MISCELLANEOUS.

[Reported expressly for the ScientificAmerican.]
Lectures on Chemistry.---No. 6.

[An abstract of a Lecture on "Glass," delivered before the Mechanics' Institute, at Cincinnati, Ohio, by Prof. Chas. W. Wright.]

"Who, when he saw the first sand or ashes by a casual intenseness of heat, melted into a metalline form, rugged with excrescences, and clouded with impurities, would have imagiued that, in this shapeless lump, lay concealed so many conveniences of life as would, in time, constitute a great part of the happiness of the world? Yet, by some such fortuitous liquifaction was mankind taught to procure a body at once in a high degree solid and transparent, which might admit the light of the sun, and exclude the violence of the wind; which might extend the sight of the philosopher to new ranges of existence, and charm him at one time with the unbounded extent of material creation, and at another with the endless subordination of animal life; and what is yet of more importance, might supply the decays of nature, and succor old age with subsidiary sight. Thus was the first artificer in glass employed, though without his knowledge or expectation. He was facilitating and prolonging the enjoyment of light, enlarging the avenues of science, and conferring the highest and most lasting pleasures; he was enabling the student to contemplate nature, and the beauty to behold herself."

Of the origin of the discovery of the art of manufacturing glass, we know positively nothing. Pliny mentions the art of glass-making as carried on in Sidon and Alexandria. The story of its having been discovered by the accidental fusion of sand and soda in an ordinary fire, is without any foundation in truth, for the heat of a common fire is insufficient to cause these substances to combine and form glass.

In England the first establishment for the manufacture of glass was erected in the year 1557; and yet, notwithstanding glass-making, has been carried on for such a great length of time, we are mainly indebted to Berzelius, who died but a few years since, for our knowledge of the chemistry of this most interesting subject.

Glass is a salt, and is generally composed of silicic acid or sand, combined with soda or potassa, and various other bases. When soda is used a more brilliant lustre is obtained, but it is apt, when used in excess, to communicate a greenish tint to glass. When potassa is used, a perfectly colorless glass is formed, but which is not so brilliant as when soda is the base employed.

The silicates of soda and potassa never show any disposition to assume the crystalline form, but remain amorphous and transparent. Lime is sometimes added to the materials for making glass, and increases its brilliancy and hardness. Oxyde of lead is occasionally used and has the effect of rendering the glass soft, fusible, very brilliant, and perfectly transparent.

Common window glass is composed of the silicates of soda and lime. It is of a greenish color and not very fusible. When long exposed to the atmosphere the soda is partially dissolved out by the moisture, and its transparency impaired. In the vicinity of stables and other places where ammonia is evolved by the putrefaction of organic matter, the silica of the glass is affected, and its transparency diminished.

Bohemian glass, crown glass, and plate-glass used for covering pictures, and for mirrors are composed of silicates of potassa and lime. This is the kind of glass used for staining and other ornamental work. This glass is affected in the same manner by atmospheric and other agents, as common window-glass.

Strass, crystal, and flint-glass are composed of the silicates of potassa and lead. Glass of this composition is very fusible, perfectly transparent, and possesses great refractive power for light. Jewellers use this kind of glass in the imitations of the precious stones. This variety of glass is blackened when long exposed to an atmosphere containing sulphuretted hydrogen gas, from the conversion of the lead into the sulphide of that metal.

Bottle-glass, besides containing the silicate of soda or potassa, is also composed of the silicates of oxyde of iron, magnesia, and alumina. It is used in the construction of carboys, wine-bottles, and all low-priced articles of glass-ware.

Silicic acid, when combined with soda or potassa, or both, forms a glass that is soluble in water, and which has been used to render cloth and wood incombustible, by applying it as a varnish. It is the lime or oxyde of lead that renders glass comparatively insoluble in water.

Glass is colored or stained with various metallic oxydes. Thus a blue color is communicated to glass by the addition of the oxyde of cobalt. The coloring power of cobalt exceeds that of any other substance. The oxydes of iron, copper, and gold, produce the various shades of red that are seen in ornamental glass ware. The oxydes of antimony and uranium are employed to give a yellow tint, and a green is produced by the oxyde of chromium.

Glass beads are made by cutting rings from small glass tubes, and destroying the sharp edges by heating them in charcoal dust till they become perfectly smooth by fusion.

(For the Scientific American.)
Principles of Patents.

