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Progress of Discovery During 1851.

The year 1851 has not passed away without leaving a deep impress on the present age.

The results growing out of the events which have transpired, and which will yet grow out of them, cannot be estimated in amount or circumscribed by any period of time. The grandest event, so far as it relates to science, art, manufacturers, and all industrial products, which has ever taken place since the world began, transpired during the past year; we allude to the Great Exhibition. The benefits of the World's Fair, will go out to the end of the earth, among all nations, and kindred, and tongues. Much important information was presented to our readers through our columns, by our London correspondent, relative to that great congregation of artisans and philosophers; still the Exhibition was too vast for any person to do justice to it—yea, justice never will be done to it. We expect that the inventive genius of thousands in our land and other lands has received a great impetus, and that great numbers of useful inventions, as the result of that impetus, will soon be coming to light.

A great number of very useful inventions were presented to our readers during the past year, and all the most important discoveries have been noticed and described and many of them illustrated. The first engravings we presented to our readers in 1851 were Hutchinson's machines for manufacturing barrels: McCormick's grain reaper, that agricultural machine which has created such a sensation in the Old World, was illustrated and described on page 164 of our last volume.

A series of very important articles, illustrated with views of the Patent Office, were published by us, and a reference to them will at any time repay those who are interested in that subject. The best article on the American locust,—*Cicada Septemdecim*, ever published in our country, by Dr. Smith, was published on page 212, last volume. A series of very useful articles on water wheels, was also published by us. We have also published illustrations of the patents of two inventions which have perhaps made more noise in the world last year than all others; we allude to "Paine's Light," on page 249, last volume, and the Annihilator, page 1, this volume. We have endeavored to present all new and interesting inventions to our readers, and these inventions are as much a part of modern history now, as that of a siege or a battle, and perhaps more so.

We also published some views of "the pendulum experiment," and a number of articles on the same. This subject created quite an excitement, and all the philosophers in the world marched out and spoke grandly on it. It now appears to have been a discovery of evanescent worth. When we think of all that was said about the pendulum, and how quiet every thing is now about it, we confess that philosophers by their silence seem to give force to those who spoke against it and called it "a philosophic *ignis fatuus*."

Along with many very useful inventions presented by us during 1851, our readers will not forget how we pointed out the utter worthlessness of some schemes which, but for our warning voice, would have deceived many. We do not name these just now, we merely allude to them, and the reason why we have written this article at all, is to make our readers lift up their back numbers and take a retrospective view of what has been done in science and art during the past year. It is not possible for us to name all the machines we have for the first time introduced to our American public during 1851, but we wish our readers to make an examination for themselves, and they will see much to cheer us in the progress of discovery. Over nine hundred American patents were granted, all the claims of which we have published. We expect that 1852 will be a brilliant year for discoveries and inventions. We are perhaps on the verge of an era of discovery, which will throw all the past into the shade. When the past is so full of wonders, who can have a doubt of the future.

A great deal has yet to be done in every department of science and art, and while there is anything to be done, our inventors must be progressing and striving to gain the prize.

A World's Fair and Crystal Palace at New York.

A short time since Mr. Riddle, our Commissioner to the World's Fair, and some others, petitioned our Common Council for permission to erect, in Madison Square, this city, a building of iron and glass 600 feet long and 200 feet wide, for an Industrial Exhibition of all nations. The petition was referred to a special committee, which reported favorably on the subject, and on Tuesday evening of last week their report, with the following resolution, was adopted:—

"Resolved, That the free use and sole occupation of Madison-square be, and the same is hereby granted to Edward Riddle and his associates, for the term of two years from the date of the adoption of this resolution, whereon to erect a building of iron and glass, for the purpose of an Industrial Exhibition of all nations, in pursuance of the petition annexed, provided that said Riddle and his associates will enter at once into an agreement, with sureties, with the City, through the Controller, that they will, during said time, erect around said square, at their own cost and expense, and at the cost of not less than six thousand dollars, under the superintendence of the street Commissioner, a good, strong, handsome and sufficient iron railing with the necessary gates, &c., similar to the railing around Washington Parade Ground, or of a pattern to be approved by the street Commissioner, which shall be the property of the Corporation after the expiration of the said term hereby granted, and to restore said ground to its present condition, and to take every means to preserve the trees, &c., therein, and provided also that the price for admission to said building for individuals shall at no time exceed 50 cents."

