

## Waste of Cities.

Paris throws five millions a year into the sea. And this without metaphor. How, and in what manner? Day and night. With what thought? Without thinking of it. With what object? Without any object. For what return? For nothing. By means of what organ? By means of its intestine. What is its intestine? Its sewer. Five millions is the most moderate of the approximate figures which the estimates of special science give.

Science, after long experiment, now knows that the most fertilizing and the most effective of manures is that of man. The Chinese, we must say to our shame, knew it before us. No Chinese peasant, Eckeborg tells us, goes to the city without carrying back, at the two ends of his bamboo, two bucketsful of what we call filth. Thanks to human fertilization, the earth in China is still as young as in the days of Abraham. Chinese wheat yields a hundred and twenty-fold. There is no guano comparable in fertility with the detritus of a capital. A great city is the most powerful of stercoaries. To employ the city to enrich the plain would be a sure success. If our gold is filth, on the other hand our filth is gold. What is done with this filth, gold? It is swept into the abyss.

We fit out convoys of ships, at great expense, to gather up at the South pole the droppings of petrels and penguins, and the incalculable element of wealth which we have under our own hand we send to the sea. All the human and animal manure which the world loses, if restored to the land instead of being thrown into the sea, would suffice to nourish the world.

These heaps of garbage at the corners of stone blocks, these tumbrils of mire jolting through the streets at night, these horrid scavengers' carts, these fetid streams of subterranean slime which the pavement hides from you, do you know what all this is? It is the flowering meadow, it is the green grass, it is marjoram and thyme and sage, it is game, it is cattle, it is the satisfied low of huge oxen at evening, it is perfumed hay, it is golden corn, it is bread on your table, it is warm blood in your veins, it is health, it is joy, it is life! Thus wills that mysterious creation which is transformation and transfiguration in heaven. Put that into the great crucible; your abundance shall spring from it. The nutrition of the plains makes the nourishment of men. You have the power to throw away this wealth, and to think me ridiculous into the bargain. That will cap the climax of your ignorance.

Statistics show that France, alone, makes a liquidation of a hundred millions every year into the Atlantic from the mouths of her rivers. Mark this: with that hundred millions you might pay a quarter of the expenses of the Government. The cleverness of man is such that he prefers to throw this hundred millions into the gutter. It is the very substance of the people which is carried away here, drop by drop, there in floods, by the wretched vomiting of our sewers into the rivers, and the gigantic collection of our rivers into the ocean. Each hiccough of our cloaca costs us a thousand francs. From this come two results—the land is impoverished and the water infected; hunger rising from the furrow and disease rising from the river. It is notorious, for instance, that at this hour the Thames is poisoning London.—*Victor Hugo.*

## The Revolutions of the Stars—An Error Detected.

We take pleasure in publishing the following communication from the Rev. William Isaacs Loomis, of Martindale Depot, N. Y. :—

In the appearance of nature the times of the revolutions of the stars are so graduated to each other that, when one appears to set out from a given point in its diurnal and annual revolutions, the time of the apparent diurnal star will bring it to the same absolute point which is occupied by the apparent yearly star at the close of the sidereal year. The times of the apparent revolutions of the stars, as given in the accepted system of astronomy, involve the absurdity of a star being in two different places, a little more than one-fourth of the circle of the heavens distant from each other, at the same instant of time. From this it is certain that the astronomers' times of the apparent revolutions of the stars have no foundation in truth. Herschel says the time of an apparent

diurnal revolution of the stars is 23 hours, 56 minutes, 4.09 seconds; and the time of the apparent yearly revolution of the stars is, in solar time, 365 days, 6 hours, 9 minutes, 9.6 seconds, which is equal to the time of the sidereal year. The proportion that these times bear to each other is that, in the time in which a star will make one apparent yearly revolution, it will also make, in appearance, 366 diurnal revolutions and an arc of  $92^{\circ}+$ . The result which follows from this should be that, if a star sets out from a given point in its apparent diurnal and yearly revolutions, at the close of the sidereal year, the apparent diurnal star will have reached a point  $92^{\circ}+$  beyond the point at which the apparent annual star finishes its yearly revolution. To illustrate this, take, for example, the point where the circle of the ecliptic intersects the circle of the celestial equator; and suppose a star to set out in its diurnal course, appearing to move in the plane and circle of the celestial equator, and at the same instant to set out in its yearly course, appearing to move in the place of the ecliptic. Because the star is said to make an apparent diurnal revolution in 23 hours, 56 minutes, 4.09 seconds, at the close of 365 solar days, 6 hours, 9 minutes, 9.6 seconds, the apparent diurnal star will have finished 366 revolutions and an arc of  $92^{\circ}+$ , and the apparent place of the star in consequence of its diurnal motion will be advanced in right ascension  $92^{\circ}+$  from the point at which the star completes its yearly revolution in the plane of the ecliptic. Hence from the accepted star time it is demonstrated that a star can be in two different places at the same moment; the intervening distance being a little more than one-fourth of the circle of the heavens! The absurdity of the demonstration is obviously a most serious interference with the astronomers' claim that the science of which they are the masters "is founded on laws which are immutable."

