

Scientific American.

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REMOVAL.

On or about the 1st of February next, the Publication Office of the SCIENTIFIC AMERICAN, and the Patent Agency Department connected therewith, will be removed from 128 Fulton street to the spacious offices in the new building, Nos. 37 Park row and 145 Nassau street; the principal entrance being on the eastern side of the City Hall Park. This change we find necessary in order to meet the continual growth of both departments of our business; and we shall expect, at the time above specified, to show our friends, and such of the public as may feel disposed to call upon us, the most complete and thoroughly organized establishment of the kind in the world.

Welcome the New Year!

Eighteen Hundred and Fifty-nine! Why it seems but yesterday that we ushered in, with due rejoicings and social joy, the year that, with his hoary cap upon his head, is, as we write, passing quietly but quickly away. Carelessly looking back it seems a short year, but when we analyze the events and separate the facts which make up the history of 1858, we find that it has been as full of incident and importance as any of its predecessors.

The Atlantic cable has been laid, the Queen of Great Britain and the President of the United States are supposed to have exchanged salutations across Old Ocean's bed. It has ceased working; but it is, we are told shortly to be again in working order. Many may ask, "Is this progress?" We answer decidedly, "Yes!" for from the failure we have learned lessons which only experiment can teach, and our creed is, that a difficulty means something to be overcome.

The Crystal Palace has been destroyed by fire and the products of much genius, time, labor and money have been irrevocably lost. These are lessons to be learned from this calamity, but it would seem invidious in us to teach, therefore let each moralize for himself.

Photographic engraving has received a fresh impetus and the day is quickly coming, we hope, when photography will have an application more extended than e'er was dreamt of in the fondest imaginings of Wedgewood, Daguerre, or Draper.

The British Association have been talking about the strength of boilers and we have learned much of practical value and useful interest from their last meeting.

The civilized world of inventors have been busy on the steam-engine, improving mechanical devices, and saving fuel by every possible means.

The *Adriatic* has been across the waters, and we hear a rumor that we are to see the *Sovathen* next spring.

Who shall therefore say that we have not progressed in the last year, or that we are not ever marching onward? Of what we have done to help that progress, we cannot without egotism reiterate. Let our own columns speak.

Gradually the spirit of commerce, that twelve months ago was so downcast and dejected, has revived, is recuperated, and soars again in its accustomed sphere, shedding blessings all around like a good genius in some fairy tale. On the past we look with pleasure, to the future we gaze with hope. During the last fifty-two weeks, about nine hundred patents have been secured through the SCIENTIFIC AMERICAN Agency, and the cry is "Still they come!"

Were we willing at this festive season, we could find cause for sorrow; hopes unrealized, labor unappreciated, time wasted, and bright spirits gone, may be sources of grief, but we prefer to think of them as part of the grand purpose of Eternal Good, and let the pleasant

smile of resignation chase away the tear of mourning.

We should be thankful for the age we live in, as Bailey has eloquently said:—

We live in deeds, not years; in thoughts, not breaths; in feelings, not in figures on a dial. We should count time by heart-throbs. He most lives Who thinks most, feels the noblest, acts the best.

The spirit of mystic fantasy has passed away, and the age of honest truth, that tries men's lives, is now upon us, and it is productive of the good and progress that we see around; the steam-engine replacing manual labor, the sewing-machine saving the fairy fingers for better and more noble deeds than making vanities and repairing tatters.

This number is dated the first day of the opening year; and wishing to be in friendly terms of pleasant intimacy with all our patrons, recollect, kind reader, if you can, amid your joyous mirth or boisterous fun, that the SCIENTIFIC AMERICAN makes you a New Year's call.

The Cigar-Shaped Steamer.

