

more flexible and not so brittle when dry as gum. Dextrine and starch have the same chemical composition, $C_6H_{10}O_5$. The gum on the back of postage stamps is dextrine.

Turpentine. This valuable fluid is the product of several trees, principally *Pinus palustris* and *P. taeda*. Most of it comes from the United States, generally in large barrels, of the consistence of treacle or honey. The oil is obtained by distillation and the remainder is the common resin, sometimes called rosin, which is applied to a variety of uses. There are several kinds of turpentine, viz., Venice turpentine, procured from the *Abies larix*, Strasburg, from *Abies pectinata*, Bordeaux turpentine, from the *Pinus pinaster*, and Chio turps, from the *Pistacia terabinthis*.

Gum thus or frankincense, an odoriferous product of the *Boswellia serrata*. It is of slight use except for its odor, which the Roman Catholics turn to account in their churches. Employed also by the ancient priests of Egypt, its odor destroying the foul emanations from the sacrifices. It is imported from India and sometimes the Levant.

Assafetida (*Narthex assafetida*). This flows from incisions made in the root of the tree. In color it is milky white, but after it has been dried it takes on a pinkish tint and is curiously mottled. It has a most unpleasant odor. Afghanistan and Persia is the home of the tree. It is used medicinally as an anti-spasmodic in cases of asthma. —H. Durrant, in *Hardwicke's Science-Gossip*.

Pills.

BY PROF. L. E. SAYRE.

(Concluded from last month.)

There are a number of dry powders especially well adapted to pill-making. It may be said in a general way, that powders, not deliquescent, such as are administered in small doses and such as would be unpalatable or nauseous, are especially well suited to pill form.

A list of such powders, pulverulent and other substances is given in Parrish's Pharmacy. Substances suited to pill form, given in less than fifteen grain doses, are in this book arranged as follows:

UNADHESIVE MATERIALS.

Calomel.	Plumbi acetat.
Hydrarg. iodid. rub.	Antimon. et pot. tart.
Hydrarg. iodid. vir.	Antimon. sulphuret.
Pulv. ipecac et opii.	Argenti nitrat.
Bismuth. subnit.	Argenti oxidum.
Morphine acetat, etc.	Ferri pulvis.
Strychnine, and salts.	Ferri subcarb.
Pulv. digitalis.	(Other iron salts.)
Pulv. ipecac.	Potass. iodid.

CAMPHOR AND OTHERS, DIFFICULT TO COMBINE EXCEPT BY PECULIAR TREATMENT:

Ol. tiglli.	Ferri iodidum.
Ol. terebinthine.	Copaiba and others.
Ol. sabine.	

GOOD MEDICINAL EXCIPIENT. (Generally adhesive):—

Extracti	Pil. ferri carb.
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Pil. hydrarg.
Pil. copaiba.

With Moisture:—

Pulv. aloes.	Pulv. opii.
Pulv. rhei.	Pulv. scilla.
Pulv. kino.	Ferri citras.
Pulv. acid tannici	Assafetida and others.

With alcohol and tinctures:

Guaiaecum.	Resinous extracts, and others.
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WITH DILUTE SULPHURIC ACID.

Quinine sulphat.	Cinchonidina sulphat.
Cinchonine sulphat.	Quinidine sulphat.

To this list I will add certain new remedies which have come into use within the past few years and tabulate such as are used in pill form.

The new remedies sometimes prescribed in pill form are as follows:

Antifebrin (Acetanidil).	Hydrataphthol.
Antipyrin.	Iodol.
Antifebrin.	Phenacetin (Paracetamol).
Iodol.	Phenitidin.
Hydrarg. carbolat.	Sadol.
Hydrarg. salicylat.	Terpine hydrate.
	Terpinol, and others.

There are many substances unsuited to the pillular form such as deliquescent salts, viscid substances, requiring undue amount of dry powder to make a mass, volatile oils exceeding half a drop to each pill, very volatile solids, such as carbonate of ammonia, etc., etc. Yet these unsuitable substances are occasionally prescribed. The prescriber in such cases seldom thinks of the trouble he may bring to the druggist, or the tax he may lay upon his skill.

