



NEW YORK, JANUARY 6, 1849.

A Retrospective Glance.

The year 1848 has closed and it will never return. Its days, weeks and months are now with the eternity of the past. But although its three hundred and sixty-five days will no more come back again, yet the events which have transpired during that period are still with us—they are not wrapped in oblivion, but like dim *talbotypes* they are painted on the mind with the pencil of memory, and but await a touch from the photographer "re-membrance" to pass in panoramic review before our mental vision.

Since the first of January 1848, the civilized world has been startled by strange and wonderful convulsions. The land of the Gaul has dashed to pieces the crown of her Citizen King and the banner of a free Republic floats now from the battlements of the Palais Royal. In other countries despotism has ruled with a high hand and freedom has been crushed by the iron hand of power—but the end of these things is not yet.

During the past year, the boundaries of science have been extended and many new facts stored up in her treasury. Chemistry, that old and yet youngest of all the sciences, has added some new and important discoveries.—Chloroform and the Electric Light are both interesting discoveries, but especially the latter. Whatever may be its practical results, time alone will tell; we only hope that for purposes of general illumination it will prove itself to be as superior to gas, as gas is to candles, but we are afraid that its economical advantages have been exaggerated.

Astronomy has poured some of her treasures around the footsteps of American female genius, in the discovery made by Miss Mitchell, who has received distinguished tokens of admiration from eminent men of many nations.

In Steam Navigation, the distance between this city and Liverpool has been shortened by new and improved steamships nearly one fourth of the time previously occupied in the passage. Some valuable facts have recently been added to the science of marine propulsion, by Thomas Ewbanks of this city, whose experiments we shall notice more at length at some other time. It has been announced that a celebrated French engineer has discovered a new mode of increasing the expansive power of steam tenfold, and yet controlling it with as much ease as under a low pressure.—Time will prove the correctness of these statements—statements made to us with positive assurances of success, but which are very much opposed to our philosophy. It has been hinted in some of our foreign exchanges that Professor Faraday has discovered a new power as superior to steam in the propulsion of machinery as steam is to animal power.

A great number of new machines for different purposes have been invented and many valuable improvements added to the old.—A greater variety of these are to be found in the Scientific American than in any other paper or magazine whatever. Any one of our readers will be convinced of this, by taking a retrospective glance through their back numbers. Every man should do this sometimes.

It is not possible for us to notice now all the inventions which we have introduced to the public through our columns during the past year—we can but skim along the broad expanse and dip our *wing* here and there into its bosom. We therefore leave this subject at present with a hope that our many readers have enjoyed "a happy new year," and that during 1849 our inventors and men of science will make new discoveries in science and art, which will be of more benefit to our country than the golden sands of California and which will confer honors upon them and our common country, that will shine with undiminished lustre when "the most fine gold becomes dim."

Postage Reform.

The following are the reforms proposed to be made by the Post Office Reform Association in this city:—

1. A uniform rate of Two Cents postage on letters weighing half an ounce, and two cents for every additional half ounce, prepaid, and double that rate if not prepaid.

2. Newspapers, periodicals, and all printed matter, one cent per sheet; but newspapers of the smaller size half a cent, to be prepaid, except newspapers and periodicals sent from the office of publication.

3. To reduce the postage on letters and newspapers by mail packets and steamers, to a rate which will bring it within the means of every class of citizens to maintain frequent intercourse with their friends in other countries, without feeling the postage to be a burdensome tax.

4. To adopt measures that in all large towns and cities there shall be a free delivery of letters and newspapers, and also for the reception and conveyance of letters to the post office for the mails free of any expense.

5. To abolish the franking privilege entirely, that postage may be paid on every thing sent by the mails. Postage of members of Congress to be paid as their other expenses, and postmasters to be remunerated for the loss of the franking privilege and the temporary diminution of their income, by an increase of their commissions.

We hope that all our cities and vilages will adopt measures to carry out this great and beneficial reform.

The Post Office letter delivery has been radically reformed in this city. Letters are now charged 1 cent for city delivery instead of 2, as heretofore.

Application of the Telegraph for a Fire Alarm.

