MISCELLANEOUS.

Chemical Analysis of Poisons.

It is well known that without the aid of chemistry, poisoning criminals would not be detected, except upon the confession of witnesses, who knew of and saw the deeds done. The strong evidence relied upon to prove that a person has been poisoned, and by what poison, is that of the chemist. To show how accurate the knowledge of a chemist is in respect to detecting poisons in the human system, we adduce the testimony of Dr. Reid, in the case of Otto Grunzig, tried for poisoning his wife in this city.

Lawrence Reid, professor of chemistry, sworn and examined by the District Attorney, deposed—I am attached to the City Hospital, Broadway; I have devoted myself to chemistry for 25 years; I was called upon to analyze a part of the body of Victorine Grunzig, in August last; Mr. Bleakly, the Assistant Coroner, brought me portions of the body which he told me were those of Victorine Grunzig; I wrote her name down; the parts were the stomach, with some fluid said to be part of the contents, the heart, a portion of the liver, and part of the lungs; I put them to chemical process; in those parts I did not discover any traces of mineral poison; I was afterwards furnished with other parts of the body of Victorine Grunzig; I cannot recollect what time it was; the other portions were the whole of the liver, all the intestines, the spleen, the other kidney, and the other portions of the lungs; I subjected them to a chemical examination; I heated them with sulphuric acid, for the purpose of detecting the organic matter; then burnt the substances, and placed it in an apparatus which generated hydrogen gas; the gas was inflamed, and upon intercepting the flame with a clean porcelain vessel, a slight indication was given to the porcelain, which, I supposed, was arsenic, but the quantity was so small that I cannot speak positively; it is called Marshe's test which I applied; I accompanied Mr. Bleakly to premises in Eldridge street; the number I do not know; I saw Mr. Bleakly scraping portions of the floor in the front room; he gave them to me; I was not present at the scraping of the floor in the back room; I suggested that all the medicines should be examined; this was after I analysed the contents of the body; I afterwards subjected the medicines to chemical tests; I did not discover in them any mineral poison; I analyzed the scrapings of the front room, and found mineral poison [pieces of porcelain produced with traces of metallic arsenic] one is the result of the scrapings of the floor of the second room; it is metallic arsenic.

Q.—Assuming the substance or the appearance in the second analysis you made to have been arsenic, what portion of a grain would you say was in it?

A.—I should say that it was less than a millionth part of a grain; I found about fifteen different medicines in the room; I examined them, and found no poison in them.

Arsenic sometimes produces a local inflammation and a diseased state of secretion; when arsenic acts as a slow poison, there is great difficulty in detecting it; but we then judge by the effects it produces.

I did not find any copper in the water in the stomach; I did not look for copper; the same tests would not show copper if it had been there.

The Court—What becomes of the mineral itself?

A.—It is supposed to pass off in the urine: I could not state what time it would take to pass off; some substances pass off immediately—for instance, turpentine; liquid passes into the kidneys, in about an hour; if arsenic was taken, I don't see why it should not pass off within twenty-four hours; I would rather say that it "might" pass off.

The accompaniments of the symptoms are pains in the bones, nausea, sickness, heat in stomach, and irritation of the throat; I believe delirium accompanies the advanced stage of persons under the effects of poison.

On last Friday the jury returned a verdict of "guilty of murder." He was convicted by the testimony of unerring science.

Recent Foreign Inventions.

Leather made from Scraps.—Mr. P. Webley, of Birmingham, England, has recently obtained a patent for the following method of using scrap leather:—It consists in forming a composition of scraps, or pieces of leather with gutta percha or caoutchouc. The scraps or cuttings of leather are first well washed in warm water, then taken out and partially dried, then steeped for a time in a solution of size or glue until fully saturated; it is then placed in a box or trough, the bottom and sides of which are perforated with holes to allow the escape of the superabundant portion of the solution. While in the box it is submitted to a very considerable pressure; it is then taken in the state of a hard block to a cutting or rasping machine, which consists of apparatus arranged and worked somewhat like a chaff-cutting machine. By this operation the composition is reduced to fine scraps or shreds; it is then steeped in warm water and well washed, to remove the glue. The washed shreds are then combined with melted gutta percha or cautchouc in proper proportion, and reduced to a state of sheet or plate, by passing it between rollers to any desired degree of thickness, for the purposes required, and then used for many purposes to which ordinary leather is applicable.

