Treatment of the Poisoned.

Translated for the *National Druggist* from the Journal der Pharmacie von Elsass Lothringen.

Professor Kobert in his recently published manual of toxicology *(Lehrbuch der Intoxicationen)* divides the treatment in cases of poisoning into three classes, to-wit: physical (mechanical), antidotical and symptomatic.

PHYSICAL TREATMENT.

This, which comes in play in bites of poisonous serpents, poisoning by subcutaneous injections, cutaneous absorption, etc, consists of—

I. Removal of residual poison from the wound, by squeezing, sucking, washing or the cautery;

II. Removal of the poison from the stomach by the pump, and subsequent washing out of the stomach, or by provoking vomiting either with emetics or mechanical tickling of the œsophagus. As a material for washing the stomach water alone may be used, or a chemical antidote may be mixed with or dissolved in it. Washing should be maintained as long as the returning fluid contains traces of the poison, either in color, smell or chemical reaction. [N. B.—Keep the wash-water for examination in the case of judicial proceedings.]

Even in the case of intoxication by hypodermical injection either of the alkaloids, or their salts, the stomach should be emptied and washed out, as a large portion of the poison thus taken into the body is taken up by the stomach and may be recovered from the gastric fluids. [N. B.—*In* comatose conditions washing out the stomach, preferably with cold water, very frequently has an analeptic and diuretic action, and consequently is thus indirectly useful.]

To Produce Vomiting tickle the œsophagus, give luke-warm water, either alone or containing a teaspoonful of powdered mustard. These are methods to be adopted at once. On the arrival of the physician the latter can resort to hypodermic injections of hydrochlorate of apomorphine (the *readiest and surest of all emetics*, and one that can be used under any circumstances, even deep unconsciousness or coma being no bar to its effectiveness). If this be not at hand, use tartar emetic (full dose, 1½ to 1¾ grains, copper sulphate, ipecac, etc. Give warm water plentifully.

III. Removal of the poison from the stomach by purgatives and rectal injections. Keep up the latter until the discharges come away free from traces of the poison.

IV. Hindering the absorption of the poison by the use of the tourniquette, bandages or cords drawn tightly around the limb between the seat of entry of the poison and the body. This is especially useful in the case of the bites of poisonous serpents, spiders, insects, etc. [Caution:—Have a care of gangrene by leaving such appliances too long in situ.]

V. *Artificial Respiration.*—Where the respiration is failing, slow, labored, produce artificial respiration. (For the fullest directions in regard to the methods of producing artificial respiration, see *National Druggist*, November, 1893, page 148, "First Aid to Drowned.") Be careful to allow free circulation of air around, fanning the brows, etc. Draw the tongue out by seizing with the fingers protected with a napkin. If phlegm has collected in the larnyx, remove it with the fingers, intubate, and as a last resort, tracheotomy must be performed.

VI. *Electricity.*—Stimulate breathing through the excitation of the phrenic nerve (especially, according to von Ziemssen, in poisoning by illuminating gas, carbonic acid, opium, morphine, chloroform, and sulphide of hydrogen) Use electricity in toxic forms of tremor (alcohol, mercurial, lead, and arsenic intoxications), toxic tetanus (strychnine, thebaic, picrotoxin poisonings, and hydrophobia) and toxic pareses and paralyses (such as lead paralysis).

VII. *Cold.*—Applied by pouring ice water over the person, compresses, the ice-bag: Useful in acute stages of narcotic poisoning, attended with sleep or coma.

VIII. *Warmth* should be applied to the extremities in those cases of poisoning attended with cold feet, hands and nose. If possible get the patient to bed, cover with blankets, apply hot bricks, bottles or bags of hot water to feet. When warmth is returning, but the senses are manifestly failing, use hot foot bath and apply cold douche or spray to the head and down the spine. Hot baths (full) are indicated in poisoning by the metals, especially mercury and lead.

IX. *Passive movement of the limbs* to excite the circulation is indicated in cases where the heart action grows feeble. This is effected by moving the legs and arms alternately and rythmically, from the stretched (straight) to the flexed condition, making rhythmical pressure upon the abdomen at the same time. One person should attend to the legs and another to the arms. [See article in *National Druggist*, heretofore alluded to, for fullest directions for executing these movements.]

X. *Massage of the extremities and abdomen.*—This is sometimes very effective in poisoning with those substances which have a tendency to coagulate the blood, or to reduce arterial pressure in any form.

XI. *Brushing, flogging or tickling* of the extremities, especially the soles of the feet and palms of the hand. These are effective methods for the restoration of reilex activity.

XII. *Lowering the head.*—Useful especially in comatose conditions with weak, slow pulse.

XIII. *Administration of small pieces of ice.*—Useful in cases of poisoning by corrosive substances, stilling pain and retarding inflammatory action.

XIV. *Catherization of the bladder.*—To be resorted to in all cases accompanied by retention of the urine, whether from suppression of the faculties (detrusion) or spasm of the sphincter. [N. B.—*Always* to be remembered and used in cases of morphine poisoning.]

XV *Venesection*, with subsequent transfusion of defibrinated human blood where possible, *and where impossible, the* infusion of weak saline solution. An amount of blood equal to from two to three per cent. of the total weight of the body may be removed in this manner. *This is most useful in poisoning from* mirbane oil, oxalic acid, carbonic oxide, etc. About twice as much of the solution of sodium chloride (salt, ¼ of 1 per cent. to 100 parts of water) should be returned for every ounce of blood taken. The following is the best formula for the solution.

Common salt	¼ of 1 part.
Sodium carbonate	1 part.
Pure cane sugar .	5 parts.
Water	100 parts.

XVI. In cases of bite from rabid animals, stings of poisonous insects or reptiles, snake bite, etc., the actual cautery or Paquelin cautery should be promptly resorted to. They are, however, of no use, and merely inflict needless suffering, unless at hand and *resorted to at once*, within a few minutes after the infliction of *the injury*.

ANTIDOTIC TREATMENT.

A. Physical-chemical antidotes. These are—

I. *Inhalation of oxygen.*—To be resorted to in all cases of blood-poisons and the poisons which attack the respiratory centre.

II. *Administration of protective agents*, in poisoning with corrosives. These consist of dilute egg albumen (whites of 3 eggs to 1 quart of water, and the whole agitated together) given by cupsful (vomiting is no contraindication), milk (contraindicated in poisoning by phosphorus, cantharides, and arsenic), glue, gelatin, gum arabic, tragacanth, linseed, althea root, poppy seed, starch, etc., in mucilaginous solutions.

III. *Animal charcoal*, freshly burnt. Indicated in poisoning from arsenic and sublimate. Within an hour after the administration of coal vomiting should be brought on, or the pump brought into use, and the stomach emptied and washed out.

IV. *Tannic acid.*—In cases of necessity tea, coffee, oak bark, cinchona bark, walnut leaves, etc., any and all non-poisonous tannin containing materials. Tannin is an antidote to most vegetable poisons (Hasselt), making salts with the alkaloids and throwing down the metal salts as precipitates. *Nota bene*:—Such precipitates remain insoluble only where enormous doses of the antidote are given, and in such cases the stomach will remain for weeks after the injection powerless to digest anything.

V. *Iodine* (Lugol's solution), is useful in all cases where tannin is. When administered no time should be lost in the removal of the contents of the stomach,