

roid, thymus, liver, spleen, *animal nucleins*; also from all the tissues and glands combined, *protonuclein*, and from yeast cells, *vegetable nuclein*. Vaughn uses a solution of yeast nuclein, containing 1 per cent. of nucleic acid. The dose of this solution is 30 minims, administered hypodermically, and increased daily as long as no unfavorable symptoms appear. Tablets of nuclein are on the market, for administration by the mouth, the dose being 1 grain or more, as may be deemed advisable.

Protonuclein (Unofficial),—is the trade-name of an extensively advertised product, which is said to be a combination of nucleins obtained from all the available lymphoid structures of bullocks and pigs, including the entire brain, the pancreas, liver, spleen, salivary glands, thyroid, thymus, gastric and intestinal glands, etc. The manufacturer claims that it is "the true tissue-builder of the organism" and its "natural antitoxic agent," and publishes the usual florid literature, which includes clinical reports of the therapeutic efficacy of protonuclein in some forty-five different affections. It is sold in tablets and powder; also in a special powder containing no milk-sugar, and intended for inhalations and injections. The dose is 3 grains every 3 or 4 hours.

Lymphatic Extract (Unofficial).—An extract prepared from the lymphatic glands of animals has been employed in exophthalmic goitre, lymphadenoma, and other glandular swellings, but there are no trustworthy reports as to the results.

ANISUM, Anise,—is the ripe fruit of *Pimpinella Anisum*, a European plant of the nat. ord. Umbelliferae. It occurs in ovate bodies, $\frac{1}{4}$ inch long, hairy, of grayish color, aromatic odor, and sweet, spicy taste, resembling conium fruit in appearance. Dose, gr. v-x, [av. gr. vijss.]

Oleum Anisi, Oil of Anise,—is a volatile oil distilled from *Anise*, and represents the medicinal qualities of the plant. It contains *Anethol*, $C_{10}H_{12}O$, or Anise-camphor, congeals at 50° to 59° F., is soluble in an equal part of alcohol, and is an ingredient of *Tinctura Opii Camphorata*, *Trochisci Glycyrrhizae et Opii*, and the two following preparations. Dose, $\mathfrak{m}\mathfrak{j}$ -v. [av. $\mathfrak{m}\mathfrak{i}\mathfrak{i}\mathfrak{j}$.]

Aqua Anisi, Anise Water,—has in 500 parts 1 of Oil of Anise triturated with Talc, and mixed with distilled water. Dose, indefinite, [av. $\mathfrak{z}\mathfrak{i}\mathfrak{v}$.]

Spiritus Anisi, Spirit of Anise,—is a 10 per cent. solution of the oil in alcohol. Dose, $\mathfrak{z}\mathfrak{ss}$ - $\mathfrak{i}\mathfrak{j}$, [av. $\mathfrak{z}\mathfrak{j}$.]

The Volatile Oil is the active constituent of Anise. It has a slightly stimulant action on the heart and the digestive organs, and liquefies the bronchial secretion, being probably excreted in part by the bronchial mucous membrane. It is a favorite flavoring ingredient of cough-mixtures, and relieves slight intestinal colic and flatulence in children. In full doses it has weak narcotic power.

ANTHEMIS, Chamomile,—the flower heads of *Anthemis nobilis*, a European perennial of the nat. ord. Compositae, collected from cultivated plants. They contain a volatile oil, a camphor and a bitter principle, but no alkaloid. Dose, gr. xx- $\mathfrak{z}\mathfrak{j}$ [av. gr. xxx.] There are no official preparations. An infusion ($\mathfrak{z}\mathfrak{i}\mathfrak{v}$ to $\mathfrak{O}\mathfrak{j}$) may be given in doses of $\mathfrak{z}\mathfrak{j}$ - $\mathfrak{i}\mathfrak{j}$.

Oleum Anthemidis, Chamomile Oil (Unofficial),—the volatile oil, is of a dark blue or green color, and is composed of various ethers, the Angelates and Valerianates of Butyl predominating. Dose, $\mathfrak{m}\mathfrak{i}\mathfrak{j}$ -x, on sugar.

Incompatible with Anthemis are: Cinchona infusion, Gelatin, Iron and Lead salts, Mercuric Chloride, Silver Nitrate.

