

Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENTS.

Vol. 3.

New York, May 27, 1848.

No. 36.

THE SCIENTIFIC AMERICAN :

PUBLISHED WEEKLY
At 125 Fulton Street, New York (Sun Building,) and
13 Court Street, Boston, Mass.

By Munn & Company.

The Principal Office being at New York.

TERMS—\$2 a year—\$1 in advance, and
the remainder in 6 months.

See advertisement on last page.

Poetry.

SPARE THE BIRDS.

BY REV. GEORGE W. BETHUNE, D. D.

Spare, spare the gentle bird,
Nor do the warbler wrong,
In the greenwood is heard
Its sweet and happy song ;
Its song so clear and glad
Each listner's heart hath stirr'd
And none, however sad,
But blessed that happy bird.

And when at early day
The farmer trod the dew,
It met him on the way
With welcome blithe and true ;
So, when at weary eve,
He homewards wends his way,
Full sorely he would grieve
To miss the well-loved lay.

The mother, who had kept
Watch o'er her wakeful child
Smiled as the baby slept,
Soothed by its wood notes wild :
And gladly had she flung
The casement open free,
As the dear warbler sang
From out the household tree.

The sick man on his bed
Forgets his weariness,
And turns his feeble head
To list its songs that bless
His spirit like a stream
Of mercy from on high,
Or music in the dream
That seals the prophet's eye

O! laugh not at my words,
To warn your childhood's hours.
Cherish the gentle birds—
Cherish the fragile flowers ;
For since man was bereft
Of paradise, in tears,
God the sweet thing hath left,
To cheer our eyes and ears.

THE WANDERING WIND.

The wind, the wandering wind
Of golden summer eyes :
Whence is the thrilling magic
Of its tones among the leaves.

Oh, is it from the waters,
Or from the long tall grass,
Or is it from the hollow rocks
Through which its breathings pass ?

Or is it from the voices
Of all in one combined,
That it wins the tone of mastery ?
The wind, the wandering wind !

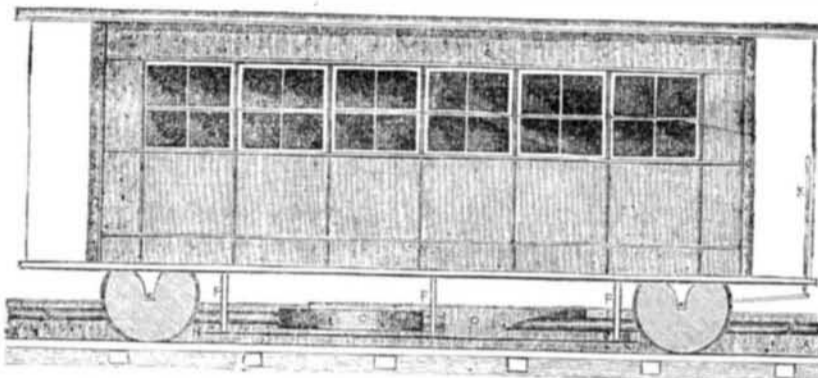
No, no, the strange sweet accents
That with it come and go,
They are not from the osiers,
Or the fir-trees whispering low

They are not of the river,
Nor of the caverned hill ;
'Tis the human love within us
That gives them power to thrill.

They touch the links of memory
Around our spirits twined,
And we start and weep, and tremble,
To the wind, the wandering wind.

AVERY'S

IMPROVED ATMOSPHERIC RAILWAY.—Figure 1.



This is the invention of Mr. Ira Avery, of Tunckhannock, Wyoming County, Pa. The object of it is to propel cars by atmospheric pressure, for greater economy and safety on our railroads. The safety of it consists in the impossibility of the cars getting off the track, and the economy of it consists in the using only of stationary engines to start the cars thereby saving both friction and wear on the rails. Tubes are made of a strong flexible material such as Gutta Percha, and laid along lengthwise the centre of the track. On the car are hung wheels that press against the air tight centre tube or tubes, so as to keep the air that may be pressed into said tubes behind the cars, free from being able to pass through between the wheels or rollers that press upon the central air tubes and thus drive forward the train as long as the current of air is kept up.

Figure 1, is a perspective view. (A road may be formed by securing two lines of iron to the cross rails, placed so far apart as to allow friction rollers working between them and to rest upon them placed at equal distances apart, from three to six feet, along the whole line in two rows, forming the tracks of common width.) This view represents the car placed upon a wheel truck, although if friction wheels or pulleys were laid along the track and the cars to roll on them the same object would be obtained, but the wheel cars and the rail track will be cheapest. The wheels are represented

as moving on the rails. A, is the central bearer to which the air tubes are connected. F F, are standards of the car to which the bar H H, is attached. To this are attached the driving wheels C, hung in lever guages D. To this spring lever guage the brake is secured for arresting the progress of the car by releasing the pressure of the wheels upon P, the air tube. The driving wheels are so hung as to be pressed against the air tubes or thrown from them at pleasure by means of the brake K. When the cars are desired to be propelled, the driving wheel C, by pressing against the air tube resists the passage of the air and according to the pressure of the air so will there be a force proportional exerted to propel the cars. The principle and nature of the invention is the application to railroads and railroad cars the air-pipe and driving wheel so adjusting them that when the air is forced into the pipe, it will impart to the wheel bearing upon it a rolling motion and thereby drive the cars attached to the driving wheels. The safety of the cars is certain as it regards immediate stoppage. There are guide wheels placed near the forward part of the car so as to run along a partition placed above or below the air pipe and in connection with the lever guage so as to press inwards against the pipe or outwards from it as may be desired for the greater or lesser pressure of the wheels against the air pipe, which is more fully explained in Fig. 2, page 284.

