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The First Steam Engine.--James Watt.

The Albany Knickerbocker states that Ex-Mayor John Taylor, of that city, while on a recent visit to England, saw the original steam engine made by Watt, in the great Brewery of Perkins & Co., of London. The Ex-Mayor has been wrongly informed, if he was told that *it* was the first engine made by Watt: it was no doubt made by him, but it was not the first one. The first experimental engine made by Watt, was constructed and fitted up before he went to England, at Kinneal House, Scotand, where Dr. Roebuck, his first partner, had extensive coal works rented from the Duchess of Hamilton. Watt's first engine more than fulfilled his anticipations—the only practical defect in the way of its operation being the difficulty of packing the piston steam-tight. His first engines were of tremendous size, according to their power—huge wooden walking-beams being employed; but all the essential principles embraced in a steam engine of the present day, were invented by Watt. It is only twelve years since the third engine built by him was replaced by another, after having faithfully served its day and generation. It was twelve horse power, and filled a whole three story narrow building.

The Knickerbocker says—"To the success of his engine we are indebted for the triumphs of Fulton, for the invention of the steamboat, the steamship, the locomotive,—for those revolutions in commerce, navigation, and business, which have given a new energy to the world, and dotted the wilderness with market towns. To America the triumph of Watt has proved a blessing, whose immensity even figures cannot reach."

This is a just and deserving compliment to the memory of that great and modest man. We cannot enumerate the vast changes produced in society, within the past century, by the invention of the steam engine. When James Watt rendered his engine applicable to every purpose of art, he made a present to the world of a power more economical, disposable and stupendous than all the other powers previously applied to manufactures, science and art. It was a true saying of Dr. Ure, in one of his lectures, that "the meteor flag of England would, but for his vestal fire, now have ceased to burn, and the three hundred millions expended in the Peninsular war, was the produce of the alchemy of Watt."

No country has gained more by Watt's genius than our own. He built the engine for the Clermont, the first successful steamboat of Fulton—the first which stemmed the waters of the Hudson, and linked by steam the capital of New York State with its commercial emporium. Since that time what a change has come over the face of our land; what revolutions have been produced by steam as a motive power! We employ the steam engine to dig and raise ore from the mine, to propel the ship and the rolling car, to guide the spindle and direct the loom, and apply it to a thousand other purposes. The sinews of the steam engine are coal and water; no country in the world is so blessed with such an abundance of those sinews as the United States; we may therefore conclude, that this is the land where the steam engine, in all its stupendous grandeur as a prime motor, is yet to be exhibited.

At the present moment, Great Britain, owing to her coal mines, and to her early and present efforts of mechanical genius, stands first in the rank of nations in the amount of her steam power—a power the vast extent of which no one can hardly dare to conjecture, without visiting her workshops and manufactories. America is but young in the race of manufacturing in all its branches—yet, although young, she now exhibits powers second only to her mighty parent, while at the same time she has out barely emerged from the rockings of her cradle. In the common course of events, this country will be peopled by two hundred millions of inhabitants in one hundred years hence—in 1950. With our boundless coal fields, many now sleeping untouched, and with numerous railroads then lacing the Atlantic and Pacific Oceans, we may form some conception of what our nation's steam power will then be in extent—but after all, only a conception; and then when we do so, let us not forget that the man selected by Divinity to develope this mighty power. was once an humble mechanic, but one who, like Washington among statesmen and generals, lived a life of virtue, and left behind him, as an example to all workingmen, an unstained escutcheon.

The Manufacture of Fine Glass in England.

It is not many years ago, since no fine glass was made in England—all that was used there was imported from Germany. A few capitalists determined to manufacture for themselves, and their first step was to employ German artisans, to whom they paid exceedingly high wages. The result of this has been a gradual advancement in the manufacture of English glass, and the attainment of a superiority in its manufacture, which far surpasses the German. The Frankfort *Zeitung* (a paper published in Germany,) acknowledges the fact and says, that at the coming exhibition the English will excel the far-famed Bohemian ornamental colored glass. In one department, viz. silvering glass, the English have attained a superiority over every other nation. This glass is applicable to purposes of ornament and utility, and is of great importance as reflectors for astronomical instruments, railway carriages, light-houses, and the like, for which it is peculiarly suited, from its capacity to throw back rays, and because no cleaning or polishing is ever required, more than a window pane or common tumbler. The silvering is indestructible in composition, and is coated over with glass, the vividness of whose colors, be they what they may, or however varied, are thus infinitely heightened, and the most delicate carvings upon them are so brought out as to recall the old Byzantine mosaics in their multiplicity of tints and lustrous harmony of combination.

