strain; then distil off the spirit by a gentle heat, until the Balsam acquire a proper consistence."

Gum-resins which require to be treated in the above manner are unfit for internal use, and should be kept chiefly for forming plasters and for other external purposes. The degree of heat, although not more than sufficient for the liquefaction of the substances, is nevertheless enough to dissipate many of their odorous and volatile principles, and occasion some changes of composition. The directions for the treatment of opium are sufficient for freeing it from all the grosser impurities; and as the remedy remains unaltered, its strength is preserved unimpaired; whereas when spirit is employed, as was formerly ordered in the London Pharmacopœia, and is still ordered by the Dublin College, it always suffers in efficacy. The direction to preserve it in the soft state is injudicious; for the uniformity of strength of the preparation can rarely be determined, and must vary according as accidental circumstances evaporate more or less that fluid. Pills are easily made by beating up the powdered opium with mucilage.

OPIUM PURIFICATUM, Dub. *Purified Opium.*

Syn. Opium pur (*F.*), Mohnsaft (*G.*), Oppio puro (*I.*), Oppio puro (*S.*).

"Take of Opium cut into small pieces, *one pound;* Proof Spirit, *twelve pints.* Digest with a gentle heat and frequent agitation, until the Opium be dissolved: then filter the solution through paper, and distil it from a retort to separate the Spirit; pour out the residuary liquor, and evaporate it until the extract be of a proper thickness. Purified Opium must be kept in two states; one *soft*, proper for forming pills, and one *hard*, capable of being reduced to powder."

STYRAX PURIFICATA. Dub. *Purified Storax.*

Syn. Styrax in Körnern (*G.*), Storace depurato (*I.*).

"Digest the Storax in tepid water until it softens; then press it in a press between iron plates heated with boiling water; and, finally, separate it from the water."

In this process a considerable part of the Benzoic Acid of the Storax is dissipated by the heat of the iron plates, and the efficacy of the remedy consequently diminished. Hence the directions of the London College for purifying this substance are to be preferred.

OLEA EXPRESSA.

EXPRESSED OILS.

VEGETABLES yield two distinct species of oil, one of which s volatile at a high temperature, but the other cannot be vola-

tilized without suffering decomposition. The first of these is termed *Volatile Oils*, the second, *Fixed Oils*. The latter name is properly adopted by the Edinburgh College, and is more suitable than *Expressed Oils*, the epithet given to this class of substances by the London and the Dublin Colleges.

FIXED OILS are obtained from fruits and seeds either by expression or decoction with water. The dicotyledons, or seeds with two seed-lobes, yield the greatest proportion of oil. When the first process is employed, the fruit or seed is put into a stong hempen or hair bag, and subjected to the press; during the action of which, the oil is forced out, generally combined with some other of the vegetable principles, which are afterwards separated by subsidence. The process is facilitated, and the quantity of oil increased, by heating the plates of the press, or previously roasting the seeds; but the oil thus obtained is more liable to become rancid, and hence the cold-drawn oils are always preferred for medicinal purposes. When the oil is to be obtained by decoction, the fruits or seeds are to be bruised previously to being boiled; and the oil which is separated is to be skimmed off from the surface of the water on which it swims.

Fixed Oils have different degrees of consistence; they are, 1. Fluid at the ordinary temperature of the atmosphere, congealing in a temperature a little higher than the freezing point of water. 2. Concrete at the ordinary temperature of the atmosphere, and require a higher degree for their liquefaction. The first are denominated *Fluid Oils*; the second, *Vegetable Butters*.

1. FLUID FIXED OILS are generally inodorous and nearly insipid, or have a mild taste. They are transparent, viscid so as to run in streaks upon the sides of glass vessels, and have generally a slight tinge of colour, which may be removed by digestion with charcoal. They are generally lighter than water, but differ from each other in specific gravity. At about 600° of Fahrenheit they boil, and are then volatilized, but in a state of partial decomposition; the vapour readily catches fire, and burns with a yellow flame. When exposed to the atmosphere at a high natural temperature, such as exists in summer, or in heated rooms, the fixed oils expressed without heat become thick, lose much of their transparency, acquire a sharp taste and a disagreeable odour, and are then said to be rancid; but when heat has been used in their expression, they only become thick, and acquire resinous properties. In both cases the changes are produced by the absorption of oxygen; but in the first case, owing to the combination of the oxygen with some of the vegetable mucilage present in the cold-drawn

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oil, sebacic acid is formed; and by its diffusion through the oil, the change in its properties is produced.

