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"Inventors and Inventions."

The New York *Daily Times* has recently exhibited a marked antipathy towards inventors, by maligning their character and depreciating their labors. When the fact is taken into consideration that no class of men have done more—if any other has done as much—to advance science, art, and civilization, it is strange that it or any periodical should be guilty of such conduct. We cannot account for this exhibition of its spleen towards such a deserving body of men upon any other hypothesis than to consider it an effort to wipe out the stain upon its escutcheon, which it contracted by its indiscriminate laudations of a once celebrated but now defunct mechanical *ignis fatuus*. It must have a bitter recollection of the excitement to which it was a party, when its chief editor was betrayed into the inglorious position of lecturer for the "hot air engine," and of the deception then practised upon the public. Then it dilated eloquently on the glorious achievements of inventors, now it indiscriminately denounces them and their productions. The former it now exhibits in the character of scoundrels, bigots, and mercenary prowlers on the community; the latter, in "forty nine cases out of fifty," as unpractical and useless mantraps, got up for the purpose of deceiving the public. No person can come to any other conclusions than these, we believe, respecting the sentiments given to the world by the *Times*, in an article under the above caption which appeared in its columns on the 1st inst. Its whole tenor is intended to excite prejudice against poor inventors, by raising suspicions against them. It asserts that there "are swarms" of quack and "confidence inventors," who "swindle the community out of an annual aggregate of millions." It does not instance a single case of the kind, but it dogmatically avows this to be a fact. We are positive it is an assertion devoid of the least confidence. There are, no doubt, some rogues who trade in inventions, just as there are in every other business, but would it be right to denounce all our merchants as a set of quacks and "confidence men" because some of them are dishonest? And yet this is what the *Times* has done in essence and principle respecting inventors. The great majority of our inventors, we can safely assert from a long and intimate acquaintance with them, are honest and simple minded men, more liable to be imposed upon than to impose upon others.

Every new invention brought before the public should receive a careful examination, and its author a candid hearing, and the more so if he is a poor inventor, because his invention may be of the greatest value to the world, and for want of means he may not be able to bring it into use. The *Times* inculcates the doctrine that if an inventor is poor it is sufficient grounds to be suspicious of him, and the practicability of his invention. It assumes that good inventions introduce themselves, and it instances the cases of railroads, telegraphs, and printing presses, which it asserts came into use *immediately* after their practicability was demonstrated. If the whole community possessed such feelings towards inventors as the *Times* apparently does, these inventions would not yet have come into use. It was good for the world that the inventor of the steam engine found such a wealthy man as Bolton to examine his discovery, and take him by the hand, and still he labored in vain for years to convince many other persons that his invention possessed merit. It was good for the commercial community that the inventor of the telegraph was assisted by government to construct his first line between Washington and Baltimore, for he had not the means to do it himself. Inventions are indeed more easily introduced now than in bygone years; but their merits are not always so quickly appreciated, as the *Times* would have the public understand. Had Messrs. Hoe not possessed the means and

ability to construct their improved printing presses, the daily papers of this and other cities, in all likelihood, would still be jogging along with their old slow Napiers. It requires considerable energy, tact and expense to introduce almost every new invention, however good, and the *Times* admits this, but not without indulging a fling at inventors. It asserts that one cause tending to prevent the introduction of a new invention, when investigated, "will be found in the inventor having no capacity himself to explain the merits of his invention, or to interest in it persons of means and intelligence; and that while he will acknowledge, theoretically, the rareness and indispensibility to his success of the capacity he lacks, he is so mean as to be unwilling to pay liberally those who do possess it, either in money or in a fair share of his invention. Or that he is at bottom a dishonest, worthless fellow, such, at any rate, has been our experience."

Here is where the whole difficulty lies. A person once deceived with a project, no matter how, when he discovers his error, generally becomes soured against everything related even in name, to the object of his misplaced confidence. This appears to be the case with the *Times*. That unfortunate affair to which we have alluded, once the object of its frothy laudations, is now apparently its standard in judging of all inventions, and the scheme itself the platform on which it places all inventors and persons interested in inventions. Of course, it now sees a rogue in every inventor, and a deception in every invention.