This kind of glass is made in Berners street, London, by a process lately invented and patented by a Mr. Hale Thompson; he discards all the old methods of using essential oils, and coats all his surfaces, flat or curved, the smallest toilet bottle or largest vase, with pure silver, far more brilliantly than the amalgum applied to ordinary looking glasses, and can never be tarnished or impaired except by destroying it. The metallic radiance of this deposit imparts a combined sparkle and warmth, quite beyond the Bohemian, which is comparatively merely pretty and tinselly; and there is the important fact that British glass is far superior to anything elsewhere produced. Hence, taking quality of material, the English is on a par with Bohemian in price, and the beautiful and unique silvering is so much additional gain. The richness and purity of British crystal admit splendor and voluptuousness of dyes that satisfy the most exigent fastidiousness; hence the purple, sapphires, pinks, vermilions, pearls, bronzes, &c., in short, every chromatic hue thrown up by this new argentine reflection, have the gorgeous glow of the antique Venetian glass, the secret of which is now a lost art; but whereas the Venetian absorbed the light, and had to be held up to it before its softened beauties were revealed, the English silvered glass flashes back the light, and is seen best at night, or when surrounding objects are in camparative gloom. Another characteristic, never attempted since the discovery of glass itself by Hermes, the Syrian, is embossing—that is, to the eye, for it is an optical delusion, there being no raised surface to the touch, though the appearance is that of pure solid silver, either dead or frosted, burnished or in high relief, or sunken. It is impossible to exaggerate the results of this, applied to finger-plates for doors, enrichments of cabinets, panels, cornice mouldings, or combinations with ivory, gilding, or rare woods, to all which, and innumerable other purposes, this invention is adapted.

At these glass silvering works vases are made which are as high as $3,000 per pair, nine-tenths of the cost is incurred in designing and engraving alone. In design, English glass has made immense progress: and the goblets, epergnes, candelabra, wine coolers, &c., now referred to, are equal objects of *vertu* in classic beauty of form and of commercial importance, or suitability to the taste of the age. But, as if to exemplify the adage, that the closer to simplicity the greater the art, perhaps the *chef d'œuvres* in this manufacture are mirror globes, of plain silvered surface, all sizes, from two to thirty inches in diameter, from half a pint to forty gallons. These, placed on bronze figures, as an Atlas or eagle, attached to chandeliers, or on a sideboard or mantel piece, are a most striking appendage to drawing room or banquet hall.

We have, as Americans, done but little in the manufacture of fine and ornamental glass, but the time is approaching when we will not be behind any nation in this branch of art. At present, we import a great deal, but this will not be the case long: we have a strong evidence for making this assertion, in viewing the fine display of crystal ornamental glass vessels, displayed at the Fair of the Institute, by the Brooklyn Glass Company. Some of the articles displayed are splendid—the colors and designs are highly creditable to the company and the artisans engaged in the manufacture. We consider glass as a great civilizer, both as it respects its application to the arts, and its use for ornamental purposes. We do not know but like good roads, the amount of glass used in any country, may be taken as a proper evidence of its civilization.

Photography.

"The Poetry of Science, by Robert Hunt, published by Gould, Kendall & Lincoln, Boston."

We are right heartily glad to see this interesting work, re-published in America—it is a book that *is* a book: and here let us present some extracts, from one part of it, and throw in a few passing thoughts. Speaking of chemical changes by the solar rays, he says:—

"In the Dark Ages it was observed, for the first time, that the sun's rays turned a white compound black. Truth comes slowly upon man, the world clings to error and avoids truth, lest its light should betray their miserable follies. At length a man of genius announced that 'no substance can be exposed to the sun's rays without undergoing a chemical change,' but his words fell idly upon the ear; his friends looked upon his light-produced pictures as curious matters, and preserved them in their cabinets as curiosities, but his words were soon forgotten." This man was Niepce, of Chalons, in France—the undoubted original discoverer of photography.

