

TREATMENT OF POISONING.

AS INTERPRETED FROM THE STANDPOINT OF THE VIEWS
ADVANCED IN THE PRESENT WORK.

Acetanilid (Antifebrine) Poisoning..... 1291

Due to excessive constriction of the arterioles. *Amyl nitrite* to dilate these vessels, with *oxygen* inhalations; or, in the absence of this gas, *deep breathing*, to offset the cyanosis. *Nitroglycerin* to sustain the effect. *Heat* to the surface. *Hot* (110° F.) *saline solution* intravenously, or hypodermically to dilute the blood, facilitate elimination of the poison, and reduce the irritating action on the sympathetic center. *Strychnine* aids the treatment by causing general vasoconstriction, thus forcing blood through arterioles, and also by enhancing the production of adrenoxidase.

Contraindicated: Digitalis, which excites the sympathetic center; and alcohol, which deoxidizes the blood.

Acetanilid (Antifebrine) Chronic Poisoning.

Withdrawal of the drug, *thyroid extract* and *oxygen* inhalations or *deep breathing*. *Strychnine*.

Aconite Poisoning 1347

Due to excessive dilation of arterioles, with tendency to ischæmia of the heart muscle and cardiac arrest. *Morphine* to stimulate the sympathetic center and contract arterioles. *Strychnine* and *digitalis* aid by counteracting the tendency to general vasodilation and cardiac ischæmia. *Atropine* also contracts arterioles, but less actively than morphine. *Caffeine* less useful than either. *Ammonia* good as general stimulant.

Evacuation of stomach, avoiding depressing emetics; *mustard* best. Recumbent position to prevent cardiac arrest. Warmth to surface.

Contraindicated: Amyl nitrite and nitroglycerin, which dilate the arterioles.

Adrenalin Poisoning 1173

Due to excessive quantity of adrenoxidase formed in the blood and the resulting hypermetabolism in the muscular coat of arteries. This gives rise to intense engorgement of capillaries, followed by hyperconstriction of all arterioles and arrest of the central (pituitary, etc.) and cardiac functions.

Amyl nitrite inhalations, to keep arterioles dilated. *Hot* (110° F.) *saline solution* intravenously at once, to dilate the blood-vessels. *Nitroglycerin* hypodermically, to sustain the dilation of arterioles by depressing the sympathetic center. *Guaiacol* painted over area 3 or 4 inches square near head, aids by depressing reflexly the vasomotor and sympathetic centers.

Contraindicated: Strychnine, digitalis, ether, alcohol, coffee, and all other agents which tend to raise the arterial tension.

Alcohol Poisoning 1330

Due to oxidation of alcohol in the blood at the expense of its adrenoxidase, and paresis of all centers.

If recently ingested, evacuation of the stomach with pump. No depressing emetics. *Aromatic spirits of ammonia* to counteract the viscosity of the blood. *Hot* (110° F.) *saline solution* subcutaneously or, better, intravenously, to restore free osmosis. Then *hot strong coffee* orally and *strychnine* in full doses hypodermically, to restore the normal sensitiveness of the centers. Aided by inhalations of *ammonia* or *titillation* of the nasal mucosa to provoke sneezing.

After-treatment: *Digitalis* to enhance the functional depression of the cardio-vascular system. *Thyroid extract* in tonic doses (1 grain t.i.d.) if the depression is marked, to enhance the production of adrenoxidase.

Alcohol Poisoning, Acute (Delirium Tremens).

Conditions the opposite of above. Excessive liberation of heat energy by oxidation of alcohol with hyperconstriction of arteries and intense hyperæmia of the cerebro-spinal capillaries.

Withdrawal of alcohol imperative. *Chloral hydrate* or *bromides* to depress sensitiveness of vasomotor center. Then *hot* (110° F.) *saline solution* subcutaneously or, better, intravenously, to facilitate osmosis of blood in arteries into lymphatics.

Contraindicated: Morphine, opium and digitalis, all of which at first tend to increase the cerebral congestion.

Ammonia Poisoning.