On the evening of the 21st ult. according to a recommendation of Mayor Quincy of Boston to adopt a system of *Signals* communicating with the fire engine houses of that city, so that from some central point, information might be communicated by the electric wires, to every station at one and the same time; and so that again, information might be transmitted, at one and the same time, from any one engine house to all the others, as well as to such central point; and thus make known on the instant, and all over the city, the moment when, and the place where, a fire breaks out.

The recommendation having been carried out and the wires all connected, at a meeting of the Common Council on the night mentioned above the members took a recess for a few minutes, and repaired to the telegraphic office to examine this new apparatus—which excited their surprise and admiration.—It was put in operation, and while they were present, a communication was had with New York; the wires of this city, so many miles distant, being connected with this fire alarm apparatus in Boston,—the correspondent in New York immediately sent on his reply by the same wires, the electrical action upon which instantly caused the deep-toned bell connected with the apparatus near the City Hall, to be rung; this great fire alarm bell being thus sounded in that city by the operator at the telegraphic office in New York! Directly after, and while the New York operator was ringing the bell, the other bells there were rung by persons ignorant of what was going on, and, supposing there was in reality a fire in that city, the whole fire department at once turned out.

Chamberlain's Drawing Board.

We have now in our possession one of Mr. Wm. Chamberlain's continuous-scale drawing boards, which was published and illustrated in No. 2, vol. 3 Scientific American. The board is a very neat one and exceedingly useful and convenient to any draftsman, as all the angles and degrees are laid out on the frame so that the draftsman will be enabled, especially for isometrical drafting, to execute drawings in one half the time usually occupied for that purpose.

This drawing board will afford an excellent opportunity for some man of capital to manufacture the same, as they would soon be introduced into all the public schools.

A cotton factory is about to be established at Washington, (D. C.) \$20,000 of the stock has already been taken.

Inventors' National Institute.

MESSRS. EDITORS.—I have just finished and enjoyed a long anticipated treat in looking over the last eight numbers of your paper, having just returned from a visit of some eight weeks to the city of Baltimore, Md., where, I am happy to say, the inventors of that city and neighborhood, having the assistance of some of their most benevolent capitalists, have formed an Inventor's National Institute for the ostensible purpose of assisting and sustaining that most valuable class of our citizens, the Inventors, in their praiseworthy efforts in the production of such appliances as multiply the means of production; better the condition and more perfectly supply the wants of the world. They are now preparing to hold a Convention of Inventors in that city, on Tuesday, the 6th of March, 1849. They have had several newly invented machines presented to them by inventors for the consideration, approval and assistance of the institution. Among them is a plan for Washing Gold, which embraces about as pretty a piece of philosophy as I have ever seen exhibited in any machine. It is calculated to separate the gold whether in large or small pieces, from all kinds of foreign matter, from fine dust or sand to three or five pound stones at one operation, and will do the work of twenty men at least.

This machine fully evinces how ready and prolific is that peculiar talent of the inventor. No sooner is a machine needed to accomplish a new object or purpose, than the inventor's intellect is able to bring it into existence. I have often thought what would we be as a nation without the advantages derived from their skill and ingenuity. Take from us at this time the Printing Press, as improved within the last ten years, the Power Loom, the Cotton Gin, the Steam Engine, Steamboats, Railroads and Locomotives, and what an awful state of affairs we should be reduced to. The truth is, we have not properly appreciated our inventors, but have suffered them to be insulted, robbed and abused; we have looked upon them with distrust and held their employments in low estimation, when in fact to us they are indispensable to our future progress.—But we hope this Institution will correct these abuses, as inventors may apply here for assistance, without the influence of wealth, power, or some great name, and he will be met with a cordial reception and respect. The merits of his invention will be his passport.

A SUBSCRIBER FROM THE BEGINNING.
Mount Holly, Dec. 26, 1848.

Patent Rights.

MESSRS. MUNN & Co.

Gentlemen.—In the Boston Daily Advertiser of Nov. 23, may be found a report of the case Adams vs. Edwards, which may be deemed a counterbalance to the alarming doctrines promulgated in the case of Wilson vs. Packard, formerly published in your paper.

