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V. SIMPLE SUBSTANCES.

1. THESE substances have hitherto been generally arranged in two separate divisions; the first, including those found native, or bought of persons who either import them from foreign parts, or manufacture them on a large scale for the retailers; the second, including those which the retailers are accustomed, or at least expected to prepare at home, which are very few.

2. The substances to be arranged under these divisions vary, however, in different places, and therefore they are here mixed together under one head; the more so, because such division of them occasions substances nearly related to each other to be separated, as Spanish liquorice and extractum glycyrrhizæ, the resinous exudations of plants, and the resins obtained from bark, jalap, &c. by treating them with spirit of wine, as also many others.

3. The name of *simple substances*, as applied to this division of the subjects of pharmacy, must be understood with some latitude, they being far from absolutely simple; but they are designated in this manner to distinguish them from the compounds of the next division.

1. SUGARS.

HONEY. *Mel Anglicum*. Collected by bees, and deposited in the cells of their nests as food in store for winter; being chiefly collected from furze and broom, it is more waxy than the foreign honey from the south of Europe.

NARBONNE HONEY. *Mel Narbonense*. Chiefly from rosemary and other labiate flowers.

MINORCA HONEY. *Mel Minorcense*.

EAST COUNTRY HONEY. From pines, birch, &c. only fit for making mead, ointments, and oxymels, on account of its strong taste and bad colour: when heated, this last sort passes almost entirely into scum. Honey is nutritive, laxative, but apt to gripe; it covers the taste of salts, &c. better than sugar; used externally or in gargles, detergent.

STONE HONEY. Found in the clefts of the rocks in Imerethi, a part of Georgia; it is as hard as sugar-candy, brittle, and not viscid, originally white, but becomes yellow by age. The Imerethians carry it about with them in their pockets, like lozenges.

CLARIFIED HONEY. *Mel despumatum*. The best kind of honey is clarified by merely melting it in a water-bath, and taking off the scum; the middling kind by dissolving it in water, adding the white of an egg to each pint of the solution, and boiling it down to its original consistence, scumming it from time to time; the inferior kind requires solution in water, boiling the solution with bruised charcoal, ℥ij to ℥xxxv of honey, adding, when an excess of acid is apprehended, a small quantity of chalk or oyster-shell powder, straining it several times through flannel, and reducing the solution to its original consistence by evaporation. It has not the agreeable smell of crude honey, but does not ferment so soon, nor is it so apt to gripe as the other.

MANNA IN TEARS. *Manna in lacrymis*. Flows spontaneously from the manna ash trees, and dries upon the bark, in the months of June and July. Manna is mostly obtained from the *fraxinus rotundifolia*, but is yielded, though in less quantity, by the *F. ornus*, *F. excelsior*, and *F. parvifolia*. It is also yielded by the plum, oak, and willow.

COMMON MANNA. *Manna pinguis*. *M. vulgaris*. Flows from incisions made after the first of August.

FLAKE MANNA. *Manna cannulata*. Hangs in stalactites from straw, &c. bound round the tree in June and July. Manna is laxative, in a dose of ʒij to ʒss for children, or ʒss to ʒjss for adults, in milk or any other liquid. The druggists distinguish manna by its native country, as Sicily, &c.

BRIANÇON MANNA. *Manna laricis*. Exuded from the leaves of the larch in Dauphiny; laxative, but weaker than that of the ash.

PERSIAN MANNA. *Tereniabin*. Exuded from the hedy-sarum allagi; also used as a purgative.

SARCOCOLLA. Is said to be the dried sap of *pænæa sarcocolla*, and *P. mucronata*, but this is doubtful. It seems a natural combination of sugar and tannin or gum. Used as a slight astringent.

BROWN SUGAR. *Moist sugar. Mel cannae. Saccharum rubrum. S. non purificatum. Saccharum*, P. L. 1809 & 1815.

WHITE SUGAR. *Refined sugar. Saccharum album. S. purissimum. S. purificatum*. The essential salt of the sugar-cane, prepared by clarifying the juice with eggs or blood, getting rid of the superfluous acid by the addition of lime-water, and evaporating it till the sugar crystallizes on cooling. The uncrystallizable portion (treacle) is then drained from the granular mass, and that which remains in the first instance got rid of by passing small portions of water, or, according to a late improvement, of saturated syrop through the mass; 112lb of raw sugar yields, on refining, 56 of refined lump, 22 of bastards, 29 of melasses, and 5 of dregs. The different proportions of treacle left in the sugar, occasioning a corresponding variation of colour through all the shades, from dark reddish brown to a pure brilliant white: the brown, cheaper kinds being used in glysters, in making wines, and in those syrops which are of a dark colour; the white refined sugar for medicines and light coloured syrops. Sugar is nutritive, laxative, but griping; externally applied to ulcers it is escharotic.

BROWN SUGAR CANDY. *Saccharum candum rubrum*.

WHITE SUGAR CANDY. *Saccharum candum album*. Sugar crystallized by the saturated syrop being left in a very warm place, from 90 to 100 deg. Fahr.; and the shooting promoted by placing sticks, or a net of threads at small distances from each other in the liquor; it is also deposited from compound syrops, and does not seem to retain any of the foreign substances with which they were loaded. It may however be coloured red by means of cochineal. Being longer in dissolving than sugar, it is used in coughs to keep the throat moist; and is also blown into the eye as a very mild escharotic in films or dimness of that organ.

TREACLE. *Melasses. Mel ustum. Theriaca communis*. The black uncrystallizable portion of the juice of the sugar, used as a cheap sweet, also for making beer, rum,

and the very dark syrups, as those of white poppies, and of buckthorn berries. Its taste may be amended by charcoal, as in clarifying honey. It preserves vegetable powders better than sugar.

PARSNEP SUGAR. From the root.

SKIRRET SUGAR. From the root, 1lb yields 6 drachms.

CARROT SUGAR. Used in Thuringia.

BEET SUGAR. Made from red or white beet root, or from the mangel wurzel, by decoction in water, expression, and evaporation, or by simple expression of the juice: it yields only 1-100th of sugar.

COW-PARSNEP SUGAR. The stalks when dry exude sugar; 4lb yielded 4 oz.

MAPLE SUGAR. Much used in America.

WALNUT SUGAR. Made by the Tartars.

