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SUPPLEMENT

TO

A TEXT-BOOK

OF

PHARMACOLOGY, THERAPEUTICS

AND

MATERIA MEDICA

BY

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CONTAINING THE

Additions (1891) to the British Pharmacopœia

London

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AND NEW YORK

1891

ADDITIONS MADE IN 1890 TO THE BRITISH PHARMACOPŒIA OF 1885

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A COMPLETE alphabetical list of them is given at p. li. Although the medicinal substances contained in the British Pharmacopœia of 1885 are considered in the body of this Pharmacology under the natural divisions of the mineral, vegetable, and animal kingdoms to which they belong, it is, I think, easier to remember the additions by grouping them together according to their uses.

Laxatives, Cholagogues, and Rectal Sedatives.

By far the most numerous additions are simple laxatives, and with these we may associate cholagogues and remedies for the treatment of piles and painful conditions of the rectum.

Laxatives.

Trochisci Sulphuris.
Pulvis Sodæ Tartaratæ Effervescens.
Sodii Phosphas Effervescens.
Sodii Sulphas Effervescens.
Magnesii Sulphas Effervescens.
Mistura Olei Ricini.
Suppositoria Glycerini (gelatine basis).

Cholagogues.

Euonymi Cortex.
Extractum Euonymi Siccum.
Hydrastis Rhizoma.
  Extractum Hydrastis Liquidum.
  Tinctura Hydrastis.

Remedies for Piles.

Hamamelidis Cortex.
  Tinctura Hamamelidis.
Hamamelidis Folia.
  Extractum Hamamelidis Liquidum.
Unguentum Hamamelidis.

Rectal Sedative.

Unguentum Conii.

Laxatives.

Trochisci Sulphuris. SULPHUR LOZENGES. Each lozenge contains Precipitated Sulphur, 5 grs.; Acid Tartrate of Potassium, 1 gr.; Refined Sugar, in powder, 8 grs.; Gum Acacia, in powder, 1 gr.; Tincture of Orange Peel, 1 ♏; Mucilage of Acacia, 1 ♏.

Dose.—1 to 6 lozenges (generally given at night).

USES.—See pp. 546 and 547. These lozenges, introduced by Sir Alfred Garrod, are not only useful as a laxative in cases of habitual tendency to constipation, but are alterative in rheumatic and gouty patients.

The advantages of effervescing preparations are that they are less nauseous, pleasanter to take, and less heavy on the stomach than simple solutions of the purgative salts.

The effervescent quality is given by the liberation of carbonic acid from bicarbonate of sodium by tartaric or citric acid. In Seidlitz powder tartaric acid only is used for this purpose, but in the other three effervescent preparations a mixture of tartaric and citric acids is employed. Reaction between the bicarbonate and acid is prevented in Seidlitz powders by keeping them apart until required.

Pulvis Sodæ Tartaratæ Effervescens. EFFERVESCENT TARTARATED SODA POWDER (SEIDLITZ POWDER). Tartarated Soda, in dry powder, 120 grs.; Bicarbonate of Sodium, in dry powder, 40 grs. Mix, and wrap in blue paper. Tartaric Acid, in dry powder, 38 grs. Wrap in white paper.

Dose.—The former powder, dissolved in nearly half a pint of cold or warm water, and the latter powder then added.

ACTION AND USES.—See pp. 624 and 394.

In the next three preparations reaction between the bicarbonate and acid is prevented by mixing them dry and keeping them in well-closed bottles so as to prevent the access of moisture, for no reaction will occur unless a certain amount of water is present.

The water of crystallisation is first driven off from the crystals of the purgative salt, and it is then mixed with the powdered bicarbonate and acid in a pan at 200° to 220° F. until the powder becomes granular, and then the granules of proper size are separated by sieves and bottled.

Magnesii Sulphas Effervescens. EFFERVESCENT SULPHATE OF MAGNESIUM. *Synonyms.*—Magnesiæ Sulphas Effervescens; Effervescent Sulphate of Magnesia; Effervescent Epsom Salt. Sulphate of Magnesium, 100; Bicarbonate of Sodium, 72; Tartaric Acid, 38; Citric Acid, 25; Refined Sugar, 21. The final product should weigh about 200.

Dose.—$\frac{1}{4}$ to 1 ounce.

USES.—See pp. 659, 391, 685, and 689.

Sodii Phosphas Effervescens. EFFERVESCENT PHOSPHATE OF SODIUM. *Synonyms.*—Sodæ Phosphas Effervescens; Effervescent Phosphate of Soda. Phosphate of Sodium, 100; Bicarbonate of Sodium, 100; Tartaric Acid, 54; Citric Acid, 36. The final product should weigh about 200.

Dose.—$\frac{1}{4}$ to $\frac{1}{2}$ ounce.

USES.—See pp. 626, 403, and 405.

Sodii Sulphas Effervescens. EFFERVESCENT SULPHATE OF SODIUM. *Synonyms.*—Sodæ Sulphas Effervescens; Effervescent Sulphate of Soda. Sulphate of Sodium, 100; Bicarbonate of Sodium, 100; Tartaric Acid, 54; Citric Acid, 36. The final product should weigh about 200.