Some of the members of the Board of Aldermen—Aldermen Miller and Shaw—boldly and sensibly opposed the measure; they thought it should be a government project, national and great in character, and one to which the world should be invited. The action of the Common Council we hold to be foolish and flagrant. If the project is carried out as proposed, it will disgrace us in the eyes of the whole world. Here, in our great Republic of 24,000,000 inhabitants, we are to have a World's Fair directly on the heels of the London one—and such a Fair, a small and ridiculous copy of the Crystal Palace. The fact is, a lot of speculators who have not souls for their country above buttons, intend to make a fine speculation out of such an affair. It is evident that the glory of their country is measured by three cent pieces, and the price of andirons. We want no such exhibition in this city, nor in our country. We would rejoice and be glad if a World's Fair, broad and national, not under the management of auctioneers and stock-jobbers, would be held in our country. We should like such an affair to be great and grand, and superior, if possible, to the London Fair,—but this small-potato contemplated crystal palace, will make us the laughing-stock of all nations. The Common Council, had no business to make such a grant as it has done to a private individual or individuals, and it should not have made it. The project is one worthy of pedlars without national pride; and if this was the spirit which managed our department at the World's Fair, we cannot feel too deeply for the fame of our Republic. The matter, however, is not finally settled. The new Corporation will probably annul the grant, as they should do. It is a shame to find men under the guise of a kind of patriotism, endeavoring to make money out of public exhibitions, personally all for themselves, but professedly all for the public. The Crystal palace, in London, was 1800 feet long; when America builds one for a World's Fair, it must be one or two hundred feet longer, not your miserable squirrel cage of 600 feet, only one-third that of the one in Hyde Park.

When speaking of this affair again, if we have to do it, we must call it Riddle & Co.'s Fair, not the "American," nor the "World's Fair." When we have a World's Fair, we don't want the building to be a slavish copy after Paxton's, but a new and original design.

Oxalic Acid.

This acid is very extensively used at the present time, in comparison to what it was a few years ago. It is an acid which may be produced by the action of nitric acid upon most vegetable substances, and especially from those which contain no nitrogen, such as well-washed sawdust, starch, gum, and sugar. Sugar is the article generally employed, and possesses many advantages over all others. The process of making it consists in employing small earthenware jars, into which the nitric acid is poured upon the sugar. The jars are placed in water baths. Five hundred weight of saltpetre, and two and a half cwts. of sulphuric acid generate enough of nitric acid to make 140 lbs., of oxalic acid. About 120 lbs. of common brown sugar is the quantity of that substance employed along with the nitric acid. Nitric oxide and carbonic acid gases are evolved by the action of the nitric acid on the sugar. Great care must be exercised to keep the jars as cool as possible, for if nitric acid is boiled upon sugar, as recommended in many chemical works, to produce oxalic acid, the most of the oxalic acid produced under the high temperature will be peroxidized, and pass off as carbonic acid. It is, therefore, very easy to make a losing business of manufacturing this acid.

Oxalic acid has a great affinity for iron, and acts very mildly upon textile fabrics; it is, therefore, the best acid known for taking out iron spots on straw hats, and it is exclusively used for this purpose by those who are most skilled in cleansing and bleaching straw hats. It is the best acid for taking iron spots out of linen, and for this purpose it is now used in a great number of families. The acid is in fine crystals, almost like common epsom salts. A few crystals of it are laid upon an iron stain on a shirt, and warm water poured on them until the crystals are dissolved: the iron spot quickly disappears. The bleachers of straw keep a vessel containing a solution of oxalic acid, about the strength of 30° Twaddle's hydrometer: in this the straw hats are immersed for about half an hour, when they are taken out and dried. Oxalic acid is now used in many families for scouring brass, such as door knobs, &c.: it should never be used for any such purpose. Oil and rottenstone are the best substances known for cleaning brass. Brass cleaned with the acid very soon oxidizes afterwards. This acid is a poison, and should be kept out of the way of children. If taken by mistake, a good antidote is magnesia, or common chalk, which should be swallowed as soon as possible afterwards.

Synthetic Chemistry—Ultramarine.