I see by an article in your paper of the 22d ult., that the Telegraph Case, in the Supreme Court, has been decided against Prof. Morse, and you comment at some length on the supposed decision. The fact is, that, so far from this case having been decided, its decision has been deferred to the next term.

In another case, the Court has decided that an abstract principle is not patentable, as all other courts have before decided, and have gone so far—three out of eight judges dissenting, as to say, that a new principle, made useful by well known means, cannot be secured by a patent, because, where there is nothing patentable in the means, the patent would be for the principle only. But they have not gone so far, and I predict never will, as to decide that where a party has discovered a new principle, art, or result, and has rendered it useful to society by means of his own invention, he cannot secure the principle, art, or result, through a patent for his new means or machinery.

Indeed, I have no doubt our Supreme Court will go, if they have not gone in the late case, as far as the English courts: those courts, from the lowest to the highest, have decided that where a party has discovered a new principle, and has made it in any degree useful by means of his own invention, he may, by a patent for those means, but declaring that he does not confine himself to the means described, secure the principle, though, in the language of the case itself, "it included every mode of applying the principle or agent so as to produce the specified result, although one mode may not be described more than another—although one mode may be infinitely better than another—although much greater benefit would result from the application of the principle by one method than by another—although one method may be much less expensive than another; and this generality of claim, that is, for all modes of applying the principle to the purpose specified, according to or within a general statement of the object to be obtained, and of the use to be made of the agent to be so applied, is no objection whatever to the patent."

And why not? Is not he who discovers a principle, and renders it valuable to society, or produces an entirely new result from a known principle, the most useful and meritorious of all inventors? And should the law permit another, who would never have thought of the subject but for my discovery (which may be used in a thousand modes), to come in and take it from me by a new mode?

But my purpose was not to go into an argument. In justice to Prof. Morse and the cause of truth, I solicit an insertion of this communication in your paper. AMOS KENDALL.

Washington, D. C., Feb. 2, 1853.

[We are happy to receive any communication in correction of an error. It was telegraphed to our papers here that the U. S. Supreme Court had decided that "an art was not patentable;" and we were informed, on inquiry, next day, that this related to the Columbian Instrument. This was an error, as no such decision was made, but, as stated by Mr. Kendall, the Supreme Court has decided that an "abstract principle" is not patentable—such an one as "an art is not patentable—a result independent of the means of producing it." This was the light in which we viewed the subject. Our language was—"The decision of the lower court was to the effect that "a patent covered an art." This decision has been reversed by the Supreme Court—*its* decision is, 'an art is not patentable.'" Such a decision could not, in our view, be considered "against Morse," for if a wrong decision were made in his favor, the reversion of that decision only restored the injured inventor's rights, but did not deprive Morse of his. We have a very high opinion of Prof. Morse's invention, and we hope that neither Mr. Kendall, nor any other other person, entertains the idea that any personal object or feelings influence us. We have always defended what, in our view, appeared to be the real invention of Prof. Morse. We consider that the word *art*, as employed by many legal gentlemen, embraces the "abstract principle" spoken of above; it was thus employed by Judge Kane. This is the light in which we viewed it on page 67, last volume of the Sci, American.

So far as it relates to the *new principle* referred to by Mr. Kendall, we must say the term has too indefinite a meaning; but about the decision of the English Courts, we believe we can throw such light upon the subject as will tend to support the views we have always expressed on the subject.

On the 2nd and 3rd of December, 1852, a case for infringement of patent was tried before Chief Baron Pollock, for an infringement of a rotary pump patent, the parties being Tetly vs. Easton and Amos. The Chief Baron, in summing up the case, said, "The modern practice of interpreting a specification differs from that which formerly prevailed; if it be intelligible to workmen, though not logically correct, so long as no doubt exists of the meaning of the patentee, the specification is good, but we are bound to oppose the grasp of things not in the mind of the inventor. The policy of an inventor, is to ask for a patent for what he *has invented*, and not to fence himself with wide claims."

These views of Baron Pollock are sound and to the point; we say no more.

New Discovery.