Immensity of the Earth.

About two thirds of the earth's surface is covered with a sheet of water, constituting the sea, the average depth of which is estimated at about two miles. This referred to our usual standards of comparison impresses us at once with an idea of the great amount of water investing the globe ; and, accordingly imaginative writers continually refer to the ocean as an image of immensity. But, referred to the mass of the earth, which is its own proper standard of comparison, it presents a very different aspect. The distance from the centre to the surface of the earth is nearly four thousand miles. The depth of the ocean, does not, therefore, exceed one two-thousandth part of this extent and astronomers have justly stated, that were we to place a representation of the ocean on an ordinary artificial globe, it would scarcely exceed in thickness the film of varnish already placed there by the manufacturer.

Light.

A ray of light contains three principles, each of which produces a different effect—the illuminative, the heating, and the chemical principles. The chemical element of the ray is the one which produces changes in the leaves of plants, and also upon daguerreotype

plates. It is absorbed in both cases. The images of leaves, therefore, cannot be impressed upon the plate of the Photographer, for the chemical ray being absorbed by the leaf, is not reflected upon the plate.

A ray of light which penetrates a piece of glass or a body of water in an oblique direction deviates from the straight line, whilst if it falls on a crystal of limestone, (calcareous spars,) it is split, and the parts deviate at unequal angles from the original direction.

Covering Corn.

At the South a shovel plough or scraper is used for covering the corn. The hills are made five feet apart, and a smart girl can drop as fast as two ploughs can cover, so that two mules and three hands can plant from 12 to 20 acres in a day. One planter five miles below Augusta cultivates nearly 1000 acres in corn this season. It is no uncommon thing to see thirty ploughs running in one immense field.

Potatoes.

For three years potatoes planted at three different periods, viz. early in April, late in April, and in May, have shown the following results. Every year the early potatoes have been sound and firm, the middle part unsound, and the late ruined.

RAIL ROAD NEWS.

Boston and Worcester Railroad.

The stockholders of this road have accepted the act of the Legislature, authorizing the increase of the capital stock of the corporation : and to authorize the directors to create new stock, to such amount as they judge necessary for the purpose of the corporation. They have also given notice that subscriptions would be received for new stock to the amount of 700,000 dollars at par, from holders of stock, on the 17th inst., in the proportion of one share for every five shares so holden—such subscriptions to be made, and 50 per cent of the amount paid on or before the 1st of next month.

Railroad Extension

The Cheshire Railroad was opened from Troy N. H., to Keene, a distance of about nine miles last week. A number of stockholders and others from Boston, attended, and festivities of all kinds celebrated the event.

The Androscoggin and Kennebec Railroad.

This enterprise seems to be in the full tide of successful experiment. A short time ago, they wished to raise funds (\$20,000) to buy their rails, in order to lay their road to Winthrop, and lo, in one week the funds were raised, and more than wanted, offered, but declined.

A Long Train.

A merchandize train of 113 cars came over the Northern Railroad, fifty of them loaded with splendid and valuable mast timber from the Shaker settlement at Enfield. Some of the masts were one hundred feet in length.

The Montreal Railroad was opened to the stockholders on the 10th inst. from Concord to Sanborton Bridge. This road is now completed 18 miles from Concord and about 90 from Boston.

The monthly returns of the Housatonic, Norwich and Worcester, Reading and Miami Railroads, show a falling off in business and receipts.

A Mr. Temple has recovered \$3200 damages against the Fall River Railroad Co. for injuries received in a collision of trains on that road last year.

Pompeii a Railway Station.

The Rev. F. Hedge, of Bangor, Me., in a late letter from Naples, says that he arrived at the dug out city of Pompeii by a method never dreamed of by its former inhabitants, viz. a railway. Pompeii is now a regular railway station !

Artesian Well at Venice.

In an artesian well sunk at Venice, for the purpose of supplying the city with fresh water, four beds of turf were traversed, at the respective depths, of 97, 157, 279 and 412 feet. They show that at four different epochs the soil, which was gradually sinking, was covered to a slight depth by fresh water. Water was met with, at the depths of 16, 131, 174, and 297 feet. This latter water which rises about 10 feet above the level of the lagunes, appears to have its origin in the marshy plains which surround them, an origin that appears to be confirmed by the carburetted and sulphuretted gasses which escape from the water, and the large quantity of azotized matter which it contains, not sufficient however, to render it unhealthy or unfit for use.

The Human Tide.

One hoghead of blood each hour passes through the human lungs to be purified by contact with air. To effect that purification, one hundred and two gallons of pure air are required for each hour. How important then are those essentials, free circulation and pure air. The young ought to exercise much the open air.