"When Daguerre first published his great discovery, the European public regarded his metal tablets with feelings of wonder; we have grown accustomed to the beautiful phenomena of this art, which, if studied aright, will convince the most superficial observer that a world of wonder lies within the reach of industrious and patient research."

Mr. Hunt regards this name of "Photography" as unfortunate, and wishes that "Heliography," the name given by Niepce to the art, had been retained.

"The phenomena of the Daguerreotype involve many strange conditions. A plate of silver on which a chemical action has been established by the use of iodine, is exposed to the lenticular image in the camera obscura. If allowed to remain under the influence of the radiations for a sufficient length of time, a faithful picture of the illuminated objects is delineated on the plate, as shown by the visible decomposition and darkening of the iodized surface." In practice, however, the plate is not allowed to assume this condition, for when the common eye cannot detect any change on the plate, the artist takes it out and submits it to the vapor of mercury, and the picture appears. A polished plate of metal, glass, marble or wood, being partially exposed when presented to the action of mercurial vapor, show that a disturbance has been produced upon the portions which were illuminated, whereas no change can be detected upon those parts which were kept in the dark. "Until lately it was thought that a free chemical compound, such as iodide of silver, a free salt of gold, and one or two of lead and iron, were the only materials upon which those remarkable changes were produced, but it is not possible to expose any body to the sun's rays, without being influenced by this chemical power. The granite rock, and the brazen monument, are all acted upon destructively during the hours of sunshine, and were it not for a wonderful provision of nature, they would all soon perish. Niepce was the first to show that those bodies which underwent a change during daylight, possessed the wonderful power of restoring themselves to their original conditions during the night." It is the same with the daguerreotype plate, some means must be taken to secure its permanency—thus showing that hours of darkness are necessary to the inorganic creation, as the hours of sleep are to the organic world. Light which impresses the eye, is not necessary to the production of daguerreotype pictures, nor, as set forth by Mr. Paine, in a letter to the Scientic American, were the pictures produced by his light evidence of its brilliancy and illuminating power. Daguerreotype pictures can be produced in what would be termed "a dark room." In tropical climes the bright sunlight acts more slowly upon photographic preparations than in the less intense light of an English climate. A daguerreotype artist always failed to secure a good picture of the buildings of the city of Mexico, under the bright and cloudless skies of that clime. It is a common opinion among those not acquainted with the art, that an intense light is necessary for the production of pictures, but the skilful daguerreotypist selects a room facing the north, where it is exempt from the direct solar rays, and when a window on the sunny side is of necessity used, the light has always to be mellowed by a screen.

Maryland Mechanics Institute Fair.

DEAR SCI. AM.—The Third Annual Fair of the Maryland Mechanics Institute opened on last Monday, 14th inst., in this city, in Washington Hall. Extensive and excellent arrangements have been made for the accommodation of machinery and other articles, and the convenience of visitors.

On Tuesday evening, Campbell Morfitt, Esq., of Philadelphia, author of "Applied Chemistry," and a number of other chemical works, delivered the opening address, which was, in every respect, a very appropriate one. He pointed out the objects of such associations, and the influence exercised by such exhibitions, in a very forcible manner; the audience was large, and the hearers of it were not only delighted but instructed.

The show of articles this year is very large—more so, I think, than that of any of the two previous years. It is impossible to enumerate a tithe of them in a brief letter, much less to describe the character of any of them. Some, I have been told by exhibitors, have come from New York; and, as a general thing, the Scientific American is not a stranger to them—they speak of it in terms of the highest praise,—a number of the machines here have been illustrated in its columns, and visitors have now an opportunity of seeing with their eyes the effectual and operative value of them, not one of which, I believe, has ever been puffed or over-rated by you.

The engine which drives the machinery is from one of our manufactories, C. W. Bently & Co.'s; it works well. There are some of Messrs. Hoe & Co.'s printing presses, of your city, and a Le Row & Blodgett's "Sewing Machine," well known to your readers.

My principal object in writing to the Scientific American is to set before the public—our whole country—the success of this Institute Fair—as I am a believer in the benefits arising from such institutions, when well conducted; also to say to stranger depositors, that their machines and articles will not be overlooked. A MEMBER.

Baltimore, Oct. 18, 1850.

[We regret that all our Philadelphia correspondents have been silent this year about the Fair of that old and respectable Institution, the Franklin Institute.—[Ed.