BIRCH SUGAR. Are all made by wounding the trees in the spring of the year, by boring a hole under a large arm of the tree, quite through the wood, as far as the bark on the opposite side, collecting the sap that flows from the wound, and evaporating it to a proper consistence. These are the native sugars of cold countries, and might be made in England for all the purposes of home consumption, but that the interest of the ship owners would speedily procure a prohibition of the manufacture, if attempted in the way of trade. The sap of the sugar maple yields about 1-10th.

APPLE SUGAR.

PEAR SUGAR. Obtained by expressing the juice, adding chalk to remove the superabundant acid, and evaporating it to a due consistence: it does not crystallize, and is a kind of white treacle. One cwt. of apples yields about 84lb of juice, which will produce nearly 12lb of this substance.

PALM SUGAR. *Jagory*. Is manufactured on a large scale, from various species of palms, particularly the *palmyra*, or *borassus flabelliformis*, which, by cutting off the tip of the spadix, furnishes daily, and for five successive months, about six pints of toddy, and this again affords, by evaporation, a pound of sugar. The wild date, or *elate sylvestris*, bleeds for three months successively, and the cultivation is so managed, that toddy may be procured all the year round. Fifty trees yield daily about seventeen gallons of toddy, furnishing, by evaporation, about 46lb of jagory.

DULSE SUGAR. Extractible from fuci, is analogous to the sugar extractible from onions, and the crystallizable su-

gar of manna: they do not form wine, but change at once to vinegar.

Sugar may also be made from many other plants.

SAPA. Juice of grapes evaporated to the consistence of honey, much used in Palestine, Egypt, and other Mahometan countries as a sweetmeat.

GRAPE SUGAR. The brown sugar obtained from grapes, by the usual process, being previously freed from the acids and sulphate of lime that existed in the original juice; yields, by refining, 75 per centum of a white granular sugar, 24 of a kind of treacle, with a little gum, and some malate of lime. This sugar does not sweeten so much as the cane sugar, and is apt to gripe.

ARBUTUS SUGAR. From the fruit of the strawberry tree, which has been found to yield 1-5th of its weight of sugar, while a sufficient quantity remains in the pressed cake, to give, by dilution with water, fermentation, and distillation, a very pleasant rum.

SUGAR FROM HOLCUS CAFER. This large grass was brought from the South of Africa, and has begun to be cultivated in some parts of Italy, Bavaria, and Hungary. The sugar that it yields is said to be equal to that of the cane.

STARCH SUGAR. One hundred parts of starch are to be mixed with 200 of water, and added gradually to another 200 of water, previously mixed with one of oil of vitriol, and brought to a boiling heat in a tinned copper vessel: the mixture is kept boiling for thirty-six hours, water being occasionally added to keep up the original quantity: some powdered charcoal is then added, and also some chalk to get rid of the acid; it is afterwards strained and evaporated by a gentle heat to the consistence of a syrop, and set by to crystallize. This sugar resembles that of grapes. If the quantity of oil of vitriol be increased to five or six parts, a few hours' boiling will suffice: it does not, however, seem probable that this will ever be a rival to cane sugar, or made as an article of trade.

RAG SUGAR. Sugar has lately been obtained by treating linen rags with water acidulated with oil of vitriol, in the same manner as starch for starch sugar.

SPANISH LIQUORICE. *Succus glycyrrhizæ simplex*. *S. Hispanicus*. Made by boiling liquorice root in water, straining the decoction, and evaporating to dryness, but is imported from abroad. In the coarser kinds, the pulps of

various plums are added. A very common demulcent, taken ad libitum.

EXTRACTUM GLYCYRRHIZÆ. The same, but evaporated only to a consistence fit for rolling into pills; or formed by dissolving Spanish liquorice in water, and evaporating: it is demulcent, ℥j to ℥iij; frequently used to cover the taste of aloes and other medicines, in draughts or mixtures. The root yields about half its weight of this extract.

CASSIA PULP. *Pulpa cassiæ extracta. Cassiæ pulpa.* The pods of cassia fistula are broken, the pulp washed out with cold water, strained, and evaporated to a pilular consistence; laxative, ℥ss to ℥j, but seldom used separate. Four lb new pods yield about 1lb pulp.

TAMARIND PULP. *Pulpa tamarindi extracta. Tamarindi pulpa.* Prepared like cassia pulp; cooling, laxative, ℥ss to ℥jss, or from ℥ij to ℥iij may be added to ℔j of water for a cooling drink.

PULP OF PRUNES. *Prunorum Gallicorum pulpa.* Prepared in the same manner from French prunes, but they require boiling in a small quantity of water to soften them. Use the same.

ROB OF ELDER BERRIES, WITHOUT SUGAR. *Rob baccharum sambuci, sine saccharo.* The juice of the berries is to be evaporated to a proper consistence by a gentle heat; sudorific, diuretic.

ROB OF BLACK CURRANTS, WITHOUT SUGAR. *Rob de ribes.* As the preceding; diluted with water, it is used in cleansing gargles.

The pulps or juices of other sweet fruits may be prepared in a similar manner.

SUGAR OF MILK. *Saccharum lactis.* Is deposited in a crystalline form from whey clarified with white of eggs and properly evaporated: it is not so sweet as the vegetable sugars: used to make artificial whey, as a refreshing and laxative drink.

2. GUMS.

WHITE GUM ARABIC. *Gummi Arabicum. Acaciæ gummi. Mimosa Niloticæ gummi.* In small lumps, principally white.

YELLOW GUM ARABIC. In small lumps, but its colour is inferior. The Turkey gum is mixed, but the Barbary is mostly yellow.

GUM SENEGAL. *Gummi Senica.* In large lumps, round, brown: the powder is sold for that of gum Arabic. These are exuded from different species of mimosa, whence their different fineness; nutritive, and used as food by some negro nations; demulcent, ʒj to ʒij, ad libitum; also used as a cement: to reduce them to a fine powder, they must be previously dried, or the operation performed in a heated mortar, with a hot pestle.

GUMMI TURICUM. Gum Arabic concreted together by moisture.

GOMME A FRISER. *Gummi Anglicum.* Gum Arabic or gum Senegal wetted and made into square cakes like glue. Used to dip in water and rub on the head and horses' manes to keep the hair smooth.

GUMMI VERMICULATUM. A kind of gum Arabic in a vermicular form, like tragacanth.

EAST INDIA GUM. *St. Helena gum. Gum Babul. Gum Barbara.* Very dark colour, nearly black, from the mimosa Arabica; used by the dyers, and to grind.

BEAD-TREE GUM. Very dark, nearly black, from the melia azedarachta; used by the dyers.