Chamomile is a stomachic tonic. It improves the appetite and aids digestion by increasing the vascularity of the gastric mucous membrane. In large doses the warm infusion is emetic, and perhaps diaphoretic, though the latter action is chiefly due to the hot water. The oil

is remarkably efficient in reducing reflex excitability in frogs, even after its excitation by strychnine or brucine.

Chamomile is popular in domestic practice. An infusion is used internally for many infantile complaints, and externally as a fomentation to relieve pain, as in colic. The oil is very efficient in reflex cough, pulmonary catarrh, acute dyspepsia, diarrhea of children, spasmodic asthma, whooping-cough, colic, and the spasmodic and pseudo-neuralgic affections of hysterical women. It should prove useful in poisoning by Strychnine, from its power over reflex excitability.

The *Chamomilla* of the homeopaths is the *Matricaria Chamomilla*, or German Chamomile, official in the U. S. Pharmacopœia as *MATRICARIA*, which see.

ANTIMONIUM, Antimony, Sb.—Metallic antimony is not official, and is not used in medicine. It is represented, however, by the following official salt and preparations, viz.—

Antimonii et Potassii Tartras, Antimony and Potassium Tartrate, (Tartar Emetic), $2KSBOC_4H_4O_6.H_2O$,—small white crystals or a granular powder of sweet, disagreeable metallic taste, soluble in 17 of water at 59° F., and in 3 of boiling water, insoluble in alcohol. It is decomposed by alkalies, and by Lead salts. Dose, gr. $\frac{1}{8}$ - $\frac{1}{4}$, [av. expectorant gr. $\frac{1}{16}$; emetic, gr. $\frac{1}{4}$.] but after tolerance is established as high as gr. $\mathfrak{i}\mathfrak{j}$ may be given. It is an ingredient of the two following, viz.—

Vinum Antimonii, Wine of Antimony,—has of Tartar Emetic 4, Boiling Distilled Water 65, Alcohol 175, White Wine to 1000. Contains about 2 grains of Tartar Emetic to the \mathfrak{z} , and is an ingredient of *Mistura Glycyrrhizae Composita*. Dose, $\mathfrak{m}\mathfrak{v}$ -xx, [av. $\mathfrak{m}\mathfrak{x}\mathfrak{v}$.]

Syrupus Scillae Compositus, Compound Syrup of Squill, Cox's Hive Mixture, Hive Syrup (see under *SCILLA*),—contains about 1 grain of Tartar Emetic to the \mathfrak{z} , with Squill, Senega, etc. Dose, $\mathfrak{m}\mathfrak{j}$ - $\mathfrak{z}\mathfrak{j}$, cautiously in children, [av. $\mathfrak{m}\mathfrak{x}\mathfrak{x}\mathfrak{x}$.]

Incompatibles.

Incompatible with *Tartar Emetic* are: Acacia, Acids (mineral), Albumin, Alcohol, Alkalies, Ammonia, Ammonium Carbonate, Antipyrine, Bicarbonates, Carbonates, Calcium Chloride, Gelatin, Lead salts, Lime-water, Mercuric Chloride, Metallic salts, Sulphides, Tannic Acid, and astringent vegetable preparations.

PHYSIOLOGICAL ACTION.

Tartar Emetic in its action represents the antimonial preparations, and is a cardiac arterial and general depressant, a protoplasmic poison, a systemic and local emetic, a specific gastro-intestinal irritant, an expectorant and a diaphoretic. Like aconite, arsenic, hydrocyanic acid and potassium salts, it is destructive to protoplasm, destroying function in all nitrogenous tissue, and paralyzing the spinal cord, the motor nerves, the muscles and the sensory nerve terminations. It is especially depressant to the heart-muscle and the cardiac motor ganglia; it combines with the red blood-corpuscles, lessening their oxidizing power, lowering the blood-pressure and reducing the body-temperature. Its taste is styptic and one of its earliest effects is the production of constriction of the fauces. It promotes waste and rapid excretion of waste products, carbonic acid and urea being especially increased. Being eliminated by all the excretory organs, including the skin, it excites follicular inflammation at the points of elimination; resulting in an eruption which is papular at first, then becomes vesicular, and finally pustular, the pustules being umbilicated like those of variola. This same eruption is also produced by the application of the drug to the skin with friction. Aphthous ulcerations, extending from the

mouth to the stomach, with salivation and painful deglutition, may also result from its continued use.

