

becomes whitish and opaque, from coagulation of the albumin, abstraction of water from the tissue and congestion of its vessels. This soon disappears, as resolution of the albumin occurs.

Internally in moderate quantity and single dose, Alcohol acts briefly as a cerebral, cardiac and general stimulant; in large doses as an anesthetic, an intoxicant and deliriant, and finally as a narcotic poison and paralyzant of the nerve-centres. It is somewhat antipyretic, also diuretic and antispasmodic, and is hypnotic in many cases.

A single dose of a strong alcoholic preparation, for example an ounce of neat brandy, introduced into the stomach, immediately produces important and valuable reflex effects. The cardiac rate is quickened, and its force is increased; the vessels of the entire body are dilated, especially those of the skin; the blood-pressure is raised, and a sense of glowing heat is produced. These reflex effects are well seen in the prompt restoration of a fainting person by the administration of a single dram of whisky or brandy. By the same means the nausea, paleness and other unpleasant symptoms produced by tobacco are promptly counteracted.

Internally, in small quantity diluted, Alcohol dilates the gastric vessels, reddens the mucous membrane of the stomach, produces a sense of warmth and comfort, stimulates the gastric glands to increased production of gastric juice, and increases the activity of the gastric movements. Taken moderately, immediately before or during meals, it promotes the appetite and assists digestion; lessens the elimination of waste-products (urea and CO_2), causes a subjective sensation of heat, and slightly raises the body-temperature. It briefly stimulates the heart, prolonging its systole and reducing the length of the diastole, and increases the functional activity of all the organs. The effects of large doses are very injurious; the vaso-motor nerves are partially paralyzed for a time, causing dilatation of the arterioles throughout the body; the pepsin of the gastric juice is precipitated, the gastric and hepatic vessels are congested, the walls of the stomach are rendered hyperemic, and the gastric glands and hepatic cells are over-stimulated to the production of pathological secretions. If the ingestion is continued, even in moderate quantities frequently repeated, chronic gastritis ensues, gastric mucus is poured out in large amount, the gastric glands soon atrophy, and the permanent dyspepsia of drunkards is set up, with morning vomiting of glairy mucus. The further effects of large doses are the total arrest of digestion, the production of intoxication, perhaps hallucinations and delirium, also great incoördination of thought and motion, depressed sensibility, depression of the heart and respiration, lowered arterial tension and body-temperature, abolished reflexes, stupor, and, if the dose be sufficient, coma and death.

Upon the *Blood* the action of Alcohol is to first increase and then diminish the amoeboid movements of the white corpuscles, also to affect the red corpuscles so as to prevent the oxyhemoglobin from readily parting with its oxygen. It

consequently diminishes the oxidation of the tissues, and may lead to an imperfect combustion of fat, which then accumulates. The result is obesity in many persons who habitually consume large quantities of alcoholic beverages, especially if these contain much saccharine material.

Upon the *Heart and Circulation* the first effects of Alcohol are those of slight and brief stimulation by reflex action. After its absorption the same effects are exhibited in a more marked degree. The pulse becomes fuller, the action of the heart is quickened and its force increased, due mainly to direct stimulation of its accelerator nerves. The vaso-motor system is inhibited, causing dilatation of all the vessels of the body, especially those of the periphery, and producing a sense of increased body-heat. The blood-pressure is raised, the great increase of cardiac action overcoming the results of the vascular dilatation. The mental and bodily functions are all stimulated for a time, the subject feels better for the dram, his muscular power seems to be increased, more urine is passed, and perspiration is freer. But these effects are very transitory, and after a brief period of stimulation reaction sets in, and the entire organism is depressed to a lower point than where it was before the ingestion of the alcoholic stimulant. Large doses do not stimulate the heart at all, but immediately depress it, both by reflex action and by direct paralysis after their absorption. A toxic dose may paralyze the heart almost immediately by direct depressant action, but usually, after a very brief period of excitement, insensibility is produced, also stertorous breathing, dilated or contracted pupils, complete muscular resolution, and death by paralysis of the heart and respiration. The action of alcohol upon the heart clearly exemplifies two therapeutic laws: (1) That excessive stimulation is necessarily followed by depression, and (2) that drugs which in moderate doses excite a function are very apt in large doses to paralyze it.