Dose.—$\frac{1}{4}$ to $\frac{1}{2}$ ounce.

USES.—See pp. 625 and 405.

The next preparation is designed to render that valuable medicine, castor oil, less nauseous and repulsive to patients.

Mistura Olei Ricini. CASTOR OIL MIXTURE. Castor Oil, 180; Oil of Lemon, 5; Oil of Cloves, 1; Syrup, 45; Solution of Potash, 30; Orange Flower Water, q.s. to produce 480.

First, mix in a mortar the oils, then $\frac{1}{3}$ of the potash, next the syrup, then another $\frac{1}{3}$ of the potash, then $\frac{1}{2}$ the water, the rest of the potash, and, lastly, the water up to the required volume. Each ounce contains 3 fl. drachms of castor oil.

Dose.—$\frac{1}{2}$ to 2 fluid ounces.

USES.—See p. 1025. It may be used in doses of 30 to 60 mimims in chronic diarrhœa and dysentery, or even as a laxative on rising (p. 1025).

The next laxative preparation is one of an entirely different kind from the preceding. The others cause an evacuation by acting on the whole intestine (p. 388), but glycerine suppositories act only on the rectum. Their introduction depends on the fact that while fæcal matters or food in the descending colon or sigmoid flexure do not excite a desire to evacuate the bowels, this desire occurs when the rectum is distended or irritated.

The normal stimulus to the rectum is supplied by the descent of fæcal matter into it; but in the absence of this it can be stimulated either by distension by enemata or irritation by drugs.

This has been long known to nurses, and soap suppositories are commonly used for infants (p. 967).

In 1887 Vámossy discovered that injections of 1 or 2 fluid drachms of glycerine into the rectum have a similar action, and in a few minutes bring on in adults a desire to evacuate the bowels. Glycerine is now very extensively used as a laxative, small syringes made specially for the purpose, and holding 1 or 2 fluid drachms, being employed. It has the advantage over ordinary purgatives that it acts in a few minutes, so that if a patient on trying to obtain a movement finds that he is constipated, he simply uses an injection of glycerine instead of having to wait hours before an ordinary purgative taken by the mouth will act.

In place of injecting pure glycerine, a suppository containing it may be used, and as some persons require more and some less, the suppositories of the Pharmacopœia are made in different sizes. In order to make them gelatine has been introduced.

Gelatinum. GELATINE. The air-dried product of the action of boiling water on gelatigenous animal tissues, such as skin, tendons, ligaments, and bones.

Characters.—In translucent sheets or shreds. The solution in hot water is colourless and inodorous, and solidifies to a jelly on cooling. Gelatine is insoluble in alcohol and ether. It dissolves in acetic acid. Its aqueous solution is not precipitated by diluted acids, alum, acetate of lead, or perchloride of iron; it is precipitated by tannin.

USES.—See p. 1086. It is introduced into the 'Additions' in order to make glycerine suppositories.

Suppositoria Glycerini. GLYCERINE SUPPOSITORIES. Gelatine cut small, ½ ounce; Glycerine, by weight, 2½ ounces; Distilled Water, q.s.

Soften the gelatine with water, then add the glycerine. Dissolve over a water-bath, and evaporate until the mixture weighs 1560 grains. Pour the product into suppository moulds holding thirty, sixty, or one hundred and twenty grain-measures, or having other capacities, as required. Each suppository contains seventy per cent. by weight of glycerine.

Cholagogues.

We have two cholagogues in the 'Additions,' euonymus (p. 894) and hydrastis (p. 838), both of which are officinal in the United States Pharmacopœia, and have therefore been noticed in this book.

Euonymi Cortex. EUONYMUS BARK. The dried root bark of Euonymus atropurpureus.

Characters.—See p. 894.

Preparation.—Extractum Euonymi Siccum.

Extractum Euonymi Siccum. DRY EXTRACT OF EUONYMUS (commonly known as 'Euonymin'). This is a new form of extract. It is prepared by exhausting the powdered bark with diluted spirit, mixing with milk sugar, and evaporating to dryness.

Dose.—1 to 4 grains.

Action and Uses.—See p. 894. In large doses euonymin is said to be a cardiac poison.

Hydrastis Rhizoma. Hydrastis Rhizome. *Synonym.*—Golden Seal. The dried rhizome and rootlets of Hydrastis canadensis.

Characters.—See p. 839. In the 'Additions' they are somewhat differently given.

Preparations.

Extractum Hydrastis Liquidum, 1 part in 1 fluid part. *Dose.*—5-30 ♏.
Tinctura Hydrastis, 1 part in 10 fluid parts. *Dose.*—20 ♏-1 fl. drachm.

Action.—Berberine (p. 838) is by no means a powerful poison in man, as much as twenty grains having been taken with nothing more than a laxative action. In animals it increases intestinal peristalsis, first stimulates and then paralyses the spinal cord and bulb, producing trembling, quickened respiration, raised blood-pressure, and slower pulse, followed by paralysis of the hind legs, slow respiration, low blood-pressure, quick pulse, dyspnœa, convulsions and death. During its excretion it irritates the kidneys and produces albuminuria (compare Colocynth, p. 928).