The following extract relates to points of general interest:—

"United States Circuit Court.—Woodbury J. ruled—

1. That if the patentee was the first to conceive the idea, and devised his plan, and had the whole in embryo, he was the *inventor* in the sense of the patent law, although an independent subsequent inventor should have first perfected a safe (the article in dispute,) and put it into use, provided that the patentee in the interval, was prosecuting his attempts with reasonable diligence, and finally proceeded with like diligence, to the completion of his Safe and to the necessary steps for obtaining a patent. That the jury in deciding upon the question of reasonable diligence, should consider the circumstances of the patentee, his poverty and the other duties in which he was necessarily or properly engaged.

2. That a public use or sale of the thing with the knowledge and consent of the inventor, is not a dedication under the patent act of 1839, sec. 7, unless such use or sale was more than two years before the application for a patent.

There are other points of interest decided in the case. I would take the liberty of making one remark. I have no doubt that the jury should consider the *poverty* of the patentee, upon the question of reasonable diligence, but I very much doubt whether an inventor should be allowed the right of prose-

cuting any business in which he may be "properly engaged," and in the meantime suffer his invention to lie dormant for more than two years. Further reflection might perhaps incline me to reconsider my opinion, but such are my present views. Yours, &c.

J. M. O'B.

Brunswick, Me. Dec. 18, 1848.

Extracts arranged from Leonard's Mechanical Principles.

What are the number of cubic feet of water, passing over a dam per second, the water being 16, 25, 40 and 60 inches deep and the length of the dam 40 feet.

For the 16 inches 5.24 cubic feet.

" 25 " 10.22 "

" 40 " 20.71 "

" 60 " 37.80 "

Let each of these be multiplied by 40 the length of the dam and it will give the number of cubic feet of water passing over the dam per second.

Let us take the first.—16 inches is 5.24 X 40=209.60 cubic feet.

Required the number of horse power that 20 cubic feet of water per second will produce if applied to an overshot wheel 12 feet in diameter?

Answer 18.18 horse power.

The power of a breast wheel with a fall of 15 feet and a supply of 30 cubic feet of water per second, is 34.08 horse power.

We understand that the key to this valuable work will be published in a short time, and we are waiting for it, as there is some difference of opinion respecting the power of water.

Patent Office Report for 1847.

The full Report of the Patent Office for 1847 has but just been issued from the press of Wendell & Van Benthuyzen, the Government Printers. It was presented on the 1st of January, 1848, and since that time it has been travelling for nearly 365 days around the cases and presses of the imperial printing office. The Report has been printed in detachments, some of which we have noticed before, but not till now have the *Patent Claims* been issued. The Report is a very valuable one, especially the opinion of Justice Cranch on the Patent appeals. The matter is by far too good to be found in company with such miserable paper and typography. Over this the Patent Office has no control, for which we are not a little sorry.

The Report of the Commissioner for 1848, will soon be presented, and we hope that it will be printed sooner than the last.

Coal in Rhode Island

We have several times called attention to the interesting and important evidences of the existence of Coal in that State. Mr. Ridgway a geologist from Pennsylvania, who has been for some months examining various localities with the view of ascertaining the fact, in this case opened a thick bed of coal of very good quality in Cranston, last Friday. We have received a specimen of the Coal, which burns very freely in a close stove.

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our interest to have among us, for he is scientific and skilful. We do not want evil disposed, nor proud, nor lazy foreigners among us, but the honest, industrious and intelligent foreigner should not be viewed "with look askance," and Mr. Bain comes from a country where "stranger is a holy name."

We are the defenders of Mr. Morse as the inventor of the "Electro Magnet Telegraph." The insinuations that have been thrown out to dim his well-earned fame for that invention, we believe to be wicked and unjust. Is Fair Play satisfied!—Ed.

As this is a controversy which interests the whole people of these United States, we claim the indulgence of our readers for the unusual length of these two articles. The only apology that the Editor offers for the length of his is "the want of time to write a shorter one," *multum in parvo* being our rule.

American Cotton and Cotton Manufactures.