It is well known that quite a number of inventors have made fortunes. This fact seems to have fermented the envy of the *Times*, and it throws out the insinuation that they have been overpaid for what they have done. It instances Colt, Goodyear, Wilder, Sharpe and McCormick as fortunate individuals, who have made immense fortunes by their patents. We are glad to hear of it, and can add a long list of other inventors who have also amassed fortunes by their discoveries, and we still more rejoice that the number of such is vastly on the increase—thanks to the facilities now enjoyed by them for bringing the merits of their inventions before the public. Every well informed man of noble impulses will also rejoice at the rewards they have received, and not grudge them, like the *Times*. But the public have been far greater gainers, by new inventions, than inventors—personally considered—even the most fortunate of them. What in comparison have been their pecuniary rewards to the advantages they have conferred upon the public? A mere dew-drop to the waters of the ocean.

Artificial Sapphires and Rubies.

Some very beautiful gems have been manufactured artificially, such as the *lapis lazuli*, but the most esteemed and valuable precious stones have hitherto resisted all the synthetic skill of the chemist. Diamonds have been made the subject of thousands of experiments to manufacture, but hitherto without success. Other precious stones have also largely engaged the attention of the chemist, and the sapphire, it is stated in some of our foreign exchanges, has at last yielded to the perseverance and skill of M. A. Gaudin, of Paris, who has communicated the result of his experiments to the Academy of Sciences. The following is stated to be the method by which he obtains it:—

A common Paris crucible is coated in the interior with lampblack, and equal parts of calcined alum and sulphate of potash reduced to powder are introduced into it. The crucible is then closed, and exposed for about a quarter of an hour to an intense heat in the fire of a blast furnace, when it is taken out and cooled. On breaking the crucible the lampblack coating is found covered with numerous small and brilliant crystals, composed of the sulphuret of potassium enveloping crystals of alumina, which are of the same composition as sapphires, and are transparent and almost colorless. The size of these crystals is in proportion to the mass of material operated upon—the greater the quantity, the larger the crystals. It is also stated that they

are so hard as to have been found preferable to rubies for chronometers by some of the French watchmakers.

There is still a very wide field open to the chemist for the manufacture of those hard and fine gems employed in jewelry, which have hitherto been furnished only from the laboratory of nature. These stones make the most durable and finest bearings for watches and chronometers, and were they cheaper, and could be manufactured of large size and made easily into bearing boxes, they would be employed in clocks of every description, and other machines, and thus lead to great improvements in the accuracy of their operations.

The composition of the sapphire is pure alumina—the same as the metal which has recently become so famous. It remains unaltered before the blow pipe, but it fuses with borax—not easily however. The true sapphire, so called, is of a blue color, but the name is sometimes applied to the clear crystals. Alumina is called ruby when of a red color, the topaz when yellow, the emerald when green, the amethyst when violet; the dingy colored crystals are called corundum, and the grey, emery.

Alumina forms the basis of the great majority of precious stones. The sapphire is next to the diamond in hardness, and it scratches quartz and glass with facility. It is generally found loose in the soil, or in the debris of mica slate. It has been found in several places in the United States, but not sufficiently beautiful (except in Georgia) to form a gem. The red sapphire is the most highly prized, and the finer qualities are nearly as valuable as the diamond.

Electro-Magnetism as a Motive Power.

This question has at various periods, and by impulses apparently, excited the scientific world. The experiments of Professor Jacobi, in Russia, Professor Botto, of Turin, Favre, in France, Ritchie, in Scotland, Joule, in England, and those of Henry, Page, and others, in our country, have heretofore caused a great amount of interest, but they have as yet resulted in no economical application of electro-magnetic motors. After a quietude of some years, it is now attracting some attention again, both in the Old World and the New. On the afternoon of Thursday last week, a series of experiments were conducted at the Crystal Palace, in this city, with Professor M. Vergnes's electro-magnetic engine. The form of this engine is similar to that of two spoke wheels, secured on one shaft, supported in a wall on each side. The principle of its operation—the form only being different—is similar to Professor V.'s engine illustrated on page 184, Vol. 9, SCIENTIFIC AMERICAN. Previous to the machines being set in operation, the Professor delivered a brief and interesting lecture to a select audience present, explaining the principles of his invention. He asserted that, as a motive agent, it was superior to the steam engine—that it was an engine of the sixth power. In other words, if its dimensions were doubled, and the battery increased in the same proportion, the gain would be as the multiplication of the cube into the cube.