Hydrastine has some action as a local anasthetic. In frogs it produces stiffness, hyperæsthesia, paralysis, loss of sensation (by acting on the cord and sensory nerves), convulsions and diastolic arrest of the heart.

In mammals it stimulates the spinal cord and bulb, and afterwards depresses them.

Hydrastis and its active principles have a powerful ecbolic action.

Uses.—See p. 839. It is said to be especially useful in catarrh of the mucous membranes of the nose, stomach, intestines, bile ducts, urethra, uterus, and vagina. Bartholow recommends it as one of the best remedies for gastric catarrh due to chronic alcoholism, and in sufficient doses as a substitute for the alcoholic stimulant. Five to fifteen minims of either extract or tincture before meals are said by him to remove chronic gastric catarrh and the headache which often accompanies it. It is also very useful in duodenal catarrh, jaundice, and chronic intestinal catarrh. In dysmenorrhœa, menorrhagia, and hemorrhage from uterine fibroids it seems to be very useful.

The fluid extract is beneficial as a local application to follicular pharyngitis, chronic nasal or pharyngeal catarrh, gonorrhœa, uterine or vaginal leucorrhœa, ulceration of the cervix uteri, rectal ulceration or hemorrhage, and fissure of the anus.

Rectal Astringents and Sedatives.

Proprietary preparations of hamamelis, under the name of Pond's extract and hazeline, have been much used for several years in the treatment of piles, and liquid extract of hamamelis is contained in the U. S. P. (see p. 1029). This is made from the leaves, and the 'Additions' contain not only the leaves and liquid extract, but also the bark, a tincture from it, and an ointment.

Hamamelidis Cortex. HAMAMELIS BARK. *Synonym.*—Witch Hazel Bark. The dried bark of Hamamelis virginica.

Characters.—In quills or slightly curved pieces from two to six or eight inches long and about one-tenth of an inch in thickness, covered with a silvery-grey or whitish easily detached scaly outer bark marked with lenticels. Internally, cinnamon-brown or brownish-red and finely striated longitudinally; transverse fracture coarsely fibrous; tough; taste slightly astringent; no strongly marked odour.

Preparation.

Tinctura Hamamelidis, 1 part in 10 fluid parts. *Dose.*—5-60 ♏.

Hamamelidis Folia. HAMAMELIS LEAVES. *Synonym.*—Witch Hazel Leaves. The dried leaves of Hamamelis virginica.

Characters.—See p. 1029. They are said to have a slight tea-like odour.

Preparation.

Extractum Hamamelidis Liquidum, 1 part in 1 fluid part.

Unguentum Hamamelidis. OINTMENT OF HAMAMELIS. Liquid Extract of Hamamelis, 1; Simple Ointment, 9.

USES.—See p. 1029. In place of introducing a pledget of cotton wool soaked in a preparation of hamamelis, the liquid extract, tincture, or one of the proprietary preparations already mentioned may be injected with a small glycerine-syringe in cases of internal piles. The proprietary preparations appear to me to cause less local irritation than those of the 'Additions.' In cases of external piles the hamamelis is best applied by means of absorbent wool, which is superior to cotton wool, inasmuch as it forms a kind of felt, and will remain in place between the folds of the nates for several hours, while cotton wool soon falls away from its position. The preparations may be diluted with water if too irritating, but are, I think, best used undiluted. They not only lessen hemorrhage, but relieve dragging pain and discomfort when the piles do not bleed. They may be injected in larger quantities in cases where there is congestion of the upper part of the rectum at its junction with the sigmoid flexure.

The ointment may be used for either external or internal piles, or for rectal congestion.

Unguentum Conii. OINTMENT OF HEMLOCK. Juice of Hemlock, 2 fl. oz.; Hydrous Wool Fat, ¾ oz.; Boric Acid, in fine powder, 10 grs.

Evaporate the juice to two fluid drachms at a temperature not exceeding 140° F. (60° C.); add the boric acid and the hydrous wool fat, and mix thoroughly.

USES.—See p. 932. It lessens the itching in pruritus ani, and when introduced into the rectum it eases the pain in cancer and other painful conditions of the bowel.

Remedies of the Aromatic Series.

	Sodii Benzoas
Synthetically prepared.	Phenazonum (antipyrine).
	Acetanilide (antifebrin).
	Phenacetin.
	Glusidum (saccharin).

Next in number to the laxatives come bodies belonging to the aromatic series (p. 807). With the exception of benzoate of sodium, these are prepared synthetically, and three of them, phenazone (antipyrine), acetanilide (antifebrin), and phenacetin, are not only the most valuable antipyretics we possess, but they have an extraordinary power to relieve pain. They have thus to a considerable extent replaced quinine as antipyretics, and morphine as analgesics. Their introduction into the 'Additions' goes far to justify the prediction which I ventured to make at p. 757, that organic compounds artificially prepared will 'in the future probably replace to a great extent, and perhaps entirely, the Vegetable Materia Medica.'