Local lesions the main source of danger. *Vinegar* or *lemon juice* to neutralize the ammonia, or *dilute nitro-muriatic acid* in water. *Demulcents* or *olive oil* to cover and protect the cauterized surfaces. *Bromides* to offset, by depressing the vasomotor center, the violent hyperæmia and hyperæsthesia of the pharynx and œsophagus which follow. *Tracheotomy*, if there is dyspnoea—a sign of impending asphyxia by laryngeal œdema.

Amyl Nitrite Poisoning 1352

Due to depression of the sympathetic and adreno-thyroid centers. *Atropine* is the physiological antidote of amyl nitrite: it stimulates both the depressed centers. *Strychnine* may be used in the absence of atropine, but it is less effective. If the case resists these agents: *cocaine*, a powerful excitant of the adrenal thyroid center, and *ether* inhalations, to stimulate the vasomotor center and drive the blood into the arterioles and capillary system, including that of the heart.

Antimony Poisoning 1379

Due to paresis of the main centers in the pituitary, especially the sympathetic, and also the bulbar vasomotor center. General vasodilation with tendency to heart failure.

If the poison is still in the stomach, no depressant emetic; *mustard* in tepid water best, or the stomach-pump. *Tannic acid* in solution chemical antidote when antimony still in stomach; *strong tea* rich in tannic acid, and tends to raise the blood-pressure. *Morphine* in full doses to excite the sympathetic center, and arrest the cramps. *Atropine*, which excites the adrenal system and the sympathetic center, aids the morphine. External *heat*.

Contraindicated: Amyl nitrite, nitroglycerin and other vascular depressants.

Antipyrin Poisoning 1286

Same treatment as ACETANILID POISONING.

Arsenic Poisoning, Acute 1314

Arsenic being the physiological antagonist of the thyroid secretion, acute poisoning is due to paralysis of the test-organ and adrenal system. The primary local effects are due to the

affinity of the arsenic for oxygen, and the corrosive action on the alimentary canal.

Evacuate the stomach at once with *mustard* or *zinc sulphate*, aided by *pharyngeal titillation*. Chemical antidote: Magma of *tersulphate of iron* precipitated by *magnesia*. Tincture of the *chloride of iron*, or *dialyzed iron*, or *Monsell's solution* may be substituted in emergency. Then *demulcents*, *milk* or *white of egg*, or *olive oil*, to protect the mucosa, followed with purgative dose of *castor oil*, to increase the auto-antitoxin in the intestine. Its adrenoxidase, by oxidizing the arsenic, annuls its action, while the increased flux rids the canal of the remaining poison.

To counteract the depression of the adrenal system and the tendency to collapse: *Strychnine hypodermically* and *atropine*, which not only excites the test-organ, but also the sympathetic center. In urgent cases *cocaine*, a powerful adrenal stimulant, hypodermically, largely diluted. *Hot* (110° F.) *saline solution* intravenously, to dilute the blood, with *adrenalin*, 8 minims (equal to $\frac{1}{120}$ grain) of 1 in 1000 solution, in not less than 2 ounces of saline solution. External *heat*.

If there is likelihood that arsenic is still present in the organism, *potassium iodide* to sustain the functional activity of the adrenal system until the poison is all oxidized and eliminated.

Contraindications: Nitroglycerin, chloral, bromides and all other vascular depressants.

Arsenic Poisoning, Chronic 1313

Purgatives, especially *calomel*, to increase proportion of adrenoxidase in the blood and the intestinal secretions, followed by a course of *sodium iodide*. Copious use of water as beverage to facilitate elimination.

Atropine Poisoning 1213

The earlier effects: excitement, dilation of the pupil, the rash, etc., are due to the increased propulsive power of the arterioles, but the dangerous phenomena are the result of excessive constriction of these vessels and the resulting arrest of circulation in the heart, pituitary, etc.

Emetics, preferably *apomorphine*, which counteracts the

action of the poison by causing general vasodilation, and the *stomach-pump*, if need be, should be used at once to rid the stomach of any atropine that may remain therein. A solution of *tannic acid*, the chemical antidote, may then be given, followed by a *purgative*, to increase the proportion of auto-antitoxin in the intestines and eliminate what poison may have remained. During this stage when the face is red, suffused, with unusually strong heart impulse, excitement, etc., *morphine* is curative by causing constriction of the arterioles and arresting the violent propulsive action caused by the poison. Later, *morphine* is harmful.