In small doses Tartar Emetic stimulates secretion in the bronchial and salivary glands, the stomach, intestinal canal, liver and pancreas. In larger doses it excites nausea, vomiting and purging, with evacuations like the "rice-water discharges" of cholera, and great prostration of the vital powers. Toxic doses produce similar symptoms, besides epigastric pain, cyanosis, delirium, cramps, motor and sensory paralysis, suppression of urine and collapse,—the same phenomena as in Asiatic cholera.

THERAPEUTICS.

Tartar Emetic was formerly much employed as an antiphlogistic on account of its power to cut short acute inflammations of sthenic type, but its use was greatly abused, so that it has now gone out of fashion as a remedy. The contra-stimulant treatment of pneumonia and other inflammatory diseases, by large doses of this salt after tolerance was established, is only worthy of reference as an historical fact. The same may be said of its external use as a counter-irritant as well as of its employment as an emetic, in both of which capacities it is too severe, while its emesis is too tardy in action to be of any value in poisoning. It is, however, a very efficient agent in many grave affections, if used in small doses (gr. $\frac{1}{60}$ – $\frac{1}{40}$); being highly efficacious in acute inflammatory affections of the respiratory tract, especially pneumonia, broncho-pneumonia, acute edema of the lungs, feverish and catarrhal colds, bronchitis, laryngitis and tonsillitis. In many respects it acts like Aconite in these and kindred affections, producing copious diaphoresis, slowing the pulse and allaying restlessness. It is considered a good remedy in puerperal peritonitis, mammitis, and orchitis, in lumbago and other muscular rheumatisms, also in photophobia and in gastric indigestion after beer-drinking. In still smaller doses (gr. $\frac{1}{100}$ hourly) it is particularly efficient in catarrhal inflammations of the respiratory mucous membrane in children, accompanied by rattling breathing and much mucus, which is expelled with difficulty. Such cases often simulate asthma, the attacks being marked by cough, wheezing, and difficult respiration, with sibilant râles in the chest, and usually follow on severe colds or on measles. The Compound Syrup of Squill is commonly used as an expectorant and nauseant in the treatment of bronchitis and croup, but the quantity of tartar emetic in it (gr. j to the $\bar{3}$) should be remembered when administering it to children. (See under SCILLA.)

ANTIPYRINA, Antipyrine, Phenyl-dimethyl-pyrazolon, $C_{11}H_{12}N_2O$,—official in the B. P. under the name *Phenazonum*, Phenazone,—is a crystalline substance obtained from phenyl-hydrazine, and prepared by a patented and complicated process. It is a synthetical base, forming salts which are analogous to those of Ammonium; and occurs as colorless and inodorous scaly crystals, with a bitter taste, freely soluble in water, alcohol and chloroform, less

soluble in ether. It gives a deep red color with ferric chloride, a deep green with nitrous acid, and with nitric acid a yellow color which deepens to crimson on warming. Dose, gr. j–x [av. gr. iv.]

Dose and Administration.

The B. P. gives the dose as gr. v–xx. For children the dose is gr. $\frac{1}{4}$ per year of age between 2 and 10 years, not exceeding gr. iv for any child under 15 years. It has but little flavor, is not unpleasant to the taste, and is readily taken by children. It is best given in aqueous solution with one-half its quantity of Sodium Bicarbonate. In capsule or powder it frequently irritates the stomach. It may be used hypodermically, in half its weight of hot water, but sphacelus is liable to follow on this method.

Incompatibles.

Incompatible with *Antipyrine* are: Alum, Ammonia-water, Amyl Nitrite, Benzoates, Beta-naphthol, Bromine, Butyl-chloral Hydrate, Calomel, Chloral Hydrate, Copper Sulphate, Chromic Acid, Cinchona alkaloids, Euphorin, Ferric Chloride, Ferric salts in solution, Ferrous Sulphate, Hydrocyanic Acid, Iodine, Iodides, Lead Subacetate, Mercuric Chloride, Nitrites, Orthoform, Phenol, Potassium Permanganate, Pyrocatechin, Pyrogallol, Resorcin, Sodium Bicarbonate, Sodium Salicylate, Spirit of Nitrous Ether, Tartar Emetic, Tannic Acid, Thymol, Urethane; also Tinctures of Catechu, Cinchona, Hamamelis, Iodine, and Rhubarb; and Infusions of Catechu, Cinchona, Rose-leaves, and Uva Ursi.