CASHEW GUM. *Brazil gum.* Reddish yellow, astringent; its mucilage scarcely adhesive.

ORENBURGH GUM. *Gummi Orenburgense.* Exuded from the larch, is reddish, nearly transparent, not so glutinous as gum Arabic, tasting rather resinous.

CHERRY-TREE GUM. *Gummi cerasi.*

PEACH GUM. *Gummi amygdalæ Persicæ.*

PLUM-TREE GUM. *Gummi pruni.* Substituted for gum Arabic, by country practitioners; differ, however, in their chemical qualities, from that gum, being what the chemists call cerasine or tragacanthine.

LICHEN GUM. Several species of lichen yield, by infusion or decoction in water and evaporation, a gum similar to gum Arabic, and which may be applied to the same uses; as lichen coralloides, which yields about 14 per cent.; lichen esculentus, about 13; lichen pulmonarius; and lichen farinaceus.

HYACINTH GUM. May be obtained from the roots of hyacinthus non scriptus, common wild hyacinth or harebell; formerly used by fletchers, to glue feathers to arrows.

GUM KUTEERA. In loose wrinkled drops, from the sterculia urens, without smell or taste, whitish, mostly trans-

parent, forms a soft jelly in water, but if reduced to powder and boiled in water for a quarter of an hour, it is entirely dissolved; a teaspoonful of the powder gives three pints of water the consistence of a syrop; used as a varnish.

GUM TRAGACANTH. *Gummi tragacanthæ. Tragacantha. Astragali tragacanthæ gummi.* Is not exuded from the astragalus tragacantha, as it is said to be by the Edinburgh college; but according to Labillardière and Olivier, from the astragalus gummifer, and another nondescript species; has always more or less of a vermicular form; equally difficult to powder with gum Arabic, from which it differs in chemical qualities: ℥j of this renders water as thick as would be done by ℥j of gum Arabic, but it does not answer for electuaries, as it renders them slimy on keeping; demulcent, and from its viscosity used in sheathing the fauces, and in allaying tickling coughs.

GUM AGATY. Obtained from the bastard sensitive plant, *æschinomene grandiflora*.

THOA GUM. From *thoa urens*.

GUM OF THE PITCAIRNIA CRYSTALLINA.

GUM OF ACTINOPHYLLUM ANGULATUM.

GUM OF ACTINOPHYLLUM PEDICELLATUM. Scarcely known in England.

BRITISH GUM. Made by heating starch to the temperature of 6 or 700 deg. Fahr. so that it may melt, exhale a peculiar scent, and become brown. This artificial gum is soluble in cold water, does not become blue with iodine, and affords oxalic acid by distillation with nitric acid. Used by the calico printers.

3. GUM-RESINS.

Natural exudations from plants, miscible with water, but neither saccharine nor gummy.

GUM ALOUCHI. Is supposed to come from the canella alba, very odoriferous, soft, dark-coloured.

GUM AMMONIAC. *Gummi ammoniacum. Ammoniacum.* A gum resin, obtained by incision of a plant like fennel, or, as is supposed by Willdenow, from the heracleum gummiferum, its seeds being found in the gum: purified by being softened in a gentle heat, or by a small quantity of water, and expressed through a canvass cloth; internally stimulant, expectorant, gr. x to ʒss diffused in water ℥ij.

ASSA FÆTIDA. *Assafœtidæ gummi-resina. Ferula as-*

assafoetida gummi-resina. Exudes from the fresh cut surfaces of the root of *ferula assafoetida*, from which it is scraped off when dry, and a fresh surface made by paring the remaining root, till it is exhausted; it is purified the same way as gum ammoniac; expectorant, stimulant, and antispasmodic, gr. x to ʒss in water ʒij; used also in clysters.

GUM BDELLIUM. *Bdellium. Myrrha imperfecta.* Exudes from a nondescript amyris, called by Adanson, not-tout: it has most of the properties of myrrh, and they are used indiscriminately for one another.

EUPHORBIIUM. *Euphorbiae gummi-resina.* Exuded from incisions made in the *euphorbia officinarum*, *euphorbia antiquorum*, and *euphorbia Canariensis*; a most violent drastic hydragogue, formerly used, to gr. v or x, corrected with vinegar or lemon juice, but its internal use is now laid aside; externally stimulant, ulcerating, much used by common ferriers.

GALBANUM. *Galbani gummi-resina. Bubonis galbani gummi-resina.* Exudes spontaneously, but generally procured from incisions made in the *bubon galbanum*; emmenagogue, antihysterical, and antispasmodic, gr. x to ʒj; externally resolvent.

An inferior sort of galbanum, of a reddish colour analogous to *sagapenum*, is produced from the *bubon gummi-ferum*.

CEYLON GAMBOOGE. *Gummi guttae gambiæ*, usually written by the druggists G. G. G. *Gambogia. Cambogia.* The best sort is procured by incision from the *stalagmitis cambogioides* of Murray, and an inferior kind from the *carcapulli* of Rheede, or *cambogia gutta* of Linnæus; hydragogue, useful in dropsy, gr. iij or iv, horâ quaquâ tertiâ, until it operates: makes an elegant yellow for drawing or colouring maps.

SIAMESE GAMBOOGE. In tears; yielded by the *garcinia morella*?

MEXICAN GAMBOOGE. Yielded by the *vismia guttifera*, and *vismia sessiliflora*.

GUM IVY. *Gummi hederæ.* Produced by wounding the tree; reddish brown, burning with an aromatic odour, acrid, exulcerating; used, dissolved in vinegar, as a depilatory and odontalgic; and in substance to rub over baits, to render them attractive to fish.

? GUM HOCK. Some specimens of this gum resemble elemi, others are dark coloured.

AFRICAN KINO. *Kino P. L.* Yielded by a species of pterocarpus. Its solution in water is rendered clear and of a deep brown colour by potash.

KINO P. D. Yielded by the *butea frondosa*. Differs considerably from the other kinds of kino, but may be used for them.

BOTANY BAY KINO. *Brown gum of Botany bay. East India kino. Amboyna kino.* Obtained from the brown gum tree, *eucalyptus resinifera*. Its tincture is not rendered turbid by water, as it contains scarcely any resin. Astringent, but not so certain in its operation as catechu.

LETTUCE OPIUM. *Lactucarium.* Obtained by incision from the flowering stems of the garden lettuce, *lactuca sativa*; is said to be fully equal to opium, but cannot be obtained in any quantity.