The extremists, who find no good whatever in alcohol, hold that it is a fallacy to apply the term "stimulant" thereto, that alcohol is a paralyzant from first to last, that its apparent cardiac stimulation is in reality the result of its narcotism of cardiac inhibition, and that every special sense is blunted by even small doses of this poison. They calmly ignore the fact that their premises apply to every stimulant in its special field of action as well as to alcohol in its sphere, and forget that their conclusion (that alcohol has no place in medicine except as a poison) applies by the same reasoning to every other stimulant. Hence, to be consistent, they should advocate the banishment of all stimulant drugs from the materia medica.

On the *Skin and Kidneys* Alcohol is mildly diaphoretic and diuretic, acting partly by its vascular dilatation, partly by stimulation of glandular activity. On the *Intestines* it has a slightly astringent effect at first, but in those who use it habitually to excess the bowels are always very loose, and the evacuations watery.

Upon the *Nervous System* Alcohol has specific and selective action. By a moderate dose this entire system is briefly stimulated, chiefly as a result of increased blood supply due to the vascular dilatation and cardiac elevation. Reaction, however, soon occurs, and if the dose be very large, the period of exaltation quickly passes into one of profound cerebral depression, but this is

usually preceded by marked incoördination of thought and of muscular movement, shown by incoherency of language, difficult speech, and staggering gait. The reflex activity of the spinal centres is abolished next, the urine and feces are discharged involuntarily; the depression extends to the respiratory centre, breathing becomes difficult and the face cyanosed; profound coma supervenes, respiration and the heart are paralyzed, and the patient dies.

The reflex depression occurs early in the case, and accounts for the impunity with which a drunken man will often bear an injury which would cause death by shock to a sober one.

The action of Alcohol upon the nervous system illustrates well, in the order of its events, the physiological fact that excessive stimulation is followed by depression; as well as the law that drugs which affect the functions progressively exhibit their earliest powers upon those functions which are highest in development (being those latest acquired by the individual and last to appear in the species), and influence next the next lower, and finally the lowest, those of respiration and circulation. The primary stimulation and subsequent depression of function proceeds, in a descending scale from the highest or least firmly fixed and latest acquired function, to the lowest or most firmly fixed one. Thus, by Alcohol, the intellect is affected very early and the judgment abolished very soon, even though the imagination, the emotions and the powers of speech remain stimulated. Soon these follow the same course, imagination is abolished, the patient loses command over his emotions, cries and laughs immoderately and without reason; next loses control over his organs of speech, talking incoherently and thickly, and then can only make a noise. At the same time other delicate and lately developed movements, as those required for writing, feeding, etc., are incoördinately performed and soon paralyzed. General muscular movements, being less highly and earlier developed, are next to become implicated, being first incoördinated, and soon abolished. The paralysis of reflex action follows, though lowered earlier in the case, then paralysis of respiration and finally paralysis of the heart.

The antipyretic action of Alcohol is partly due to its power of lessening oxidation, but chiefly to the dilatation which even moderate doses produce in the vessels of the surface. This dilatation subjects the warm blood from the interior of the body to the cooling influence of the atmosphere, also to the cooling due to evaporation from the skin; and if kept up by repeated drams in a freezing temperature will soon so chill down the blood as to kill the subject.

Under ordinary conditions the contraction of the cutaneous vessels, in a person exposed to cold, prevents the warm blood from approaching the surface in any great quantity and becoming cooled; but this mechanism is temporarily paralyzed by every dose of alcohol, admitting the hot blood to circulate freely over the surface, and to be rapidly cooled down until the patient may be absolutely frozen to death as a result of repeatedly taking "something to keep him warm." This fact is well known to Arctic travelers and to the lumbermen of the northern forests, who have been taught by bitter experience to let alcohol alone when exposed to severe cold.