Contraindicated during the stage of excitement: Pilocarpine, nitroglycerin, strychnine, digitalis—all of which increase the peripheral and cerebro-spinal hyperæmia.

When *depression* with weak, thready or irregular pulse, pallor, etc., come on, the cardiac arterioles are practically closed and must be relaxed: *pilocarpine*, in full doses, is curative here by depressing the sympathetic center and causing dilation of the arterioles. Pending its action, *amyl nitrite* inhalations may be used. If pilocarpine is not on hand, *nitroglycerin* injections will serve. External *heat*.

Contraindicated during this stage: Morphine, antipyrin, acetanilid and other arteriole constrictors.

Belladonna Poisoning 1213

Same treatment as ATROPINE POISONING.

Bromides, Poisoning by 1341

Same treatment as CHLORAL POISONING.

Cannabis Indica Poisoning.

The drug acts by depressing the sympathetic and vasomotor centers. At first, the relaxed arterioles admit an excess of blood in all organs, including the brain, producing exhilaration, illusions, etc., but as the large, deeper vessels relax, the blood recedes from the periphery, including the cerebrospinal system and the heart. The pulse becomes weak and irregular, the heart-sounds faint, the breathing shallow and sighing, the muscles flaccid and weak and the lips and nails cyanotic. *Strychnine* in full doses, by raising the blood-pressure, promptly cor-

rects this condition; *atropine* does likewise and increases the propulsive action of the arterioles. Then: emetics, preferably *mustard* or *sulphate of zinc*, avoiding apomorphine, ipecac, tartar emetic and other depressants, to rid the stomach of any remaining poison, and a *saline purgative* to clear the intestinal canal. External heat.

Contraindicated: Amyl nitrite, nitroglycerin, antimonials, chloral and bromides.

Carbolic Acid Poisoning.

The first effect is essentially local: Burning pain in the mouth, œsophagus and stomach in most cases, and nausea or vomiting. *Sulphate of sodium*, and *sulphate of magnesium*, is a chemical antidote. An emetic preferably *apomorphine* hypodermically, which tends also to offset the secondary and fatal effect of excessive constriction of the arterioles. *Stomach-tube* and washing out of stomach with sodium or magnesium sulphate solution. *White-of-egg* or *milk* to protect the alimentary mucosa against further action of the acid.

The general effects are due to excessive excitation of the sympathetic center. At first there is a period of hyperpropulsiveness of the arterioles with delirium and rapid breath, soon followed by collapse due to hyperconstriction of the arterioles, including those of the pituitary and heart. Hence the suspended sensibility, motility, and reflexes, coma and death. *Amyl nitrite* inhalations, to dilate the arterioles, followed by *atropine* hypodermically, to restore their propulsive power and the vital process in the central organs, heart and lungs. *Hot* (110° F.) *saline solution* intravenously, to dilute the blood and reduce the renal irritation caused by the elimination of the acid.

Carbonic Acid Gas Poisoning (Choke-damp in Mines, Limekilns, Fermenting Vats, etc).

This gas, by replacing the oxygen, arrests general oxygenation; hence the early relaxation of all muscles, drowsiness, dyspnea and coma. *Artificial respiration* of fresh air, while *adrenalin* in hot (110° F.) *saline solution* is injected intravenously. *Diphtheria antitoxin*, owing to its large proportion of adrenoxidase, is also useful. *Strychnine* in full doses hypodermically, to raise the blood-pressure, thus increasing the pul-

monary circulation and exposing an excess of blood to the alveolar air. *Oxygen* inhalations hasten recovery.

Contraindicated: All vasomotor depressants: amyl nitrite, nitroglycerin, etc.

Carbonic Oxide Poisoning (Coal or Stove Gas).

Same treatment as CARBONIC ACID GAS POISONING.

Caustic Potash or Soda (Lye) Poisoning.

Local lesions pre-eminent at first: Corrosion of the mouth, œsophagus and stomach, vomiting and purging. *Olive oil* to saponify the poison; and *vinegar* or *lemon juice* to neutralize it.