MYRRH. *Myrrha.* The plant that yields this gum-resin is not determined: Forskahl thinks it comes from an amyris, nearly related to his am. kataf; Bruce, from his mimosa sassa; it is indeed frequently mixed with gum Arabic, and leaves of mimosa or acacia are found in it, so that it is probably yielded by several different plants; attenuant, incisive, antiseptic, tonic, vermifuge, and very emmenagogue, gr. x to ʒss.

LIQUID MYRRH. *Myrrha liquida. Stacte.* Said to be obtained by the decoction of the above amyris; similar to myrrh in its qualities, differing only in consistence.

TURKEY OPIUM. *Opium. Meconium. Papaveris somniferi succus spissatus.* Extracted from the capsules of the white poppy by incision; but Miller thinks the Turkey opium is from a different plant, as the capsule is not of the same shape: one of the principal instruments of physicians; anodyne, narcotic, gr. ʒs to gr. ij, or even more, as the person is accustomed to its use or not, and also according to the disease that is present, so that it can only be exhibited with due effect, or even with safety, by a person who is not only skilful, but also acquainted with the constitutional habits of the patient as to this drug; some prefer a full dose at once, others repeated small doses: it is thought to be anodyne, even when used externally. When required in a pulverulent form, in which state it is kept ready in the shops, it must be previously dried in a gentle heat. The effect of

opium taken improperly is best obviated by a copious exhibition of vinegar.

OPIUM PURIFICATUM P. L. is merely picked opium.

PURIFIED OPIUM. *Extractum Thebaicum. Opium colatum. O. purificatum. Laudanum opiatum.* The gum being softened in a small quantity of water, not exceeding its own weight, is pressed through canvass, and reduced by evaporation to a proper consistence, either soft for pills, or hard for powdering.

EXTRACTUM OPII. Rub half a pound of opium with three pints of water, added by degrees lest the mixture settle; then strain, and evaporate to a proper consistence.

EXTRACTUM OPII AQUOSUM. Rub $\mathfrak{z}\text{ij}$ of opium with a pint of boiling water, for ten minutes, and pour off the solution; repeat this a second and third time; mix the liquors and expose them to the air in a broad flat vessel, for two days, then strain through linen, and evaporate.

HOMBERG'S PURIFIED OPIUM.

BEAUME'S PURIFIED OPIUM. All the part that is soluble is extracted from the opium, by repeated decoction of 4lb in twelve or fifteen quarts of water, until no more is taken up, then all these decoctions are mixed together, evaporated to about five quarts, and kept boiling for two, three, or even six months, adding fresh water from time to time; the decoction is then strained and evaporated to the consistence for making pills.

CORNETTE'S PURIFIED OPIUM. The resin is separated by the shorter process of redissolving the common extract in water, straining the solution, and again reducing it by evaporation to an extract, and repeating this process several times.

JOSSE'S PURIFIED OPIUM. Opium is worked in the hand under water, to separate the glutino-resinous part which remains in the hand: the water is then filtered and evaporated to an extract, which still contains some resin, but is much less disagreeable in its smell, and considerably improved as an antispasmodic.

ACCARIE'S PURIFIED OPIUM. Opium is digested with charcoal powder in water for some days; the liquor is then strained, clarified with whites of egg, and evaporated in a water-bath to an extract, which is said to be very mild in its effects, like the former.

POWEL'S PURIFIED OPIUM. Boil opium in water, as long

as any thing is taken up by it; then digest the residuum in spirit of wine, mix the two solutions, and evaporate them to a proper consistence.

EAST INDIAN OPIUM. In round masses; smooth like an extract, totally soluble in water, and the solution is precipitated by acetate of barytes, by which the solution of Turkey opium is not altered; and more copiously by oxalic acid: it also leaves no glutinous residuum on solution. Is considered weaker than that of Turkey.

WILD CUMIN OPIUM. Yielded by the *hypecoum procumbens* and *h. pendulum*; narcotic, and similar to opium.

OPOCALPASUM. A kind of bdellium yielded by some unknown species of amyris; tough like wax, dark brown, bitter.

OPOPONAX. *Opoponax. Pastinacæ opoponacis gummi-resina.* Exudes from incisions made in the roots of the *pastinaca opoponax*, or of the *daucus gummiifera*; carminative, attenuant, emmenagogue, and sometimes purgative, gr. x to ʒj.

RED ASTRINGENT GUM. *Liquid gum? Gummi rubrum astringens. Kino P. E.* Is brought from New South Wales, and said to exude from the *eucalyptus resinifera*.

SAGAPENUM. Supposed to be produced from the *ferula persica*, or some nondescript species of that genus; its medical properties are similar to those of *assafœtida* and *galbanum*; dose gr. x to ʒss.

GUM SASSA. Exuded from an Abyssinian shrub, used to mix with myrrh.

ALEPPO SCAMMONY. *Scammonium Aleppense. Diagridium. Scammonia gummi-resina. Convolvuli scammonia gummi-resina.* Exudes from the root of *convolvulus scammonia*, the tops being cut off for that purpose; when reduced to a very fine powder, by trituration with loaf sugar or tartarum vitriolatum, it is the best vegetable purgative that is known at present, as its effects can be exactly calculated; dose from gr. iij to xv, or more.

FRENCH SCAMMONY. The juice of *cynanchum Monspeliacum*. A weak cathartic; used to mix with Aleppo scammony.

SMYRNA SCAMMONY. *Scammonium Smyrnense.* The juice of the *periploca scammonium*, coarser than the Aleppo scammony, and very sandy; it is more violent in its operation, and but little used at present, except for inferior cattle.

INCENSE. *True frankincense. Thus masculum. Oli-*

banum verum. Juniperi lycie gummi-resina. Some have supposed this to exude from a species of amyris not yet described; others, from the berry-bearing cedar, or from the *juniperus lycia*. What is at present sold in London, under this name, is obtained by incision from the salai tree of the mountains of India, the *boswellia serrata* of Roxburgh; sialogogue, astringent, stimulant, dose ℥ss to ℥ij, triturated with water; used also as a perfume for fumigating sick rooms, and in religious ceremonies, as the odour is supposed to be agreeable to superior beings.

MANNA THURIS. The small fragments or dust produced by the friction of the above in carriage.

MANNA THURIS CRYSTALLINA. The transparent drops of frankincense.

HOG-FENNEL GUM. *Gummi peucedani.* May be obtained from *peucedanum officinale* by incision; is opening, and diuretic.

