

Scientific American.

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The Year that is Gone.

"The bell strikes one, we take no note of time  
Save from the hours now fled."

The Year Eighteen Hundred and Fifty-three has closed,—it is now with the eternity of the past, and its moments can never return. At such a time as this—the opening of another year—everything around us is suggestive of the propriety and wisdom of retracing in memory the road over which we have travelled since the first of last January. Time is divided by Divinity into days and seasons; and every period, like the annual revolution of our planet around its great Luminary, is like a mile-stone set up on the highway of time, to tell how far we have journeyed on the pathway of life.—Every person is sent into this world endowed with powers to perform certain duties, and is responsible for their fulfillment. Every newspaper and periodical has, it may truly be said, a public life, a specific existence, duties to perform, and purposes to accomplish. The "Scientific American" cannot plead an exemption from the frailties of mortality,—imperfection is written upon all the handiworks of man. We wish we had done better than we have: this feeling inspires us with an honest desire, and a fervent resolve to do better during the ever changing present, which is our future.

In taking a retrospective survey of the progress of invention, science, and art, as presented to the world through our columns during the year that is gone, much has been done to excite pleasure, and more to call forth gratitude. We cannot enumerate at present, in our brief space, all the new inventions and discoveries we have presented, but to show what we have done, and the position which the "Scientific American" maintains, as the Repertory of American Inventions, and the most popular Journal of Science in our country, we find that in one single month—that of January, 1853—its pages were illustrated with cuts of no less than seventeen new inventions, and many other useful subjects, the explanatory figures amounting to no less than sixty-four engravings—being more than two for each day in that month. During the month referred to, we illustrated the old and new plans of the "Ericsson" engines, discussed the subject of Hot-air versus Steam, and enunciated those scientific deductions which time and experiment have verified to the very letter.

Maintaining the character of a Universal Encyclopedia, every branch of art, science, and manufacture, has contributed something to the treasury of our knowledge. Saw Mills, Cast-iron Pavements, Steam Engines, Artesian Wells, Spark Arresters, Grain Cleaners and Planters, Reaping and Mowing Machines, numerous Railroad Inventions, Fire Arms, Ventilating Apparatus, Planing, Carving, and Mortising Machines; Chucks for Lathes, Stave Cutters, Power Looms, Boilers, Tinsmiths' Machines, Lamps, Sewing Machines, Entomology, Quartz Crushing Machines, &c. &c.—have all been illustrated in our columns; in short, we find that merely to name every machine and every subject illustrated, would fill too many of our columns. We name the above in order that our constant readers, who have bound volumes, as well as our new subscribers, may take a survey of the past along with us.

It is wise to look back and see what others have done as well as ourselves, and from the present, take the next step with a higher aim, and a more determined purpose. Those who never look back derive but little good from experience—they are liable to commit errors at every new step.

The field of invention and discovery is still broad and extensive, and it lies out before us, open and inviting to every son of genius and toil. From the past we have learned much, and honorable are the names of inventors that come down to us on the page of last year's history.

We hope and trust that we shall have a still more brilliant galaxy of inventions, discoveries and improvements to present to the world dur-

ing the present, than any of the years that are past. American inventors and men of science! the cause is entrusted to you; we have every confidence that it is committed to those who will do their duty.

A Happy New Year.

To our readers and correspondents we send our Annual Congratulations,—we wish you all "A Happy New Year." We thank you for the many favors and acts of kindness which we have received at your hands, and for the goodwill you have continually manifested towards the "Scientific American." Before and since it was established, many efforts had been made to publish a paper ostensibly devoted to the same objects, but all ended in disaster to those who made the attempts. The want of proper and extensive information, or the want of principle in themselves, we cannot tell which, may have been the cause of failure,—the public confidence we know they never obtained. Our people, at least such readers as we have, are of the class which cannot be "pleased with a rattle and tickled with a straw."

For our success we are indebted to you, our subscribers; from year to year you have held out the hand of encouragement and welcome, and you have enlisted your friends to share the pleasure and benefits derived from your experience.

When we commenced the "Scientific American" we resolved to be honest, diligent, and independent in conducting it, and to speak out upon all subjects with the candor and freedom of true American Citizens. To-day we can look in the face of every reader, and experience the consolation of never having proven recreant to these principles: we have been true to you and you have been true to us.