The general collapse which soon follows is due to reflex shock through the sympathetic center and hyperconstriction of all arterioles, including those of the pituitary body and heart: *Amyl nitrite* inhalations to dilate the arterioles; *atropine* hypodermically to restore their propulsive activity. When the patient is perfectly safe as to life: *bromides* to reduce the blood-pressure and reduce the chances of glottic œdema if larynx involved, or to quiet pain by reducing the hyperæmia in the burned area.

Cheese Poisoning.

Same treatment as PTOMAIN POISONING.

Chloral Hydrate Poisoning 1321

In cases due to "knock-out-drops" used by thieves, chloral being especially active in drunken individuals owing to the deoxidizing action of alcohol on the blood. Due to paresis of the adreno-thyroid and vasomotor centers, the resulting vasodilation and reduced oxygenation producing deep sleep which lapses into unconsciousness and death from heart failure.

Emetic, especially *mustard* (avoiding apomorphine, tartar emetic and other depressants) and washing out of stomach. *Strychnine* in full doses hypodermically. Strong, warm *coffee* introduced in the stomach with the tube if necessary, and by enema. *Adrenalin* in large quantity of *saline solution* injected hot (110° F.) intravenously to supply the blood with adrenoxidase. *Digitalin* to sustain the heart-action during convalescence.

Contraindicated: Nitroglycerin, the nitrites and all vascular depressants.

Chloroform Poisoning 1296

Due to excessive constriction of all arteries including the cardiac coronaries and those of the pituitary body, the result being arrest of the heart's functions and respiratory failure. *Amyl nitrite* inhalations to cause dilation of the arterioles and, in full doses, of all the arteries. *Nitroglycerin* hypodermically to sustain the effect. *Hot* (110° F.) *saline solution* intravenously to dilute the blood and arrest excitation of the vasomotor by the anæsthetic.

Simultaneously *artificial respiration* and *rhythmical traction of the tongue* (Laborde's method) eighteen times per minute, which reflexly causes the pituitary body to resume its active functions. *Ammonia* inhalations aid this process. Alternating *heat* and *cold* applied to the chest tend to provoke reflex respiration. Rapid *compression of the chest* about one hundred and twenty times per minute (the König-Maas method) acts similarly. If no effect produced, *bleeding*, some large vein preferably of the neck being opened to produce general vascular relaxation.

Contraindicated: Strychnine, caffeine, coffee, digitalis and all other agents which tend to increase the vascular tension.

Cocaine Poisoning 1235

Due to excessive excitation of the adrenal center, hyperoxygenation and intense vascular tension owing to hypermetabolism in the muscular coat of arteries and veins. *Amyl nitrite* inhalations to depress the sympathetic center and cause dilation of arterioles and (if its use is prolonged), relaxation of all arteries. *Hot* (110° F.) *saline solution* intravenously, to counteract the action of the poison on the adrenal center by diluting the blood. *Chloral hydrate* to antagonize directly the action of the poison, through its depressing action on the adrenal center. *Potassium bromide* aids this action by depressing the vasomotor center. *Morphine* is sometimes beneficial by causing constriction of the arterioles, thus reducing the blood admitted into the capillaries.

Contraindicated: Strychnine, digitalis, coffee, and all agents which enhance the vascular tension.

Creosote Poisoning 1359

Same treatment as CARBOLIC ACID POISONING.

Digitalis Poisoning 1219

Due to excessive stimulation of the sympathetic center and hyperconstriction of the arterioles of the pituitary body and heart. The cardiac muscle being deprived of blood, its functions cease. *Amyl nitrite* inhalations, and *nitroglycerin* hypodermically are the physiological antidotes. Intravenous injections of *hot* (110° F.) *saline solution* are necessary to eliminate at least a portion of the poison from the body-fluids. If the intoxication is due to the ingestion of a large toxic dose: emetics, preferably *apomorphine*, or the *stomach-pump*, to rid the stomach of any remaining poison, and a *saline purgative* to provoke intestinal flushing.