The following article, abridged from the Philadelphia North American and U. S. Gazette, is a good answer to our queries in the Scientific American of last week. In reference to political opinions, we express none,—it is out of our line, but we publish the article because it contains new and important information.

"It is a fact not generally known on this side of the Atlantic, that the principal imported cotton goods, which enter into competition with those made in this country, are manufactured almost exclusively of cotton grown in the British East India possessions, which, on an average for a succession of years, costs one penny, or two cents of our money, per pound less than the American cotton.

To illustrate this fact more clearly, it should be known that no cotton twist, or warp, from Nos. 5 to 20, except occasionally for home use, has been spun in England, within the last 20 years, of any thing better than East India cotton; and that all cotton filling, or weft, under No. 30 is spun of the same material. In this country the factories rarely, if ever, spin, for manufacturing purposes, any cotton yarn finer than the numbers above named; and they use the American cotton exclusively, at an average cost of two cents per pound above the value of the cotton used by the British manufacturer in making the same fabrics.

In addition to the advantage of an average of two cents per pound in the price of the raw material used, the British manufacturers have labor much cheaper—machinery much cheaper—money in abundance and at a much cheaper rate of interest, say generally at from 2 to 3 per cent. per annum on their business paper. They have large capitals embarked in their business—they have secured to them, beyond all doubt of contingency, both the home and the colonial markets, embracing at present a population exceeding two hundred millions, who are clothed almost exclusively from the British manufactories. And they have a government of extraordinary sagacity and judgment in all matters of business, to watch over, protect and extend and open new markets for them. But we of the United States have not even a home market on which to depend. With us, business of manufacturing is considered so precarious and unstable, that no capitalist is inclined to embark in it to that extent which would be likely to ensure success. Consequently the business is engaged in by chartered companies; who, for many good reasons, rarely succeed well; or by individuals with means, for the most part, entirely inadequate to the undertaking. Machinery is expensive, and the advantage of extensive operations are such that in ninety-nine cases out of a hundred, in the vain hope of being able to compete with the British manufacturer, the entire capital is absorbed in machinery, and as cotton and other materials used in manufacturing are generally sold for cash, or on a very short credit—as all wages are paid weekly or monthly in cash; and the goods, when manufactured, are sold on a credit of eight months, in conformity with the terms on which the foreign goods are sold in our markets, it may be conceived that American manufacturers are constantly exposed to suffer from high rates of money and bad markets.

These facts, of so much interest to American cotton planters will be clearly demonstra-

ted by reference to the tabular statement contained in Wilmer & Smith European Times, by which it will be seen that, from the first of January to the fifteenth of October, 1846 when the tariff of 1842 was in full operation 1,002,150 bales from other countries, were consumed in G. Britain. During the same year, it was estimated that there were over 400,000 bales of American cotton consumed in this country by our own manufacturers; making an aggregate of 1,502,150 bales of American cotton consumed in both countries. Only about one sixth of that number of bales the product of other countries, it will be remembered, was consumed during that period. From the same authority it appears that from the first of January to the thirteenth of October, in the year 1847 when the tariff of 1846 was in operation there were consumed in Great Britain only 636,550 bales of American cotton and 242,630 bales of the product of other countries. And it is estimated that, owing to the distressed situation of our manufactures, there were not more than 300,000 bales consumed in this country; making only 936,550 bales of American cotton actually consumed in both countries during that period. It will be seen from these statements that whilst the consumption of American cotton decreased 565,590 bales under the tariff of 1846, the consumption of cotton grown in other countries increased 2250 bales; and further, that nearly one third of all the cotton consumed in Great Britain during the period last named, that is under the tariff of 1846, was imported from British possessions; and the reason for this large increase in the consumption of other cotton, is obvious, the English manufactories were mainly engaged in producing coarse fabrics, which constituted almost the only description of cotton goods they could send here to advantage and which were the best calculated to break down the manufacturing establishments of this country.

