



NEW YORK, DECEMBER 2, 1848.

The Power of Water.

It is but a few weeks since the water in one of the large reservoirs of the Schuylkill Water Works, Philadelphia, burst through its embankment and swept every thing in its path before it. The damage of that accident, however, was small in comparison with another which has since occurred in a different part of our country. We mean the destruction of the newly erected dam over the Connecticut River at Hadley Falls, Mass. The Hadley Falls Manufacturing Company with the gigantic capital, it is said, of \$5,000,000, undertook the gigantic project of throwing an immense dam over the river mentioned above, at Hampden City. The dam was completed on the 16th ult., and the day of its completion was the day of its doom. A great number of people from distant places had assembled to see the gates shut down and the dam filled, and the waters of the Connecticut arrested in their course. But from the first, after the gates were shut down, imperfections were discovered in the work, and although great efforts were made to stop the leak, yet the breach, small at first, widened with great rapidity, and when the waters in the dam had arisen within a few feet of the top, with a crash louder than the roaring of Niagara, about three-fourths of the embankments burst away before the mighty mass of angry waters. The scene by an eye witness is described to have been terrific and grand, and the people who went there to behold the mighty river arrested by the hand of man, beheld with dismay two thirds of the huge water wall more than 1000 feet long and 30 feet high hurled from its moorings and torn into fragments. The dam was constructed of immense timbers, fastened together and to the rocky bed of the river, on which the whole structure rested, with iron bolts. Great pains were taken in the construction of all the parts of the work, but the fault must be attributed to the principle of its construction. It neither possessed sufficient basis nor was it tapered on both sides and well puddled with clay between, which should have been the case. We know more than one man who predicted its destruction, "the first freshet." The loss has been variously estimated: perhaps it will be about forty thousand dollars, a great loss indeed—all swept away swift as the host—

"Which at sunset was seen,"
Like leaves of the forest when summer is green,
Like leaves of the forest by wintry winds blown
This host on the morrow—was scattered and
strown."

The art of Dam building requires experience, practical experience, and a sound knowledge of the power of water. Both these qualifications are necessary. The dam broke away in the centre—at that part in the river where the greatest water power is exerted, showing that a great velocity as well as weight of water exerted a mighty force against the log wall vainly raised up to bear it backwards. Just let us reflect for a moment, that on a space of one foot behind that wall (counting its whole height and length) there were exerted against it the astonishing pressure of 937½ tons of water, and we may form some opinion of the power exerted against the dam by that amount being doubled every tier of cubic feet behind the first 1000 for the length and 30 for the height. We do not know what is the velocity of the Connecticut river at Hadley Falls, and we have not alluded to it, but the power of water "is as the quantity and fall of the perpendicular height." Let us consider that every cubic foot of water weighs 62½ lbs. and if the fall is 16 feet, the water will fall through that space in a second, then if we consider the weight of every cubic foot discharged, as being like the blow of a hammer, for a 16 feet fall, sweeping through that space every second, we will be able to form

some estimate of the power of water, a power which can shatter the strongest steel like glass—a power which has torn cities from their foundations, destroyed kingdoms—aye, and made sport for "for forty days and forty nights" of the world itself.

Patenting Inventions.

A paragraph is going the round of the papers, stating that "Mr. Junius L. Clemmons of Davidson County, North Carolina, invented the Chemical Telegraph of Mr. Bain, and that he addressed a letter some years ago to the Patent Office on the subject of his invention."

Whether this is true or not we cannot tell, but it is exceedingly foolish to suppose that the Patent Office can take notice of such letters. It is not the business of the Patent Office to examine into the originality of any invention unless it is a legal application for a patent. Mr. Burke issued a circular stating that it was a common thing for persons to apply by letter to the Patent Office for information about new inventions. These letters are consigned to oblivion. When a person invents a new machine, or makes an improvement or discovery, he should make diligent enquiry of persons acquainted with the business relating to his invention or discovery, and having satisfied himself about its originality, he should make application for a patent forthwith. If the invention is new a patent will be granted, if not, no more expense than about twenty or thirty dollars is incurred. Two thirds of the fee for a rejected application is returned if there is no appeal, and the rest of the expense would be for drawings and duplicates, with the necessary papers,—some cost more and some less, according to the labor required. Many inventors have lost their inventions by procrastination.