Ergot, Acute Poisoning 1385

Occurs as the result of efforts to produce abortion in most cases. Due to excessive general vascular constriction attended with cramps, vertigo, marked weakness, small and weak pulse (due to hyperconstriction of the cardiac coronaries). *Apomorphine* as emetic; *amyl nitrite* inhalations and *nitroglycerin* hypodermically. Intravenous injections of *hot* (110° F.) *saline solution* to insure elimination of the poison and avoid gangrene, followed by *saline aperient*.

Contraindicated: Strychnine, digitalis and other vasoconstrictors.

Erythrol Tetranitrate Poisoning.

Same treatment as AMYL NITRITE POISONING.

Ether Poisoning 1301

Due to excessive constriction of all arteries, including those which supply blood to the pituitary body, and the cardiac coronaries, the lethal trend being, therefore, respiratory failure and cardiac arrest.

Amyl nitrite inhalations in full doses to dilate the arterioles and arteries, thus relieving tension and restoring the circulation. Then, *atropine* hypodermically to stimulate the propulsive action of the arterioles and the vigor of the circulation through the capillaries, thus restoring normal functional activity. *Hot* (110° F.) *saline solution* intravenously to dilute the blood and arrest the exciting action of the ether on the vaso-

motor center. *Artificial respiration* to remove the ether from the air-cells as soon as possible.

Contraindicated: Strychnine, digitalis and other vasoconstrictors.

Hydrastis Poisoning.

Same treatment as ERGOT POISONING.

Hydrocyanic Acid (Prussic Acid) Poisoning.

Due to paralysis of the sympathetic and vasomotor centers, followed by immediate recession of the blood from the brain, lungs, and periphery to the deep and larger vessels. Hence the preliminary vertigo, difficult vision, dyspnoea, weak pulse, and cyanosis. At once: *morphine* to excite sympathetic center and *ergot* to excite the vasomotor center, both hypodermically and in large doses. *Ether* or *chloroform* inhalations aid markedly the effect by stimulating powerfully the vasomotor center. Empty the stomach as soon as possible, *avoiding* apomorphine, tartar emetic, ipecac and other depressing emetics. *Mustard* best, or wash out the stomach with warm water. *Hot* (110° F.) *coffee* enemata. *Heat* to the surface.

Contraindicated: Amyl nitrite, nitroglycerin and other vasodilators.

Iodine Poisoning 1167

Primary effects due to violent irritation of the pharynx, oesophagus and stomach. A small dose fails to elicit graver symptoms. *White of egg* or *milk* in large doses, followed by an emetic, preferably *apomorphine* hypodermically, usually suffice to relieve all the acute phenomena.

When the dose is large, general symptoms also supervene, due to excessive vasoconstriction with tendency to cardiac arrest through hyperconstriction of the arterioles. *Amyl nitrite* inhalations and *nitroglycerin* should be added to the measures indicated above and *hot* (110° F.) *saline solution* intravenous injections should be given to hasten elimination of the poison and prevent further excitation of the centers if the dose ingested is excessive.

Contraindicated: Strychnine, morphine and other vasoconstrictors.

Iodoform Poisoning.

Same treatment as IODINE POISONING.

Lead Poisoning, Acute.

Due, when the pulse is hard and tense and the blood-pressure high, to excitation of the sympathetic and vasomotor centers. *Amyl nitrite* inhalations with *nitroglycerin* or *erythrol tetranitrate* hypodermically to dilate the arterioles and arteries. A dose of *Epsom* or *Glauber's salts* should follow to decompose the lead salt and form an insoluble sulphate readily voided by the intestine. *Hot* (110° F.) *saline solution*, hypodermically or intravenously, counteracts the abnormal viscosity which entails retention of the lead by the blood. Renal irritation is also prevented.

Lead Poisoning, Chronic.

Due to paresis of the vascular centers owing to prolonged and excessive stimulation by the metal. *Potassium iodide* in large doses to stimulate the adrenal system and increase the nutrition of the vasomotor and sympathetic centers, and facilitate elimination by forming an iodide of lead. Frequent use of *Glauber's* or *Epsom salts* as purgative.

Lye Poisoning.

Same treatment as CAUSTIC POTASH POISONING.

