



NEW YORK, DECEMBER 25, 1847.

**Progress of Chemical Discovery.**

Chemistry is perhaps the oldest, and yet it may well be named the youngest, of the sciences. The field for the chemist yet to explore, is still as boundless as imagination can conjecture. This is no extravagant assertion, for the great and wonderful discoveries recently made, such as the electro-telegraph, daguerreotype, and etherization, are not so much the result of mechanical research as of accidental discovery, and this is strong evidence that we have but crossed the threshold of the vast theatre, where are yet to be exhibited discoveries which will far surpass those already made, wonderful though they be, in grandeur and importance.

Before the commencement of the last century, Chemistry was looked upon as something which belonged exclusively to feats of mountebankery, or tricks of necromancy, and not until that grand upheaving of mind, the French Revolution, was there an impetus given to correct investigations in this science.—But then, as if political ferment had thrown up some new combination of materials, Lavoisier, De la Isle, and Bergman and Davis, arose like stars amid the darkness of physical research, and new theories were laid down and new principles developed. In 1784, the Abbe Haüy published his famous Essay on Crystals, and determined by analysis and trigonometrical measurement the “forms of the neucleusses and elementary particles,” and his treatise in 1801 on Mineralogy almost created a new science, although this science had been much cultivated, yet secretly, in the College of Dresden, in Saxony.

Electricity, now so universally known and used for so many important purposes, was unknown, we may truly say, to the world until 1750, when Franklin made the string of a kite a pathway for the mighty thunder cloud to visit earth and chained it to an iron key.

Galvanism, which is now applied to send messengers of thought from city to city, on strings of copper, swift as thought itself—galvanism that is used to analyze the most stubborn oxides and reduce them to their primary condition—galvanism that is used to gild, to plate, to deposit metals in definite forms—in short, now used in every trade and every art and yet but in its infancy as a science, this wonderful agent, this powerful, and, as yet unresolved in materiality, was unknown to the world before 1790, when it was discovered by Galvani, but left till 1800 for Volta to explain by the invention and construction of the Voltaic Pile.

The nature of heat, at least its effect upon different substances, was but little known until 1760, when Dr. Black made the discovery of latent heat being retained in every substance according to it kind, and determined the laws of water evaporation, reduced steam expansion to a theory and led to the discovery of the steam engine in 1765 by Watt. Before that period the steam engine may be said to have been unknown, and then there was not more than three in the whole world and these were atmospheric; but who now can calculate their number and power. Before 1811 there was not a steamboat in the world. How many are there now and what could we do without them? Before 1830 there was not a locomotive in the world. How many are there now and what could we do without them? Before 1809 the number of metals known was only twenty seven, and ten of these had been ascertained in twenty years previous, as many as were discovered during all the middle ages, the ancients knowing only seven, which were compared to the notes of music in the gamut, the number of plants and the color of the rainbow, giving rise to many superstitions. We now know forty four metals and ten times more acids than the ancients did, and the end is not yet.

**Physiology.**

It cannot be doubted that the greatest “study of mankind is man,” whether morally or physically. Dr. Liebig has done much within the past few years to advance the science of Physiology, but when we behold the life of one of our most eminent physicians, Dr. Wainright, sacrificed in a few hours to the bite of a reptile, and the poison, as Audubon says, “not more than would lie on the head of a pin,” and a remedy baffling the zeal and skill of the most learned of the faculty in our city, we may well say that there is yet a great amount of ignorance regarding this branch of physical science, although it has been fostered and favored by every government and has received for centuries the attention of the most learned of any class of men. It is a truth that many discoveries have been made, which have conferred immortal worldly honor upon the names of the discoverers, although their researches have not benefited the human family in the least. To those philosophers and eminent chemists who speculate upon the possibility and certainty of those things which are liquid on this globe being gases in Saturn and solids in Jupiter, we would in all humility say, that for the sake of progressive science, we would rather see a man treading the earth with the sober footsteps of the Wandering Jew, than mounting the sunbeam with the wings of Icarus.