Delirium Tremens occurs after an alcoholic debauch, usually in cases where the stomach is so deranged as to prevent the ingestion or assimilation of food. So long as the toper can eat and digest his food he is practically not liable to this affection. It generally begins in from two to four days after the patient has lost his appetite and commenced to reject or vomit his food; and is marked by great restlessness, obstinate insomnia, a peculiar tremor of the tongue and limbs; also delusions connected with the sense of sight, the patient imagining that he sees *animals* around him (dogs, rats, snakes, beetles, etc.). The delirium is constant and active, may become violent and pass into mania, or the

patient may die suddenly while in this state, without any warning symptoms. In several cases observed by the writer the delirium appeared four and five days after the last alcoholic dose was taken, though the patient was eating, sleeping, and working during the interval, apparently convalescent. Under treatment, and especially if sleep is brought on, the delirium usually subsides gradually, and the patient recovers.

Chronic Alcoholism is the result of the ingestion for a considerable length of time of an excessive quantity of alcohol, even though perhaps never sufficient to cause acute intoxication. One of the earliest symptoms usually observed is the vomiting of watery fluid or glairy mucus in the morning after rising. The bowels are generally loose, and the evacuations watery. The skin has a greasy look and a satiny feel, and the cutaneous capillaries on the face may become permanently dilated, giving to the cheeks a characteristic, dusky-red hue, and a flaming red color to the nose. In old drunkards, the latter organ often becomes covered on its tip with dusky-red tubercular enlargements, making it a very unsightly appendage. The stomach and liver are in a state of chronic congestion, the food is not digested and often to a great extent abandoned, the patient, in fact, living upon alcohol. Eructations of gas and flatulence are constant and distressing; the body is usually puffed and bloated, the eyes bleary, red and watery. One of the most graphic descriptions of the drunkard's personal appearance is that by Trollope, in "Orley Farm," chapter 57.

After a time the connective tissue of the liver increases (hyperplasia), its parenchymatous structure atrophies or undergoes fatty degeneration, the organ contracts (sclerosis), the portal circulation is impaired, the veins of the abdominal integument become prominent, and soon ascites ushers in the final stage. Sclerosis of the kidneys may accompany that of the liver. The general impairment of function extends early to the nervous system, the mental powers are dulled, the temper becomes irritable, and tremor appears in the tongue, lips and hands. As a result of the prolonged use of alcohol very serious pathological changes take place throughout the organism. It exerts its essential and most injurious influence on the vital organs by its presence in the circulation, being thus brought into direct contact with the cellular tissue of the vital organs. It sets up hyperplasia of the connective tissue, resulting in sclerosis, especially in the stomach, brain, liver and kidneys; produces fatty degeneration (steatosis) of the blood, the arterial walls and the parenchyma of the various organs, depresses the brain, the heart and the arterial tension. Chronic disease of the heart, the arteries and the mucous lining of the stomach and intestines, gout, diabetes, Bright's disease of the kidneys, paralysis, ataxia, peripheral neuritis, epilepsy, amaurosis, and insanity may result from the continued use and abuse of alcohol. The malt liquors (beer, ale, etc.) are less prone than spirits to affect the brain, but are even more apt to set up fatty degeneration of the heart and liver. The heart is very liable to undergo gradual hypertrophy, partly by reason of the constant whipping up it receives from every dram of

alcohol taken, and partly as a result of renal sclerosis. Several of the largest hearts ever seen by the writer at autopsies, some of which were veritable instances of *cor bovinum*, occurred in subjects of chronic alcoholism associated with employment involving exposure and great anxiety, as in masters of steamships, superintendents of mines, etc.

Impurities in Alcohol increase greatly its toxic action; so that inferior brandy from a public liquor shop has a lethal action nearly one-half greater than that of pure ethyl alcohol. (Dujardin-Beaumetz.)