ELM-TREE GUM. *Ulmine. Gummi ulmi.* Black, hard, shining, a few drops of nitric acid change it to a resin; not used at present.

4. INSPISSATED JUICES.

ACACIA VERA. The juice expressed from the pods of *mimosa nilotica*, inspissated to dryness.

GERMAN ACACIA. *Acacia Germanica. Succus prunorum sylvestrium.* Prepared from the juice of unripe sloes, by inspissation; astringent, substituted for the true acacia.

ITALIAN ACACIA. *Acacia Italica.* The inspissated juice of *spartium spinosum*. Astringent.

EXTRACTUM ACONITI. *Succus spissatus aconiti napelli.* From the expressed juice of monkshood leaves, evaporated, without separating the sediment, to the consistence of thick honey; anodyne, sudorific, deobstruent, gr. fs to gr. v, bis terve die.

SOCOTRINE ALOES. *Aloe Socotrina. A. lucida. A. spicata extractum.* Very pure, affording a gold-yellow powder; obtained by incision from various species of aloe, and subsequent evaporation.

HEPATIC ALOES. *Aloe hepatica. A. vulgaris extractum.* Contains more rosin than the Socotrine. Distinguished by the druggists into Barbadoes, Bermuda, Cape, &c. aloes; cathartic, gr. x to ℥j; stomæhic, aperient, em-

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menagogue, gr. ij to iiij, bis die; and in clysters ℥j, as a cathartic, or to destroy ascarides: to horses ℥ss to ℥j as a cathartic.

PURIFIED ALOES. *Aloes lota. Gummi aloes. Extractum aloes. E. al. purificatum.* Made by soaking aloes in warm water, pouring off the clear liquid, and evaporating it to a proper consistence; more purgative than crude aloes, and less irritating; dose, gr. x. to xv.

EXTRACTUM ANEMONIS PRATENSIS. Is prepared from the undepurated juice boiled down; resolvent, useful in chronic diseases of the eyes, and in obstinate venereal complaints; beginning with small doses and gradually increasing them.

EXTRACTUM BELLADONNÆ. *Succus spissatus atropæ belladonnæ.* Prepared from the leaves of deadly nightshade, in the same manner as the extractum aconiti above; narcotic, diaphoretic, resolvent, gr. fs to gr. iiij, bis terve die. It yields 1-9th of extract.

SUCCUS SPISSATUS CICUTÆ. *Extractum conii. Succus spissatus conii maculati.* Evaporate the expressed juice of hemlock leaves to a proper consistence; alterative, resolvent, used in obstinate disorders; beginning with a small dose, say gr. ij, bis terve in die, and increasing it as the constitution will bear its exhibition.

JUICE OF HYPOCISTIS. *Succus hypocistidis.* Prepared in like manner as acacia from the berries of asarum (or cytinus) hypocistis.

EXTRACTUM HYOSCYAMI. *Succus spissatus hyoscyami. Succ. spis. hyosc. nigri.* Prepared by evaporating the expressed juice of henbane leaves to a due consistence; anodyne, antispasmodic, from gr. fs to as much as the patient will bear, which has been in some instances ℥ss a day: a cwt. and three quarters of the green herb yielded 11lb of extract; is very troublesome to make.

ROB DIACARYON SINE MELLE. *Extractum juglandis immaturi.* Prepared from the juice of unripe walnuts boiled down; is an excellent vermifuge made into a draught, and its taste covered with cinnamon water.

LETTUCE OPIUM. *Succus spissatus lactuæ sativæ.* Prepared from the common garden lettuce, by expressing its juice, and subsequent evaporation of this juice to a due consistence; narcotic, used as a substitute for opium, but is of very little use.

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SUCCUS SPISSATUS LACTUCE VIROSÆ. Prepared from the expressed juice of strong scented wild lettuce, by evaporation; narcotic, laxative, and powerfully diuretic, gr. iij to xv or more daily, in obstinate dropsies.

CONCENTRATED ORANGE JUICE. *Succus spissatus aurantiorum.* The juice of oranges reduced to a solid form by evaporation; for use in situations where the fruit cannot be obtained.

CONCENTRATED LEMON JUICE. *Succus spissatus limonum.* Similar to the above in preparation and use; but neither of them is equal to the original juice, or even to the depurated juice, so long as they can be kept free from mouldiness.

5. WATERY EXTRACTS;

Or those prepared by boiling plants in water, straining the decoction and evaporating it to a proper consistence.

EXTRACTUM CACUMINUM ABSINTHII. From wormwood tops, by boiling in eight times their weight of water, evaporating to one half, then strained with expression, and after the impurities have subsided, filtered and evaporated to a consistence fit for making pills; bitter, stomachic, gr. x to ʒss, ter die.

HORSE ALOES. *Aloe caballina.* Dark coloured, foetid, used only for inferior horses and other cattle. The better kinds of aloes are the juices that flow from the leaves of the aloe plant when cut, inspissated; but this last is prepared by boiling the whole plant in water, and reducing the decoction to a proper consistence.

EXTRACTUM RADICIS BRYONIE ALBÆ. Prepared by decoction of the root, and subsequent evaporation, in doses of ʒss to ʒj, is safer and better than either the fresh root, or its juice.

EXTRACTUM ANTHEMIDIS. *E. florum chamæmeli.* *E. anthemidis nobilis.* Prepared by boiling camomile flowers in water, straining the decoction while hot, and evaporating; bitter, stomachic, gr. x to ʒj, bis terve die.

CASH CUTTL. *Catechu.* An extract prepared from the areka nut, used as an astringent masticatory.

CUTTA-CAMBOO. *Gutta gambir.* An extract from the nauclea gambir, of a whitish colour, in lozenges, balls and

flat cakes. Used as a masticatory, to fasten the teeth and sweeten the breath.

PALE CATECHU. *Bombay catch.* An extract of the wood of the mimosa catechu in small squares, of a pale reddish brown, texture lamellated, grain rough.

JAPAN EARTH. *Dark catechu. Bengal catch. Terra Japonica. Gummi Lycium? Ligni mimosæ catechu extractum. Catechu extractum.* In round masses, of a dark chocolate colour, solid, resinous, and shining. Astringent, gr. x to ʒj. Also used in dyeing and for tanning leather.

EXTRACTUM COLOCYNTHIDIS. Evaporate a decoction of pulp of bitter apples ʒij, in water ʒviij, to a proper consistence for pills; cathartic, gr. v—ʒj.