Patent Cases.

Before Judges Grier and Kane, in the U. S. Circuit Court at Philadelphia, a case was decided on the 17th ult. for the infringement of a patent for Railroad Curves. The complainant was Stimpson, the defendants Lieper and others. The Jury returned a verdict for plaintiff for infringement in sixteen cases. The verdict was fifty dollars for each curve, with interest from the time they were commenced to be used.

On the 20th ult. before Judge Kane in the same court, an injunction was granted to Richard S. Childs against George W. Cross for manufacturing lampblack in violation of plaintiff's patent.

The Telegraph Case in Kentucky.

Mr. Woolford and Mr. Zook, connected with O'Reilly's Southern line of telegraph, who were arrested and taken at Frankfort three weeks ago, by order of Judge Monroe, on a charge of having violated the injunction issued by his court, were fined \$250 each and laid under bonds not to violate the injunction hereafter. The fines were subsequently remitted.

We understand that the U. S. Marshal for Kentucky has been directed by Judge Munroe to take possession of O'Reilly's telegraphic line through Kentucky forthwith, to seize so much of the posts and wires, and by breaking, interrupt the electric current of the People's line, as may be necessary to protect Morse & Co. from the violation of their patent; and give to him a continued power at his discretion to do what may be required for that purpose. In his opinion he says that the defendants are from the evidence prima facie violators, and that they will continue in that course, and that if they wish to use their line lawfully they must apply to the Judge.

We thought that Mr. O'Reilly had purchased House's Telegraph for Kentucky. It had been so reported, and it would have been wiser to do so than to have run the gauntlet, in violating an injunction.

By late foreign exchanges we learn that a patent for improvements in the manufacture of hydrogen gas from water, obtained recently by a Mr. S. White, was contested by a Mr. S. North of Manchester, who claims to be the original inventor.

A valuable coal bed has been discovered at Kellog in Arkansas. This is a treasure to the owners of the lead mines.

American Copper.

A mass of pure copper was discovered in the Lake Superior region last spring which weighed about 11,537 pounds. A lump of this copper rock has just been received at No. 239 Water st., this city, which weighs about 4000 pounds. This is the rock which was found in the process of exploring an old open cut of Aborigines digging, which was discovered by the appearance of a slight depression on the surface of the ground. In the bottom of this cut, covered by fifteen feet of earth in which were growing trees fully five hundred years old, lay this mass of pure copper, weighing 11,537 pounds, with every particle of rock hammered clean from it, supported by skids, and surrounded by traces of the use of fire either in the hope of melting it or to aid in freeing it from the rock. Near it were found several implements of Copper, showing that the ancient miners possessed the arts of welding and of hardening Copper—arts now unknown. It would seem that they failed in their attempts to break up this immense boulder or to lift it out of the cut.

What were the people who first were the miners, will never be known. This assertion we make with all due allowance for the antiquarian lore and zeal of the indefatigable Squires and the the Smithsonian Institute. What were the calamities of war or pestilence or famine, that stopped the ancient miners, no one can tell, and never will, but they were at least a more civilized people than the race that succeeded them. The works of the old miners may be traced for two miles on this vein, and on other veins in the vicinity for a considerable distance. They were ignorant of the use of iron and worked very awkwardly. The locality of these developments is the cluster of hills known as the "Three Brothers," two miles east of the Ontonagon, about twelve miles up that stream, and some 300 feet above the level of the lake. There are three large and rich veins here within a short distance of each other, at least one of them rich in silver, and which belongs to the Minesota Company in this city.

In the History of Columbus by Washington Irving, it is stated that the Spaniards discovered in St. Domingo old mines of gold diggers but no tradition of the miners was found among the natives.

Inland Navigation.

A short time ago a steambot was launched at the Fish House Bridge, in Fulton County, this State, intended for the navigation of the Sacondaga river, between the former place and Conklin's Mills, a distance of about twenty miles. The circumstance so novel as the launch of a steambot in such a locality, drew together a crowd of some five hundred persons, and was the occasion of great congratulations with the villagers and surrounding neighborhood.