Alcoholic Coma may be easily confounded with that of apoplexy, opium narcosis, concussion of the brain, acute pneumonia, uremia and epilepsy, the differential diagnosis being almost impossible to make with accuracy when the coma is deep. The pupils afford no trustworthy indication, as they may be either dilated or contracted in alcoholism. They are often unequally contracted in apoplexy, and in apoplexy of the pons varolii they may be equally and minutely contracted, as in opium-poisoning. The difficulty of diagnosis is increased by the common practice of giving a dram of whisky as a reviver, so that a stranger found insensible on the street and brought to a hospital may smell of alcohol without having been the subject of alcoholism. When no accurate history of the case can be obtained the diagnosis is impossible in many cases.

Alcohol is rapidly diffused throughout the organism, which oxidizes a portion of it, about an ounce and a half for the adult in 24 hours, the oxidation yielding force, which is utilized as nervous, muscular, and glandular power. A large quantity is decidedly poisonous, as it sets up structural changes in the various organs, and lowers the power of resistance to morbid influences. It renders its victims particularly liable to phthisis, and has frequently caused directly an intractable form of that disease, pulmonary sclerosis. It makes patients bad subjects for withstanding any severe illness, especially pneumonia, or to successfully undergo severe surgical operations.

The portion not oxidized is excreted unchanged by the lungs, the skin and the kidneys, but does not appear in any quantity in the urine unless very large amounts have been ingested. The very young and the very old bear more alcohol relatively than the adult. It has been proven to exist normally in the human organism, and within the limit above stated it is undoubtedly a food, as is shown by the fact of its retention and combustion in the body, supplying the place of other foods, so that the quantity of food which without it would be insufficient, with its aid becomes sufficient to maintain the body-weight.

Researches as to the action of alcohol upon vital resistance to infection, by Drs. Abbott and Deléarde, seem to show that it has a decidedly injurious influence upon animals inoculated with cultures of the germs of certain infectious diseases. Alcoholized rabbits died when inoculated with *Streptococcus pyogenes* and *Bacillus coli communis* in attenuated cultures which did not kill non-alcoholized control ones. Animals vaccinated against tetanus and afterwards alcoholized, soon lose their immunity; and those vaccinated against tetanus and at the same time alcoholized, do not readily acquire immunity. Similar results were obtained with regard to rabies and anthrax. The conclusion is drawn that strong doses of alcohol should not be administered to persons suffering from certain infectious diseases, as pneumonia, or from certain intoxications, as that produced by snake-venom, during which an increase in the number of leucocytes appears to be a necessary part of any process leading to the cure of the patient.

THERAPEUTICS OF ALCOHOL.

The external and local use of alcohol in medicine includes many applications of its antiseptic, astringent, refrigerant and rubefacient qualities. Diluted, in the proportion of four parts to one of water, it makes an excellent lotion for bruises, sprains, and other slight injuries, where it is desired to cool the part and check impending inflammation. A perfumed spirit, as Cologne-water, is commonly used as a lotion to the forehead for the relief of headaches. Alcohol does good service as an application to prevent bed-sores and cracked nipples, as it hardens the inflamed skin by abstracting water therefrom and coagulating the albumin temporarily. Diluted alcohol is applied on the surface of the body in fevers, to cool the skin and check excessive sweating. Alcoholic liniments (linimentum camphoræ, etc.) are rubbed into the cutaneous tissue for their rubefacient effect, to aid the absorption of inflammatory products and to relieve pain, in chronic rheumatism, lumbago, and myalgia. As a gargle or spray, diluted alcohol is one of the very best local agents in tonsillitis, pharyngitis, and other inflammatory affections of the throat, especially diphtheria, in which disease it fulfils several important purposes, acting as an efficient local antiseptic, astringent and anesthetic. Among miners, hunters, frontiersmen and others, lotions of whisky or brandy are in common use as applications to wounds and sores, and they could not find a more efficient agent for the purpose, when conjoined with thorough cleanliness of the lesions.