Sodii Benzoas. BENZOATE OF SODIUM. $NaC_7H_5O_2$. *Synonyms.*—Sodæ Benzoas; Benzoate of Soda. This salt may be obtained by neutralising benzoic acid with solution of carbonate of sodium and evaporating to dryness.

Characters and Tests.—A white obscurely crystalline or amorphous powder, inodorous or having a faint benzoic odour, of a sweetish alkaline taste, and a faint alkaline reaction. Very soluble in water; soluble in twenty-four fluid parts of rectified spirit, and in twelve of boiling rectified spirit. An aqueous solution gives a yellowish or flesh-coloured precipitate when mixed with solution of persulphate of iron.

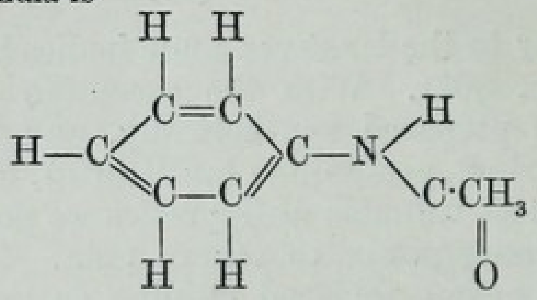
Dose.—10 to 30 grains.

USES.—Sodium benzoate is an hepatic stimulant (p. 403), and being antiseptic (pp. 78 and 964) and at the same time very slightly poisonous may be used in a 5 or 10 per cent. solution as a spray for the purpose of destroying the disease germs and relieving the symptoms in tonsillitis, sore throat of scarlet fever, diphtheria, whooping-cough, and phthisis. It may be also given internally in these diseases. In rheumatic fever it lowers the temperature and lessens pain in much the same way as salicylate of sodium, and may also cause symptoms of intoxication, drowsiness, delirium, profuse sweating, and even collapse in large doses ($2\frac{1}{2}$–4 drachms per diem). Its administration in ulcerative endocarditis is sometimes, though unfortunately not always, followed by marked improvement in the patient's condition. It has been given in uræmia with good effect.

The power of reducing temperature and relieving pain, which bodies belonging to the aromatic series of carbon compounds very generally possess, is well marked in salicylic acid and salicylate of sodium, which not only reduce temperature but relieve headache (p. 629) and the pains of rheumatism. Both properties appear to become considerably greater in compounds, where the benzene nucleus (p. 807) is linked with nitrogen, as in acetanilide, phenacetin, and phenazone.

Acetanilidum. ACETANILIDE. C_8H_9NO. *Synonym.*—Phenyl-acetamide, $C_6H_5{\cdot}NH{\cdot}C_2H_3O$. Commonly known as 'Antifebrin.' A crystalline substance obtainable by the action of glacial acetic acid on aniline, and subsequent purification.

Its graphic formula is

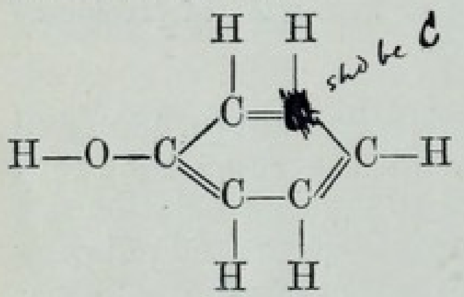


Characters and Tests.—Much the same as those on p. 825, but it is also said to be freely soluble in benzol and chloroform. Heated with solution of potash and a few drops of chloroform, the unpleasant odour of phenyl-isonitrile is developed.

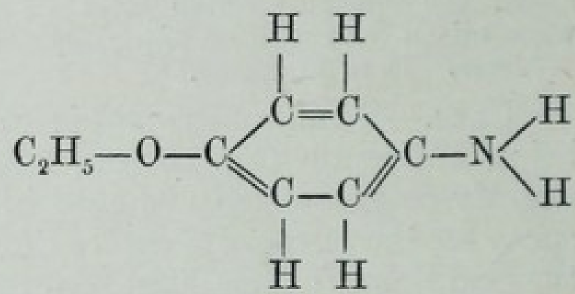
Dose.—3 to 10 grains.

ACTION AND USES.—See p. 825. In addition to its antipyretic power it was found by Lépine to relieve the pains of locomotor ataxy, and it is now frequently used to relieve neuralgic pains in general.

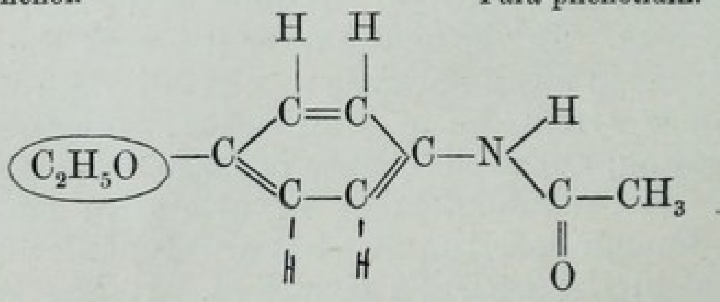
Phenacetinum. PHENACETIN. $C_{10}H_{13}NO_2$. A crystalline substance produced by the action of glacial acetic acid on para-phenetidin, a body obtained from phenol.



