

Trial of Loughbridge's Steam Brake for Railroads.

Some time ago we made a notice of a trial made with this contrivance on the New Jersey Central Railroad. Another trial was made August 1st at which we were unable to be present; we however subjoin a report, published in the *Evening Post*. The facts there stated are of great suggestiveness, and would seem to demonstrate the immense superiority of this method over that in ordinary use on the score of safety, not to speak of economy:—

"The brake is operated by a steam cylinder with 34-inch throw of piston. This cylinder is placed under "foot board" of the engine. Nothing is seen on the engineer's stand but a small lever that opens and shuts a valve, and a 2-inch pipe through which the steam passes into the cylinder. A chain passes around, pulling on the piston head. This chain goes through the train, connected by sections of rods and chains, and the brakes are applied through the agency of small standards in the center of the car. By means of the safety valve in the brake cylinder, the steam escapes when the pressure becomes greater than required for the best braking. By this means the great evil to railroad economy—of sliding wheels—is obviated.

At a former test seven brakemen exerted their full power at the brake-windlass, and the indicator showed the following difference:

A exerted power of.....	230
B	304
C	288
D	272
E	226
F	192
G, a beginner, exerted a power of.....	160

The steam brake showed a power of three thousand five hundred pounds. The same power was exerted at the last trial with the same result.

The following will show how quickly a train may be stopped at different velocities:

	Distance run in feet.	Time stopping in seconds.
When running at a speed of 56 miles to the hour, the train was brought to a state of rest from the point where the signal was given in.....	624	16
2d speed of train 32 miles per hour.....	408	16
3d speed of train 32 miles per hour.....	412	16
4th speed of train 24 miles per hour.....	250	16
5th speed of train 50 miles per hour.....	721	21
6th speed of train 50 miles per hour, hand brakes.....	1817	51

The engineers who have used it express their admiration of its use, and the engineer on the Central Railroad on the train on which the brake has been in use for seven months, says he will not hereafter run a train to which it is not attached. He can stop a train within two feet of any point designated at any rate of speed."

Internal Revenue Decision.

TREASURY DEPARTMENT, OFFICE INTERNAL REVENUE, WASHINGTON, July 23, 1867.

Sir: In reply to your letter of the 17th inst., this office would inform you that the special tax receipt of a patent-right dealer, covers the sale of patent-rights only, and does not permit him to deal in the patented article; and all persons who engage in the latter business must pay the special tax as commercial broker, peddler or dealer, either wholesale or retail, according to the manner or amount of sales.

Very respectfully,

E. A. ROLLINS, Commissioner.

AUSTIN H. BROWN, Collector Sixth District, Indianapolis, Ind.

Editorial Summary.

EXPLORATIONS.—Prof. Whitney, state geologist of California, is now engaged in a scientific exploration of Mount Hood and its vicinity. His report will probably settle the disputed right of this mountain to be called the highest peak in the country. Prof. Kellogg, the well-known and able botanist, has set sail, under a government appointment, to explore and report on the botany of the newly acquired territory of Alaska. The Central Pacific Railroad exploring expedition, under the leadership of Clarence R. King, is now surveying the belt of country between Virginia City, Montana, and Denver, Colorado, about 900 miles. Search will be particularly made for coal indications; the agricultural character and the flora and fauna of the country will be carefully noted. Three years are to be occupied in the survey. Mr. Samuel Adams, of Arizona, has had an interview with Secretary Stanton relative to a proposed expedition to discover how far the Colorado River is navigable. He proposes to start from Denver, the head waters of the Grand River, or from Fort Bridger, and proceed down the river in flatboats to Colville, at the mouth of the Colorado.