**English Manufacturing Population**

Mr. Gaskill, in his work on the situation of this industrious class of the English says:—“Any man who has stood at twelve o'clock at the single narrow doorway which serves as the place of exit for the hands employed in the great cotton mills, must acknowledge that an uglier set of men and women, of boys and girls, taking them in the mass, it would be impossible to congregate in a similar compass. Their complexion is sallow and pallid—with a peculiar flatness of feature, caused by the want of a proper quantity of adipose substance to cushion out the cheeks. Their stature low—the average height of four hundred men, measured at different times and different places, being five feet six inches, their limbs slender and playing badly and ungracefully. A very general bowing of the legs. Great numbers of girls and women walking lamely with raised chests and spinal flaxures. Nearly all have a down-tread differing very widely from the elasticity of action in the foot and ankle attendant upon perfect forming, a spiritless and dejected air, and an appearance, taken in the whole, giving the world but little assurance of a man, or if so “most sadly cheated of his fair proportions.” Beauty of face and form are both lost in angularity while the flesh is soft and flabby to the touch and yielding no “living bound” beneath the finger.

**Self-Acting Leg.**

Among our English papers we find an advertisement of “Grossmith’s new self-acting leg” which states that it is not more than half the weight of the common cork leg, is made to correct nature in shape and action, enables the wearer to walk, ride, or dance, with perfect ease and comfort, is suited to all cases of amputation, and is less expensive than any other. Santa Anna must have had on one of these legs when he ran away from General Scott at Mexico, for his excellency was never known to exhibit any thing like cowardice before. It would be wrong to attribute to cowardice what might happen from the use of a self-acting leg, and we therefore hope our brethren of the press will make l’amende honorable. We expect some day to see carriage bodies placed upon these patent self-acting legs, hopping up and down Broadway. The use of wheels and horses will then be laid aside, conveyance will become quick and cheap.

**Extra Judicial Oaths.**

Russell S. Furney, of Chicopee Falls, has been held to answer in the sum of \$200 at the Common Pleas Court, on the charge of administering an unauthorized oath in an investigation before the tent of Rechabites in that village. The statute of Connecticut provides a penalty of not more than \$200 nor less than \$5, for administering or taking an oath not required or authorized by law.

**Electro-Gilding.**

**PART III.**

We have already stated that it is of the utmost importance to have all articles intended for plating or gilding, perfectly clean, free from all oxide and grease. After the directions already given for this purpose, there is another method of preparation lately discovered, whereby both bright and dead deposits of gold are effected through the agency of a preparation of mercury by dipping the articles, after being cleaned, in a solution of proto-nitrate of mercury, washing these well, rubbing them with leather and dipping till the whole surface is perfectly coated, and according as the parts have been burnished with the leather, so will the deposit be bright or dead gold. Mercury receives a bright polish with careful brisk friction. Mercurial coating as a basis for gilding is very valuable, as it promotes a close adherence between the metals, and a coating of any thickness of gold may be thrown down, and the mercury may be afterwards driven off by heat.

**CLEANING ELECTRO-PLATE.**

Dead silver plating is apt to turn yellow after exposure to light for some time. This can be removed by covering the articles with a thick layer of dissolved borax, placing them in a muffle and submitting them to a heat sufficient to calcine the borax, when they are thrown into a solution of water and sulphuric acid (not strong) and allowed to remain for some time, when they are washed in warm water and dried in hot saw dust, then on a stove, when the result is a pure dead white. The natives of India clean their tarnished silver articles by boiling them for a short time in an earthenware vessel along with a few tamarinds and water, when they become clear and white.

Electro gold articles have sometimes a brassy appearance, which is removed and a fine rich gold color left, by covering the article with a composition made of melted wax mixed with saltpetre, sal ammoniac and sulphate of iron and heating it till the mass begins to smoke. This composition can be easily removed afterwards.

