

## SOME RECENT FACTS ABOUT COMMON POISONS.

## STRYCHNINE.

According to the *Lancet*, Dr. Attilio Lelli, having met with a case in which a large dose of strychnine had been administered in coffee without fatal consequences, was led to institute a series of experiments to determine whether coffee possessed any antitoxic power against the drug. The animals employed were rabbits; and he found, by comparative trials, that a dose of 5 centigrammes (0.77 grain) proved fatal in a short space of time; when the same, in a larger dose, was given in a very strong infusion of coffee, he found that the latter acted either as a complete antidote in preventing the poisonous effects of the strychnine, or that it materially diminished the violence of its action. This is interesting, but it must be noted that the strychnine was given in coffee, no doubt good and strong. It is probable that coffee taken after poisoning with the deadly drug would have but little appreciable effect.

By means of experiments made under the direction of the British Medical Association, last year, it was conclusively proved that a fatal dose of strychnine could be neutralized by a fatal dose of chloral hydrate. A correspondent of *Nature* writes to that journal another instance confirmatory of the foregoing fact. A favorite Skye terrier having been poisoned accidentally by eating some bread spread over with "vermin killer," containing strychnine to the amount of about one sixth of a grain, he at once injected under the dog's skin forty-five grains of the chloral in solution. This quantity of chloral he estimated to be a fatal dose for the dog, inasmuch as the minimum fatal dose for a rabbit (weighing half as much as the latter) had been proved to be twenty-one grains. In a quarter of an hour, fancying the dog was dead (as the spasms had ceased and it lay apparently lifeless) he moved it with his foot, when it at once struggled to its feet and staggered off. It was then fed with some milk, and, with the exception of being quieter than usual, seemed none the worse for the ordeal it had passed through.

Dr. W. E. M. Quiston, of Atoka, Tenn., records a case of recovery from poisoning by strychnine. A young woman on September 13, 1877, took a dose of the poison to commit suicide. Ten minutes afterwards she regretted the act and asked her parents to send for a doctor. When he came he administered chloroform, which produced an immediate improvement. A strong emetic was given, and the stomach was then kept full of sweet oil, white of egg, and linseed tea, while mild inhalations of chloroform were administered as occasion seemed to demand. The result was a complete recovery within a comparatively short space of time. The action of chloroform in this case was analogous to that of chloral hydrate in the preceding notes.

## ARSENIC.

R. V. Mattison, in a paper read at the Alumni meeting of the Philadelphia College of Pharmacy, claims to have fully established the question of the efficacy of dialyzed iron as an antidote for arsenical poisoning. He states that common salt should always be given to the subject immediately after the iron solution, for the purpose of precipitating the iron, in case the gastric juice should fail to be sufficient.

It has been discovered by Rouyer that freshly precipitated sesquihydrate of iron, although an antidote for arsenious acid (arsenic of the shops), fails entirely to counteract the action of arseniate of soda or arsenite of potassa (Fowler's solution), but that a mixture of a solution of the sesquichloride of iron and the oxide of magnesium will counteract the effect of these salts, as well as the arsenious acid itself, and hence this mixture is always to be preferred to the hydrate in cases of poisoning by arsenic. The official solution of the sesquichloride of iron should first be administered, and afterwards the magnesia. In one hour after the administration of the antidote, a cathartic should be given. In all cases acid drinks (such as lemonade) are to be avoided, since the compounds they form are soluble.

The poison most commonly used for criminal purposes is arsenic, its tastelessness preventing the victim recognizing it. In view of this, Dr. Jeannel, of Paris, proposes that druggists shall sell arsenic to the public only when so combined that it immediately attracts attention when added, either by accident or design, to food. For this purpose he directs attention to Grimaud's mixture, which consists of about one sixth of a grain each of sulphate of iron and cyanide of potassium to every 15 grains of arsenious acid, forming a light blue powder. On being moistened, however slightly, it becomes of a rich blue color, while the taste is so distinctly chalybeate that it is impossible to overlook its presence in any article of food.

## LEAD.

A singular fact is given in the *Journal de Médecine* of the effect of the habitual use of milk in white lead works. In some French lead mills it was observed that, in a large working population, two men who drank much milk daily were not affected by lead. On the general use of milk throughout the works the occurrence of lead colic ceased. Each operator was given enough extra pay to buy a quart of milk a day. From 1868 to 1871 no cases of colic had appeared.

## OPIUM.

At a recent meeting of the Medical Society of London, Dr. Milner Fothergill read an interesting case of opium poisoning which he had successfully treated with atropine. The patient, a woman forty-seven years of age, had taken a quantity of laudanum equivalent to 12 grains of opium. Dr.