Artificial Fuel.—M. Pierre A. Le Comte De Fontainmoreau, of London, has recently obtained a patent for the following method of making artificial fuel:—The materials described as being employed, are the small branches of trees, annual plants, and the refuse portions of ligneous substances generally, such as tan-bark, sawdust, &c., and combining these with coal-tar, or other similar fluid or semi-fluid inflammable materials. The ligneous materials selected for the purpose are first submitted to a carbonizing process. This is conducted very much in the ordinary manner. The materials being carbonized, are pulverized and reduced to a state of powder by a mill, consisting of a pair of edge-cones attached to a vertical shaft, and operating in a similar manner to a pair of edge-stones revolving within a circular trough; the apparatus is provided with rakes and scrapers, and when the material is properly pulverized, it is discharged from the trough by an aperture provided for that purpose.

The pulverized material is now mixed with a proportion of coal-tar or other fluid or semi-fluid inflammable material; this operation is performed in a trough, within which a pair of running edge-cones are working. The materials being thoroughly mixed together, they are submitted to the moulding operation, in which a considerable degree of pressure is employed to force the materials into cast-iron moulds of the form desired. The machine consists of a cross-head. to which a number of moulding or pressing rods are attached in a vertical direction; side connecting rods are attached to the cross-head, and to a cranked-shaft below, and by the rotation of the shaft a reciprocating vertical movement is given to the cross-head; thus when it descends, the moulding-rods will be forced into the moulds beneath, and compress the materials placed therein. The compressed and moulded materials now constitute a firm hard compact fuel, not liable to breakage or crumbling from being moved about. The compressed lumps are then submitted to the last process, which is that of complete carbonization. The lumps are arranged upon an iron carriage, and then introduced into a carbonizing oven or kiln, maintained at a high temperature until all the vapor or gases are driven off; they are then removed and allowed to cool.

We are indebted to our invaluable exchanges, "Newton's Repertory of Arts," "Patent Journal," "Mechanics' Magazine," and other London Journals," and to the "Genie Industriel," &c., of Paris, for the above, in substance.

Mr. Steers, the designer and constructor of the yacht America, has been elected an honorary member of the New York Mechanics' Institute. This is an honor conferred upon those only who have invented and constructed some work of great merit. Mr. Steers has been the means of bringing great honor to this country as well as to himself. The Institute has done all that it possibly could do to test its admiration of his abilities. We hope the testimonial designed by some of our citizens to show the sense of "the services done the State," by Mr. Steers, will soon be forthcoming and as handsome as it is well deserved

The Gold of California.

The steamship Cherokee arrived at this port on last Saturday evening, and brought two millions and a half of gold dust. The gold discoveries instead of decreasing, were on the increase, and the number of emigrants to San Francisco was greater now than ever.

An extraordinary cave had been discovered about six miles from San Antoine, which had been entered and partially explored to a distance of over 1,400 feet. It is described by those who have seen it as being divided into countless chambers and apartments, all of easy access, adorned with curiously shaped figures of stone, making them resemble well furnished rooms; and from the ceilings hanging pendant in huge masses, bright crystals, flashing the light of torches, give the appearance of gorgeous chandeliers suspended from a richly-furnished dome, to shed their lustre upon the magnificence that lies scattered around; while in some of the apartments, floor, walls, and ceilings, reflect back such a flood of light from innumerable stalactites, as to be almost blinding. There is a general and regular descent to the cave of about 35 degrees.

Pickling Meat.

Prof. Refiensque denounces the use of saltpetre in brine intended for the preservation of flesh to be kept for food. That part of the saltpetre which is absorbed by the meat, he says, is nitaic acid or aquafortis, a deadly poison. Animal flesh, previous to the addition of pickle, consists of gelatinous and fibrous substances, the former only possessing a nutritious virtue; the gelatine is destroyed by the chemical action of salt-petre, and, as the professor remarks, the meat becomes as different a substance from what it should be, as leather is from the raw hide before it is subjected to the process of tanning.

He ascribed to the pernicious effects of the chemical change all the diseases which are common to mariners and others who subsist principally upon salted meat—such as scurvy, sore gums, decayed teeth, ulcers, &c.—and advises a total abandonment of the use of saltpetre in the making of pickle for beef, pork, &c., the best substitute for which is, he says, sugar, a small quantity rendering the meat sweeter, more wholesome, and equally as durable.

American Ship-Building.