THE WESTERN HEGIRA.—The new towns which have sprung up, as by magic, on the line of the Pacific Railroad, disappear, some of them, as rapidly as they were created. The North Platte *Index*, June 25th, says:—"Our city is disappearing as it by some mighty feat of jugglery, and the busy scenes of trade have given way to the sound of the ax and hammer, tearing down houses and business places, which will soon be seen again eighty miles west of here, at Julesburg. Nearly every man who has been engaged in business here is going into business at Julesburg, and most of them on a much larger scale than here, and in one week from this time we shall see Julesburg a lively business town, larger than was North Platte! The next number of the *Index* will be published at Julesburg."

A NEW STYPTIC.—The *Antwerp Journal* says that the perchloride of iron combined with collodion is a good hemostatic in the case of wounds, the bite of leeches, etc. To prepare it, one part of crystallized perchloride of iron is mixed with six parts of collodion. The perchloride of iron should be added gradually, and with care, otherwise such a quantity of heat will be generated as to cause the collodion to boil. The composition when well made is of a yellowish-red color, perfectly limpid, and produces on the skin a yellow pellicle, which retains great elasticity.

RAFT NONPAREIL.—The announcement of the arrival of this little raft at Southampton on the 26th of July, after a passage of forty-four days from New York, was hailed with much satisfaction. The *Nonpareil*, though she made tardy progress, experienced no mishap, and her captain, as well as her crew of two men, landed on a European shore in safety, health, and good spirits.

EXPLORATIONS IN PALESTINE.—The University of Oxford has made an appropriation of the sum of \$3,500 for the purpose of equipping an expedition for scientific investigation in Palestine. Cambridge University will probably contribute an equal amount.

TIME REQUIRED FOR SEEING THE EXPOSITION.—To view the Paris Exhibition (according to an English writer's calculation), it is necessary to devote on an average five minutes to the glass case of each exhibitor. These numbers, it is stated, 45,000; it would, therefore, take 225,000 minutes, making 3,750 hours, or 156 days 6 hours; that is, 5 months, 6 days and 6 hours, reckoning 24 hours for each day. But as the interior of the place can only be visited from 10 o'clock in the morning till 6 in the evening, there are only 8 hours at the visitor's disposal instead of 24. One would therefore be occupied in the inspection 15 months, 18 days, 18 hours, supposing that he entered the building every day at 10 o'clock and did not leave it until 6. From this calculation it will be obvious that it is by no means possible to examine the whole of the exhibition during the period of its duration.

A TRAP TO CATCH SUNBEAMS.—In the optical room of the Conservatoire des Arts et Métiers, at Paris, near a window, are arranged several test tubes filled with powders bearing a written descriptive label by M. Bequerel. When the window is closed these powders exhibit in a most striking manner the phenomena of phosphorescence, each shining through the darkness with a different colored light. Under the name of the "Phoroscope," French makers are about introducing it as a new scientific toy. The *London Lancet* proposes the above name as a preferable one. Most of the powders are sulphides, and the brightest emanation is from the tube containing sulphide of barium. The phosphorescence may be induced by exposure to daylight for a few seconds, or to the light of burning magnesium wire.

MODEL COTTAGES.—It will be remembered that at the distribution of Exposition prizes, the French Emperor was awarded a medal for plans for erecting cheap houses for workmen. Forty-eight cottages have been built in Paris after this model. Each house is three stories high, and each floor has two rooms and a small kitchen. The buildings cost about \$1,200 without the land; the total sum spent on these buildings and grounds has been 510,000 francs, and the whole has been presented by the Emperor to a Co-operative Society formed for the construction of cheap dwellings.

FRACTIONAL CURRENCY.—Early in the rebellion silver grew scarce, and to meet the demand for small "change," the Treasurer, General Spinner, caused two and a half millions of postage stamps to be struck off, supposing that this sum would fully supply all wants. There are now twenty-eight millions of fractional currency outstanding, and the revenue of the Post Office department is twelve millions. The new fractional note of the denomination of fifteen cents, soon to be issued, will have an engraved likeness of General Grant on the right hand, and on the left a likeness of Lieut. Gen. Sherman. The back of the note will be green, with the figure fifteen on each side.