Internally, in small quantities taken just before or during a meal, alcohol is an efficient aid to digestion, especially in the aged and feeble, or persons who are greatly exhausted by overwork. In the atonic indigestion of nervous and depressed subjects and in cholera infantum, good brandy is universally found to be beneficial. Care must be taken, however, not to exceed the amount which agrees with the case, for large quantities precipitate pepsin, paralyze the gastric secretions, and set up a subacute gastritis, which will become a chronic one if the indulgence is persisted in, with eventual atrophy of the gastric glands. Many cases of gout have their origin in the habitual use of alcoholic beverages, especially the malt liquors and heavy red wines; and all forms of alcohol should be avoided by subjects of the uric acid diathesis.

In the form of a sparkling wine, as champagne, or as brandy and soda-water, alcohol may control vomiting from many causes, especially that of yellow fever and sea-sickness. A single full dose of strong whisky or brandy is often a very efficient combatant of fainting or of collapse, by its prompt reflex stimulation of the circulation. Diarrhea of simple form may be checked by a dram of good brandy, acting as a tonic astringent to the intestines. An attack of acute coryza, or a cold from exposure beginning with a chill, may frequently be aborted by a full dose of spirits in hot water taken just before going to bed, for the purpose of relaxing the peripheral vessels and thus promoting diaphoresis and restoring the disturbed balance of the circulation. In anemia and chlorosis good red wines are almost indispensable, also in convalescence from

acute diseases, sudden and profuse hemorrhages, and many other morbid conditions. In phthisis alcohol does good service if it promotes assimilation and assists digestion, shown by increase of the body-weight during its employment. It is invaluable in poisoning by cardiac depressants and snake-venom, and impending cardiac failure from any cause. It is the most efficient antidote in poisoning by Phenol (carbolic acid), as besides diluting the poison, it has dehydrating and astringent action on the tissues which prevent the absorption of the phenol to a great extent.

In fevers Alcohol is often very serviceable, but may do harm if used without discrimination. Its powers of lessening oxidation, of being itself oxidized in the body and acting as a food, of reducing body-temperature and promoting perspiration and sleep, are all indications for its beneficial employment in most febrile conditions; while its stimulant action on the heart may be available in such diseases as typhoid fever, and lobar pneumonia, to tide that organ over a brief period of depression or a condition of impending collapse. Furthermore, for some unexplained reason, it often slows the pulse in fever, and when it does so its moderate use will be of general benefit to the patient. The danger is that if continuously given in such affections it may fail to make the required impression when an emergency calling for it occurs. The best rule to observe for its administration in typhoid, diphtheria, pneumonia and other fevers is to withhold it until the first sound of the heart becomes feeble and dull, and then to use it boldly but not excessively. Many authorities urge continuous administration in diphtheria, probably from a belief in its antiseptic action on the poison in the blood, similar to that which it undoubtedly exercises against the venom of the rattlesnake. It is an absolute necessity in the treatment of acute lobar pneumonia, if the patient has been accustomed to its daily use as a beverage; but in other subjects of this disease it is best given at the crisis only, to tide the patient over a brief period of extreme danger.

Absolute Alcohol has been successfully used in the treatment of mammary carcinoma, from 30 to 60 minims of a 30 to 60 per cent. solution being injected around the circumference of the growth, with the object of obliterating its vessels and lymphatics. This method is painful, but Hasse reports 35 cases so treated over a period of 25 years without a single relapse.

The use of alcoholic beverages in moderate quantity by healthy persons is violently condemned by extreme total abstinence advocates, who make use of garbled quotations from medical authorities to support their arguments. Physicians generally agree with Mr. Lawson Tait, who declared himself "fully persuaded after thirty years of life, as hard in work and as full of responsibility as well could be, that the moderate use of alcohol is a necessity in our modern life." Dr. Robert Farquharson sums up the case for moderate drinking as follows. "All stimulant is unnecessary for the young and for people living perfectly healthy lives. But, under the stress and struggle of modern civilization, few of us beyond middle age are placed under normal physiological con-

ditions, and a little alcohol helps us to round the corners, and to plane away the asperities of existence. In turns it may be a stimulant, or a sedative, or a tonic, or a digestive, or an actual food; and unless we run on into excess, no physical damage can possibly be done to our tissues. The argument in its favor, when wisely and prudently used, seems complete. It does us good, and can do us no harm."