EXTRACT OF BARK. *Extractum corticis Peruviani. Extr. cinchonæ.* Boil ʒij of bark three times, in about a gallon of water, filtering each decoction while hot; add the several decoctions together, and evaporate by a gentle heat to a proper consistence for pills: 56ʒ of bark yielded 13½ʒ of extract.

HARD EXTRACT OF BARK. *Extractum corticis Peruviani durum. Extr. cinchonæ durum.* The former extract reduced by subsequent drying to a state fit for being powdered.

GAUB. An extract of *embryopteris glutinifera*. Is very astringent, and used in dyeing and tanning.

EXTRACTUM CACUMINUM GENISTÆ. Evaporate a decoction of broom tops to a proper consistence for pills; diuretic, ʒss to ʒj or more in dropsy.

EXTRACT OF GENTIAN. *Extractum gentianæ. E. radicis gentianæ. E. gentianæ luteæ.* As the former, from gentian root: bitter, tonic, gr. x to ʒss, bis terve die: half a cwt. of gentian yielded 25ʒ of extract. Extract of lesser centaury is used for it, and is much cheaper.

EXTRACTUM LIGNI CAMPECHENSIS. *E. hæmatoxyli.* As the former, from a decoction of finely powdered or rasped logwood; astringent, gr. x to ʒss in cinnamon water, ter quaterve die vel post singulas sedes: 80ʒ of logwood yielded 14ʒ of extract.

EXTRACTUM RADICIS HELLEBORI NIGRI. As usual, from black hellebore root; alterative, emmenagogue, gr. iij—viij, bis terve die; cathartic, resolvent, gr. x to ʒj: 28ʒ of the root yielded 11ʒ of extract.

EXTRACT OF HOPS. *Extractum humuli.* From hops,

in the usual manner; anodyne in cases which do not admit the use of opium, gr. v to ℥j, pro re nata.

EXTRACTUM RADICIS JALAPÆ. Prepared by water only, is much milder in its operation than the two former.

THERIACA GERMANORUM OPTIMA. *Extractum baccarum juniperi optimum.* Prepared by soaking juniper berries in cold water, and evaporating the infusion carefully poured off from the sediment; this extract is sweet tasted, semitransparent, and amber coloured.

THERIACA GERMANORUM ALTERA. *Ext. bacc. junip. sine contusione.* By boiling juniper berries in water, and evaporating the decoction; agreeable to the taste, aromatic: about 1-8th of extract is obtained.

THERIACA PAUPERUM. *Ext. bacc. junip. contusarum.* Prepared in a similar way; but the berries are bruised previous to the decoction being made of them; is dark brown, thick, sharp tasted, and by no means agreeable. They are all excellent bitters, stomachics, and tonics.

JAMAICA KINO. Prepared from the sea-side grape of Jamaica, coccoloba uvifera, in the same manner as cutch; its infusion is precipitated of a blue black by the oxysulphate of iron: astringent, useful in loosenesses, internal hemorrhages, the whites, and excess of the menstrual evacuation, gr. x to ℥j.

JAMAICA KINO. *Extract of mahogany.* Prepared by decoction; used for real kino.

EXTRACT OF LILY OF THE VALLEY. Cathartic.

EXTRACTUM PAPAVERIS. *Ext. capitum papaveris somniferi.* Prepared from broken poppy heads, the seed being taken out, by decoction and evaporation; narcotic, anodyne, much weaker than opium, dose gr. ij to ℥j: 28lb of broken heads yielded 5lb and a quarter of extract.

EXTRACT OF OAK BARK. *Ext. corticis quercus.* By evaporating a decoction of oak bark in water to a consistence; astringent, gr. x—℥j, or more.

EXTRACT OF PEPPER. *Extractum piperis nigri.* From the decoction; it requires 550 pints of water to extract all the sapidity of lbj of pepper, and the extract is much stronger tasted than the pepper itself.

EXTRACTUM FOLIORUM RUTÆ. *Ext. fol. rutæ graveolentis.* By evaporating a decoction of rue leaves; tonic, detergent, gr. x to ℥j, bis terve in die.

EXTRACT OF SAVINE. *Ext. foliorum sabina.* As the

former, stimulant, emmenagogue, gr. x to ℥j, bis terve in die.

EXTRACTUM SARSAPARILLÆ. By boiling sarsaparilla root in water, and subsequent evaporation; alterative, diaphoretic, gr. x to ℥j, in pills, or to increase the power of the decoction: 20lb of fibres yielded 6lb of extract.

EXTRACTUM SENNÆ. *Extr. foliorum cassiæ sennæ.* From senna leaves, in the same manner; serves as a basis for purgative pills, having scarcely any power of its own.

EXTRACTUM STRAMONII. Prepared from the juice and decoction mixed together: 158lb of fresh stramonium yielded 37lb of juice; the cake was boiled in water, and the decoction added to the juice yielded, by evaporation, 3lb and a half of extract, which was full of particles of nitre; narcotic, in doses of gr. j to v, bis in die.

EXTRACTUM TARAXACI. By soaking bruised fresh dandelion roots in boiling water, boiling down to one half, then straining and evaporating to an extract; resolvent, diuretic, gr. x to ℥j, with vitriolated tartar: a cwt. and three quarters of the herb yielded, by expressing of the juice and then evaporating, 8lb and a half of extract.

EXTRACT OF TEA. Is brought from China, dry, solid, blackish, shining, and very brittle; it has a very weak smell and taste of tea, mixed with a styptic flavour, is easily dissoluble in the mouth, and tinges the spittle green; the solution in boiling water is brownish green, of a rough taste, and rather disagreeable smell.

EXTRACTUM VALERIANÆ. From the root of valerian, by soaking in boiling water in a covered vessel, expressing the liquor and evaporating to a proper consistence; antispasmodic, gr. x to ℥ss, or more.

BARRY'S EXTRACTS. These differ from the common by the evaporation being carried on, in a vacuum, produced by admitting steam into the apparatus, which resembles a retort with its receiver, the part containing the liquor to be evaporated being a polished iron bowl. As the temperature is much lower than in the common way, the virtues of the plant are less altered, the extracts are generally green, and contain saline crystals.

ESSENCE OF SPRUCE. Is prepared by boiling the twigs of Scotch fir in water, and evaporating the decoction till it grows thick; used to flavour treacle beer, instead of hops.

ESSENCE OF MALT. Is prepared by infusing malt in water (first boiled and then cooled till it reflects the image of a person's face in it), pouring off the infusion, and evaporating it to the consistence of new honey; used in sea voyages, and places where malt cannot be procured to make beer.

