

Scientific American.

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How to Observe.

During the next month we will have two industrial fairs in this city, namely, the Crystal Palace Exhibition, and the Fair of the American Institute at Castle Garden. Tens of thousands of our countrymen will be here for the purpose of visiting both of these places. The American Institute has never done anything worthy of its name, and never will while it continues to be managed as it has been; the only benefits derived from it have been from its yearly fairs, like those of other mechanics' institutes in our country. Such exhibitions of industry do good by the competition which they engender among manufacturers and mechanics, and by the advantages for observation and comparison presented to those who visit them and examine for improvement to themselves; to such we would address ourselves, especially our young mechanics.

There is certainly great pleasure to be derived in seeing beautiful machinery operate, even without understanding how its various motions are produced, or by what particular means the iron hands can spin, weave, print, make nails, &c., but how infinitely higher is the pleasure derived when all the motions of spindle, shuttle, cylinder, &c., are known and understood,—how they are made to move in strict but dumb obedience to the genius that arranged and gave them direction. Every mechanic, therefore, who visits an industrial exhibition, should not be satisfied with the mere pleasure derived from seeing the machinery in motion, or the mere skill displayed in its execution. No, he should endeavor to gain a knowledge of "the why and the wherefore of their operations," and unless he does so he cannot observe to profit. It is not enough that a mechanic of a certain trade should observe all things exhibited which belong to it, though these should claim his attention first. He should endeavor to know as much as possible about everything. He does not know but he may be able to suggest and invent an improvement in a machine, the farthest removed, it may be, from his own trade and calling; this hint we would desire to impress strongly, not only on the minds of young mechanics, but upon the mind of every man who has the least taste for invention. Many, yee, the majority of the most important inventions which have been produced, were by men whose occupations in their nature, were very far removed from the inventions which they produced. The inventor of the throstle spinning frame was a barber; the inventor of the power loom was a clergyman; Fulton was a painter and engraver; Whitney was a teacher; Morse, the inventor of the telegraph, was an artist; and the inventor of the neatest sewing machine in the Crystal Palace was reared a cabinet maker. We might adduce a great many more of such cases, but these are enough for our purpose. Had these men not observed correctly, they never would have lived to accomplish any good thing, and had they been imbued with the foolish notion which is commonly expressed in the vulgar sentiment, "let every man stick to his trade," they never would have gained such honors as they have extorted from admiring millions, nor left their names so deeply notched "upon the walls of time."

It is an excellent plan for young men to keep note books, in which to record their observations, and take sketches, if required. It is not wise to depend on memory altogether, especially in industrial exhibitions, where there is such a variety of different objects, both to attract and distract the attention. It is only one man out of ten thousand who possesses strength of memory, arrangement, and concentration of mind to classify and remember all that he has seen and desires to carry away with him from such places. It is surely wise, then, to have a record at hand to refresh the memory and bring forgotten things to recollection, especially complicated machinery with its various motions. We have thrown out these few remarks in order that they may be the means of leading many to observe wisely and well.

Southern Mechanics.

The progress of improvements in mechanism, in our Southern States, during the past few years, has been very rapid and creditable to our Southern mechanics. A powerful mechanical genius is universal among our people, and is not confined to any one section or State in our country. The beautiful steam engine in the Crystal Palace, from Montgomery, Ala., affords a striking example of the mechanical skill, displayed in some of our Southern machine shops; and the Planetarium of Mr. Barlow, of Kentucky, is perhaps the most ingenious, beautiful, and philosophical piece of mechanism in the Exhibition. We have had the pleasure of obtaining a great number of patents, for Southern inventors, during the past five years, and can, from this, and also from our extensive correspondence, bear witness to the activity of invention among our Southern mechanics. When we take up the map of our country, and look upon the wide expanse embraced in the States of Virginia, Georgia, the Carolinas, Alabama, Missouri, Tennessee, &c., and when we reflect upon the magnificent natural resources of these States—the future looms up big with greatness and grandeur for them, in view of what our Southern mechanics have yet to achieve.

Our Northern States, with the exception of Pennsylvania, have less natural advantages for manufacturing purposes than our Southern States, yet they have more experience, and this is a great advantage. Within the past few years, however, a very active manufacturing spirit has been kindled in the South, and many of the best northern mechanics have taken up their abodes and made their homes in a warmer clime. These mechanics are all reading men, and their children will be an intelligent race after them. The influence of intelligent mechanics in any place is of the first consequence to its growth and prosperity.