ALETRIS, Colic-root (Unofficial),—is the rhizome of *Aletris farinosa*, the Starwort, an indigenous perennial plant which grows in grassy places and in sandy woods. It contains starch, and a bitter principle, but no tannin. This plant was formerly official, and is now widely advertised by the proprietors of an *Aletris Cordial*, as being tonic, emetic, purgative, diuretic, carminative, sialogogue and anti-rheumatic, also "the most powerful of uterine stimulants," a specific for dysmenorrhœa and a wonderful remedy for colic, dropsy, and chronic rheumatism. It is little more than a simple bitter in small doses, though in very large ones it may prove emeto-cathartic. Dose, of the powdered root, gr. x, of the infusion (℥j to the pint), ℥ss.

ALLIUM, Garlic (Unofficial),—is the bulb of *Allium sativum*, a plant of the nat. ord. Liliaceæ, indigenous to Asia, but cultivated in Europe and America. Its odor is pungent and disagreeable and its taste warm and acrid. It contains a *Volatile Oil*, which consists mainly of the Sulphide of Allyl (C_3H_5)₂S, on which its qualities depend. Allied species are *Allium Cepa*, the Onion, and *Allium Porrum*, the Leek.

Syrupus Allii, Syrup of Garlic (Unofficial),—contains 20 per cent. of Garlic, Sugar and Dilute Acetic Acid. Dose, ℥j-iv, according to age.

Garlic, Leeks and Onions are stimulants to the digestion and to the nervous system, and are supposed to have a special influence upon the bronchial secretion. Garlic is also thought to be emmenagogue and anthelmintic. It promotes diaphoresis and diuresis, and acts as a tonic and carminative. Many persons use it as a condiment. Large doses will often produce gastric irritation, flatulence, hemorrhoids, headache and fever. In domestic practice it is frequently employed as an external application in the cutaneous eruptions of children, and as a poultice or liniment in infantile disorders of many kinds. Internally it is of real benefit in feeble digestion and flatulence, chronic catarrhal affections of children, nervous and spasmodic coughs, and nervous vomiting.

ALNUS, Alder-Bark (Unofficial),—is the bark of *Alnus serrulata*, the common American Alder, a small tree of the nat. ord. Betulaceæ. It has similar properties to those of *A. glutinosa*, the European Alder, and *A. urcana*, the Tag Alder, and contains a tannic acid, an oil, and a resin. The bark and leaves are astringent and bitter, and are chiefly used as gargles for the throat, as local applications to wounds and ulcers, and to restrain the secretion of milk. Dose of the powdered bark gr. x, in decoction or infusion, several times a day. The Tag Alder is highly recommended as a hemostatic.

ALOE, Aloes,—is the inspissated juice of the leaves of *Aloe vera*, *Aloe Chinensis*, *Aloe Perryi*, or other species of *Aloe*, a plant of the nat. ord. Liliaceæ. It occurs in masses of yellowish-brown color, fragrant odor and bitter taste, soluble in alcohol and in boiling water. It contains a peculiar volatile oil, a resin, and *Soaloin*, $C_{15}H_{16}O_7$, a variety of the principle *Aloin*, which is common to all varieties of aloes,—also *Aloetic* and *Chrysammic Acids*. Dose, gr. j-vj, [av. gr. iv.]

Aloinum, Aloin,—is a neutral principle obtained from Aloes, chiefly prepared from the Curaçao variety, and varying in composition and properties according to the source from which it is obtained. It is soluble in about 65 of water, 11 of alcohol, 21 of acetone, 664 of ether, at 77° F. Dose, gr. ss-ij, [av. gr. j.]

Preparations.

Aloe Purificata, *Purified Aloe*,—prepared from Aloes by melting and mixing with $\frac{1}{4}$ th its weight of Alcohol, straining and evaporating. The product is in irregular dull-brown, brittle pieces, almost entirely soluble in alcohol. From it are prepared the following preparations. Dose, gr. j-v, [av. gr. iv.]