Mercury, Poisoning by 1155

When a toxic dose of the bichloride is ingested, the first effects are due to corrosion of the entire digestive tract. *White of egg* to form an albuminate, or *milk*. Emetic, preferably *apomorphine* hypodermically, or *ipecac*, followed by free lavage with a *stomach-pump*, using a solution of *sodium bicarbonate*.

The general symptoms are due to excessive constriction of the arterioles and arteries, with tendency to arrest the functions of the pituitary body and heart by depriving them of blood. This is to a great extent counteracted by the emetic, provided *apomorphine*, *ipecac*, or *tartar emetic* be used, since they produce their effect by causing vascular relaxation. *Amyl nitrite* inhalations and *chloral hydrate* or *veratrum viride* to sustain this action. Free use of water containing *sodium bicarbonate* (one teaspoonful to the pint) to facilitate elimination of the poison by the kidneys.

Contraindicated: Morphine, strychnine and other vasoconstrictors; saline solution, the sodium chloride of the latter converting other salts into bichloride of mercury.

Morphine Poisoning, Acute..... 1278

Due to excessive stimulation of the sympathetic center and hyperconstriction of all arterioles, including those of the pituitary body and heart. These organs receiving a quantity of blood inadequate to sustain their functions, the oxygenizing properties of the blood and its circulation are inhibited.

Specific treatment: At once *strychnine* hypodermically in full doses to excite the vasomotor center, cause constriction of all arteries and forcibly dilate the arterioles with blood projected through them; and, simultaneously, *amyl nitrite* to depress the sympathetic center and aid in dilating the arterioles, with *nitroglycerin* to maintain its action. As soon as this is done—provided there is reasonable ground to believe that the stomach still contains some of the poison—*permanganate of potassium* solution by the mouth to convert the morphine into oxymorphine, followed by an *emetic*, preferably *mustard*.

Contraindicated: Apomorphine, which may cause death by provoking dilation of all large arteries, thus further depleting the pituitary body and heart: ipecac, tartar emetic, and all depressing emetics.

In addition: *Strong coffee*, at 104° F., per rectum to aid strychnine in stimulating vasomotor center, and *hot* (110° F.) *saline solution* intravenously to dilute the blood, thus subduing the irritating action of the poison on the sympathetic center.

If grave symptoms persist, *bleeding* besides, removing at least a pint of venous blood, and *cocaine* hypodermically to powerfully stimulate the adreno-thyroid center, raise the blood-pressure and enforce dilation of the arterioles.

Artificial respiration is useful to sustain oxygenation while these methods are being carried out; *physical exercise*, by sustaining the production of waste-products by the tissue-cells, tends to raise the blood-pressure, thus aiding the strychnine. *Catheterization* of the bladder and *saline purgatives* to avoid absorption of any poison that may be contained in the excretions.

Contraindicated: Atropine, which tends, in severe cases, to further constrict the arterioles.

Nicotine Poisoning.

Due to depression of the sympathetic and vasomotor centers and its result: general dilation of the arteries and arterioles, the recession of the blood to the great central vessels causing nausea, vomiting, faintness, marked weakness, rapid and weak pulse, cold sweats, hypothermia and even cyanosis. Unless a large dose has been taken or absorbed from tobacco smoke, the symptoms usually pass off in a couple of hours. *Tincture opii camphorata* to stimulate the vascular centers and restore the general arterial tonus. If the extremities or the surface remain cold: in addition to the above, *atropine* hypodermically. *Heat* to the surface.

Nitroglycerin Poisoning..... 1355

Same treatment as AMYL NITRITE POISONING.

Nitrous Oxide Poisoning..... 1306

Due to interference by the gas with the oxygenation of the blood. *Artificial respiration* of pure air to rid the alveoli of the gas, and *oxygen* inhalations. *Atropine* hypodermically, to enhance the propulsive activity of the arterioles and promptly renew the blood in all capillaries, including those of the lungs and pituitary body.

Nux Vomica Poisoning.

Same treatment as STRYCHNINE POISONING.

Opium Poisoning..... 1278

Same treatment as MORPHINE POISONING.