Phenol.



Para-phenetidin.



Acet. para-phenetidin or Phenacetin.

By comparing the graphic formula given above with that of acetanilide, it will be seen that the difference between the two bodies consists in phenacetin containing the group C_2H_5O in place of the atom of H in the para position (p. 809) in acetanilide.

Characters and Tests.—Colourless, tasteless, inodorous, glistening scaly crystals. Melting-point, 275° F. (135° C.). Sparingly soluble in cold water, more freely in boiling water, and in about sixteen fluid parts of rectified spirit.

One grain boiled with twenty minims of hydrochloric acid for about half a minute yields a liquid which, diluted with ten times its volume of water, cooled and filtered, assumes a deep-red coloration on the addition of solution of chromic acid.

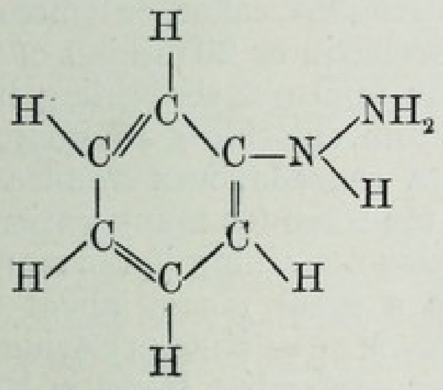
Dose.—5 to 10 grains.

Action and Uses.—Like acetanilide and phenazone it lowers temperature and lessens pain. Its action appears to be less rapid and more prolonged than that of the others, and it has less tendency to cause collapse. It appears also to have a slight soporific effect, so that it sometimes tends to cause sleep when given at night.

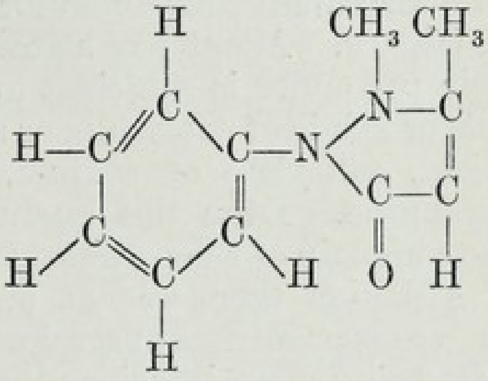
Phenazonum. Phenazone. Commonly known as 'antipyrine,' which is a registered trade-mark in the United Kingdom. *Synonym.*—Phenyl-dimethyl-pyrazolone, $C_6H_5(CH_3)_2C_3HN_2O$. A crystalline substance obtainable from phenyl-hydrazine.

Characters.—See p. 824. Colourless and inodorous scaly crystals with a bitter taste; freely soluble in water, rectified spirit, and chloroform; less soluble in ether.

The constitution of phenazone has now been shown by the discoverer Knorr himself not to be what he supposed and what is given at p. 824, but rather what is shown in the graphic formula given here.



Phenylhydrazine.



Phenazone.

For the sake of comparison the graphic formula of phenyl-hydrazine from which it is derived is also given here.

Dose.—3 to 20 grains.

Action and Uses.—It has a certain local anæsthetic action, and it is a powerful analgesic, removing headache and relieving the pain in locomotor ataxy, dysmenorrhœa, angina pectoris, and sciatica, tic, or other forms of neuralgia. In phthisis, where the daily rise of temperature seems only to distress and weaken the patient without destroying the tubercle bacilli (cf. p. 102), ten grains of antipyrine, given just as the temperature begins to rise, is sometimes very useful.

Incompatibles.—Spirit of nitrous ether or other nitrites, and cinchona alkaloids.

This incompatibility is important, as antipyrine is not unlikely to be given along with nitrous ether, quinine, or bark in febrile conditions or neuralgia, or with nitrite of amyl in angina pectoris.

Glusidum. GLUSIDE. Commonly known as 'Saccharin.' *Synonyms.*—Glucusimide; Benzoyl-sulphonic-imide, $C_6H_4CO{\cdot}SO_2{\cdot}NH$. A sweet imide derivable from the toluene of coal-tar.

Characters and Tests.—A light, white, minutely crystalline powder, having an intensely sweet taste in dilute solutions. It is but slightly soluble in cold water or chloroform, more so in boiling water, rectified spirit, or glycerine. It is very soluble in diluted solution of ammonia; also in solution of bicarbonate of sodium with evolution of carbonic acid gas. The latter solution, when warmed and made neutral and evaporated to dryness, yields 'soluble gluside' or 'soluble saccharin,' which is very soluble in water, one hundred parts of gluside yielding nearly one hundred and thirteen of neutral 'soluble gluside.' On fusing with caustic soda, dissolving in water, faintly acidulating with hydrochloric acid, and adding a few drops of solution of perchloride of iron, a reddish-brown or purplish colour is produced.