Extractum Aloes, *Extract of Aloes*,—prepared by mixing 1 part of Aloes with 10 parts of Boiling Water, standing 12 hours, decanting, straining, and evaporating. Dose, gr. ss-v, [av. gr. ij.]

Tinctura Aloes, *Tincture of Aloes*,—has of Aloes 10, Glycyrrhiza 20, Diluted Alcohol to 100 parts. Dose, ℞x-℥j, [av. ℞xxx.]

Tinctura Aloes et Myrrhæ, *Tincture of Aloes and Myrrh*,—Aloes 10, Myrrh 10, Glycyrrhiza 10, Alcohol and Water to 100 parts. Dose, ℞x-℥j, [av. ℞xxx.]

Pilulæ Aloes, *Pills of Aloes*,—each has Aloes and Soap, 2 grains of each. Dose, ij.

Pilulæ Aloes et Ferri, *Pills of Aloes and Iron*,—each pill contains gr. j each of Aloes, Sulphate of Iron and Aromatic Powder, with Confection of Rose. Dose, ij.

Pilulæ Aloe et Mastiches, *Pills of Aloe and Mastic*, (*Lady Webster's Pill*),—each pill has of Aloes gr. ij, Mastic gr. ss, Red Rose, gr. ss. Dose, ij.

Pilulæ Aloes et Myrrhæ, *Pills of Aloes and Myrrh*,—each pill contains of Aloes gr. ij, Myrrh gr. j, Aromatic Powder gr. ss, mixed with Syrup. Dose, ij.

Pilulæ Laxativæ Compositæ, *Compound Laxative Pills*,—each pill contains of Aloin gr. $\frac{1}{4}$, Strychnine gr. $\frac{1}{128}$, Belladonna Extract, gr. $\frac{1}{8}$, Ipecac, gr. $\frac{1}{16}$, with Glycyrrhiza and Syrup. Dose, ij.

Pilulæ Lapacticæ, *Lapactic Pills* (Unofficial)—each pill contains of Aloin gr. $\frac{1}{4}$, Strychnine gr. $\frac{1}{80}$, Extr. Belladonnæ gr. $\frac{1}{8}$, Ipecac gr. $\frac{1}{16}$. Dose, ij-viii.

Aloes is a constituent of Pilulæ Rhei Compositæ and Tinctura Benzoini Composita (which see, under RHEUM and BENZOINUM respectively).

Incompatibles.

Incompatible with Aloes are Mercury Nitrate, Silver Nitrate; with Aloin are Alkaline Hydrates, Bromine-water, Ferric Chloride, Lead Acetate (basic), Tannic Acid.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Aloes is a tonic-astringent and resin-bearing purgative, an emmenagogue and an anthelmintic against the thread-worm. As a cathartic it acts chiefly on the lower half of the large intestine, doses of 1 to 4 grains producing in about 10 hours copious soft evacuations with some griping pain. This effect is produced whether the drug be taken internally or absorbed from an exposed surface, so that it probably diffuses into the blood and is eliminated by the mucous membrane of the colon. It is a stomachic tonic in small doses, a stimulant of the hepatic functions, and an excitant of the pelvic circulation. It may cause abortion in the female and priapism in the male, and is said to have frequently produced hemorrhoids, which if existing it will aggravate. Given to nursing mothers it imparts a purgative quality to their milk.

Aloes is chiefly used in combination with iron, myrrh, and nux-vomica, for amenorrhœa and chronic constipation with atonic dyspepsia and hypochondriasis. It is curative in certain forms of hemorrhoids especially those occurring after delivery and where the condition is not one of active pelvic congestion. It is also used internally and as an injection in gonorrhœa, and for simple atonic jaundice. It must be avoided in irritable rectum, hemorrhoids of active form, menorrhagia and pregnancy, unless given in small doses and with care. The Pil. Aloes et

Ferri is perhaps the most generally used agent in the anemia, amenorrhœa and constipation of girls at the period of puberty.