## VALUABLE RECEIPTS.

TESTING AURIFEROUS PYRITES FOR GOLD.—It has been very desirable to obtain a simple method of determining the amount of gold in auriferous pyrites, because the aspects of the gold and the pyrites are so much alike that the one cannot be distinguished from the other with a lens. The exploring miners in California, Australia and other places, have been at a loss to find out the amount of gold in the auriferous pyrites which they have discovered; hence in many cases, they have mistaken pyrites for gold and vice versa. The following simple mode of examining auriferous pyrites is given by Lewis Thompson, analytical chemist, in *Newton's London Journal of Arts*, and he states it was furnished upon application to a miner who went to Australia a few years since, and who has lately returned to England quite wealthy :—

Having provided a common tea-cup or other similar vessel, cut a piece of card into a circular form, and of such a size that it will rest midway in the tea-cup: then take a small piece of the pyrites recently broken, and make a hole in the center of the card, just large enough to admit and retain the pyrites: now put into the tea-cup a small quantity of quicksilver, about the size of a four-penny piece, and place the card in the cup, so that the pyrites may rest a short distance above the quicksilver: next place the whole upon the hob or other warm (not hot) situation, and so leave it for half an hour; at the end of this time examine the surface of the pyrites with a lens, of the kind used by watchmakers and which are sold in London for sixpence or a shilling each: the particles of gold will now be of a white color, as if frosted over, and if the whole be rubbed with a camel's hair pencil or the top of a quill, the gold will assume a brilliant appearance like a mirror or the surface of a piece of newly-polished silver, while the rest of the pyrites will remain unaffected. It is then easy to judge of the comparative value of the ore.

PRESERVING PICTURES.—Many valuable oil paintings suffer premature decay from attacks of microscopic insects. The best way to prevent this species of decay is to add a few drops of creosote to the paste or glue that is used to line the pictures; and also to add some creosote to the picture varnish. Paintings should be kept in a pure dry atmosphere.

Many valuable paintings that are hung against solid walls of masonry, in churches and other buildings, are subjected to a damp atmosphere, and the canvas becomes moldy. Old pictures which have become blackened, are restored by washing them with deuteroxide of hydrogen, diluted in eight times its weight of water. The parts thus touched must be afterward wiped with a clean sponge and water.

## The Colors of Flames.

In burning pure hydrogen gas upon a loop of fine platina wire, a white light is produced. In such a flame various substances emit different colors. Phosphoric acid gives a beautiful light green; sulphuric acid, a beautiful blue color; boracic acid an intense green; chromic acid a rose color, and molybdic acid a yellow-green flame. Nitric and nitrous acids give a bronze-green color, and muriatic acid a greenish blue. Of the alkalies, potash gives a rose-violet flame color, and soda an orange-yellow flame color, which in very large quantities appears pure blue; lithia affords a carmine red color, and baryta a blue-green flame. Strontia gives a beautiful rose color; this substance is chiefly used for this purpose in fire-works. The nitrate of copper gives a green flame; the chloride of copper, an azure blue. Every substance produces its own peculiar color or shade of color in flame; hence a knowledge of the colors of flames is essential to the chemist, and now forms a peculiar branch of chemical investigation.

## Intermarriage of Deaf Mutes.

The question of the intermarriage of deaf mutes was the subject of a paper recently read before the French Academy of Sciences by Dr. Boudin, who took the ground that the infirmity is not hereditary. The parents of deaf and dumb children, he observed, are generally in perfect health, and, moreover, deaf and dumb parents not connected with each other by ties of consanguinity very rarely have deaf and dumb children. He quoted an observation made by Dr. Perron, of Besançon, of two brothers of the name of Vallet, splendidly constituted and enjoying the most perfect health, who married two sisters—their cousins german. The elder has had several children, only one of whom, now aged twenty, is deaf and dumb. The younger brother has had six children, the first, third and fifth of whom could hear and speak, while the second and fourth were deaf and dumb; the sixth, still in its cradle, does not seem sensible of any noise they may happen to make in the room. These cases are utterly in contradiction to the doctrine of inheritance.

MUSTARD.—The Sacramento (California) *Bee* says :—There were shipped from San Francisco last week, 234 bags of mustard for New York. It is known that the wild mustard, or the mustard which grows wild on hundreds of thousands of acres in southern California, counting from Santa Clara down, is superior to the English imported mustard. This home mustard is in general use in this State, and for many years it has been gathered by parties and shipped abroad. The supply seems almost endless, and the business of gathering it ought to be, and will yet be, when labor becomes cheaper, a leading one in the commercial interests of the State.

LAST Thursday a telegraphic dispatch was sent from New York city, between three and four o'clock in the afternoon, to San Francisco, and an answer received between six and seven in the evening!

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