.

The 7th, 14th, and 21st, according to the *Nautical Almanac*, will be the nights of June in which the satellites of Jupiter will present the most interesting positions. On the 7th the first and second satellites with their shadows will be on the face of the planet at the same time, between midnight and one in the morning. The same will occur again on the 14th in the later morning hour. With a powerful glass the two moons and their two shadows may all be seen on the planet's disk.

Saturn.

On June 1 Saturn rises at 1h. 34m. A.M., and sets at 1h. 24m. P.M. On June 30 Saturn rises at 1h. 43m. P.M., and sets at 1h. 37m. A.M. of the next day.

Saturn, although apparently and really much smaller than Jupiter, is in better position for observation in the June mornings, as it comes to the meridian at a much higher alti-

tude. On June 30 Saturn will be on the meridian at 5h. 32m. at an altitude of 48°.

The three planets, Venus, Jupiter, and Saturn, will make the hours of June which precede daylight very beautiful.

Uranus.

Mars and Uranus are the only planets which can be found in the June evenings, and Uranus can rarely be seen with the naked eye. On June 1 Uranus sets at midnight, and on the 30th it sets at 10h. 11m., still in the neighborhood of Regulus, and west of it.

NOTES OF PATENT OFFICE DECISIONS.

In the interference case of Stearns vs. Prescott, the examiner found that Stearns was the first and original inventor, but that the invention was reduced to practice by him and publicly sold for more than two years prior to the date of filing his application. This being a statutory bar to the grant of a patent to Stearns, the examiner, while awarding priority to him, at the same time reported this fact to the Commissioner, as provided by office rule 59. The counsel for Stearns thereupon requested that he might be allowed sufficient time to file affidavits to fully explain all matters relating to his invention, its conception and reduction to practice, in order to establish conclusively that the use prior to the time provided for by law was of an experimental character, and should not operate to deprive Stearns of his patent.

The Acting Commissioner denied this request. The very purpose of the interference was to develop the history of the invention on the part of the contestant, and it was necessary for the applicant to adduce proof showing not only that he had completed the invention experimentally, but had actually reduced it to practice before the patentee, in order to establish priority against the latter. The fact of abandonment by public use or sale must be established by indubitable proof; and if there be any doubt upon such point, that doubt should be resolved by the office in favor of the applicant. If the proof was not sufficient to establish the fact of abandonment clearly, the applicant should be allowed a patent. On the other hand, if the proof of public sale for more than two years prior to the filing of the application was established against the applicant by the testimony already taken, it would be simply disproving his own case by counter affidavits to allow him, after the hearing, to show that such was not the fact. The Acting Commissioner accordingly held that it would be establishing a very bad precedent, if, after a party had set forth the dates of the conception, completion, and use of his invention in a proceeding especially adapted for that purpose, he were allowed, upon obtaining an award of priority, to proceed to rebut or explain away the very proof, perhaps, upon which such judgment had been based.

Warburg & Co. applied to have registered as a trade mark the term "Cachemire Milano," to be applied to black silks, the term to be used in connection with the words "R. Savie & Co.," and with a picture of the Cathedral of Milan.

If not previously registered in connection with the same class of goods, the picture of the cathedral would undoubtedly be a proper trade mark; but the applicant asserted that the essential part of the mark was the word symbol "Cachemire Milano."

The decision of the Examiner of Trade Marks on this point was as follows: "The word 'cachemire' or 'cashmere' is not arbitrarily selected as a mark for silks, because it might easily have reference to a peculiarity of the silk. It would be the appropriate and only appellation for a fabric uniting the qualities of cashmere and silk; it might be applied to a species of silk resembling cashmere in appearance, or in the processes of its manufacture. As a matter of fact, there is a well known variety of silk, characterized by a soft and lusterless finish, which goes by the name of 'cashmere black silk.' The applicant is, therefore, seeking to register the proper name of an article of commerce, and his proposed mark would in fact give him a monopoly in the sale of such goods. . . . The word 'Milano' or 'Milan,' which by itself might conceivably be a fanciful term as applied to silk, becomes itself insignificant from its connection with a descriptive term, and to allow the applicant to register it would prejudice the rights of those resident in Milan who might desire to manufacture and advertise Milan cashmere silks. In case it should be held that the words 'Cachemire Milano' are not descriptive, they must then be held, according to the practice of the office, to be deceptive. They have not the merit of being newly coined, like 'castroleum' or 'cocoaine,' nor of being symbolically used, as 'rising sun,' when applied to an article of commerce. They are, in their proposed use, merely a misnomer, and are calculated to deceive. An inspection of the goods might or might not undeceive the purchaser; but this does not go to the essence of the objection. The mark is false and tends to deceive, and that is conclusive against the applicant."