Antipyrine and Euphorin liquefy when rubbed together. Antipyrine may be decomposed when brought into contact with Nitrous compounds, a new and poisonous substance being supposed to be formed, of uncertain composition, but resembling the Anilin greens. The mixture of this drug with Spiritus Ætheris Nitrosi is therefore highly dangerous if this supposed reaction is at all likely to occur.

Unofficial Preparations and Derivatives.

Acetopyrin,—a combination of Antipyrine and Aspirin, has been used with benefit in rheumatism and neuralgia. Dose, as an antipyretic gr. vij–xv; in rheumatism gr. xlv– $\bar{3}$ j.

Ferropyrin,—is a compound of 3 molecules of Antipyrine with 1 molecule of Ferric Chloride, and contains of Antipyrine 64 per cent., of Chlorine 24, and of Iron 12. It occurs as an orange-red, impalpable powder, soluble in 5 of water, freely in alcohol, insoluble in ether. *Incompatibles* are Alkalies, Carbonates, and Bicarbonates. Dose, gr. v–vij internally; as a styptic a 20 per cent. aqueous solution.

Hypnal,—is a combination of Antipyrine and Chloral, heated together, which is credited with hypnotic and analgesic power. It is described under CHLORAL.

Migranin,—is a double Citrate of Antipyrine and Caffeine, lately brought forward in Germany as a specific for sick headache and neuralgia. A report is published that the police authorities of Hamburg have issued a notice forbidding its free sale in the local pharmacies, and warning the public against using it except under a physician's direction (Squibb). The dose is placed at about gr. xv.

Phenopyrin,—is prepared from equal parts of crystalline Phenol and Antipyrine. It is an oily liquid, colorless and odorless, insoluble in cold and sparingly soluble in hot water. It has as yet no medicinal properties.

Pyramidon, Dimethyl-amido-antipyrine,—is a derivative of Antipyrine by a substitution process, and is highly praised as an antipyretic and analgesic. It occurs as a yellowish-white, crystalline powder, soluble in 10 parts of water. Its applications are the same as those of Antipyrine, but it is less soluble, slower in action, more lasting in effect, and the same results may be produced by it with about one-third the dose. Dose, gr. iv–vij, thrice daily.

Salipyrin, Antipyrine Salicylate,—is formed by combining Salicylic Acid 57.7, and Antipyrine 42.3 parts; and is the only salt of the base which has much therapeutic importance. Described under SALICINUM.

PHYSIOLOGICAL ACTION.

Antipyrine is a powerful antipyretic, a local anesthetic, and a general analgesic, also possessing diaphoretic, mydriatic, antiseptic, hemostatic and slight hypnotic powers. After the ingestion of a large medicinal dose (gr. xx), there

is a stimulant stage of short duration, in which the heart's action is increased, and a subjective sense of heat is experienced, with flushing of the face. This is soon followed by profuse sweating, coldness of the surface, slowed pulse, considerable depression, and by *lowered temperature* if fever be present; the latter effect coming on within half an hour after taking the drug, and its degree being in direct ratio to the quantity administered, as also its continuance,—the former usually from 3 to 5 degrees, and the latter from 1 to 10 hours, a fair average being about 2 hours. In one case a fall of 12° F. was observed. When given with Kairin, the mixture of the two drugs has been found to produce a much greater fall of temperature, with longer continuance down, than that produced by an equal quantity of either drug given alone. After the antipyretic effect of the dose has passed off, the temperature in fever commences to rise again,—the onset being usually preceded by a chill, which is of slight degree when compared with the severe rigors and dangerous depression occurring under the action of kairin, chinolin and other members of the group.