BLACK EXTRACT. *Hard multum.* From coculus Indicus, by decoction in water, and evaporation to a stiff tenacious mass; narcotic, intoxicating, used in brewing ale.

OBS. To make extracts smooth, chemists sometimes add to each quarter of a cwt. 1lb of gum Arabic, and a pint of olive oil.

2. Or to every 3lb add a little gum, ʒij of olive oil, and ʒj of rectified spirit, which will give it a gloss.

6. MIXED EXTRACTS.

Prepared partly by water, and partly by spirit of wine, or by a mixture of both.

EXTRACTUM RHEI. Soak 1lb of rhubarb in seven pints and a half of water, mixed with half a pint of rectified spirit, for four days, strain, let it settle, and evaporate the clear liquor; cathartic, gr. x to ʒss, but principally used as a basis for purging pills.

EXTRACTUM CORTICIS PERUVIANI CUM RESINA. *Extr. cinchonæ officinalis. Extr. cinch. resinosum.* Soak ʒij of bark in rectified spirit ʒiij, for four days, and pour off the tincture; boil the residuum in water, filter the decoction, and evaporate to the consistence of new honey, then add the tincture previously brought to the same consistence by distilling off the spirit, and evaporate the whole in a gentle heat to a proper consistence. Is astringent, tonic, and useful for those who cannot take the bark in substance, dose gr. x to xxx, in pills.

EXTRACTUM CASCARILLÆ RESINOSUM. Prepared from cascarilla by means of spirit and water, as the extr. cort. Peruv. c. resinâ; tonic, gr. v—ʒj bis terve in die: 28lb of cascarilla yielded 5½lb of extract.

EXTRACTUM JALAPII. *Extr. jalapæ. Extr. jalapæ resinosum. Extr. convolvuli jalapæ.* Prepared from jalap, by means of spirit and water, in the same manner as the extr. cort. Peruv. c. resinâ above mentioned; an active purgative,

gr. x to ℥j; it ought to be well ground with a little sugar or kali vitriolatum to hinder it from griping: 18lb of jalap yielded 16lb of extract.

EXTRACTUM JALAPE DURUM. For powdering.

7. FARINA.

WHEATEN FLOUR. *Ador. Farina. F. tritici.* The most nourishing of the flours, as containing a substance of an animal nature, called the gluten of flour, and which also causes it to make the best bread, when properly fermented; the mixture of the flour and water being raised either by a portion of old dough, leaven, or the froth of fermenting wort, yeast or barm.

Six sorts of wheat flour are sold in London, Fine flour, Second flour, Middlings, Fine middlings, Coarse middlings, Twenty-penny flour; all depending upon the fineness of the sieves.

A bushel, or 61lb of wheat, produces on grinding 60½lb meal, which by dressing is resolved into 48lb second flour, 4½lb fine pollard, 4lb coarse pollard, and 2¼lb bran, 2lb being lost in the process.

A sack of second flour, or five bushels, weighing by law 250lb, requires generally 3 or 4 oz. of alum, sometimes from 2 to 8, with 4lb common salt, half a gallon yeast, and about 3 gallons water, producing about 80 quartern loaves, sometimes 82 or 83.

A sack of flour, 3 oz. alum, 6lb common salt, one bushel potatoes, 3lb yeast, with water q. s. produces a white, light, and highly valuable bread.

A sack of indifferent flour, 1lb magnesia, with salt, yeast, and water as usual, makes excellent bread.

It is generally supposed that an imperfect kind of fermentation analogous to that in the preparation of wine or beer, takes place in making bread; but others deny this, because this dough does not yield any ardent spirit on distillation, although the same dough diluted with water and let to ferment for sixteen hours, yielded a portion of spirit; the dough also falls so rapidly, that it cannot be supposed the fermentation is finished. The bakers in summer time, when the yeast has turned acid, are in the habit of adding a little subcarbonate of potash or of ammonia, which raises the dough in a few minutes: mineral waters, containing much carbonic acid, raise the dough without the addition of yeast;

and other substances which contain much enveloped air also render the dough spongy, as eggs beaten to a froth or snow water.

RYE FLOUR. *Farina secalis.* Used to make either a sweet bread, raising the dough by yeast, or an acid bread by using leaven for that purpose; this last is cooling, not so nourishing as the former, but more suited to an animal diet.

BARLEY FLOUR. *Farina hordei.* When made into bread with yeast, it requires the dough to be baked very soon after it is made, as it grows sour almost immediately: a paste of barley meal and water is also used to take the hair off skins, previous to their being tanned.

OAT MEAL. *Farina avenacea.* Used to make gruel, and also thin unleavened cakes; is very resolvent when employed as a poultice.

WHEAT STARCH. *Amylum tritici.* From wheat flour, by washing it in sacks in a current of water, which carries off the starch and saccharine substance, and leaves the gluten in the sacks: the water being received in troughs is left to ferment, which, decomposing the saccharine substance, renders the starch that is deposited, on standing, very pure and white: this starch is friable, easily pulverised, crimp between the fingers, without smell or taste. Wheat in France yielded almost 3-4ths its weight, but in Sweden not quite half its weight. Does this depend upon climate? Demulcent, perhaps astringent; used for glysters in diarrhoea, dysentery, &c.

COMMON STARCH is starch mixed with powder blue, to give a blueish tinge to the linen, which is stiffened with its solution in boiling water: this colour being given to it in opposition to the yellow starch, tinged with saffron or turmeric, formerly employed, but which went out of fashion on the execution of the famous midwife, Mrs. Cellier, who was hanged in a ruff of that colour: used as a cement, but unfit for internal use.

SEMOLINA. Wheat flour, granulated while moist, and dried so as to deprive it in part of its solubility in hot water.

KISEL. Mix 1 or 2 lb of wheat flour, a handful of wheat bran, and a little yeast with some water, let it stand in a warm place for a fortnight, when the supernatant acid liquor is to be poured off, and the starch washed with cold water: boil this starch, while still moist, with a little cow's

milk, pour it into moulds to become solid, and eat it with cream, or wine and sugar.

RYE STARCH. Is floury, greyish white, scarcely crimp, and retains the smell and taste of the grain, which yields about half its weight of starch.

BARLEY STARCH. Powdery, greyish white, scarcely crimp, and retains the smell and taste of the grain, which yields rather more than half its weight of starch.

OAT STARCH. Floury, greyish, not crimp, with a weak smell and taste of water-gruel: the grain yields half its weight of starch.