Fothergill, finding her respiration falling, and her condition critical, boldly injected beneath the skin one grain of sulphate of atropia. Strong coffee and sal volatile were afterwards given, and forty-eight hours after the opium had been taken, and forty-five after the injection of the atropine, both poisons were eliminated.

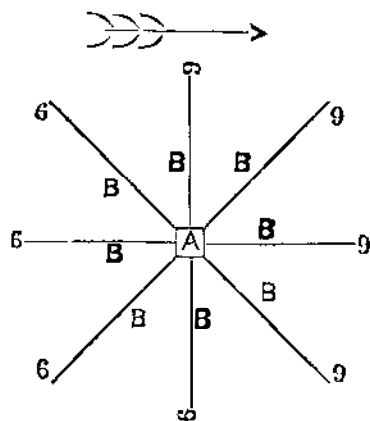
A case somewhat similar is reported by Dr. Lamadrid, of Philadelphia, in which more than  $\frac{3}{4}$  of a grain of atropine was injected in divided doses. As in opium poisoning death occurs chiefly through failure of the respiration, and as atropine is the only known drug which exercises a decidedly stimulating effect on the respiratory centers, the rationale of the treatment is evident.

## MUSCARIN.

Through the investigations of Dr. Lauder Brunton, in England, Professor Schiff, in Italy, and others, it has been known for some time that we have a certain antidote for the poison of toadstools (muscarin) in belladonna and stramonium, used either in the form of a tincture made from the leaves of the plants, or in that of their alkaloids, atropia and daturia. The result of some elaborate experiments of Dr. Ringer, recorded in a late number of the *Lancet*, adds another antidote to the toxic principle of toadstools in the shape of a plant known to botanists as *Duboisia myoporoides*. This plant, like belladonna and stramonium, belongs to the order *Solanaceae*, all the species of which are characterized by narcotic and poisonous properties. *Duboisia* was found to be very similar to, if not identical with, atropia; and, like it, antagonistic to the action of muscarin.

## PERPETUAL MOTION.

Of the different types of self-moving machines which have engaged the attention of the believers in the possibility of perpetual motion, one form has steadily remained the favorite. It is that in which the radii or spokes of a wheel carry weights which, by hinges and stops, or in some way, are to be constantly unbalanced. Since the days of Bishop Wilkins, the Marquis of Worcester, and M. Orffyreus, this sys-



tem, with varying details, has been reinvented many thousands of times, the inventor in each case falling only just a little short of success, usually owing to some slight defect in the model. It has remained for a correspondent of the *New York World* to demonstrate mathematically the soundness of the principle, as applied in a machine invented by him. He writes that he has never made a working model, but that is not necessary, as the diagram has only to be seen to be accepted.

The arms, B B B B B B B B, radiating from the hub, A, carry weights of this peculiar shape, 9, so that the three on the right represent twenty-seven pounds, while the three on the left only amount to eighteen pounds, thus there must always be nine pounds more on the right side than on the left; the sixes on the left become nines when they pass the center, consequently the machine must move; it amounts to a mathematical demonstration, and "figures won't lie."

## Hydraulic Salt Mining in Bavaria.

A correspondent of the *World* describes at great length the process of salt mining in use at Berchtesgaden, Bavaria. At this place the salt does not occur in deep rocky strata, as at the Polish mine at Wieliczka, but in a thick layer of saliferous earth in the heart of a mountain. The mine is entered by horizontal shafts, and the salt ingeniously removed by the solvent action of water working upward. At the end of each shaft a chamber is mined, and when it is large enough the entrance is dammed up and the chamber filled with fresh water through an opening at the top. The water is to dissolve out the salt from the roof of the chamber, hence it is necessary that the chamber be kept entirely full. At first the water acts also upon the bottom and sides of the chamber, but soon there is left a pasty waterproof covering of clay which prevents further action. At the top, however, the overlying earth falls away as a fine sediment as fast as the salt is dissolved, leaving always a fresh surface for the water to act upon. The falling sediment forms, under pressure, a water-tight floor to the chamber, which rises as the solution of the roof goes on, so that the chamber slowly climbs from the bottom to the top of the salt yielding stratum. The solution has to go on with the utmost quiet, and not too rapidly, or else fragments of the roof will fall to the bottom, where the water is saturated with salt, and be lost. To keep the water constantly pressing against the roof a proper supply of fresh water is continually added from above. Complete saturation of the water is effected in about three weeks, when it is pumped out and carried in pipes to

Reichenhall, twenty miles distant, for evaporation. Fresh water is then pumped into the chamber, and the process repeated until the upper limit of the salt deposit is reached. In this way the mountain is being slowly washed, and its saline treasure stolen away, without removing the clay with which it was associated. The saliferous earth removed in tunneling is refined in the usual way.