Patents in Canada—Congress.

After copying our late remarks respecting colonial patents, "Mackenzie's Message" asks:—"Why does not the 'Scientific American' begin by recommending to Congress to reduce the fee charged at Washington on a patent to any foreigner in the United States? The fee payable by an American is \$30—by any other countryman than a British subject \$300—by a Canadian \$500. We drew up a very full review of the patent laws in 1851, in the shape of a bill, but abandoned it on perceiving the personal feelings of the ministry."

In the very article copied into the "Message," we advocated a reduction of our patent fee "to all stated residents in the colonies." So far as the English American colonies are concerned, we would like to see established a mutual system of patents, as our interests with them are becoming mutual and very important. On all suitable occasions we have urged upon Congress to abolish the present miserable discrimination between English subjects and all other foreigners, but we cannot consent to invite foreigners to take patents here upon the same terms as though they were citizens of the United States, so long as their own governments continue their present high fees. It would not cost much labor to prove the present system in vogue abroad much more than a genteel method of swindling honest inventors—in England especially. The United States Congress graduated the patent fee in proportion to the charges of other governments; thus John Bull received the full force of that excellent maxim, "such measures as ye meet, it shall be measured unto you again," and now we suppose we cannot look for a change even though the English fee has been reduced. The fact is, our legislation is under the control of windy, ignorant, time-serving, spoils-grabbing, brawling politicians, who care little and know less of the real wants of the nation, and regularly blockade every attempted reform. What has our Congress done for the mass of inventors since 1836—nothing—and every attempt at change in the patent laws has betrayed an ignorance and stupidity in Congressmen upon this subject of which almost any reader of the "Scientific American" would be ashamed. So long as money-making, wire-pulling, and galphinizing is the end and aim of our law makers, we despair of any progress except on the road to national ruin. We are out of all

patience, and have no confidence in public legislation; it amounts in plain language to a blotch, a grease spot upon the history of this country. Our business is not to quarrel with public men, but we have so long and earnestly sought for some change in the patent code—and have done so in such tender and supplicating terms without effect, that patience has ceased to be a virtue. If not thought unreasonable, we would again treasure up a small hope that something might be done for inventors during the next session of Congress.

Railway Improvements.

"A patent has been taken out in England for semi-tubular wrought and cast iron transverse sleepers for railways. Many advantages are claimed for the iron over the wooden sleeper, and it is presumed that iron sleepers can be used at less than half the cost of wooden sleepers.

A substitute for the railway turn table, an English invention, is on exhibition at the Crystal Palace.

A correspondent of the 'American Railway Times' suggests that mortality by railroad collisions would be lessened, if all the cars composing a train were made into one car—in other words, let the whole train consist of but one long car, to contain passengers, baggage, &c., and to be so constructed as to be flexible, adapting itself to curves."—Ex.

[The tubular iron sleepers may be cheaper than wooden ones in England, but not in America. A system that might be economical in one country would be expensive in another.

We have examined the turn-table mentioned above, since our correspondent noticed it among articles in the Crystal Palace, a few weeks ago, and have found it to be a contrivance long used on some of our railroads in this country. The correspondent referred to, who proposes a long flexible car, to lessen the mortality of railroad collisions, no doubt had his mind fixed upon india rubber—it is the very thing desired. The fact is, however, that the length of cars, for safety, on any railroad, must correspond with the curves on the road: the greater the curves the longer can the cars be built—every scientific engineer knows this. On a railroad having many short curves, long cars are dangerous, yes, and short ones too. For safety, the fewer curves, the better, and none of these should be short. The only effectual remedy for railroad collisions is in double tracks. The genius expended in devising other means than this, to prevent collisions, is a waste of mind. More genius has been imprudently expended on railroad improvements than on any other class of inventions. How many plans have been devised for keeping out dust, and for proper ventilation, all of which could be more effectually obtained by means well known, and of a more economical character. Thus, to prevent dust getting into the cars, the best way is to have no dust upon the tracks—this is not an impossibility, but something easily accomplished. The sparks from the locomotive can be avoided by abandoning the use of a fuel which causes sparks; this also is not an impossibility. A fuel can be obtained which neither produces smoke nor sparks; let it be used in place of wood. We really do not see, how it is that so many prefer to deal in complex remedies for evils, when more simple ones can be applied and with more lasting effect. It appears to us that too many of those gentlemen who are engineers and superintendents of railroads, do not appreciate simple remedies for railroad evils.