This decision of the Examiner of Trade Marks is adopted and affirmed by the Acting Commissioner.

The New Process of Flour Making.

Almost everybody knows of the flour, but not every one understands what it is. Stripped of technicalities, this is perhaps about the story of its manufacture. The best flour used to be made of winter wheat. Spring wheat yielded either much less in quantity, or else so much of the bran got into the flour in its manufacture that its color was intolerably dark. The wheat would be ground and then bolted. In the refuse—the bran and middlings—would be included a large proportion of the weight of the spring wheat, and this would

sell more particularly for feed for horses. Now the best of flour, and the most expensive, is made of this very refuse of the old-fashioned process. It all came out of the discovery of a way to draw out the bran. Under the new process the wheat is ground about as before. The first result is an ordinary flour sold for exportation. Then the remainder is taken and put upon great horizontal sieves, and, while agitation is going on there, an ingenious system of draughts, rushing up through, carries off the bran. What is left is the glutinous portion of the wheat, the most nutritious and most productive, and out of this, purified now by the drawing off of the bran, we get our new process flour.

The result of the discovery of the process has been to make the poor spring wheat of Minnesota and upper Wisconsin the most valuable kind of grain, and to make the fortunes of the inventors of the method.—*Hartford Courant*.

IS IT A MERE COINCIDENCE?

Speaking of Edison's phonograph, the *New York Herald* remarks that "the Americans are the most inventive people in the world, and besides a multitude of minor inventions of more or less utility they have contributed more than their share to those greater conquests of man over nature which outrank all the other intellectual achievements of our time. Even in the early beginnings of our history, at a time when our population had not reached two millions, Franklin's discoveries in electricity gave him a pre-eminence in that fruitful branch of science which will never be eclipsed. When he announced his capital discovery of the identity of lightning and electricity the Royal Society laughed at his theory, but the laughers were soon subdued by the cogency of his experiments, and the Royal Society in 1753 made amends by conferring on him, unsolicited, its highest honor, the Copley medal. It was thus an American who set in motion the train of discoveries whose most important practical result is the electric telegraph. It was our Morse who made the final application and established the first telegraph. It was our Fulton that made the first successful application of steam to navigation. Our Draper preceded Daguerre in making sun pictures, although the Frenchman got ahead of him in turning the discovery to use. That most beneficent discovery of the age, the use of anesthetics in medicine and surgery, is of American origin. All the things on which we have now touched, as well as the latest invention of Edison, deserve a place in the highest ranks of successful physical research. Of inventions which consist in purely mechanical applications of well known principles Americans have distanced all competition in multitude, in variety, and in importance. A catalogue even of the most useful and noteworthy would be tiresome by its length. To say nothing of Whitney's cotton gin and other early inventions, enough has been done in the lifetime of persons still young to confer luster on American ingenuity. The sewing machine, the mowing and reaping machines, the machines for planting seeds and thrashing grain, are a few among the many which are as the leaves of the forest for multitude. Without dwelling on achievements which have gone into history we may safely challenge all Europe to show an inventive genius who deserves to stand by the side of Edison."

There is, we are told, a large class of intelligent persons—a larger class than is generally supposed—who favor an entire repeal of our patent system, as one for which there is no necessity, and from which we derive no commensurate benefits. That the American people are inventors beyond all others is beyond dispute. That the grand results of American inventiveness have been beneficial no one is so foolish as to question. But, say these anti-patent people, the patent law has nothing to do with these results, except perhaps, to complicate and hinder them.

These objectors fail, however, to suggest a reasonable explanation of the circumstance that every incentive to invention (save one) which exists here is to be found elsewhere, and yet the same fertility of invention does not appear elsewhere. It may be true, as some assert—for instance Mr. Raymond, before the House Committee on Patents—that inventors invent, as a hen lays eggs, because they can't help it; but what makes the inventor? And what makes inventors so exceptionally numerous here? The best that Mr. Raymond can offer is that the inventive genius of the American people "seems to be indigenous to the very soil!" And we doubt if any one can offer a better answer without hitting the right one.

For our part, seeing that the original inheritors of this remarkable soil never passed beyond the bow and arrow stage of invention, we are compelled to think that its strange and tardy productiveness must have been awakened by some outside influence. And after eliminating all the influences shared equally by our civilized kindred in other lands, and finding the one exceptional incentive to invention which has prevailed here to be a patent system uniquely favorable to inventors, we are forced to accept it as the true cause of the superior fertility of the American people in this field of useful effort.

A Good Year's Work.

The *Railway Age* asserts, on the strength of considerable correspondence relative to the achievements of locomotives, that the best running on record is that of one of the locomotives of the Western Maryland Railroad. According to the statement of Manager Hood, that engine made the extraordinary run of 59,953 miles in one year, at the low rate for repairs of one and one half cents per mile run.