## A Mouth Telegraph.

M. Mangenot has recently communicated to the French Academy of Sciences a description of a new telegraphic apparatus, to be worked by the mouth. The manipulator consists in two plates of ivory, from one of which leads the conducting wire, and from the other the ground wire. These plates are placed between the lips, and the operator talks or so moves his lips as to make a certain number of breaks and establishments of the current for each word or letter. At the other end of the line is a similar arrangement, the receiver translating the message by the sensations of his tongue.

[We translate the foregoing from a report of the proceedings of the Academy, published in several of our French contemporaries. The principle is venerable with age, and probably there is no one who has ever repaired a telegraph line that has not tested whether a current was or was not passing by touching his tongue to the wire. The same can be done on wet days with the fingers, although the sensations are not so marked. M. Mangenot appears to have invented nothing but the ivory holders for the wire, and consequently the claim which he makes for the \$10,000 Volta prize to the French Government savors considerably of profound assurance. — Eds.]

## Steel Exhibits.

Messrs. Jessop & Sons, steelmakers, of Sheffield, have for exhibition at the world's show at Paris a comprehensive collection of specimens of steel in all stages of manufacture, commencing with bar steel and finishing with highly polished bayonets and knife blades. There are best cast steel, in bars ranging from 20 inches square to  $\frac{1}{2}$  of an inch; similar bars in octagons, hexagons, flats, and rounds, every other bar from the 20 inch square downwards being highly polished to show the steel to be absolutely free from flaws. Then there are special kinds of tool steel in all shapes, forgings of all kinds, and circular plates for circular saws. One of these plates is no less than 10 feet 8 inches in diameter by  $\frac{1}{2}$  inch, and is believed to be the largest steel plate of the kind ever shown or made. The exhibits also include a cold rolled band  $4\frac{1}{2}$  inches broad by 30 gauge and 200 yards long; a hot rolled band  $6\frac{1}{2}$  inches broad by 16 gauge and 120 feet long; wire rods from 300 feet long; saw, reaper, and pen sheets of all sizes, from 16 feet by 3 feet 6 inches; and several samples of severely tested plate steel. Finally there are stars formed of bayonet blades, and stars also of cutlery and scissor blades.

## Physiological Treatment of Stuttering.

Very great success is reported as attending the treatment of stuttering by purely physiological training, according to the system of M. Chervin, of Paris. Three types of stuttering are distinguished: First, that occurring during inspiration; second, stuttering during expiration; third, stuttering during both these periods, and between breaths. The treatment is divided into three stages. The first involves various respiratory exercises, during which the pupil is first taught to make a long full inspiration and follow it by regular forcible expiration. Then the respiratory movements are made with various rhythms until they become full, regular, and easy, instead of being jerky, labored, and fatiguing. In the second stage of treatment, exercises with vowel sounds are substituted for the previous mute breathings, giving to each vowel the various modifications of tone, pitch, duration, etc., heard in conversation. The third stage comprises exercises on consonants, alone and in combination with vowels; at first slowly, then rapidly, varying the duration and pitch of each syllable, and passing from words of one syllable to those of two and more. Prepared by these exercises the pupil learns to articulate slowly and methodically short sentences, then longer periods and paragraphs, separating sentences and always beginning with a deep inspiration. Twenty days of this treatment usually suffice for a perfect cure.

## Planetary Population.

On the interesting question of the plurality of worlds, Professor Newcomb remarks as follows: "Enthusiastic writers not only sometimes people the planets with inhabitants, but calculate the possible population by the number of square miles of surface, and throw in a liberal supply of astronomers, who scan our earth with powerful telescopes. The possibility of this it would be presumption to deny; but that it is extremely improbable, at least in the case of any one planet, may be seen by reflecting on the brevity of civilization on our globe when compared with the existence of the globe itself as a planet. The latter has probably been revolving in its orbit 10,000,000 years; man has probably existed on it less than 10,000 years; civilization, less than 4,000; telescopes, little more than 200. Had an angel visited it at intervals of 10,000 years to seek for thinking beings, he would have been disappointed a thousand times or more. Reasoning from analogy, we are led to believe that the same disappointments might await him who should now travel from planet to planet, and from system to system, on a similar search, until he had examined many thousand planets."