Fixed oils are insoluble in water; but they may be mingled through water, and kept suspended in it by means of mucilage or yolk of egg. They are, with one or two exceptions, nearly insoluble in alcohol and ether; but unite readily with each other, with volatile oils, and with resinous substances. They dissolve sulphur, and form what was formerly regarded a Balsam with it. With the alkalies they combine, and form soaps; but with the acids undergo decomposition: and when boiled with some of the metallic oxides, tough solid compounds or plasters are produced.

2. CONCRETE fixed oils possess nearly the same properties as the fluid fixed oils. They are, however, more soluble in alcohol and ether, but are not capable of entering so readily into combinations with the alkalies. The ultimate constituents of fixed oil are carbon, hydrogen, and oxygen.[1]

For medicinal purposes, these oils are required to be free from rancidity; consequently, they must be preserved in closed vessels, and carefully excluded from the air.

OLEUM AMYGDALARUM, Lond. *Oil of Almonds.*

"Macerate Almonds, either *bitter* or *sweet*, in cold Water, for twelve hours, and bruise them; afterwards express the Oil without heat."

OLEUM AMYGDALI COMMUNIS, Edin. *Oil of the Almond.*

"Take fresh Almonds, and bruise them in a stone mortar, then put them into a hempen sack, and express the Oil by a press, without heat."

OLEUM AMYGDALARUM, Dub. *Oil of Almonds.*

"Bruise fresh Almonds in a mortar; and then express the Oil by a press, without heat."

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[1] When oil is distilled, as soon as it begins to boil a large quantity of gas is disengaged, consisting of a mixture of Carbonated Hydrogen and Oxide of Carbon. The *first* product of the distillation is a yellow coloured, very odorous substance, of a moderate consistence, very soluble in alcohol, reddening strongly the tincture of litmus, and forming a true soap with dilute liquor of Potass. It may be regarded as a mixture of acetic, sebacic, oleic and margaric acids, empyreumatic oil, a volatile oil slightly odorous, and a peculiar volatile matter very fœtid, not acid, soluble in water; and which excites coughing and tears in the operator when the receiver is opened. The *second* product is a light-green fluid, which becomes brown on exposure to the air, has a slight empyreumatic odour, but does not excite coughing or tears. It does not redden tincture of litmus; alcohol even when aided by heat dissolves a very small portion only of it, and it is not affected by Potass. It burns like an essential oil; and is volatilized without change in close vessels. The *third* product is an orange-red, solid, transparent substance, inodorous and insipid: breaking with a waxy fracture, melting at a heat above 100° Centig.; and dissolving in hot alcohol from which it is precipitated unaltered on cooling. Ether is its proper solvent. *Annales de Chimie et de Phys.* tom. xxx. p. 1—20.

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Syn. Huile d'Amandes (*F.*), Mandelnolh (*G.*), Olio di Mandarleh (*I.*), Vādomcottay unnay (*Tam.*).

The Oil obtained from both the Sweet and the Bitter Almond is equally free from bitterness, if heat be not employed. Sixteen ounces of Almonds yield about five ounces[1] of a bland inodorous oil, of a very slightly sweetish taste, which is at first a little turbid, but soon becomes clear. Its colour is a very pale greenish-yellow, and its specific gravity ·932.[2] The oil from the bitter almond, it is said, keeps longer without growing rancid than that from the sweet almond. It is soluble in ether, in the proportion of f℥x. to f℥iv. of ether.

Medical properties and uses. — This oil is demulcent and emollient, and is used in coughs and other pulmonary complaints, united with water by means of mucilage or the yolk of egg and sugar. A mixture of f℥iv. of almond oil, and ♏viij. of acetate of lead, forms a useful injection at the commencement of gonorrhœa. The dose of the oil is from f℥iv. to f℥j.