NON-OFFICIAL PREPARATIONS.—Elixir Saccharini.

Saccharin, 24 grs.; Bicarbonate of Sodium, 12 grs.; Rectified Spirit, 1 dr.; Distilled Water, 7 dr. 20 min. contain 1 gr. of saccharin.

Tabellæ Saccharini.

Each contains ½ gr. saccharin with bicarbonate of sodium.

ACTION AND USES.—To sweeten food instead of sugar in cases of diabetes and to render medicines more palatable. The tabellæ (non-official) are convenient for sweetening tea, coffee, or lemonade in diabetes. About ¼ of a grain of saccharin or 20 minims of the elixir per ounce is sufficient to flavour mixtures containing bromide or iodide of potassium or ammonium, chloride of ammonium, salicin, salicylate of sodium, cascara sagrada, nux vomica or strychnine. Even this quantity is too large for many patients, who complain of the persistent sweetness remaining in the mouth.

Although there was at one time a great outcry about the dangerous properties of saccharin, there is no satisfactory evidence of its being more injurious than sugar, even when taken in large quantities and for long periods. Its excessive use has produced dyspepsia, but sugar is liable to the same objection. Like other bodies of the aromatic series it has an antiseptic tendency and has been used to prevent decomposition of the urine in chronic cystitis (p. 446).

Narcotics and Hypnotics.

We have three narcotic additions. Two of them, paraldehyde and sulphonal, are new and useful hypnotics, made artificially, and frequently employed instead of opium or its preparations to produce sleep.

But we have no drug yet of synthetic origin which has such a universal and powerful action as morphine in relieving pain and causing sleep, although phenazone and its congeners to a certain extent replace it as an analgesic, and paraldehyde and sulphonal as a hypnotic. In consequence of this another preparation of morphine, the Liquor Morphinæ Sulphatis, is contained in the 'Additions,' notwithstanding the large number of its preparations already present in the British Pharmacopœia.

Liquor Morphinæ Sulphatis. SOLUTION OF SULPHATE OF MORPHINE. Is a 1 per cent. solution. Sulphate of Morphine, 1; Rectified Spirit, 25; Distilled Water, up to 100.

Dose.—10 to 60 minims.

ACTION AND USES.—See p. 848.

Paraldehydum. PARALDEHYDE. $C_6H_{12}O_3$. A product of the polymerisation of aldehyde by various acids or salts.

Characters and Tests.—A clear colourless liquid having a characteristic ethereal odour and a burning and afterwards a cooling taste. Soluble in 10 of water at 60° F., less soluble in hot water. Mixes in all proportions with rectified spirit and ether.

Dose.—½ to 1½ fluid drachms.

ACTION AND USES.—See p. 779.

Sulphonal. SULPHONAL. $C_7H_{16}S_2O_4$. *Synonym.*—Diethylsulphondimethyl-methane $(CH_3)_2C(SO_2C_2H_5)_2$.

Characters and Tests.—Colourless, inodorous, nearly tasteless crystals; neutral to test paper; melting at 258° F. (125·5° C.). Soluble in fifteen parts of boiling water and in about four hundred and fifty parts of cold water. Soluble in about fifty fluid parts of cold rectified spirit, and very soluble in boiling alcohol; soluble in ether. Ignited with free access of air, it burns without residue. If a mixture of a few grains with an equal weight of cyanide of potassium be heated, the odour of mercaptan is evolved, and when to the solution of the product in water excess of hydrochloric acid and a few drops of solution of perchloride of iron are added, a reddish colour is developed.

Dose.—15 to 40 grains.

ACTION AND USES.—This is a useful hypnotic, producing sleep, and in most cases having no disagreeable after effects, even when used continuously for a length of time. It occasionally produces a kind of ataxia, the hands trembling and the gait becoming stumbling, but these symptoms quickly pass off.

As it is very sparingly soluble, it is best to give it a considerable time before sleep is desired. One good way is to give ten grains about 5–7 p.m., and ten more at 10 or 11 p.m. It may be given in hot milk, beef-tea, soup, or brandy and water.

Mydriatics, Local Anæsthetics, and Stimulants.

Cocaine may be said to belong to all three of these classes, and we have a new preparation of it, liquor cocainæ hydrochloratis, which may either be used as a local application to the eye, throat, or other mucous surfaces, or as a hypodermic injection, or it may be given internally.

Liquor Cocainæ Hydrochloratis. SOLUTION OF HYDROCHLORATE OF COCAINE. This is a 10 per cent. solution of hydrochlorate of cocaine in water, with enough salicylic acid to prevent decomposition. It contains Hydrochlorate of Cocaine, 33 grains or 100 parts; Salicylic Acid, ½ grain or 1½ parts; Distilled Water, up to 6 fl. drachms or 1000 fluid parts.

Dose.—2 to 10 minims.

ACTION AND USES.—See p. 872.

Homatropinæ Hydrobromas. HYDROBROMATE OF HOMATROPINE. $C_{16}H_{21}NO_3,HBr$. The hydrobromate of an alkaloid, prepared from tropine.