In health the administration of a full dose gives rise to slight nausea, singing in the ears, and a reduction of the body-temperature of scarcely any extent, about $\frac{1}{10}$ ° F. It slightly raises the arterial tension and blood-pressure; sometimes induces vomiting and may cause such a degree of depression as to almost amount to collapse. It has little or no effect upon the respiration, but acts as a sedative upon the cerebrum, leaving a somewhat depressant influence on the brain. In some persons a single dose of ten grains produces an urticarial eruption on the skin, and this is occasionally accompanied by swelling and irritation of the mucous membrane of the respiratory tract, the subject feeling as if the nose and throat were swollen so that breathing became difficult.

In toxic dose Antipyrine probably acts as a primary stimulant and a secondary depressant of the spinal cord, paralyzes both the motor and sensory nerve trunks, decreases the arterial pressure, and exerts a poisonous influence on the blood, altering the shape of the red corpuscles, separating the hematin, and causing decomposition of that tissue. A peculiar livid discoloration of the surface is one of the most characteristic symptoms of antipyrine poisoning, and is probably due to the formation in the blood of methemoglobin or some similar compound.

As an antipyretic, Antipyrine, like alcohol, acts by a double mode of operation,—by diminishing oxidation, and by promoting heat-loss. The latter is attained by dilating the cutaneous vessels, allowing free radiation from the surface, and by the refrigerant action due to evaporation of the sweat. As an analgesic it has considerable power, in common with the chinolin derivatives; but its property in this respect is found to act almost entirely upon pain due to manifestations of the rheumatic diathesis. In general anodyne action, it is not to be compared with the derivatives of opium. Its hemostatic power is claimed to be superior to that of ergotin. It is rapidly absorbed and slowly eliminated, so that it should not be administered in frequently repeated doses.

THERAPEUTICS.

One of the most popular of the modern antipyretics, Antipyrine deserves high rank in professional esteem, being an excellent analgesic and one of the most certain and most powerful depressants of temperature, though somewhat dangerous, and devoid of any other influence upon the course of febrile disorders. Its principal applications are as follows: *As an antipyretic* it has been employed in all diseases with high temperature, and it may be used in asthenic fevers, as it has little effect upon the circulation. It has held a high place for several years in the treatment of acute rheumatism, and affords valuable aid in the pyrexia of intermittent fever, a stage in which the slow action of quinine prevents that drug being available for immediate relief. *As an analgesic* it is highly efficient except when the pain is dependent upon a local inflammation, in which case it is of no value for this purpose. It is often remarkably efficient in migraine and other headaches, in the fulgurant pains and pain-crises of locomotor ataxia, and in other paroxysms of suffering dependent on disease of the nerve centres, or having the character of nerve storms. It is very serviceable in neuralgia, neuritis and other painful affections, especially when of rheumatic origin, as lumbago, sciatica, hemicrania, supra-orbital neuralgia, in which ten-grain doses are generally sufficient and may be given hypodermically. It often relieves dysmenorrhœa, also the painful affections of hysteria, pain from cerebral tumors, and that due to cardiac disease. In acute gout, a preliminary dose of 25 grains, followed by 10-grain doses every two hours, promptly relieved the pain and shortened the duration of the paroxysms in one very carefully observed and thoroughly reported case. In chronic gout, very remarkable results are reported as due to it, indicating a specific and curative influence on that disease. For the relief of pain, the conjoint administration of Antipyrine and Morphine is said to be much more efficient than the use of either agent alone. *To allay nervous irritation;* it has been used with extraordinary success in nervous urticaria, and is often employed with benefit in the restlessness of hysterical subjects. In the urticaria-like eruptions of children its action is so promptly efficient as to indicate for it a direct influence upon the vascular nerves; and as a symptomatic remedy against itching it is equally efficient in nervous pruritus, true prurigo, urticaria, erythema, pemphigus vulgaris and lichen ruber. *To antagonize excitability of the motor nerve centres,* as in laryngismus stridulus, whooping-cough, tetanus, epilepsy and chorea. In the latter disease Antipyrine is held in high esteem as a curative remedy, and although it often fails entirely in epilepsy, it sometimes acts therein with extraordinary power, especially when given in combination with ammonium bromide. As a preventive remedy for whooping-cough it ranks high among the remedies used for that purpose. *To affect secretion,* as in infantile diarrhea, in which it has rendered signal service, administered in doses of $\frac{1}{2}$ to $1\frac{1}{2}$ grain; and as an antigalactagogue, when it is desired to arrest the secretion of milk, doses of gr. iv every two hours will prove efficient. It has also been employed with benefit in both forms of dia-

