



NEW YORK, FEBRUARY 3, 1849.

Balloons.

The idea of human beings navigating the air, is an old and a favorite one. We are informed that Abaris the Scythian, having received an arrow from Apollo during the Trojan war, transported himself through the air from Athens to Scythia. We are also informed that Dædalus constructed wings with feathers and wax and carefully fitting them to himself and son flew away from Crete, but Icarus having ventured *too high*, the sun melted the wax from his wings and down he came into the sea, which still bears his name. The same event could not happen now, for oh, great changes, the higher we now fly, the colder it becomes.

Roger Bacon was among the first persons in modern times, who took up the subject of aerial navigation, and Bishop Wilkins in his work on *Mathematical Magic*, considers flying a very easy art, but to man, the good Bishop says, "Providence has not permitted such a depraved creature this facility which he may employ to do mischief." In 1673, a celebrated character named Bernovin, a native of Grenoble and an excellent surgeon, had acquired the art of making artificial fire works by which means he could fly through the air on a sheet, and had in not a few instances descended from high towers in this manner. In the month of January in the above year he again attempted the feat from a high tower in Ratisbone, but he unfortunately lost his life in the attempt.

It was not until 1756 that any progress was made in Ballooning. In that year Cavendish discovered hydrogen gas, which was found to be 15 times lighter than the common air, but considering the impurities connected with the common mode to obtain it, namely by iron filings in dilute sulphuric acid, it cannot be considered to be more than six times lighter than the atmosphere, consequently a globe of hydrogen gas can only be impelled upwards by a power equal to five times that of the weight of an atmospheric globe of the same size, therefore the force with which balloons can ascend must be in proportion to the cube of their diameters—minus the weight of the envelope which for the finest gummed silk sufficient to cover a globe 1 foot in diameter, is about one-twentieth of a pound. It is therefore evident that according as the diameter of a hydrogen balloon is increased, so is its upward propelling power. One (a globe) 24 feet in diameter made with the fine silk, has an upward propelling force of only 456 pounds, while one of 60 feet diameter has an upward propelling force of no less than 6950 pounds.

In 1782, two brothers of the name of Montgolfier, in France, made the first ascension in a balloon of 23,000 cubic feet. Their experiments however, were but small affairs in comparison with the experiments made by Guy Lussac, the scientific Frenchman, who with Biot in 1794, found the needle remain unaltered at 12,650 feet elevation and at 18,000 feet the thermometer fell to the freezing point. He filled two flasks with air at 23,040 feet elevation—higher than the loftiest mountain on the earth, and having analyzed the air afterwards, he found that it contained the same constituents as that at the surface of the globe. Since that period many voyages have been made in balloons, and many have thought that balloons might be, made of such a form as to navigate the air with wings. All such attempts have proved abortive. In 1784 two brothers named Roberts, Professors of Philosophy in Paris constructed a balloon of an oblong spheroid form and attached wings to the car to propel themselves. They ascended 14,000 feet and in a calm had recourse to their wings by which they described an elliptical segment of 6000 feet diameter.

All may remember the great feat of Mr. Green in 1836, who performed a journey from

London across the English Channel to the German province of Nassau in 18 hours. His balloon was so large that he carried a ton of ballast. Many of the aeronauts have distinguished themselves, and it is not forgotten how that Dr. Morrell came near losing his life in his balloon excursion from this city last year. To the shrewd man of science balloons have ceased to be a matter of interest—their object of late has been more to amuse the crowd and benefit the adventurer. A patent was taken out for a flying machine in England in 1847, and the British Association voted \$1250 for balloon experiments in 1840, all of which have ended in *nothing*. If any person wishes to distance space in travelling, we would advise him, instead of trying a balloon, to get well charged with a galvanic battery and mount the telegraph wires, if he loses his balance in the journey, we can assure him that there is no fear of falling farther than the centre of gravity.

Report of the Patent Office.