Constitution.—Ladenburg has found that atropine can be split up into tropine and tropic acid, and is formed again by recombining these bodies. When other acids are used instead of tropic acid to combine with tropine, bodies are formed, termed tropeines, which resemble atropine in many respects, although differing from it in others. Homatropine is one of these bodies, and it is formed by the combination of oxytoluylic acid with tropine.

Characters and Tests.—A white crystalline powder or aggregation of minute prismatic crystals, soluble in six parts of cold water, and in one hundred and thirty-three of ethylic alcohol. The dilute aqueous solution powerfully dilates the pupil of the eye. A two per cent. aqueous solution is not precipitated by the cautious addition of solution of ammonia previously diluted with twice its volume of water. About a tenth of a grain moistened with two minims of nitric acid and evaporated to dryness on the water-bath yields a residue which is coloured yellow by an alcoholic solution of potash. It also gives Gerrard's test for the mydriatic alkaloids, p. 986.

Dose.—$\frac{1}{80}$ to $\frac{1}{20}$ grain.

ACTION AND USES.—It dilates the pupil like atropine, but is preferable to atropine, as its action passes off much more quickly. It may also be used internally like atropine.

Remedies acting on the Respiratory System.

We have three remedies in this class.

Acetum Ipecacuanhæ. VINEGAR OF IPECACUANHA. Ipecacuanha, 1 Diluted Acetic Acid, 20. Prepared by maceration and percolation.

Dose.—5 to 40 minims as an expectorant.

ACTION AND USES.—See p. 950.

Picrotoxinum. PICROTOXIN. Obtainable from the seeds of Anamirta paniculata by exhaustion with alcohol, evaporation, and purification.

Characters and Tests.—Colourless and inodorous prismatic crystals, possessing a bitter taste. It melts at 378° F. (192·2° C.). It is soluble in three hundred and thirty parts of cold water, leaving only a trace of residue, in thirty-five parts of boiling water, also in three of boiling and thirteen of cold rectified spirit. It is soluble in ten parts of solution of potash, and the resulting liquid, on boiling, immediately reduces Fehling's solution. (This reduction is due to the glucose formed by the decomposition of the glucoside.) Its aqueous solution is not precipitated by solutions of perchloride of mercury, perchloride of platinum, or tannic acid (difference from alkaloids). It dissolves in sulphuric acid with a saffron-yellow colour.

Dose.—$\frac{1}{100}$ to $\frac{1}{30}$ grain.

ACTION AND USES.—See p. 842. Its chief use is to prevent night sweats in phthisis.

Stramonii Folia. STRAMONIUM LEAVES. The dried leaves of Datura Stramonium.

Characters.—Ovate, petiolate, about six inches long, smooth, pointed, unequal at the base, one side decurrent down the petiole, coarsely and sinuately angular-toothed, minutely wrinkled, dark green. The upper surface usually brownish-green and of a darker shade than the under surface; odour faintly narcotic; taste unpleasant, saline and bitter.

ACTION AND USES.—The fumes of the leaves, when burned as cigarettes or in powder mixed with potassic nitrate, are useful in lessening the spasm of spasmodic asthma.

Cardiac and Vascular Remedies.

We have one new cardiac tonic, strophanthus, one new vascular remedy, nitrite of sodium, which, like all the nitrites (*vide* pp. 331 and 788), dilates the arterioles, and liquor trinitrini, which is a solution of nitroglycerine.

Liquor Trinitrini. SOLUTION OF TRINITRIN. *Synonyms.*—Liquor Nitroglycerini; Solution of Nitroglycerine; Liquor Glonoini; Solution of Glonoin. Is a 1 per cent. solution, containing Pure Nitroglycerine, 1 part by weight; Rectified Spirit, up to 100 fluid parts.

Dose.—½ to 2 minims.

ACTION AND USES.—See p. 788.

Sodii Nitris. NITRITE OF SODIUM. $NaNO_2$. *Synonyms.*—Sodæ Nitris; Nitrate of Soda.

Characters.—A white or yellowish-white deliquescent crystalline salt, very soluble in water. The solution is neutral or slightly alkaline, and when mixed with diluted sulphuric acid yields a gas which forms ruddy fumes in contact with the air.

Dose.—2 to 5 grains.

ACTION AND USES.—The same as those of nitroglycerine.

Strophanthus. STROPHANTHUS. The mature ripe seeds of Strophanthus hispidus, freed from the awns.

Characters.—Oval acuminate, about three-fifths of an inch long and one-sixth of an inch broad, base blunt, apex tapering, flattened; greenish-fawn in colour; covered with appressed silky hairs; one side with a longitudinal ridge running from the centre to the pointed apex.

Preparation.

Tinctura Strophanthi, 1 part in 20 fluid parts. *Dose.*—2 to 10 minims.

(The fat is first extracted by ether, and then the seeds are extracted with spirit.)

ACTION AND USES.—See p. 1100.

Hæmatinics.