As to a question that is frequently asked, viz: Why cannot our manufactories enter into competition with those of Great Britain (a question which the *principles of protection* aver has never been satisfactorily answered) a reply may be easily given—they can compete with any nation on the face of the earth if placed on the same footing. It is a well-established fact, that there is nowhere a more industrious, ingenious and enterprising people than the Americans. If they were protected and fostered, as the industrious classes of Great Britain are and always have been, American workmen would soon be able to manufacture every pound of cotton produced in the United States.

Useful Hints to Public Speakers.

It is a curious fact in the history of sound, that the loudest noises always perish on the spot where they are produced; whereas, musical notes will be heard at a great distance.—Thus, if we approach within a mile or two of a town or village in which a fair is held, we may hear faintly the clamor of the multitude; but more distinctly the organs and other musical instruments which are played for their amusement. If a Cremona violin, a real Amati, be played by the side of a modern fiddle, the latter will sound much louder of the two; but the sweet, brilliant tone of the Amati will be heard at a distance the other cannot reach. Dr. Young, on the authority of Denham, states that at Gibraltar the human voice may be heard at a greater distance than that of any other animal. Thus when the cottager in the woods or in the open plain wishes to call her husband, who is working at a distance, she does not shout but pitches her voice to a musical key, which she knows from habit, and by that means reaches his ear. The loudest roar of the largest lion could not penetrate so far. "This property of music in the human voice," says Cowper, "is strikingly shown in the Cathedrals abroad. Here the mass is entirely performed in musical sounds and becomes audible to every devotee, however placed in the remotest part of the church; whereas, if the same mass had been read, the sounds would not have travelled beyond the precincts of the choir." Those orators who are heard in large assemblies most distinctly and at the greatest distance, are those who, by modulating the voice, render it more mu-

sical. Loud speakers are seldom heard to advantage.

Burke's voice is said to have been a sort of lofty cry, which extended, as much as the formality of his discourse, in the House of Commons, to send the members to their dinner.—Chatham's lowest whisper was distinctly heard "his middle tones were sweet, rich, and beautifully varied," says a writer, describing the orator; "when he raised his voice to the highest pitch, the House was completely filled with the volume of sound, and the effect was awful, except when he wished to cheer or animate—and then he had spirit-stirring notes which were perfectly irresistible. The terrible however, was his peculiar power. Then the house sunk before him; still he was dignified, and wonderful was his eloquence, it was attended with this important effect, that it possessed every one with a conviction that there was something in him finer even than his words; that the man was greater, infinitely greater, than the orator."

The Dark Races and the Fair.

There is one thing obvious in the history of the dark races, that they all, more or less, exhibit the outlines of the interior more strongly marked than in the fair races generally. Thus the face of the adult Negro, or Hottentot, resembles, from the want of flesh a skeleton over which has been drawn a blackened skin. But who are the dark races of ancient and modern times? It would not be easy to answer this question. Were the Copts a dark race? Are the Jews a dark race? The Gipsies? The Chinese, &c.? Dark they are to a certain extent; so are all the Mongol tribes; the American Indian and Esquimaux; inhabitants of nearly all Africa, of the East of Australia. What a field of extermination lies before the Saxon, Celtic, and Sarmatian races! The Saxon will not mingle with any dark race, nor will he allow him to hold an acre of land in the country occupied by him; this at least, is the law of Anglo-Saxon America. The fate, then, of the Mexicans, Peruvians, and Chilians is in no shape doubtful. Extinction of the race, sure extinction; it is not even denied. Already in a few years the English have cleared Van Diemen's Land of every human aboriginal; Australia, of course, follows; and New-Zealand next. There is no denying the fact, that the Saxon, call him by what name you will, has a perfect horror for his darker brethren. Hence the folly of the war carried on by the philanthropists of Britain against nature; of these persons some are honest, some not. We venture to recommend the honest ones to try their strength in a practical measure. Let them demand for the native of Hindostan, of Ceylon, or even of the Cape or New-Zealand, the privileges and rights wholly and fairly of Britons; We predict a refusal on the part of the Colonial office. The office will appoint you as many aborigine protectors as you like, that is spies; but the extension of equal rights and privileges to all colors is quite another question.

Franklin's Resting Place.