Here is a department of pill compounding in which a good deal can be said, but, if the student will read carefully the textbooks and journals and practice on some of the pill formulae from this source or upon some supposable cases of difficult pill massing of his own devising, he will do more to inform himself than I can teach him with my pen.

In such practice, or in any practice, for that matter, avoid the use of any excipient or process which will damage in the least the therapeutic action of the medicinal ingredients. These should be, above all things, kept intact. For example, confection of rose should not be used with iron compounds, because of the reaction which might take place between the tannin contained in the confection, and the iron. Magnesia or lime which may be used for giving firmness to copaiba mass if used with acetic extract of colchicum would form an incompatible mixture—incompatible from a physical as well as therapeutic stand-point. A good and safe rule is, adopt the most inert excipient, one that will be the least likely to interfere with medicinal action and select the one which least increases the bulk of the pill.

Camphor is a difficult substance to manage in pill-massing. For this purpose it is best to pulverize this substance by the use of a few drops of alcohol. Sometimes, however, it is best not to do this. Since the introduction of compressed pill machines such powders can be readily compressed into pill-tablets in which form they are best dispensed. Mr. Joseph Ince,

lecturer on pharmacy to the Pharmaceutical Society, London, says: "Powdered tragacanth, in sparing quantities, and employed with discretion, can be used in certain camphor combinations." The chief caution is to allow time; for it is surprising how small quantities will prove effective.

The following formula illustrates camphor manipulation:—

Camphore.....	gr. vi.
Pil. Galbani Co.....	gr. xvij.
Ext. Tragacanth id.....	gr. iij.
Pulv. Tragacanth.....	gr. iij. (only)
M. ft. pil.....	vi.

Let the camphor and Indian hemp deliquesce; add the galbanum, previously warmed gently; when the inevitable action has taken place, add three grains of powdered tragacanth.

There are a number of substances like camphor requiring special manipulation, prominent among these is phosphorus. The study of the United States Pharmacopeia formula for Pil-Phosphori will give some acquaintance with phosphorus manipulation. A reference to "phosphoretted resin" as found in the *National Dispensary* (fourth edition) page 1172, will give some suggestions as to method of handling this powerful and dangerous drug under the pill mortar and pestle.

Before closing I should call attention to a fruitful source of information in pill formulae. Outside of the United States Pharmacopeia I know of no better collection of pill formulae to operate upon for practice than that given in the *National Formulary*, a work, by the way, too much neglected by both physician and pharmacist. I should like every young pharmacist and physician, particularly, to seek out the hidden treasures of this little volume. Here is the list of its pill formula:

Pilule Ad Prandium.	Pilule Colocyntidis et Podophylli.
Pilule Aloes et Podophylli Composite.	Pilule Glonoini.
Pilule Aloini Composite.	Pilule Lavative Post Partem.
Pilule Aloini, Strychnine et Belladonnæ Composite.	Pilule Stetallorum.
Pilule Antidyspeptice.	Pilule Opii et Camphoræ.
Pilule Antineuralgicæ.	Pilule Opii et Plumbi.
Pilule Antiperiodicæ.	Pilule Podophylli, Belladonnæ et Capsici.
Pilule Catharticæ Vegetabiles.	Pilule Quadruplices.
Pilule Colocyntidis et Hyoscyami.	Pilule Triplexes.

THYMOL is the much more rational name by which some writers designate aristol, or dithymol-diiodide.

IODEOSIN AS INDICATOR. This substance is dissolved by aqueous alkalies with a yellowish-red color which changes to orange in the presence of acids. It is nearly insoluble in absolute ether, somewhat more so in hydrated ether. To use as an indicator in alkalimetry, Mylius and Foerster (Chem. News) state that the slightest excess of acid will cause the iodeosin to pass into solution in ether if the liquid be shaken together with that solvent. This method is exceedingly sensitive.