THE POLLUTION OF STREAMS.—At the Salmon Fishery Congress recently held at Kensington, England, the secretary of the river Dee Fishery Board testified that since the establishment of a petroleum refinery on the banks of that river, every fish in the entire length of the stream, from salmon of 20 pounds downward, has been killed by a poisonous refuse matter which floats out from the refinery. The water supply for the town of Chester had been drawn from this river, but a skillful analyst has examined the fluid and declares that no filtration can purify water polluted by a poison so subtle and powerful as this.

POSTAL TREATY WITH GREAT BRITAIN.—This treaty, executed in London by Mr. Kasson, special commissioner in behalf of this country, and the Duke of Montrose, Postmaster General of England, provides for the transmission of letters not exceeding half an ounce in weight for twelve cents instead of twenty-four, as now charged. The same charge is to be made for every additional half ounce. International letters insufficiently paid for, are to be subjected to a fine of five cents in addition to the deficient postage, said fine to be retained by the government receiving the letter.

ANOTHER ARTIFICIAL FUEL. made in Glasgow, Scotland, is composed of one ton coal dust, 200 pounds of saw dust, and 40 gallons of heated coal tar, to which composition is added from 200 to 300 pounds of rock salt. By using hot tar the necessity for drying the fuel in ovens or otherwise is avoided. The novelty of this preparation seems to be the rock salt. No reasons are given for its use, and as it does not burn, and would probably tend to disintegrate the lumps of fuel when put on the fire, we doubt the utility. Salt has however been used with fuel with the design of neutralizing the effect of sulphur.

SHAM CHAMPAGNE.—A joint-stock company with a capital of \$20,000 has been doing an extensive business in San Francisco in manufacturing bogus champagne. The machinery for aerating and bottling the wine is said to have cost \$5,000, and everything about the establishment has been provided on a similar scale. A suspension of operations has resulted from the arrest of an interested party on a charge of counterfeiting the labels of the genuine Cielquot and Heidsieck brands.

KEEP A WRENCH AND USE IT.—Some one wisely says, to keep your wagons and carriages in good order, place a wrench on every nut at least once a month. This will save nuts, save bolts, and prevent rattling, wear and tear, and perhaps save from accident. There is a good deal depending upon looking after the running gears of vehicles as well as the harness. For want of a little attention much damage has been sustained.

TIN.—Immense deposits of tin are reported to have been discovered in Missouri. Hitherto the world has been compelled to rely mostly upon the mines of Cornwall for its ordinary supplies of this useful metal. A development of the Missouri mines will we trust enable us to produce enough for home manufacture, and may become an article of export.

THE BANANA.—A San Francisco paper announces the late importation to the market of the banana plant from Central America, with a view to its cultivation in California. The climate of some sections of that country is well adapted to its culture, and the experiment has every chance of success. The banana, it is said, furnishes more food to the acre than any crop capable of growth in a tropical climate.

GOLD FISH IN PLENTY.—The Hudson river has become so full of carp, or "gold fish," that fishermen take them by the wagon load. They originally came from a private fish pond near Washington's headquarters, at Newburg, which communicated with the river by an outlet, through which the fish made their way to the main stream. They have bred with great rapidity, and have stocked the river.

THE OPENING OF THE AMAZON RIVER to foreign navigation has been followed by a decree of the state of Bolivia, whereby the Madeira, one of the tributaries of the great river, is also opened to foreign trade. The Madeira with its branch, the Rio Grande, has a length of from 1,500 to 2,000 miles, for nearly 1,000 of which it is navigable.

AN ACCURATE TIMEPIECE.—We were shown the other day a watch made by a Liverpool firm, which had varied from standard time but seven seconds since the early part of last November. At this rate, if not regulated meanwhile, it would gain one minute in four years.

THE FRENCH GEOGRAPHICAL SOCIETY are about sending another exploring expedition to the Arctic regions for making scientific observations. The expense is to be borne by private contributions and the command is given to M. Lambert, a traveler of some note.