The Report of the Commissioner of Patents for 1848, will be the best document which has ever emanated from the office on account of the great amount of valuable scientific information which it contains. It presents a brief history of the Patent Office up to 1849. From 1790 to 1849 the number of patents issued are given as follows:—

States.	No. Patents.	States.	No. Patents.
Maine	463	Mississippi	23
New Hampshire	297	Louisiana	77
Vermont	310	Arkansas	0
Massachusetts	2161	Tennessee	108
Rhode Island	234	Kentucky	185
Connecticut	1156	Ohio	749
New York	3382	Michigan	51
New Jersey	461	Indiana	114
Pennsylvania	2167	Illinois	71
Delaware	52	Missouri	40
Maryland	660	Florida	1
Virginia	630	Texas	4
North Carolina	137	Iowa	2
South Carolina	122	Wisconsin	8
Georgia	80	District Columbia	224
Alabama	65		
		Total	14,034

The following table shows what cities have taken out the greatest number of patents in proportion to the rest of the Union—yet we must not judge by this that other cities have not as much mechanical ingenuity in proportion to their population. The four cities here mentioned were flourishing places when Cincinnati was the dwelling place of the wild deer and buffalo.

Boston	623	New York	1787
Philadelphia	960	Baltimore	430
		Total	3800

The proportion which the inventive genius of Boston bears to that of the State of Massachusetts, is about one-third of the whole.—The proportion of the city of New York to the State of New York is more than one-half of the whole. That of Philadelphia to the State of Pennsylvania is as 3 to 7; and of Baltimore to Maryland as 2 to 3.

Pleasure Carriages.

Within a few years a great improvement has taken place in the construction of our pleasure carriages. There can be no doubt but America has long excelled in constructing light and airy looking carriages. The fault to them was that they looked too *airy*—not rich and solid. These objections are now entirely removed by our coach-makers who combine all the requisite qualities in their carriages of a *janty* light, strong and yet rich and solid appearance at the same time. There is a kind which has been recently introduced which is highly to be commended. They are a combination of the close and open carriage, suitable for sun-shine and storm, resting upon elliptic springs in front with no perch. The pole works on a knuckle in front of the draw bar, which thus takes the strain off the carriage when in motion and the coachman's seat is separate from the main body so that he is always in line with the horses, thereby enabling the carriage to turn in a far narrower curve than by the old arrangement.

The Artesian Well at Charleston, S. C. has now reached a depth of 428 feet and the water is one foot from the surface.

American Manufactures.

MR. EDITOR.—Since the publication of your article in the *Scientific American* of the 30th ult. headed "Advice to Manufacturers," I have examined each successive issue of your paper, with considerable interest, hoping to find some *satisfactory* reply to the observations you then made, especially to your query "why we are not able to compete with foreign manufacturers in coarse goods now when it has been so often stated that we could undersell them in their own markets." As nothing to the point has yet appeared in your columns, I submit the following, which if it does not throw some light upon the subject, may pave the way for more correct information from others.

The British cotton manufacturers—whose intelligence, enterprise and comprehensive views in all matters relating to the advancement of their art, had previous to 1834 maintained the monopoly of nearly all neutral foreign markets for the sale of cotton piece goods made of yarn numbering from 10's to 24's. At this time (1834), we first hear of them complaining seriously of American competition.

In 1834 the importations of American piece goods at the Canton market exceeded the amount imported from Britain by 91,000 pieces, and the imports of the Americans were double in 1834 compared with 1833. at Bengal. Indeed many of the oldest and most experienced manufacturers of Glasgow, and other places, at that time abandoned markets they had been in the habit of supplying for years, in consequence of American competition.

Let us look at the condition of the manufactures of both countries at that period, and we shall find the position of the Americans was much more favorable than the British for enabling them to manufacture these goods at a cheap rate.