betes, and has been found remarkably effective in promoting the absorption of pleuritic effusions. *As a local anesthetic* it is equal if not superior to cocaine, if applied to the mucous membranes in a 30 to 50 per cent. solution (St. Hilaire). *As a local hemostatic*, it is highly efficient in 15 per cent. solution as a spray for epistaxis, and hemorrhages of almost any kind are checked by the application of stronger solutions. It has the advantage of constricting the small vessels without causing any external clot which may break down. *As an anti-septic* though feeble it possesses properties which compare favorably with those of the anilin and coal-tar derivatives.

Antipyrine has rendered good service in bronchial asthma, in sea-sickness, in cerebro-spinal meningitis, and in croupous pneumonia. In the latter affection it has been employed in combination with camphor and small doses of morphine with excellent results. In erysipelas it is thought to be contraindicated, as when administered in that disease it has usually caused anuria and a profound fall of temperature. In doses of gr. viij, up to a daily maximum of ʒj, it has rendered good service in puerperal septicemia. The profuse sweating caused by it may be prevented by giving in advance a small dose of atropine or agaricine.

Ferropyrin is used as a styptic in 20 per cent. aqueous solution on cotton tampons, or applied directly in the form of the powder. It has given satisfaction in severe epistaxis, puerperal and other hemorrhages. Internally it has been used with benefit in anemic conditions accompanied by headache and gastralgia, and in the dyspepsia of chloranemia.

APIOLUM, Apiol, (Unofficial),—is an oily liquid, of green color, acid reaction and pungent taste, soluble in alcohol, ether, chloroform, and in glacial acetic acid. It is extracted from the fruit of *Petroselinum sativum*, Parsley, a biennial plant of the nat. ord. Umbelliferae, which also contains a gelatinous substance named *Apiin*, and a *Volatile Oil* which is by some considered to be the true emmenagogue principle of the plant. Apiol is probably a mixture of several substances, and as found in commerce is often an impure oleoresin. Dose, ℥iij-x in capsule two or three times a day; as an emmenagogue, ℥xv in one daily dose.

A camphor, also named *Apiol*, $C_{12}H_{14}O_4$, is obtained from the same source, and occurs in white needles, of a feeble parsley odor, insoluble in water, but freely soluble in alcohol or ether. Dose, gr. xv as an antiperiodic, gr. v-x against dysmenorrhea.

In small doses (℥iij-v) Apiol is carminative, diuretic, diaphoretic, expectorant, and stimulant to the circulation. In full doses (℥xv) it is decidedly emmenagogue and feebly antiperiodic, but produces headache, tinnitus aurium, intoxication, and giddiness, its action generally resembling that of quinine. Large doses (℥xxx-ʒj) are decidedly narcotic.

Apiol has had some reputation in intermittents and in malarial neuralgiae, but is most frequently employed in amenorrhea and dysmenorrhea, being of especial advantage in the amenorrhea of anemia, also when the menstrual

discharge is fetid. It is becoming fashionable as a supposed abortifacient, but is useless for this purpose, and if freely used may produce decided narcotism, especially if the preparation employed should happen to be an active one. Cases of poisoning by Apiol are seldom seen, as the French preparation in capsules sold in this country over the counters of drug-stores to any applicant are generally inert for either good or evil, though an important source of revenue to the druggists.

APOCYNUM, Canadian Hemp,—is the root of *Apocynum cannabinum*, an indigenous perennial plant of the nat. ord. Apocynaceae, and is inodorous, but of bitter, disagreeable taste. It contains a peculiar active principle, *Apocynin*, also tannic and gallic acids, resin, wax, caoutchouc, etc. Dose of the powdered root, gr. v-xxx, [av. gr. xv.] A decoction (ʒss to the pint) may be given in doses of ʒj-ij thrice daily.