From the very first, the "Scientific American" was hailed as the popular Expositor of Science and American Inventions, and every year since has witnessed a great and increasing circulation, improvements in its matter, and in the quality and number of its illustrations; and it now stands as it always has, at the head of all such periodicals. We do not say this by way of boasting, but we could not use any other language and speak the truth.

When we commenced this Volume we increased the edition over four thousand copies, to meet the anticipated increased demand from new subscribers. Our hopes have not been disappointed: our circulation has increased even beyond our expectations. This imposes on us stronger obligations and more powerful claims.

Great as is our circulation now, from what it was, still it has not one-fourth the circulation which it should have among such a large population as that of our great Republic. We believe that no paper in our country does more good; its matter is useful for all time, and is instructive to both old and young.

The present is a good time to subscribe; and no young mechanic, or young man who has a taste for science, can do better than commence the New Year by becoming a subscriber. There are subjects for discussion presented in every number of the "Scientific American," which may profitably engage the calm and careful examination of individuals, families, and societies for several nights during the long winter evenings. We are now prepared to fill all orders, and we are confident that every person who becomes a subscriber does the very best thing to enable him to spend "A Happy New Year."

Flimsy Buildings.

It is a disgrace to many of our architects that they either seem not to know or care about the strength of the buildings which they erect. Every severe storm of wind or heavy fall of snow, is sure to bring us accounts of fallen houses and crushed roofs. On the 17th ult. the dome of a theatre in St. Louis, fell into the interior of the building, in consequence of an accumulation of snow upon it. A few hours before it fell the place was densely filled with human beings, and had it fallen then some hundreds of lives would have been lost. On the 25th ult. the steeple, 218 feet high, of the Reformed Dutch Church at Kingston, N. Y., was blown down, crushing in the roof and doing

other damage. A number of houses were also blown down on the same evening in the vicinity of this city. During the past summer the steeples of two churches in Williamsburgh were blown down during a severe gale of wind, as were likewise a number of houses. We have no excuse to offer for those who erected any of the structures which were thus prostrated,—every one of them was insufficient in strength of materials or faulty in the combination of such materials. It is not enough for an architect to say "such and such size of timbers will stand the test of the severest gale of wind or the heaviest fall of snow." He should be scientific enough to know exactly the amount of strain on the square foot which they will be able to resist, and also to know the amount of such strain, exerted by the severest hurricane or the heaviest falls of snow. No profession requires a higher degree of intelligence, or a more thorough scientific and practical education than that of the architect. It has been demonstrated that a tremendous hurricane exerts a pressure of 46 lbs. 12 oz. on a square foot, but the gale of wind which occurred on the 25th inst., we are positive, did not exert a pressure of over 15 lbs. on the square foot. Now, in erecting a steeple, allowance should be made for the leverage of its whole length, and the number of pounds pressure, which the lower timbers have to sustain in resisting great storms. Is this ever done by the majority of our builders? When they know the strength of their timbers and the transverse strain they can sustain, they can easily calculate the size of timbers required, and how to combine them for any altitude of a steeple, to resist the wildest blasts and the fiercest hurricanes to which it may be exposed.

We hope this subject will receive more attention from our architects and builders than it hitherto has done. We saw the broken timbers of a steeple—costing \$2,500 to build—sold for \$35; they were torn into fibers,—not a sound piece left, over three feet long, out of the whole mass. An examination of them convinced us that if the lower timbers had been larger and of oak or yellow pine, instead of common white pine, the steeple would now be standing erect and stately, capable of resisting the fiercest gales which visit our vicinity.

Material for Paper.

"We have just examined," says the "Baltimore Sun," "several samples of paper made of reeds or cane, of a species which grows in great abundance in our Southern States; and also a sample made by the same process from white pine shavings. In such an age of invention as this, incredulity is not to be tolerated, therefore we submit, with the best possible grace, even to the white pine. The reed paper is quite a promising article. Another sample composed of rags and reeds, one-third of the former and two-thirds of the latter, is quite a fine article, and its value is estimated by the makers equal to that from rags, worth 12½ cents per pound. The paper from pine shavings is designed for wrapping or envelope paper; it was first bleached and then colored for that purpose, and is valued at 12½ cents per pound also. The inventors of it, B. A. Larender and Henry Lowe, of Baltimore, are sanguine that with proper apparatus, paper can be manufactured of reeds or wood, as the main staple, by their process, worth 12½ to 16 cents, and at a cost not exceeding 6½ cents per pound."