ALTHÆA, *Marsh-Mallow*,—is the root of *Althæa officinalis*, a European plant of the nat. ord. Malvaceæ. It contains about 35 per cent. each of vegetable mucus and starch, with 2 per cent. of *Asparagin*, also pectous matter, sugar, fixed oil, but no tannin. It is a constituent of Massa Hydrargyri and Pilulæ Phosphori, and is much used as an excipient in extemporaneous pharmacy. Dose, indefinite.

Althæa is one of the best mucilaginous drugs, but has no active medicinal properties. It is used in Europe to make pectoral teas and syrups, and is extensively employed as a mucilaginous demulcent. The powdered root makes a good emollient poultice. In the Phar. Ger. a Compound Althæa Tea is official, which under the common name, "German Breast Tea," is a popular demulcent drink in bronchial affections, coughs, etc.

Asparagin (Unofficial),—is an organic principle, occurring in large rhombic crystals, and found in many other plants, as in the shoots of asparagus, vetches, potatoes, licorice, the sweet almond, the root of the locust, etc. It is considered a derivative of *Succinic Acid*, and has diuretic properties, besides being sedative to the circulation. It may be used in ascites, especially in children, in the anasarca of Bright's disease, and in gout. Dose, gr. ij-iiij, in water.

ALUMINUM, Al.—This metal is widely distributed in nature, chiefly in the form of the silicate, constituting clay, kaolin, and many common rocks. Its official salts are the following-named:—

Alumen, *Alum*, (*Potassium Alum*, *Aluminum and Potassium Sulphate*), $\text{AlK}(\text{SO}_4)_2 + 12\text{H}_2\text{O}$,—occurs in large, octahedral crystals, or cubes, of sweetish astringent taste and acid reaction, soluble in 9 parts of water and in 0.3 of boiling water, insoluble in alcohol. The Ammonia-alum (*Alumini et Ammonii Sulphas*) was formerly official, and is still sold and dispensed as Alum. Dose, gr. v-x, [av. gr. vijss.]—as an emetic ℥j for a child.

Alumen Exsiccatum, *Exsiccated Alum*,—is a white, granular powder, slowly soluble in 20 parts of water at 59° F., and quickly soluble in 1.4 of boiling water. Dose, gr. j-v.

Alumini Hydroxidum, *Aluminum Hydroxide* (*Hydrated Alumina*), $\text{Al}_2(\text{OH})_6$,—is a white, light, amorphous, tasteless powder, insoluble in water or alcohol, but soluble in strong alkaline or acid solutions. Dose, gr. iiij-xx in powder or mixture.

Alumini Sulphas, *Aluminum Sulphate*, $\text{Al}_2(\text{SO}_4)_3 + 16\text{H}_2\text{O}$,—is a white crystalline powder, soluble in 1.2 of water at 59° F., almost insoluble in alcohol. Used locally.

Kaolinum, *Kaolin*,—is a native Aluminum Silicate, powdered and freed from gritty particles by elutriation. It is a fine white clay, derived from the decomposition of the felspar of granitic rocks. It is used as an excipient for the easily reduced metallic salts, and as an ingredient of—

Cataplasma Kaolini, *Cataplasm of Kaolin*,—contains Kaolin, Glycerin, Boric Acid, Thymol, Methyl Salicylate, Oil of Peppermint. It is identical with the trade preparation known as *Antiphlogistine*, (see under GLYCERINUM).

Incompatibles.

Incompatible with Alum are: Alkaline Hydrates, Borax, Carbonates, Galls, Kino, Lead Acetate, Lime-water, Magnesia, Magnesium Carbonate, Mercury salts, Phosphates, Tartaric Acid, Potassium Chlorate.

Unofficial Compounds.

Alumol,—is the trade name of an aluminum salt of naphthol-sulphonic acid, and is readily soluble in cold water. It is markedly antiseptic and astringent, and though precipitating gelatin and albumin, the precipitate is soluble in an excess of either, so that when it is used on purulent discharges they do not clog up cavities, and desirable penetration below the surface is accomplished. *Incompatible* with it are Albumin, Alkalies, Gelatin, and Silver Nitrate.

Zinol,—is a mixture of Alumol 4, Zinc Acetate 1, and occurs as a colorless and odorless