The following is the acknowledgment made by Wilson Green, Esq., at the dinner on board the packet-ship Great Western, in answer to the toast, "The Liverpool Ship-builders." After speaking of ship-building generally, and what could be done in America, Mr. Green said,—

"That the Americans had advantages which they did not possess in England, and it must be acknowledged that their ships are amongst the noblest specimens of naval srchitecture, and could not be rivalled. He thought, however. that if in Liverpool we had the advantages which they had in America, we might compete with them; he would not say they could beat us, but we should first have a trial. He would say this, that in almost everything connected with ships the Americans were leading us. [Hear.] They had a class of steamers which came here from the United States. Now, as a ship-builder, and one acquainted with building large steamers, he did not hesitate to say there were not finer or better built vessels than the American steamers. [Hear, hear.] The Atlantic had sustained a succession of severe gales, which few ships could have withstood, and when she was examined in the dry-dock at this port, there was not the slightest appearance of any strain. She exhibited what he never saw before. It was well known that ships of war invariably settled about five inches; but the Atlantic did not vary an inch and a half. [Hear, hear.] There was not a frigate in the English navy that would not sink five inches. The sinking was shown by the copper; but there was not the slightest abrasion in the Atlantic. He hoped we should go on with America in the spirit of honest rivalry; and he begged to propose as a toast—'The Ship-builders of the United States of America.'"

The Steamship Great Britain.

This magnificent vessel is now ready to receive her engines. She is to have six boilers, three on each side, and two funnels, abreast of each other. The alterations in the ship have added materially to her appearance, and they have also increased her capacity. By means of the new deck house the ship will be able to carry coals for the voyage out and home, about 600 passenges, and 3,000 tons of measurement goods; whilst her engines, which are nominally of the same power as before, but really more efficient, will give her a higher speed. The new screw is now fixed in its place. Its diameter is 15 feet 6 inches, and its pitch 19 feet.

The rudder post may be termed a bar of iron firmly secured to the keel behind the propeller, and rising to the iron work above the upper end of the rudder post, inclining backwards. If any one will take a walking stick, and hold it in a sloping direction just a few inches out of the perpendicular, it will show the position of the rudder post in the ship. Then again, at the top of the rudder post, it takes a sharp curve inward into the framing of the ship, forming an acute elbow similar to the crook of a walking stick. The rudder post is turned at different diameters, tapering downwards, so that the rudder cannot get fast by working down. And into the crook of the rudder post a steel pin has been inserted upon which the rudder rides or turns. The rudder itself, that is, the movable part of it, consists of an iron frame, plated with sheet iron. The action of the rudder is partly upon the steel pin of which we have spoken, and partly upon the rudder post, which it is made to encircle; and vibration is prevented by a portion of the rudder being made to project forward of the rudder post.

Circular Saws.

Mr. Editor—I have long used circular saws, and much as I like them for some kinds of work, there are difficulties attending the running of them—I mean those of a larger size—which I have never been able to obviate, although I have tried many plans to do so. The difficulties are the heating of the saw, and the liability of it to depart from cutting in a straight line, thus making bad work. I write to learn if there is any proper remedy for these evils. I am not alone respecting the difficulties, which I have mentioned. A remedy for them would be of great benefit to hundreds of persons engaged in the business and a knowledge of which, if any exists, would do harm to no one. I write this in the hope that you or some of your readers may be able to give the desired information. R.W.W.

Florida, 1851.

[We have been informed that a remedy against injurious heating of the saw, has been provided in many instances, by lessening the number of teeth in the saw. There are many apparently small things existing, either as benefits or defects, which render machines useful or useless, which no theory can discover or point out. These belong to practical mechanism, and the attentive observer is the man who is the Seer for such things. It is impossible for one man, or a thousand men, to know about *all* these things, but we are confident that some of our readers do know, for they are neither few nor far between, and we also know they are of the right stamp to consult in such cases. We hope some of them will give the public the benefit of their knowledge respecting the practical information so much desired. —[Ed.

Improved Blacksmiths' Tuyeres.

Mr. Henry Kern, of Woodstock, Shenandoah Co., Va., has taken measures to secure an excellent improvement in Tuyeres for blacksmiths' fires; it consists in providing a circular cast-iron box, having four nozzles on its inner side, pointed towards the centre of the fire, this box being situate on the circle of the fire, and connected with the bellows; it therefore forms a wind-chest, which conveys the wind from the bellows, through the nozzles, to the fire. This produces an even heat throughout the whole breadth of the fire, something which is of no small importance. It is well known that, for heating the tires of wheels, this improvement will be of great value.