OLEUM LINI, Lond. Dub. OLEUM LINI USITATISSIMI, Edin. *Oil of Linseed.*

"Bruise the seeds of Common Flax, and afterwards express the Oil without heat."

Syn. Huile de graine de lin (*F.*), Leinöhl (*G.*), Olio di Lino (*I.*), Azéyte de Laxor (*S.*).

The proportion of Oil thus obtained is about 20 per cent. of the seed employed. It is combined with a considerable portion of mucilage[3], has a strong disagreeable odour, and a nauseous taste; is not congealed except by a cold below 0° of Fahrenheit; and boils at 600° of the same scale. Its colour is a high yellow; and its specific gravity ·932.[4] Four ounces of alcohol are required to dissolve one drachm of it: but the same quantity of ether takes up a fluid ounce and a half. One hundred weight of seeds yields from 18 to 20 lbs. of oil.[5]

Medical properties and uses. — Linseed oil is emollient, demulcent, and slightly laxative. On account of its nauseous taste, it is seldom used as an internal remedy, although it has been given with advantage in ileus when purgatives have failed. It is chiefly employed in the form of glyster in flatulent colic, attended with costiveness, and in abrasions of the rectum: and is an useful application to burns, especially when combined with lime water. The dose, when taken by the mouth, is from f℥ss. to f℥j.; but f℥vj. may be given at once, per anum.

Officinal preparation. *Linimentum Aquæ Calcis*, E.

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[1] About ℥iij. more may be obtained by impregnating the marc with the steam of boiling water.

[2] Fabroni.

[3] The oil usually prepared on a great scale is more free from mucilage, the seeds being roasted before they are subjected to the press.

[4] Shaw's *Boyle*, ii. 346.

[5] *Brande's Manuel*, p. 336.

OLEUM RICINI, Lond. *Castor Oil.*

"Bruise Castor seeds, previously decorticated; and express the Oil, without heat."

Syn. Huile de Ricin (*F.*), Rizinusöhl (*G.*), Olio di Ricino (*I.*), Sitt. āmanāhā unnay (*Tam.*).

The mode of obtaining this oil, with its qualities and medicinal virtues, have been already noticed. The purer it is, the more soluble it is in alcohol of spec. grav. ·820. (See RICINUS, *Part* ii.) This cold drawn oil is considerably less purgative than the oil from the West Indies, which is of a deeper colour and extremely nauseous.

OLEA DISTILLATA.

DISTILLED, *or* VOLATILÆ OILS.

VOLATILE OILS, as they are properly denominated by the Edinburgh College, are vegetable products, found in almost every part of the vegetable body, except the cotyledons of the seeds, the part in which, almost always, the fixed oils are contained. In some plants, the volatile oil exists in distinct vesicles, and is obtained by simple expression, but in general it can only be obtained by distillation; whence the name *Distilled Oils*, given to this class of substances by the London College: and as the odour of plants generally depends on their volatile oils, the Dublin College, following the example of the elder chemists, who denominated them Essences, have adopted the term *Essential Oils*. The expressed volatile oils are now rejected from all the Pharmacopœias; and the whole of those used in pharmacy retained, are procured by distillation.

Volatile oil is obtained from both recent and dried plants. When fresh plants are to be employed, they require no previous treatment; but when the plants are dry, or woods or barks are to be employed, the plants must be macerated in water for some time, and the woods and barks be previously rasped. The distillation is performed in the following manner. The plants, or the parts of them containing the oil, are to be put into a tinned copper still, and closely pressed down; after which, as much water is to be poured in as will be sufficient to cover the materials. The head of the still, which should be low, is then to be luted on; the fire lighted, and so regulated as to keep the contents of the still scarcely up to the boiling point; and the distillation continued, until the condensed vapour comes over nearly insipid and inodorous. During this process the volatile oil rises with the watery vapour, from which, however, the greater part of it again separates, after it has re-

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