THE HUMAN BITE POISONOUS.—A French Lieutenant was some time ago bitten in the thumb by a man with whom he was having an altercation. But a few days past and the wounded part became inflamed, the hand and arm began to swell, and death finally came to the relief of the sufferer's agonies.

A COMET was visible in the Sandwich Islands for some weeks last month. The *Honolulu Commercial Advertiser* describes its appearance as very faint, having a nebulous head (no star discernible in it), with a spreading tail eight or ten degrees in length.

A NORWEGIAN MONITOR called the *Scorpion*, just completed by the government, carries in a turret two Armstrong guns weighing 74,000 pounds. With a charge of 44 pounds of powder they throw 350-pound shot. The sides of the iron turret are eleven inches thick and are lined inside with horse hair.

NITRATE OF SILVER STAINS may be removed from the hands or clothing by the combination of tincture of iodine and a solution of hyposulphite of soda.

AN INGENIOUS BULLET DETECTOR.—A very ingenious piece of mechanism for the detection and extraction of bullets in wounds has been devised by Mr. Sylvan De Wilde. The probe, consisting of two steel wires insulated from each other, is connected with an electric horseshoe magnet and a bell, and when (introduced into the wound) it touches the bullet the circle is completed and the bell rings. The forceps act on the same principle, and are intended first to detect, then to seize, the bullet. They have curved points, and not pallets or spoons. The points of the probe are kept sheathed on introduction to a wound, and not uncovered until the supposed bullet is felt. This is effected by means of a sliding tube. Mr. De Wilde's probe is a sensitive artificial finger, which enters deeply into the tissues, and gives the signal at once when it detects the hidden source of mischief below.—*London Lancet*.

CRUDE PETROLEUM is said to be a powerful agent for the destruction of insects. A few ounces of petroleum diluted with water and sprinkled by means of a watering pot over strawberry plants, destroys the *maus*, or "white worm of the beetle." The oil mingled with a large proportion of water is a sure poison for crickets. The mixture is to be poured through a funnel into the holes frequented by them. The *acarus scabiei* is very promptly and radically destroyed by inunctions with the oil. Frictions with petroleum water cleanse domestic animals of the parasitic insects which annoy them. The animals should be washed with soapsuds a few minutes after the friction. It is also stated that a house infested with rats and mice was freed from these guests a little while after the introduction of a large quantity of the oil into the cellar.

THE ENGLISH BREWERS are one of the most important classes of the people of that country. Over \$50,000,000 in taxes annually accrues to the government of Great Britain from this single interest. A startling assertion, in this connection, is made by a London medical journal to the effect that 50,000 pounds of *Cocculus Indicus* was imported from India to England. This substance is a bitter narcotic poison which is used simply to adulterate ale and porter. This same narcotic is employed by the natives of India to stupefy fishes so that they can be easily caught. The amount imported, as given above, is a sufficient quantity to drug 120,000 tons of beer.

PETROLEUM IN FRANCE.—Fresh discoveries of bituminous shales capable of yielding petroleum by distillation, are constantly being made in France. One of the most recently worked deposits is that of Vagnas, in Ardèche, which is really more of the "boghead" type than of the bituminous shale series. Its texture is dense and compact, resembling a carbonized and compressed peat. The peaty character is still further shown by the presence of a number of vegetable fibers, which may be seen with the naked eye, and which pass from the surface into the interior of the deposit. This substance yields about five per cent of the pure oil and a larger quantity of secondary products.

COLOCASIA.—This is the name given to a plant which is now attracting notice, from the curious observations which M. Lecoq has communicated to the Paris Academy concerning it. Without any apparent cause, the plant often exhibits a trembling motion, sometimes as many as 100 to 120 vibrations being noticed per minute. These undulations are strong enough to affect the neighboring plants, and even, it is asserted, have caused a similar motion in the flowerpots. The only explanation offered, is that this is a remarkable instance of the direct transmission of solar heat and light into motion.