Phosphorus Poisoning..... 1251

The preliminary symptoms are due to corrosion of the alimentary tract owing to the intense affinity of the poison for oxygen. As oxidation of phosphorus renders it inert, the stomach should promptly be washed out with a large quantity (at least two quarts) of a 1-per-cent. solution of *potassium permanganate*, with *apomorphine* hypodermically, not only owing to its action as an emetic, but because emesis is attended with an accumulation in the stomach of serum containing adreno-oxidase—also a powerful oxidizing agent. *Citrate of magnesia* provokes a similar effect in the intestinal tract and the flushing insures elimination of any remaining poison.

The general symptoms being due to oxidation of the phosphorus in the blood by the adrenoxidase, and the attending hæmolysis, and, indirectly, to the resulting hyperconstriction of all arteries, including those of the heart: dilution of the blood by *hot* (110° F.) *saline solution* intravenously in large quantities, and *amyl nitrite* inhalations to dilate the arterioles, with *nitroglycerin* hypodermically to sustain this action, or *sodium bromide*.

Contraindicated: Strychnine, cocaine, digitalis and other agents which tend to raise the blood-pressure.

Paraldehyde Poisoning 1324
Same treatment as CHLORAL POISONING.

Prussic Acid, see HYDROCYANIC ACID.

Ptomain Poisoning 1736
Same treatment as for CHOLERA MORBUS.

Quinine Poisoning 1243
Occurs as a rule in persons whose sympathetic center is hypersensitive and is due to excitation of this center and constriction of all arterioles, including those of the pituitary and heart. Inhalations of *amyl nitrite* to cause dilation of the arterioles by depressing the sympathetic center, and *nitroglycerin* to sustain the effect. If the morbid condition persists *hot* (110° F.) *saline solution* intravenously to dilute the blood and hasten the elimination of the poison.

Silver Nitrate Poisoning.

The lesions are local at first and give rise to violent abdominal pain, owing to the corrosive action of the poison and the widespread gastro-enteritis it provokes. A solution of *common salt*, its chemical antidote, should be given in large quantities, and be at once withdrawn with the stomach-tube, or by causing emesis, preferably with *apomorphine*. The general symptoms, which are due to excessive constriction of all arteries, including those of the heart, are in a measure prevented by the latter. To sustain this action *nitroglycerin* hypodermically, or *sodium bromide* or *chloral hydrate*, which also reduce the sensibility of the cauterized mucous membranes. *Hot* (110° F.)

saline solution given intravenously not only acts as chemical antidote in the blood, but by diluting the latter, prevents the irritating action of the poison on the vasomotor center.

Stramonium Poisoning.

Same treatment as ATROPINE POISONING.

Strophanthus Poisoning 1224
Same treatment as DIGITALIS POISONING.

Strychnine Poisoning 1229

Due to excessive stimulation of the adreno-thyroid and vasomotor centers, and as a result: hyperoxygenation and hyperæmia of the cerebro-spinal system and its peripheral nerve-endings. *Apomorphine* to cause emesis and relaxation of the arteries, and simultaneously *amyl nitrite* to sustain the latter. As soon as the stomach is emptied *chloral hydrate* in large doses by the mouth and per rectum to depress the adreno-thyroid center and the blood-pressure. *Potassium bromide* may also be used but is less active. To dilute the blood and arrest the irritating action of the poison on the centers *hot* (110° F.) *saline solution* intravenously or hypodermically in large quantities.

Sulphonal Poisoning 1325
Same treatment as CHLORAL POISONING.

Tobacco Poisoning.

Same treatment as NICOTINE POISONING.

Trional Poisoning 1325
Same treatment as CHLORAL POISONING.

Veratrum Viride Poisoning 1344

Due to excessive depression of the vasomotor center and ischæmia of all the capillaries, including those of the pituitary body and heart. *Strychnine* is the physiological antagonist of this action by exciting the vasomotor center. *Ergot* is also efficacious.

If the stomach is thought still to contain some of the poison, a direct *emetic*, such as *mustard*, should alone be used, since apomorphine and other depressing emetics will increase the danger.

Contraindicated: Nitroglycerin and all other vasodilators.