The Sacondaga is a tributary to the Hudson, and the region referred to in the above paragraph is on the confines of the great wilderness in this State known as "John Brown's Tract." The existence within the limits of New York of a district of country embracing an area of nearly 5,000 square miles—equal to about two-thirds of all Massachusetts—and yet wilder and less known than any other portion in the United States, is a very remarkable fact. This region is the hunting ground of the Northern huntsmen, and the panther and deer are still found there. The whole region we know in respect to soil is barrenness itself. There never was a crow that spread its wings to cross the tract but made its will before it took its flight.

The Value of Steam Power.

Suppose for a moment that the power of steam was wrested from our service—the labored breathings, the shrill whistle heard no more—the factory lately instinct with life, a deserted ruin—the gigantic ocean steamer, floating a crippled hulk upon the deep—on our mighty rivers no longer seen their floating palaces, nor our mountain solitudes startled with the impatient neighings of the iron horse—the printing press thrown back a century, no longer giving forth its hourly thousands, and the necessary intellectual food of our reading millions. What would we be—and where?

A new kind of Wheat.

Advices from St. Petersburg to the 12th of August, mention that a new variety of the Arnauka wheat has recently been discovered and cultivated in Bessarabia. It is called the Kolus, or large-eared wheat, on account of the peculiar beauty of its ears. At present it is limited to mere seed wheat, and fetches twice the price of the ordinary Arnauka. One other and important peculiarity of this grain is, that it is less affected by drought than any other varieties. At the same time it possesses several other features, being distinguished by its greater fertility, its deep amber colour, and its earlier ripening. This important discovery was made by a peasant of the name of Bulatowisch, in the village of Troitzk, in the district of Bender, who being a close observer of nature, detected in his crops certain ears which were larger and became ripe more speedily than the rest of the crop. These he collected and sowed separately, and the result was an abundant harvest, and the introduction of a new and valuable variety of wheat. The event had created a great sensation amongst the agriculturalists and dealers in grain, and the new wheat well merits being named after its discoverer.—[Although it is, perhaps, a kind which would resist excess of moisture, it might be quite beneficial on high lands as being capable of withstanding the effects of drought. The event is interesting speculatively; and as such we would direct the attention of our agricultural readers to the subject, as this wheat must be important to farmers in many sections of our country.]

Experiments with Propellers.

C. H. Haswell Esq., the engineer in chief of the navy is now engaged in making a series of experiments, by order of the Navy Department, with the various descriptions of propellers from the Archimedean screw up to the kinds now in general use. The wheels are attached to the little steam yacht May, belonging to Captain R. F. Loper, and her speed tested with each, by running between certain points on the river, where the distance is known with accuracy by the government survey. The Archimedean screw, the straight blade Loper propellers, and the other of his improved wheels with cast iron hubs, and the blades attached at various angles, have already been tested, and four other varieties are yet to be tried. The wheels with which the experiments are making, are all of the same diameter, and on a par with regard to their propelling surface. An interesting report upon the subject will probably be submitted to the Department by Mr. Haswell, upon the completion of these experiments.

Antiquarian Search.

E. G. Squier, the well-known antiquarian author has gone westward for a thorough examination of the traces of early civilization in this country. He goes under the joint auspices of the Smithsonian Institute and the Historical Society of New York.

We have been informed that Mr. Squier has lately discovered a key to the hieroglyphics that are found engraven on a number of ancient rocks, &c. whereby he is enabled to read their meaning. The result of this discovery may gratify some curiosity.

Copper Mining.

There is a valuable copper mining establishment now in active operation at Perkio Creek, Pa. The miners are principally English and the ores are shipped to Baltimore to be smelted.

THE SCIENTIFIC AMERICAN.

Persons wishing to subscribe for this paper have only to enclose the amount in a letter directed (post paid) to

MUNN & COMPANY,

Publishers of the Scientific American, New York City

TERMS.—\$2 a year; ONE DOLLAR IN ADVANCE—the remainder in 6 months

Postmasters are respectfully requested to receive subscriptions for this Paper, to whom a discount of 25 per cent will be allowed.

Any person sending us 4 subscribers for 6 months, shall receive a copy of the paper for the same length of time.