The Wave-Line of Ships—Old Foggy Periodicals

The "Tribune" of Monday, the 12th inst., published a long article on the superiority of American ship-builders, taken from a magazine of this city, devoted to Engineering, and published two weeks ago. The re-publication of this article now, after it has been published more than fifteen months ago, is a forcible illustration of the enterprize and intelligence of some of the New York press in such matters. The whole article, as copied by the said magazine, and by the Tribune from it, will be found, along with some more interesting matter taken from Scott Russell's Lecture, on page 280, Vol. 7, "Scientific American." The "schoolmaster has been abroad," but then how can he help having dull scholars? If such periodicals had eyes to see they would not, in 1853, be living in 1851,

—but thus it is, some men sleep like old "Rip," and fancy all the world has been sleeping like themselves.

New Steamboat Law—Revocation of a License.

The Inspectors of Steamboats for this district have revoked the license of Washington Haws, the Chief Engineer of the "New World," for neglect and carelessness as to the cause of the explosion of the flue of the boiler of said boat in the month of July last. This engineer was hurt by the explosion, and the Inspectors delayed their examination and report on that account until the 12th inst. This steamboat had three syphon gauges, none of which were in order; one of the safety valves was also out of order. The inspectors, John M. Weeks, and Henry B. Renwick, decided that the boiler gave out in consequence of an over-pressure of steam. In their report they state that ninety steam vessels have applied for inspection and of that number 50 have received attention.

We are glad to see the Inspectors doing their duty. The New Steamboat Law is very severe; let them execute it with fidelity, and steamboat accidents will become very rare. Let them not forget that constant vigilance is required. We feel grateful for this law, as it has been the means of preventing many accidents already, especially on our western waters. We regret exceedingly that our present government made a political matter of it, in removing the inspector who originated and spent so much time and money in having it passed. Will the time ever arrive in our country when party feelings will give place to those of pure patriotism?

Trial Excursion.

On the 15th inst. an excursion was given on the Hudson River R. R., for the purpose of testing a plan for the prevention of dust, smoke, and the noise of car wheels, and also for the trial of the saloon cars, mentioned by us a few weeks since. To attain the former object, the space beneath the cars was enclosed by panels suspended from the sides of the cars and reaching a little below the upper surface of the rail. Mr. Salisbury, the inventor, proposes to make these panels double, and to fill the space between them with some fibrous substance, to deaden the noise. There is also a second platform beneath the car platforms, to prevent the dust rising between them. The inside of these panels, and the bottom of the cars are to be fire-proof, and the smoke from the chimneys is to be turned into the passage thus created beneath the cars. We are glad to see the Directors of railroads waking up to this subject: the dust and cinders of trains travelling in dry weather, are an abominable nuisance, and among the various plans proposed of late, we think some one might be found which, if fairly tested, would, to a great extent, be successful. We regret that other duties prevented us from being personally present on the occasion.

Our Prizes—To the People.

We would earnestly solicit those who are endeavoring to obtain subscribers and clubs, to send in their names as soon as possible, in order that they may obtain all the back numbers, and so have complete files of our new volume. We are gratified with the immense number who have already become subscribers; our old friends have promptly sent in their subscriptions, and new friends have come forward in unprecedented numbers to subscribe for the cheapest mechanical paper in the world.

To Keep Gum Arabic Sweet.

We have received a letter from a correspondent asking us if we know how to keep dissolved gum arabic sweet in bottles, so as to prevent it from fermenting. He receives it in bottles from England, and it keeps perfectly sweet. Alcohol would keep it perfectly sweet, but then it will not dissolve it; water must be used for this purpose; perhaps the English use a small quantity of alcohol after the gum is dissolved. A very minute quantity of alum water is used in dissolved gum arabic by those who employ it in England for dressing fine silks.

We shall commence next week the publication of a brief series of articles upon the so-called "imponderable agents." In these we shall review the prevailing theories, and shall propose the outlines of a new or modified theory for the consideration of our readers.