Fluidextractum Apocyni, *Fluidextract of Apocynum*,—℥v-xxx, [av. ℥xv.] Apocynum is powerfully emetic and cathartic in full doses, also diaphoretic, expectorant and sometimes actively diuretic. It lowers the pulse-rate, produces much nausea, and induces drowsiness. It should not be confounded with the Indian and American Hemsps (*Cannabis sativa*), which have entirely different qualities.

The only condition in which Apocynum has proven of much value is dropsy, especially ascites and the anasarca of Bright's disease, in which 15-grain doses are indicated. The active principle, *Apocynin*, is a good expectorant, in doses of gr. ¼ to gr. ½.

Apocynum Androsæmifolium (Unofficial), is said to act chiefly on the liver and the mucous coat of the gastro-intestinal canal. It is reported to be an ideal cholagogue and to have proved almost specific in the so-called "bilious" condition.

AQUA, Water, H₂O,—is potable water, in its purest attainable state; a colorless limpid liquid, devoid of odor or taste, and of neutral reaction. Besides entering into the composition of most of the official extracts, fluid extracts, and many other pharmaceutical preparations, from it are prepared the 17 official Waters (Aqua), and also the following:—

Aqua Destillata, *Distilled Water*,—H₂O,—1000 parts of water are distilled, the first 100 parts obtained being thrown away, 800 parts are preserved. It is as near chemically pure water as can be obtained.

Aqua Carbonata, *Carbonated Water, Soda Water* (Unofficial),—is described on p. 205. *Incompatible* with Water are: Alcoholic extracts and tinctures, Alkaloids generally (not their salts), Collodion, Fats, Oils, Resins, Resinous extracts and tinctures, Gum-resins.

Nomenclature of Water.

AQUA FLUVIALIS, River-water.	AQUA DESTILLATA, Distilled Water.
AQUA PLUVIALIS, Rain-water.	AQUA BULLIENS, Boiling Water.
AQUA FONTANA, Spring or Well-water.	AQUA FERVENS, Hot Water.
AQUA MARINA, Sea-water.	AQUA COMMUNIS, Common Water.
AQUA CARBONATA, Carbonated Water, Soda Water.	BALNEUM MARIS, Warm-water Bath.
	BALNEUM VAPORIS, Vapor Bath.

MINERAL WATERS.

Natural Water differs from distilled water in containing saline and other constituents in varying proportions,—from common water (aqua communis), in which they are so small in quantity as not to alter the taste, color, etc., up to sea-water, having 3½ per cent., and that of the Dead Sea with 26½ per cent. Spring waters, impregnated with foreign substances so as to have a decided taste and a marked action on the human system, are called *Mineral Waters*,

Pathogenic Microbes of several diseases, notably those of cholera and typhoid fever, are conveyed to the human system in drinking water contaminated therewith. But these organisms are destroyed by a temperature of 144° F. in the absence of their spores, while a temperature of 212° F., that of boiling water, maintained for five minutes, destroys the spores of all pathogenic organisms which have been tested (Sternberg). This fact is of the highest practical importance, as it shows that no germs of disease need ever gain entrance to our bodies through our drinking water, if only we will boil it. Many years ago an English physician's report was quoted in Braithwaite's Retrospect, in reference to the immunity of the Chinese from typhoid fever, though he said that in Peking there was no system of sewerage, but that all excreta were thrown on the ground to find their way into the watercourses by which the city was supplied, to soak into wells, etc. Yet, the author said, that contrary to all experience elsewhere, typhoid fever was unknown in Peking. The reason is to be found in the fact that the Chinese boil all the water they drink. Those who know them best say that they never drink cold water, but always tea, *i. e.*, boiled water. There must be some reason for their remarkable health under adverse hygienic surroundings.

THERAPEUTICS OF WATER.

Cold water (or ice) has many external applications of value in the treatment of disease. As a wet pack it is used in tonsillitis, diphtheria and croup. Cold baths are the most effective antipyretic in the high temperature of fevers, and the cold wet pack is used for the same purpose. Ice or cold water is applied to the head in acute cerebral congestion, and to the spine in chorea; also locally in hemorrhoids, bubo, orchitis, and to the uterus in post-partum hemorrhage. Cold affusion to the body is employed as a preventive of spasmodic croup, as well as to lessen susceptibility to taking cold.