Lowell had just then sprung into existence as if by magic, and the great advantage of concentrated capital, together with that vigor that accompanies all new enterprises enabled her manufacturers to throw a flood of goods into foreign, as well as domestic markets, at a much cheaper rate than had been known hitherto. The machinery in her mills was as perfect as at the present day, and possessed every advantage for producing large quantities, that had yet been known in Europe. The hours of labor in the mills were nine per week more than the British were allowed to work by law.

The British manufacturer had then to pay for freight on cotton from Mobile and New Orleans 1½ cents per lb. according to Dr. Ure, also an import tax of five sixteenths of a penny, which after making a proper allowance for waste would be equal to about 3-4 of a cent per lb. on clothes. The odious corn laws too, by keeping up the price of provisions, sustained wages at a high rate. The starch consumed in the manufacture of coarse goods is an important item of their cost, and this being generally made of flour, its cost would be ruled by the market price of that article. What is the condition of the parties now. The American works with machinery nearly upon the same principles established in 1834, and the price of provisions have increased if any thing. While the British manufacturers have improved their machinery, and mode of manufacturing so as materially to increase their quantity, ½ cent is now paid for freight instead 1½. The import tax on cotton was abolished, I think in February 1845, and the corn laws which have been modified at different times in favor of the consumers, are to be entirely abolished in February of the current year. Thus we see that *free trade* operates in favor of the British manufacturer and against the American, and in our humble opinion the present free trade system will keep the latter behind the former, with fair competition in both home and foreign markets, for many years to come.

Yours respectfully W. M. MONTGOMERY.
Craigville Jan. 24th 1849.

[We request especial attention to Mr. Montgomery's views. No man in America—from his position and connection—is able to throw more light upon such subjects. We have a very good article from a New Hampshire correspondent upon "the influence of Factory Life," which will appear next week.—Ed.]

Reform in the Patent Laws.

Having no wish to enter the arena of literary strife for your liberal offer in respect to an essay on the Patent Laws, I would respectfully through the columns of the *Scientific American* suggest the following reforms in the management of the Patent Office:

1st. The entire Agricultural Department made separate from the Patent Department. The Patent Office Reports have occupied more space for agricultural statistics than inventions, and as a surplus fund exists in the Treasury of the Patent Office, it is right that inventors and patentees should claim more devotedness to information which interests them as they are the individuals, and they only, for whom the Patent Office was established. I do not find fault with the Agricultural reports, they are good—let them be continued—but separate the duties and give us more scientific mechanical and chemical information respecting inventions.

2d. I would suggest the propriety of the Patent Office advertising in some proper paper three months prior to granting a patent, "that a patent is to be granted for such and such an invention,"—and let cause be shown why it should not be granted. And after this when a patent is granted, let it be impregnable to the assaults of those who would endeavor to rob the inventor of his just rights. At the present moment, a patentee is so liable to be annoyed by petty infringements that a patent in many cases does him more harm than good. There is a great reform wanted to protect a poor inventor from infringement, and I rejoice that there is one paper in our land, the *Scientific American*, that so ably advocates our rights—and as fearlessly as ably.

3. That inventors pay in \$60 as a patent fee, and the term be extended to 20 years, but in no case beyond that. Also, that if an application is not deemed patentable, that \$50 be returned, and the model also.

There are some other reforms that I would desire to see carried out, but I remain at present, yours,
W. R. N.
No. 14 Clarkson st. N. Y.

Explosion of a Boiler.

At Mobile on the 15th inst., a boiler in Spear & Co's Foundry, exploded with great force. The boiler was nearly, if not quite 15 to 18 feet long. It stood near the Foundry wall, which is four brick thick, with Press wall of nearly the same thickness on the other side, making a joint thickness of five to seven feet. In bursting, the whole boiler passed through both walls, and removed from the way of its passage, a tier of cotton, which, we were told, was seven or eight bales high and thirteen bales in length; passed across the press-yard, some thirty-five feet or more, struck down a heavy timber post, in the opposite shed, and before it spent its force, rebounded into the yard, after displacing and throwing down some four or five tiers of cotton.

A National Convention of Inventors is called at Baltimore. We shall notice this call next week.

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