We have received a number of letters from correspondents on the above subject. They concur generally with the views expressed by us on page 109 of the present volume of the SCIENTIFIC AMERICAN, although on some few minor points there is a difference of opinion. J. W. Norcross, of Cicero, N. Y., who has devoted much attention to the subject, and made a number of experiments on the form of vessels, agrees with us in the prominent objection advanced against the cone shape of the Winans' steamer, as being likely to produce excessive rolling. He says:—"I once built a small steamer 60 feet long, retaining a large portion of the cone-spindle principle in her construction; she equalled my expectations in every respect, with the exception of rolling in heavy waves, at which times she would become unmanageable;" and in reference to this point he considers that our answers fully cover the ground. He disagrees with us, however, in reference to the wave-line form; but we are not dogmatic in our views on this point. He admits, as we have pointed out, that the strajus will concentrate at the center, but considers this an advantage, as a knowledge of this fact will enable the constructor to make his calculations accordingly, and increase the thickness of the metal towards the middle of the vessel. This is certainly a rather remarkable view of the question, because the strength of this vessel is inversely as its diameter, therefore it follows that the strains concentrate at its very weakest point—its middle—its greatest diameter.

An able engineer writing to us from Albany N. Y., says of this vessel:—"It may do on rivers, but it will dash into waves on the sea, which will sweep her resistlessly fore and aft. Your suggestion of an addition at midship is what she should have." He also believes that her wheel will carry water round with it, and deluge the upper works.

In none of the letters received is there a single opinion dissenting from those expressed by us in regard to the propeller and its arrangement. In the article referred to, had space permitted, we would have dwelt at some greater length on this point; but we perhaps covered the whole field by stating that its wheel was too large, that it was in the wrong place, and that it would carry dead water and impede the vessel's progress. It is quite incomprehensible to us why the projectors of this vessel adopted such a propeller and arranged it in such a position.

The London *Mechanics' Magazine*, in commenting upon the propeller of the cigar-ship, asserts that it will propel the vessel sideways as well as ahead, and give her an oblique motion. The way proposed by our cotemporary to propel this vessel will amuse our readers. He says:—"The only efficacious method of propelling this vessel forward, and forward only, by such means meaning a half-submerged propeller, is that of employing three wheels, the middle wheel having a propelling surface equal to the other two and turning in a direction opposite to them. The transverse forces

of the three wheels thus arranged would neutralize each other, and the vessel would be propelled ahead as the designers vainly expect her to be with one wheel."

Such a scientific arrangement of propellers, and such a neutralization of forces as that above suggested, would undoubtedly propel the vessel ahead upon the same mechanical principles as that of securing a pair of oxen by their caudal extremities, and starting them off in opposite directions. Our cotemporary—as a reason for his views—asserts that a half-submerged propeller exerts a transverse action opposed to its forward motion. There are quite a number of such propellers running in the United States, and no such action is experienced in them. On our Upper Lakes, also, there are a few steamers which have two semi-submerged propellers, and these are held to be as efficient vessels as any others that navigate those waters.

American Smartness—By an Assumed Englishman.

In the last number of the London *Engineer*, in an article on "American Originality," a most puerile attempt is made to disparage the character of our people, by throwing ridicule upon certain men of genius who have figured somewhat in the columns of the press. Not only this, but the famous yacht *America*, which won such laurels under the management of a "self-taught Yankee engineer" who pouted the Britisher's guineas, is styled as "a contrivance of a flat board for a deck, and an edge board for a keel, with new sails stretched taut and stiff like the mat sails of a Chinaman's junk, not fit for an English gentleman to eat and drink and sleep and purify himself thereon." The writer of the above thus admits that Englishmen do need purifying. Then come our countrymen, William Norris the engineer, of Philadelphia, and Ross Winans, who is set down as "the smartest of the smart men, rich with roubles of Russia and dollars of Baltimore, and who has built a huge building which looks more like a hotel than a house—a hotel for every kind of boarder from Maine to Orleans, with railroad directors standing before him as sheep before the shearers are dumb, and who is now about to astonish the world once again." A passing squib is fired at Capt. Ericsson; and Brown & Lovell, of Boston, are accused of appropriating a leaf of "our own Lipscomb with a variation," in the construction of their new-fangled boat. It is also satirically mentioned that after the Britishers had whipped out China, our fellow-citizen, Townsend Harris, cleared out for Japan, frightened the Emperor, and procured a treaty from his majesty. "A very smart man is Townsend Harris." In like manner, the SCIENTIFIC AMERICAN is accused of "getting hold of a stray copy of a work on reapers (we suppose he means that we *hooked* it), and presenting chapter after chapter without any hint as to its source." All of this statement is false, as our readers of Vol. X well know; but we can not follow the writer in the *Engineer* through the whole of his four-columned essay on American smartness; enough is presented to show the unhappiness of its author's situation.