There are innumerable compositions for electro-gilding and plating. Every different shop appears to have some peculiarity of its own, but it is presumed that the foregoing will be new to many. One foreign chemist, M. Perrot, has endeavored somewhat successfully to gild with gold a watch and all its parts while in motion. Deposits of gold by the electrotype process have been made at Geneva for etching designs, the gold being used instead of varnish, as a thin layer of gold is transparent. A very thin film of gold on Daguerreotype pictures effectually preserves them.

Galvanized iron is made most effectually by using the battery in a feeble state and submitting well cleaned iron plates to the action of the battery in a solution of weak sulphate of zinc. This process was patented, but it is not so simple as the plan of dipping the iron plates in chloride of zinc, like as tin plates are made.

A patent has been taken out in England for purifying iron ore from its sulphurate by applying a powerful electric current to the metal while it was in a state of fusion. A electric current passing through a soft rod of iron at a moderate heat has converted it into steel, but the expense has not made this process to supersede the old. The price is the regulator of the value of every discovery. A patent was also taken out in England for a new process to reduce copper from its ore by means of an electric current, by roasting native sulphuret of copper in the usual way, then melted with lime and soda as fluxes and the pot connected with the battery so as to be the negative pole, and a plate of iron being connected with the positive pole it is found that in a short time a solid mass of copper is deposited on the inner surface of the pot.

Another patent was taken out in England by a Mr. Ritchie, for extracting copper from its ore by dissolving roasted copper ore in a weak sulphuric acid and placing the solution in a large vessel deposits the copper by the electrotype process. We are positive however that this is a more expensive process on a large scale than by the old plan.

Magneto-electro plating has been done by a machine generating currents of electricity by coils of wire made to revolve in front of magnets, the currents being modified by the speed of the coils and their distances from the magnets. This machine is expensive and requires a power to work it. It never therefore will be used extensively.

**Gold and Silver.**

It is stated in Jacob’s essay on the precious metals, that in the ruins of Herculanaum, and Pompeii, which were destroyed by an eruption of Vesuvius, more than seventeen centuries ago, no ornaments of gold or silver has been found. In some of the houses of Pompeii, skeletons of the inhabitants have been discovered—in all, domestic utensils, and personal ornaments—but those for which in the present day, the precious metals are almost exclusively adopted by the middle class of persons, are composed of iron and brass. If gold and silver had been in the dwellings of the inhabitants, at the time the eruption took place, they would be found there at the present moment, as the iron and bronze have been, of which their spoons and forks were made; and which have retained their shape after the lapse of so many years.

It appears, however, if ancestry can be believed in aught, that the ancient oriental nations were in possession of more gold and silver than we are at the present day.

**Perpetual Motion.**

A correspondent of the Midland Counties (Eng.) Herald, says: “A frame work knitter of Hinkley, named Joseph Hutt, has, after 20 years application and study, completed a machine which he calls a self-moving machine, or perpetual motion. He set it in motion on the 25th of August last, since which time it has continued to work with the greatest regularity. The motions of the machine are both quick and powerful, and may be greatly increased and applied to any purpose. It does not require the aid of steam or any other power to keep it in motion, having one continued and regular motion of its own. Fudge!

**Fortunate Escape.**

A servant-girl, says the Louisville Democrat, having in charge a baby of some two years of age, was amusing it on a balcony or piazza, and leaving but an instant, the child stepped back, fell through a banister, and was precipitated below, a distance of about 26 feet. The remarkable part of the story is that the father of the child had, not one minute before brought from the lower room, a cot bedstead and spread it out on the precise spot where his child fell; thus saving it from serious injury.

**Interesting Relic.**

A new Methodist Church was recently dedicated at Watertown, Mass. The vane surmounting the spire of the church was presented by the Unitarian Society, and is an historical relic—being the identical one which graced the spire of the building in which the first Continental Congress was held.

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