"Such was his worth, his loss was such, We cannot love too well, or grieve too much" In one corner of the burying ground, best known as Christ's Churchyard, Philadelphia, repose the remains of Franklin. On entering the churchyard from Arch street, attention will unavoidably be directed to his humble tomb by a well trodden path which leads from the gate to the marble slab which bears the simple inscription, which will at once strike the beholder with wonder, viz: "Benjamin and Deborah Franklin." With wonder, we say, because we are accustomed to see the stones covering the tenements of great men inscribed with eulogiums: but the one we are now beholding has nothing but the words above quoted, and the year in which it was placed there.

And this is the grave of a man who might once have been seen a runaway boy, in the streets of Philadelphia, seeking employment as a printer; and again, as editor and proprietor of the United States Gazette, long so ably conducted by Mr. Chandler. Once trying experiments with a simple paper kite; again, astonishing the world with the discoveries made through its instrumentality. Once in England as a deceived journeymen printer;

again as Minister from an Independent Republic. Once in his workshop, as a laboring mechanic; again in the Hall of Legislation, advocating the cause of freedom, and urging an oppressed people to rise and drive the British Lion from our forests. Yes, he was one of those who signed away their lives, fortunes and honors, necessary for the welfare of their fellow-citizens.

But all this could not save him from the hand of death. Though the Philosopher and the Statesman must lie as low as the less favored, yet the circumstances, connected with the lives of those whose motto was "*non sibi sed patrie*," possess charms which all can appreciate and all love to cherish. We read his name on the marble slab—ponder over his virtues, and mourn his loss, as of a dear friend. We stand around his grave, and think how many have gazed with reverence upon that stone, and our eyes become fixed upon it as though it possessed an endearing charm. We look back on his life and deeds, and when we remember that a nation wept when Franklin died, we cannot refrain from dropping a tear over his last abode.

No towering monument rears its head above the clouds where the first beams of the rising sun will gild his name; but that name is inscribed in characters not easily to be erased, on every liberty loving heart, and so long as Philosophy continues to be a science, benevolence a virtue, and liberty the watchword of the American people, will his memory be cherished, and his name be honored.

Law and Lawyers in Norway.

The administration of the civil law in Norway is most admirably contrived. In every school district, the freeholders elect a Justice of the Court of Reconciliation. Every lawsuit must first be brought before this Justice, and by the parties in person, as no lawyer or attorney is allowed to practice in this Court. The parties appear in person, and state their mutual complaints and grievance at length, and the Justice carefully notes down all the facts and statements of the plaintiff and defendant, and after due consideration endeavors to arrange the matter, and proposes for this purpose, what he considers to be perfectly just and fair in the premises. If his judgment is accepted, it is immediately entered in the court above, which is a court of Record; and if it is appealed from, the case goes up to the District Court, upon the evidence already taken in writing by the Justice of the Court of Reconciliation. No other evidence is admitted. If the terms proposed be just and reasonable, the party appealing has to pay the costs and charges of the appeal. This system of minor courts prevents a deal of unnecessary, expensive and vexatious litigation. The case goes up from court to court upon the same evidence, and the legal argument rests upon the same facts, without trick or circumlocution of any kind from either party. There is no chance for pettifoggers,—the banditti of the bar. Poor or rich or stupid clients cannot be deluded, nor Judge or Jury mystified by the skill of sharp practitioners in the courts of law in Norway. More than two-thirds of the suits commenced are settled in the Court of Reconciliation, and of the remaining third not so settled, no more than one-tenth are ever carried up.

The judges of the Norwegian court are responsible for errors of judgement, delay, ignorance, carelessness, partiality or prejudice. They may be summoned, accused, and tried in the Superior, and, if convicted, are liable in damages to the party injured. There are, therefore, very few unworthy lawyers in the Norwegian courts. The bench and the bar are distinguished for integrity and learning.—They have great influence in the community, and the country appreciate the many benefits which have resulted from their virtue and their wisdom.

Crystals which form in different liquids, are generally more abundant on the side of the jar exposed to the light; and it is well known that still water, cooled below 35°, starts into crystals of ice the instant it is agitated.

Truth is a hardy plant: and when once firmly rooted, it covers the ground so that error can scarce find root.