There are two very distinctive processes in chemistry, viz., analytic and synthetic; the former takes a quantity of matter and resolves it into its original elements; the latter takes those original elements, combines them together and makes up the resolved quantity of matter into its first form and quality in every sense. It may be supposed by many that if a chemist can resolve any quantity of matter to its original elements—analyse it—he can easily combine them by synthetical chemistry. This has been done in many instances and with many compounds. Water can be thus treated but many substances elude the genius and skill of the chemist to treat synthetically. The laws of synthetical chemistry are not so well understood as those of analysis, and perhaps never will.

In no single instance has chemistry witnessed a greater triumph of synthetic skill, than in the formation of lapis lazuli. This mineral had been known and used by ancient artists away back in the days of Egyptian and Grecian glory, and it had come down as the most beautiful azure color ever discovered. It remained unchanged by exposure to air or fire, and it maintained its sky blue brilliancy on the canvas, undimmed for centuries. This mineral was very dear, and previous to 1820, it was all obtained in China and Siberia. At the time mentioned, common ultramarine sold for 35 dollars per ounce, and the best quantity for upwards of \$100 per ounce. This substance was analyzed and was found to be a compound of silica, alumina, sulphur, and soda, with a trace of iron. These were colorless substances, and for a long time the coloring principle eluded the grasp of the chemist. At

last M. Guimet, a chemist of Lyons, in France, devoted his attention exclusively to try and make artificial lapis lazuli—ultramarine. He was encouraged by the offer of a reward of 6,000 francs by the Society of Encouragement in Paris. He gave up the idea of searching for a hidden coloring principle and tried experiments with colorless substances. He succeeded, and for a long time kept his secret, and sold his ultramarine at \$11 per pound. The process was afterward discovered by other chemists in Paris, (Gmelin and Robiquet) who published the mode of making it. This beautiful pigment is now sold as low as a few dollars per pound, and a quality as good as the second quality of the old lapis lazuli, which sold for \$35 per ounce, can now be purchased for a few shillings per pound. Mr. Guimet was an exhibitor at the Great Exhibition and was awarded a Council Medal for his useful discovery. He states that it may be made by rapidly igniting a mixture of equal parts of silica, carbonate of soda, and sulphur, adding a sufficient quantity of the solution of soda to dissolve the silica. The result of this is a bluish green mass, which when burned in the air, becomes the beautiful azure ultramarine.

End of the Annihilator.

Since the Annihilator was annihilated by the green hemlock cottage, in 84th street, as described in the last number of the Scientific American, Mr. Phillips published a card, in which he asserted he was *felled down*, and that a mob forcibly took possession of his apparatus and himself, and burned down the building before he had time to make his final experiment. This has been most emphatically contradicted by the committee named in our former article. They did not see Mr. Phillips knocked down; and the crowd behaved well; and along with them, we must say—and we were eye-witnesses—that Mr. Phillips's statements are incorrect and unwarranted. We early took occasion to point out the inutility of this invention—even before there was any public excitement on the subject; our reasons for so doing are before the whole community, and they all now say our predictions about its worthlessness have all been fulfilled. The whole press in this city has spoken out in the matter, and concur in our views. The Journal of Commerce has distinctly pointed out the obligations of the public to the opinions we had expressed, and the information we presented on the subject. The time has gone by—it is not now as it was at one time—for scientific (pretension, only) humbugs to delude the people. An intelligent press, devoted to such subjects, cannot be gulled nor bridled.

It will always be our duty to watch with Argus eyes the interests of the people, as connected with all such schemes.

Patents, Inventions, &c.

Our readers will bear in mind that we still continue to prepare specifications and drawings, and attend to prosecuting inventors' claims at the Patent Office, and also in all foreign countries. We have every facility at command, and constantly employ a large corps of able Examiners. Inventors who employ us are not subjected to delay in having their cases promptly presented. We have our business so systematized that but a week or ten days is generally required before the papers are ready for execution.

Petition for Extension of Patent.

On the petition of Ira Wing, of Belfast, New York, praying for the extension of a patent for sawing eaves and troughs for conducting water from buildings, &c., for seven years, from the expiration of said patent, which takes place on the 17th day of March, A. D. 1852.

It is ordered that the said petition be heard at the Patent Office on Monday the 1st of March, 1852, at 12 o'clock m.; and all persons are notified to appear and show cause, if any they have, why said petition ought not to be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specifically set forth in writing, at least twenty days before the day of hearing; all testimony filed by either party to be used at the said hearing, must be taken and transmitted in accordance with the rules of the office, which will be furnished on application.

THOS. EW BANK, Com. of Patents.