LIEBIG'S ARTIFICIAL MILK is manufactured on a large scale in England by an industrial company. It appears that Baron Liebig took as his basis the analysis of human milk, made many years ago by a German chemist. As the means of analysis at that day were not as perfect then as now, his results have been contested, and it is claimed by the Parisian Academy of Medicine that his artificial differs from the natural milk by its odor, taste, color, and chemical composition.

The great Exposition at Paris closes November 1st.

MANUFACTURING, MINING, AND RAILROAD ITEMS.

The Rhode Island Locomotive works, of which company Gov. Burnside is president, have nearly completed their first years' operations. They now give employment to three hundred hands. Locomotives are built at their works weighing from eighteen to forty-five tons.

The Croton Aqueduct Board are constructing a new reservoir for the purpose of keeping up a supply of water for Croton Lake. This reservoir is situated twenty-three and three-quarter miles above Croton Dam and seventy-five miles from this city. When completed it will cover an area of 303 acres, and have a capacity of 3,369,206,857 gallons.

The St. Petersburg and Moscow railroad, which a cable telegram informs us the Russian government has sold to private parties, has cost, including rolling stock, about \$60,000,000, but the return realized upon this outlay has been at the rate of nearly 8 per cent per annum. In this connection it may be remarked that the chief English roads average but 5-7 per cent returns and six of the leading French roads 11-55 per cent. During the last six years the assistance afforded by the Russian government to the construction of railways in her possessions has been about \$90,000,000.

The New Bedford glass company has recently begun to manufacture porcelain glass photographic plates. They are blown in hollow cylinders four feet long, cut longitudinally, flattened in a furnace and cut into plates of the required size.

The East Bridgeport Metallic Cartridge Company employs 122 hands in the manufacture of copper cartridges. The daily product is about 100,000, part of the common kind, and part of the Berdan patent. The capacity of the works is soon to be made equal to the manufacture of 250,000 per day.

The largest grain elevator in the world is at Milwaukee, this one being 280 feet long, 80 feet wide and at present, 130 feet in height. This immense structure weighing 10,000 tons, is to be raised four feet. Its foundation has been cut with 400 holes for the insertion of timbers and 1,600 screws placed under these will furnish the necessary lifting power.

The total production of gold in Russia was estimated at nearly 23 tons in 1864 and at a little more than 26 tons in 1865. The State of California, during the year 1866 according to the best reports, produced 3876 tons of pure gold.

Work has been begun on the Milford Branch Railroad, and it will be completed in a few months. The Hartford and Erie road has offered to run the branch, giving the town and stockholders satisfactory terms.

The largest steamboat company in the country—the Atlantic and Mississippi line—have dissolved. A number of the best boats on the river were owned by the corporation, and since the war they have sought to establish a monopoly of the business. Their losses by fire—nearly \$1,500,000—may have had something to do with the dissolution.

The New Haven building-block company are manufacturing patent brick having a long narrow slit, or air chamber, which they claim will keep buildings constructed therewith cooler in summer and warmer in winter than when built with ordinary brick. The bricks are made of a mixture of cement and shell lime.

The railway companies centering in Pittsburg have adopted a plan which might be imitated with good results elsewhere. They have selected skillful surgeons, whose special duty it will be to attend promptly and faithfully to all persons who may be injured on, or by, the cars in the running or management of their roads. The surgeons are to be paid for their services by the railway companies.

A valuable bed of amber, has been found at Ferdinand, Dubois County, Ind. The deposit is extensive and easily worked, and the quality excellent. Amber has hitherto been found only in very limited quantities in this country.

The projected railroad from Cordoba to Salta, Buenos Ayres, S. A., a distance of 700 miles is to be built by the same English company, that have just completed a road 130 miles long from Rosario to Cordoba. The report of the engineers represents the route as nearly a level, requiring but little if any heavy work in grading. It penetrates exhaustless deposits of pure salt, and the line will afford an outlet for copper mines rivaling in richness those of Lake Superior.

A new cotton factory, the first one ever built in the State, has just completed at Rockford, Illinois.