The experiments did not convince us that his theory on this point was correct. A small engine was set in motion with thirty-two cups of a battery; it was stopped by the application of a friction brake, six inches radius to its axle, and 5.5 lbs. on the lever. The large engine was then set in motion with the same battery force, and its revolutions were twenty per minute, with four boxes of cups (16 to the box) its revolutions were forty-three per minute; six boxes of cups, sixty-one revolutions; eight boxes, eighty revolutions. Thus, with twice the number of cups, twice the velocity was obtained. If we suppose the weight of the magnets (1500 lbs.) to represent a constant pressure in pounds, with twice the amount of battery force, there was just twice the amount of power developed.

We were, however, satisfied on one point, viz., that Professor Vergnes had constructed and put in motion the most simple and best electro-magnetic engine we have yet seen, but not as to its working expenses. A steam

engine, well constructed, can be run at an expense for fuel of only four pounds of coal per hour for each horse power, or 400 pounds for a ten horse engine running ten hours per day—only one dollar for cost of fuel. The battery of no electro-magnetic engine we have yet seen can be maintained at such a small cost—no, not by a very high figure. Professor Vergnes has made some important improvements in his batteries. He has removed their disagreeable odor; and when we consider that Sir Humphrey Davy employed a thousand plates to accomplish the same results that are now obtained with twelve, we entertain the hope that something practically economical in electro-magnetic engines may yet be accomplished.

Ever since the discovery was made that the electric current could be converted into power and give motion to machinery, it has been expected, by proper direction, to supersede the steam engine, and certainly none would rejoice more than ourselves to witness such an achievement. In electro-magnetic engines no explosions can take place; there is no suffocating heat generated, and no danger from fire. Could they be operated, even at twice the working expenses of steam engines, they would be preferable for many purposes.

The Frigate Niagara—New York Regatta—George Steers.

The lamented George Steers was certainly a great nautical luminary. Vessels which he designed and built have achieved the greatest naval triumphs of modern times. In the regatta which took place in the New York Bay on the 4th inst., three yachts built by him carried off the three first prizes.

The rule which has recently been adopted to judge the sailing qualities of vessels, by the Club, is the amount of square yards of canvas carried, according to the tonnage; it being evident that the vessel which sails fastest with the least amount of sail spread according to its tonnage, must be the best sailer.

The British papers are loud in their praises of the frigate Niagara, also designed by George Steers. The London *Times* says, respecting her:—"In size, form, speed, and intended armament, the Niagara is, beyond doubt, the first man-of-war of her class in the world."

. . . Not until the visitor has walked forward and perched himself somewhere near the bowsprit, can he fully appreciate her immense size and beautiful form, and feel that he is looking down on such a war steamer as the world has not seen the equal of, and by the side of which the English navy can show nothing to compete."

It seems that the Niagara was *hove to* four days to repair the rigging on her voyage across the Atlantic; this is one good reason why she was eighteen days on the passage. The London *Times* praises the Niagara from stem to stern—engines, arrangements, and everything about her. It is very gratifying to our feelings to hear Uncle John acknowledge that our ships are still entitled to carry the broom at the top-mast.

Water of Artesian Wells.

Mr. I. H. Stearns, writing to us from Augusta, Ga., states that in South Carolina, where he has bored a number of artesian wells, it is very common to find the water so impregnated with sulphuretted hydrogen as to render it unfit for use when first taken from the well; but this evil is removed by allowing the water to stand for a few hours in an open vessel, exposed to the air—this gas being in a free state, escapes, leaving the water very pure, and fit for drinking. He suggests that the water of artesian wells in other localities which has been found impregnated with the same gas, and condemned as unfit for domestic use, may in the same manner, be rendered perfectly drinkable.

Reckless Destruction of Property.

If we witnessed a number of persons making bonfires of their movable property, we would certainly consider them *non compos mentis*. The great amount of property annually destroyed by fires in our country exhibits our people in a light no less unfavorable. On the 4th inst., \$300,000 worth of sugar, molasses, &c., were destroyed in one storehouse in Brooklyn.