[The best and cheapest material which we have yet seen, applied to the making of paper, is a fine sea grass thin in the blade and of great length. It is so abundant around some parts of our coasts, that millions of tons of it can be obtained annually, the only expense being the gathering and carting it away. It will, from its very nature, make much better paper than cane or any of the straws of cereals—wheat and oats. Some samples of paper made from this material, exhibited to us, were really beautiful.

Paper can be manufactured from almost any vegetable materials, and the variety of plants and substances from which it has been made is very great. The ancient Egyptians made their paper from the papyrus, a reedy flag which grows on the banks of the Nile. The Chinese made paper from cotton and linen thousands of years ago.

For making the fine India Paper, the material employed by the Chinese is the interior bark of a sort of mulberry tree. The Chinese also make paper from the rice plant. Paper has been made from the husks of Indian corn and from various kinds of wood.

We have seen in a number of exchanges, an account of the successful manufacture of beautiful white paper from straw by M. Millier, a French chemist. This discovery, we presume, is only for an improvement in the manufacture of such paper, we have seen paper made from straw as white as any made from rags. Chlorine and sulphuric acid will bleach the darkest straw color, into a pure white.

The whole question of making paper economically does not depend on the practicability of making it from canes, corn stalks, or any substance composed of vegetable fiber, but the cost of making it. To this let every effort of the paper manufacturer and chemist be directed, for no greater benefit could be conferred upon our people, than the reduction of the price of printing paper. Cheap paper makes cheap books and newspapers—the staff and the stay of an intelligent people, and the great bulwarks of American freedom.

Competitors for the Prizes.

The following are the names of the successful competitors for the prizes offered by us together with their residences and number of subscribers furnished by each:—

I.	J. N. SCOFIELD,	Columbia, S. C.,	139,	\$100
II.	BENJ. RANKIN,	Louisville, Ky.,	116,	\$75
III.	A. HAMMOND,	Jacksonville, Ill.,	105,	\$65
IV.	C. COLLIER,	Indianapolis, Ind.,	83,	\$45
V.	N. YOUNG,	Lancaster, Ohio,	74,	\$40
VI.	T. P. ROBINSON,	Detroit, Mich.,	72,	\$35
VII.	T. H. CHILDS,	St. Louis, Mo.,	70,	\$30
VIII.	D. M. SECHLER,	Ironton, Ohio,	67,	\$25
IX.	JOHN GARST,	Dayton, Ohio,	62,	\$20
X.	J. THOMPSON,	Nashville, Tenn.,	58,	\$15
XI.	J. J. CONLEY,	Richmond, Ind.,	57,	\$10
XII.	O. C. HALL,	N. Groton, N. H.,	52,	\$5

Our friends whose names are announced above will please to accept our congratulations upon the success which they so justly merit, and we beg to inform them that the amount to which each is entitled, will be forwarded immediately upon receipt of their orders.

We cannot withhold the expression of our gratitude to those unsuccessful competitors who have done so nobly in extending the circulation of the "Scientific American." Their efforts have been directed in a good work, and we hope they will only gain courage to renew their efforts on another occasion. Doubtless some of them could have easily added a few more names, thus securing a prize. In connection with this announcement we will take occasion to notice some of our very particular friends who have objected to our offering prizes as unnecessary to the success of a journal of the character of the "Scientific American."

They seem to think we are lowering our dignity as publishers in adopting such an appliance. We do not know of a popular journal in our wide spread country which does not employ more or less canvassing agents for procuring subscriptions, we have discarded this system entirely, as in too many instances the public as well as the publishers have been made to suffer by it. In offering prizes we enlist the services of mechanics and trusty citizens, twelve of whom, as in the present instance, are well paid for their efforts, while each stands a fair and honorable chance of benefitting himself. Those of our friends who object to the prize system are not obliged to compete for them, therefore we hope they will not object to the efforts of others who feel disposed to enter into the competition for our prizes, while at the same time our circulation is thereby increased. We do not expect to please everybody, neither do we care to have our readers cavil at our management. As long as the paper pleases them we hope they will take it and recommend their friends to do likewise—when it fails to meet their approbation they should drop it at once.

Orders for the Scientific American left at the Mechanic's Institute Baltimore, will be promptly attended to by our faithful agent, E. G. Simms, Esq.