We are glad to be able to acknowledge that the American people are a very smart race; they have more than once stirred John Bull into a rage. On the other hand, however, we are also very glad to be able to acknowledge the solid beef-and-ale-fed qualities of our British friends. They possess one quality which we always did admire—a regard for national honor; for wherever you find an Englishman, he is sure to represent in some way the character of his country, and he will stand up for Britannia everywhere and always; and, in our opinion, this very characteristic should have shamed the above writer out of his labored attempt to vilify those who, if we mistake not, are his own countrymen. Let us be understood: there are certain elongated ear-marks about the above article on American smartness which

bear unmistakable evidence of American authorship. A broken-down editor, failing to get pay and appreciation for his peculiar style of smartness in this city, took it into his head to emigrate to England; and we think we do not err in recognizing him as the writer of the above article in the *Engineer*, who thus unblushingly stands forth before the world as the traducer of his own countrymen.

American Union of Inventors.

On the 21st ult., the spacious premises of this new association were thrown open for public admission, and although the day was very rainy, the attendance was good. The steam-engine was not at work, but shortly will be, as we are informed by the manager; and considering the short time which these inventors have had to prepare and collect articles for exhibition, they have succeeded admirably. We did not notice anything particularly new, but at some future and more careful survey, we may be able to find many inventions there worthy of notice. There is still, however, plenty of room, and inventors should contribute their models or machines as quickly as possible, as it is intended, if success attends the enterprise, and we hope it may, to make it a permanent fair for the exhibition of the inventions and industry of our country.

In the evening, an introductory address on "Inventive Genius" was delivered by P. Boileau Jones, Ph. D., who is connected with this journal, and a poem on "Labor" was read by Mr. S. A. Eaton, of Boston. The director, Mr. J. L. Riker made some practical observations on the design of the Union, and asked for that share of patronage and favor which we hope it will receive.

Energy of Heat.

The unit of heat commonly used in scientific treatises is the amount which one pound of water requires in order to raise its temperature one degree. It is suggested by R. Stephenson, C. E., that the unit be expressed in such terms as practical engineers have accustomed to use, such as the amount of heat which one pound of water at 212° Fah. requires to convert it into steam of the same temperature, or what is commonly called "the latent heat of steam at 212°." This is the unit of heat now employed in comparing the effects of different kinds of fuel, and forms of furnaces and boilers.

The following are different units of heat reduced to equivalents in mechanical energy: One degree in a pound of water is equivalent in energy to 772 pounds lifted one foot; the latent heat of one pound of atmospheric steam is equivalent to 745,750 pounds lifted one foot. The prevalent idea regarding the action of heat is now recognized by scientific men to be not a substance, but an *energy*.

Extraordinary Boiler Explosion.

A most appalling catastrophe occurred at St. Louis on the 19th ult., caused by the bursting of a steam boiler at the large sugar refinery of Messrs. Belcher, by which six persons were killed and several others severely wounded. The evidence taken before the Coroner's jury resulted in a verdict that the explosion was the result of some unknown cause. We would have come to a very different conclusion from the testimony taken, but we have not space in this number to comment either upon the evidence or the verdict. In our next, however, we shall do this, as it appears to us there is too much ignorance still prevailing regarding the cause of steam boiler explosions.

TO CLEAN MARBLE.—Take two ounces of common soda, one of pumice stone, and one of finely powdered chalk; sift them through a fine sieve and mix them with water; then rub the mixture well all over the marble and the stains will be removed, now wash the marble over with soap and water, and it will be as clean as it was previous to its being stained. Sometimes the marble is stained yellow with iron-rust; this can be removed with lemon juice.