Pilula Ferri. IRON PILL. Commonly known as 'Blaud's Pill.' Sulphate of Iron, 120; Carbonate of Potassium, 72; Refined Sugar, in powder, 24; Tragacanth, in powder, 8; Glycerine, 4½; Distilled Water, a sufficiency.

Each 5-grain pill contains about 1 grain of carbonate of iron.

Dose.—1 to 4 pills.

Action and Uses.—This is one of the best hæmatinics we have (see p. 742). It is supposed that the presence of the potash which, as well as iron, is an ingredient of the red blood corpuscles, gives this pill an advantage over the Pil. Fer. Carb.

Syrupus Ferri Subchloridi. Syrup of Subchloride of Iron. *Synonym.*—Syrup of Ferrous Chloride. Iron Wire, 300 grs. dissolved in water 8 dr.; Hydrochloric Acid, 2 fl. oz. Then add Citric Acid, 10 grs., filter, and pour through filter Distilled Water 2 drs. into Syrup q.s. to make 1 pint.

Dose.—½ to 1 fluid drachm.

Action and Uses.—See p. 740.

Remedies for the Skin and Mucous Membranes.
Emollients.

Adeps Lanæ. Wool Fat (Anhydrous Lanoline). The purified cholesterin-fat of sheep's wool.

Characters and Tests.—A yellowish tenacious unctuous substance; almost inodorous; with a melting-point varying from 100° F. (37·8° C.) to 112° F. (44·4° C.); readily soluble in ether and in chloroform, sparingly soluble in rectified spirit. The solution in chloroform poured gently over the surface of sulphuric acid acquires a purple-red colour.

Adeps Lanæ Hydrosus. Hydrous Wool Fat. Commonly known as 'Lanoline,' which is a registered trade-mark in the United Kingdom. Melt Wool Fat 70 in a warm mortar, and stir in Water 30, gradually and thoroughly.

Characters and Tests.—Yellowish-white; free from rancid odour. When heated it separates into an upper oily and lower aqueous layer.

Preparation in which Hydrous Wool Fat is used.

Unguentum Conii.

Action and Uses.—See p. 1078.

Analgesic.

Emplastrum Menthol. Menthol Plaster. Melt Yellow Wax 1 and Resin 7 together, and, as it cools, stir in Menthol 2.

Action and Use.—See p. 1004. To relieve pain in lumbago, intercostal neuralgia, sciatica, &c.

Astringent.

Eucalypti Gummi. Eucalyptus Gum. A ruby-coloured exudation, or so-called red gum, from the bark of Eucalyptus rostrata and some other species. Imported from Australia.

Characters and Tests.—From eighty to ninety per cent. of it is soluble in cold water, forming a neutral solution. It is almost entirely soluble in rectified spirit.

Dose.—2 to 10 grains.

Action and Uses.—It is a powerful astringent (see p. 349). It is useful in relaxed sore throat, nasal catarrh, nasal hæmorrhage, leucorrhœa, and diarrhœa.

Administration.—The powdered gum $\frac{1}{4}$ grain, mixed with $\frac{1}{4}$ grain starch, may be applied by an insufflator to the nose or throat to stop hæmorrhage or relieve congestion. A solution of 3 or 4 grains to the ounce of water may be used as a gargle, or as an injection in leucorrhœa and diarrhœa, and one of 10 grains to the ounce may be injected into the nose or applied to wounds to stop hæmorrhage. It is made up also in lozenges, which are useful in relaxed throats. In cases of diarrhœa it may be given in solution (see Rhatany, p. 869), or in the form of pill with mucilage and glycerine.

Stimulant.

Oleum Cadinum. OIL OF CADE. *Synonyms.*—'Huile de Cade'; Juniper Tar Oil. An empyreumatic oily liquid obtained by the destructive distillation of the woody portions of Juniperus Oxycedrus and some other species.

Characters.—A dark reddish-brown or nearly black more or less viscid oily liquid with a not unpleasant empyreumatic odour and an aromatic bitter and acrid taste. Specific gravity about 0·990. It is soluble in ether and chloroform; partially soluble in cold, almost wholly in hot rectified spirit. In water it is very slightly soluble. The filtered aqueous solution is almost colourless and possesses an acid reaction.

ACTION AND USES.—See p. 1063, use of Distilled Juniper Tar.

ADDITION TO APPENDIX II.

Solution of Potassio-Cupric Tartrate.[1]

No. 1.

Take of

Sulphate of Copper	346·4 grains
Distilled Water	a sufficiency

Dissolve the sulphate of copper in a portion of the water, and dilute the solution with more of the water to the volume of 5000 grain-measures.

No. 2.

Take of

Caustic Soda	$1\frac{3}{4}$ ounce
Tartarated Soda	4 ounces
Distilled Water	a sufficiency

Dissolve the caustic soda and tartarated soda in a portion of the water, and dilute the solution with more of the water to 5000 grain-measures.

When required for use, mix equal volumes of the solutions No. 1 and No. 2.

USES.—When boiled with glucose a yellow precipitate is thrown down. It is therefore used as a test for this substance.

[1] Solution of Potassio-Cupric Tartrate is commonly known as 'Fehling's Solution.'