Poisons.

ORGANIC.

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No. VI.

Table I. (*continued*).

Atropine, Preparations of.

Atropine is an alkaloid obtained from Atropa belladonna, either from the leaves or root. It is the active principle, and is a deadly poisonous substance. Belladonna itself is placed on the second Table.

The root contains more atropine than the leaves, generally about ·5 per cent. It is extracted by adding slacked lime to a tincture of belladonna, when the atropine is set free.

The lime is got rid of by sulphuric acid, when sulphate of lime is formed. On further treatment with carbonate of potassium the colouring matter is extracted. The atropine is obtained by the addition of chloroform, which dissolves it, forming a separate layer, which can be decanted off, or removed by a special separator; on evaporating the chloroform off, the atropine is left. It is then purified by treatment with alcohol and animal charcoal. It is in colourless crystals, soluble in chloroform, ether, or alcohol. In water it is only soluble 1 part in 300. Its solution in water has an alkaline reaction. In the belladonna there is present hyoscyamine, and it is supposed that in extracting it from the root or leaves the conversion into atropine takes place, and that no atropine exists in the plants, only hyoscyamine, which is very similar.

There is a sulphate of atropine, made by neutralising the alkaloid with dilute sulphuric acid and evaporating to dryness. There is also hydrobromide of homatropine. It is prepared from atropine. The homatropine is first obtained, then the salt is formed by adding hydrobromic acid. The dose of atropine is $\frac{1}{200}$ to $\frac{1}{100}$ of a grain, of the sulphate the same quantity is given, but of the hydrobromide $\frac{1}{80}$ to $\frac{1}{20}$ of a grain is the dose.

There is a solution of sulphate of atropine, of which $\frac{1}{2}$ to 1 minim may be given; the strength is 1 grain in 110 minims.

There is a preparation called a disc made with gelatin and glycerine, the weight of which is $\frac{1}{50}$ of a grain and contains $\frac{1}{5000}$ of a grain of sulphate of atropine. There is an ointment made with the pure alkaloid.

Atropine and its preparations powerfully dilate the pupil of the eye. They are much used for ophthalmic purposes. The disc is the form generally employed, or the solution can be used, and of late years homatropine has been a favourite preparation with oculists. The ointment relieves pain, and checks inflammation. Internally, atropine stimulates the circulation. It is much given in phthisis, to lessen night sweats; it is also used in whooping-cough, and in bronchial asthma.

In cases of poisoning from atropine, or any of its preparations, the stomach pump must be employed, and emetics given. Nitrate of pilocarpine may be given, or sulphate of morphine in a hypodermic injection. Stimulants should be administered; they are best given hypodermically also. Artificial respiration must be employed.

Alkaloids.

All Poisonous Vegetable Alkaloids and their Salts.

Before going into the question of which are poisonous, it is well to state what an alkaloid is.

It is an organic base, containing nitrogen. Formed on the type of ammonia, being alkaline in reaction, forming salts with acids, on heating an alkaloid with caustic potash, ammonia gas is given off. They are looked upon as derivatives of ammonia, one atom of hydrogen being replaced by an organic radical.

They are in most cases solid. They all contain oxygen, except the four liquid volatile ones, conine, nicotine, sparteive, and lobeline.

Conine was the first alkaloid to be prepared artificially. Among the official are atropine and strychnine, which we have dealt with already.

Cocaine, although poisonous, is not recognised as such, but it is likely soon to be added to the poison list.

Aconitine is the active principle of aconite root and leaves. It may be extracted in an amorphous or crystalline condition, but the latter form is the only one now recognised in the British Pharmacopœia. It is obtained by boiling aconite with amyl alcohol. The solution is shaken up with diluted sulphuric acid, which extracts the aconitine; the aqueous solution is rendered neutral with carbonate of soda.

The aconitine thus precipitated is crystallised from ether. It is colourless, soluble in alcohol, chloroform and ether, nearly insoluble in water. There is an ointment made from aconitine. It is the only preparation of the alkaloid we have, and is given to diminish pain in cases such as neuralgia or rheumatism. Aconitine is rarely given internally. The dose should be about $\frac{1}{100}$ of a grain.

In a case of poisoning the antidotes would be the same as mentioned in aconite, *i.e.*, stomach pump, emetics, tincture of digitalis as a hypodermic injection, ammonia, ether, or alcohol. The patient must be kept very warm.

Artificial respiration must be employed if necessary.

Eserine or physostigmine is an alkaloid obtained from the seeds of Physostigma venenosum. It may be prepared by dissolving the extract (made from the seeds) in water. When the alkaloid is precipitated with carbonate of sodium, ether is added;

previous page next page