Hot water externally, as fomentations, hot wet packs, baths, etc., is most effective in reducing local congestion and setting up resolution of local inflammation. Hot fomentations to the renal region are useful in functional inactivity of the kidneys. The hot spinal douche is used in affections of the spinal cord and meninges, and in the backache of women. The hot wet pack is highly esteemed in inflammation of the thoracic organs. The vaginal hot water douche is valued by gynecologists for many morbid conditions of the uterus and its appendages, especially catarrh of the vaginal and cervical mucous membrane, subinvolution of the uterus, also congestive, swollen and neuralgic conditions of the ovaries, tubes and adjacent tissues. The continuous hot water bath was commended in skin diseases by Hebra, who administered it in cases of extensive burns, psoriasis, pemphigus and variola. The continuous immersion in very hot water of an indolent wound, ulcer or sore, is a method of great efficiency for the promotion of the healing process in cases which have resisted the ordinary stimulant applications. Hot water dressings for wounds are strongly favored by many high surgical authorities. Vapor and Turkish baths are used as diaphoretics in advanced kidney disease, in acute and chronic rheumatism, mineral poisoning, and syphilis. Warm baths, with cold applications to the head, are esteemed of value in infantile convulsions and chorea.

Internally, water is chiefly of value as a diuretic, and if hot as a diaphoretic. A glass of cold water before breakfast daily is often an effective means of overcoming constipation, while the drinking of hot water an hour before each meal has been of great value to many dyspeptics. The value of the popular teas in

chronic diseases is almost entirely due to the diluent, diuretic and diaphoretic actions of the hot water used. Large draughts of water at regular intervals between meals are extremely useful in renal insufficiency, acute Bright's disease, acute cystitis, gravel, and gout, increasing the urinary flow and the excretion of urea, washing out the kidneys, lessening renal irritation and promoting the excretion of uric acid.

The various methods of introducing water into the body, by enteroclysis, hypodermoclysis, and infusion, are of great therapeutic value, and have almost entirely replaced the older measure of the transfusion of blood into the circulation. The normal saline solution (5j of sodium chloride to the pint of water) is preferred to plain water, as it does not injure the blood corpuscles, and prevents the abstraction of vital salts when used in the intestinal canal. *Enteroclysis* is the irrigation of the colon by large clysters of water, plain or medicated, hot (101° to 103° F.) or cold (65° F.), for the purposes of cleansing the canal, relieving intestinal obstruction, promoting diuresis and the elimination of toxins, preserving the body heat, and reducing fever; also as a stimulant in shock and collapse, and to supply lost fluid after copious hemorrhages, hyper-purgation, and other drains of the system. From 2 to 4 quarts may be used if injected slowly, and with proper position of the subject and suitable appliances, the injection may be carried to the caput coli. The medicinal agents usually employed are Sodium Chloride 1 to 140, making the normal saline solution, Tannic Acid 0.5 to 2 per cent., Boric Acid 1 to 500, Quinine Sulphate 1 to 1000, and Silver Nitrate 1 to 1,500; the two latter agents being used in amebic and chronic dysentery. *Hypodermoclysis* is the deep injection into the cellular tissue of a sterilized normal solution. When slowly administered, and at different sites, from ½ pint to a pint, at a temperature of about 100° F., may be introduced without much pain or local irritation. The sites usually chosen are the thigh, buttocks, back, breast, and in women the sub-mammary region. *Infusion* is the injection of a sterilized normal saline solution, at a temperature of 120° F., directly into the vascular system, usually through a vein. These methods have proved extremely valuable in shock, hemorrhage, sepsis, uremia, diarrhea, acute, chronic and amebic dysentery, cholera, typhoid fever, poisoning by alkaloids, and other toxemic conditions.

THERAPEUTICS OF THE MINERAL WATERS.

An undue value is placed by the laity and interested proprietors on the medicinal value of mineral waters, causing the various localities of the best advertised springs to become resorts for invalids and idlers from every civilized country. The benefit derived is in most instances due to the change of climate and scene, freedom from home cares and business worry, regularity of life and diet, drinking of water in quantity, and in many cases the substitution of water for alcoholic beverages. In order to get the worth of their money, people will gladly submit to rigid hygienic and dietetic restrictions at a water-