Within two years we find that several American inventions and discoveries have been appropriated by our brethren across the Atlantic. Among these is one for the manufacture of gas from wood, stubble, straw, etc., which is supposed to be a cheaper method than the same made from coal, oils, rosin, &c. Although I am willing to award credit to the genius of English inventors, and am ready to praise a Watts and an Arkwright, yet I am unwilling to see my own countrymen robbed of their just merits and inventions. Within the last year or so a patent has been issued by the United States for an improvement in making tar, charcoal, gas, etc., from wood. This invention not only embraces the above enumerated productions, but by an ingenious and simple arrangement, collects all the products of the wood, such as acetic acid, pyroxylic spirits, creosote, etc. The whole thing appeared in a practical form previous to any claim by the English, and the enterprising among the oldest residents of Wilmington have now in process of erection an establishment to manufacture wood gas, or pyroligneous gas, to illuminate their streets and houses. In this respect North Carolina has been wide awake, and proves herself something more than the "Rip Van Winkle of the South." Her unfailing forests may yet drive from the market the coal of England for gas, for it may not be known that even in this city English coal lights it up. The pine forests of North Carolina, which have been exhausted of their turpentine, the pine straw all over the grounds, and pine saw-dust are the articles which can be made available for lighting our cities cheaply, and the other articles produced by the destructive distillation of wood, such as charcoal, tar, acids, wood naphtha, etc., will more than pay all expenses and bring the illuminating gas down to a mere song.—[National Intelligencer.

[The National Intelligencer has certainly been made the subject of a light joke. It has long been known to every chemist that bodies containing carbon and hydrogen possess the constituentelements of gas illumination. The economy of any substance for making gas consists in the amount of carbon and hydrogen in the proper quantities for making good light contained in it according to its bulk and weight. Wood, straw, and stubble, are just about as suitable for making gas as cork is for shipbuilding.

Broad and Narrow Gauges.

The subject of broad and narrow gauges, we see, is being discussed in some of our western exchanges. The broad guage seems to meet with the most favor in the west, and hopes are entertained that no narrow gauge will ever be introduced west of the Missouri. The editors who make such remarks have just and proper ideas on the subject.—The broad gauge is to be preferred in a country so favorable for railroads. Mr. Kirkwood, Engineer of the Pacific Railroad, in Mississippi, recommended with his usual sagacity, the broad gauge, and none else, for the Pacific line. It is one of the most exhilirating sights in the world to behold a huge locomotive dashing along on the broad guage, with a huge train behind it. The people west of the Mississippi, we hope, will adopt uniform lines at least, and not have a mixture of broad and narrow gauges, as we have in this State.

Agriculture in Oregon.

The Oregon papers are calling public attention to the peculiar grain growing qualities of the soil of that Territory. The "Columbian" says, there is no country in the world in which wheat arrives at a greater degree of perfection than in Oregon, and certainly none in which a greater yield per acre is obtained, or a more lucrative or desirable market for rewarding the producer, with as little labor.

Caloric on the Mississippi.

A responsible business house in Cincinnati has contracted for the building of a first class packet boat, to run from that city to St. Louis or New Orleans, which is to be propelled by a caloric engine.—[Exchange.

[The above, we are confident, is untrue in every respect. Give us the name of the responsible house. No hot air engine can be built to stem the Mississippi, or to run in the shallow rivers of Ohio. We have seen many queer paragraphs floating about lately, respecting caloric engines, most of them the work of designing or ignorant men.

Broadway Hospital.

One of the successful plans for the proposed new building, and for which a premium was awarded, is by B. E. & I. Buckman, of 94 Fulton street, N. Y., Architects and Builders; this, we think, speaks well for their merit as practical mechanics.

Manufacture of Bonnets.

A new establishment for the manufacture of bonnets has been organized on an extensive scale in Foxborough, Mass. It is calculated to turn out ten thousand straw bonnets a year. It employs 2,000 females and 150 men; but not more than one-fourth of them work in the factory, they being paid by the piece.

Foreign Mining Matters.

The government of Bolivia have prohibited the exportation of tin ores. There have been discovered, recently, in the neighborhood of La Paz, extensive deposits of coal, which appears to be of good quality.

Another valuable silver mine has recently been opened at Copiapo, Chili.

The copper mines in the neighborhood of Santiago de Cuba, are described as very promising.

A block of stone, taken from Braddock's Field, is about to be sent to the Washington National Monument, by James W. Buchanan, Esq., of Pittsburg.

It is stated by the last news from Europe, that guano has been found on the Falkland Islands. This may lead to a reduction in its price, and a consequent benefit to the farmers both at home and abroad.