INDIAN ARROW-ROOT. *Fecula marantæ.* From the root of maranta arundinacea, by pounding or grating it in water, and letting the fecule settle: when rubbed up smooth with a little cold water, and boiling water poured upon this paste, it dissolves easily by stirring into a transparent jelly, without requiring to be boiled: nutritive.

POTATOE STARCH. *Common arrow-root.* May be made from frozen potatoes in as large a quantity, and as good, as from those which have not been spoiled by the frost; very white, crimp to the fingers, and colours them; friable, heavy, sinking in water: when held towards the light it has shining particles in it; dissolves in boiling water as easily as true arrow-root: 100lb of potatoes yield 10lb of starch.

DWARF KIDNEY-BEAN STARCH. Is very white and crimp: 1 oz. of beans yielded upon trial gr. 48.

PEA STARCH. White, crimp, and good; the peas yield 1-4th their weight.

EARTH-PEA STARCH. From the bulbs of lathyrus tuberosus: 1lb of the bulbs yielded 3 oz.

BEAN STARCH. White, crimp: 1 oz. yielded gr. 75.

LENTIL STARCH. Also white and crimp: 1 oz. yielded gr. 98.

CHICH-PEA STARCH. From the seeds of cicer arietinum: white and good: 1 oz. yielded gr. 102.

MEADOW-SAFFRON STARCH. May be prepared from the root of meadow saffron, where those plants are plentiful; when boiled with water it is brown like sago, and cements well.

FECULE OF BRIONY. *Fecula bryoniæ albæ.*

GERSA SERPENTARIA. *Fecula ari maculati.*

All the above species of starch are prepared in a manner

similar to that of wheat or potatoes, and others may be made from different roots or seeds; they are all nutritive.

LIUTA. A kind of starch procured from the roots of several species of *alstroemeria*, in Peru.

INULIN. A white farinaceous powder that settles as the decoction of *elecampane* roots cools. It differs from starch, for although it dissolves in water, it does not remain united, but separates as the water grows cold.

SAGO. Prepared from the trunk of the sago tree, by splitting it, bruising the logs in water to separate the fecule, pouring off the water and letting it stand to settle: when the sediment is half dried in the air, it is granulated by being passed through a coarse sieve, and the drying finished first in the sun, and then by fire: a single tree yields from 3 to 4 cwt. of sago. Flat cakes are also made of the half-dried fecule by baking it in moulds.

CASSAVA. Prepared from the root of the *jatropha manihot*, by expression of the juice, which is extremely acrid, and baking the cake that is left; also from *yucca gloriosa*.

TAPIOCA. Prepared from the same root, in the manner of potatoe starch, breaking the moist fecule into roundish lumps, and drying them in that form: this and cassava only swell and soften in water, and thus make good puddings.

LINT-SEED MEAL. *Farina lini vera.* Emollient; used in poultices, but the ground cake is usually sold for it.

LINT-SEED CAKE. Left after the oil has been expressed from the lint-seed; used for fattening cattle, for short-breathed horses, and for manure.

GROUND LINT-SEED CAKE. *Linseed powder. Farina lini vulgaris.* Used for poultices, but requires in general some oil or fat to be added to keep it from drying up too hard.

ALMOND CAKE. *Amygdalæ placenta.* Left after the expression of the oil; is principally composed of albumen.

GROUND ALMOND CAKE. *Almond powder. Farina amygdalarum.* Used instead of soap for washing the hands.

LOCK-SOY. Rice boiled to a kind of paste, and drawn out into threads: the Cochin-chinese is transparent; the Chinese opaque and less esteemed; used to thicken soups.

8. ELATERIUM.

ELATERIUM ALBUM. The half-ripe fruit of spurting cucumber cut in pieces, so that the juice may drain out,

which is left to settle, the liquid part poured off, and the sediment dried in the sun; hydragogue, gr. fs—ij.

ELATERIUM NIGRUM. *Extractum elaterii. Succus spissatus momordicæ elaterii.* From the nearly ripe spurting cucumber, by expressing its juice, and proceeding as before, drying the fecule with a gentle heat: much weaker.

9. COLOURING MATTERS.

WOAD. *Glastum.* From the leaves of the plant so called, by grinding them to a paste, of which balls are made, placed in heaps, and occasionally sprinkled with water, to promote the fermentation; when this is finished, the woad is allowed to fall into a coarse powder; used as a blue dyestuff.

INDIGO. *Indicum.* From the leaves and young shoots of several species of indigofera and nerium, by soaking them either in cold water, or still better in water kept warm, and at about 160 deg. Fahr. till the liquor becomes deep green, it is then drawn off, and beat or churned till blue flakes appear, when lime-water is added, the yellow liquor drawn off, and the blue sediment dried, and formed into small lumps: of this fecule many varieties are found in trade, owing to variations in the process; the Guatemala indigo is generally esteemed the best, and has, like some other kinds, a coppery tinge; used as a blue dye.

CARMINE. *Carminum. Purpura vegetabilis.* Boil ʒj of cochineal, finely powdered, in 12 or 14 lb of rain or distilled water, in a tinned copper vessel for three minutes; then add alum gr. xxv, and continue the boiling for two minutes longer, and let it cool: draw off the clear liquor as soon as it is only blood warm, very carefully, into shallow vessels, and put them by, laying a sheet of paper over each of them to keep out the dust, for a couple of days, by which time the carmine will have settled. In case the carmine does not separate properly, a few drops of a solution of tin, i. e. dyers' spirit, or of a solution of green vitriol, will throw it down immediately; the water being then drawn off, the carmine is dried in a warm stove, and should be entirely soluble in liquid ammonia. The first coarse sediment serves to make Florence lake; the water drawn off is *liquid rouge*.

2. Boil lbj of cochineal powdered, and ʒvj of alum in 40lb of water, strain the decoction, add ʒfs of dyers' spirit, and after the carmine has settled, decant the liquid and dry

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the carmine: this process yields about ℥jss; used as a paint for the ladies, and also by miniature painters.

WASSUNTA GUNDA. A coloured powder, obtained from the capsules of *rottleria tinctoria*; used in dyeing yellow.

10. ANIMAL SECRETIONS,

And Excretions more or less miscible with Water.

WHITE OF EGG. *Albumen ovi*. Nutritive, coagulates like blood by heat, and therefore used to clarify turbid liquors, and also as a varnish.

YELK OF EGG. *Vitellus ovi*. Nutritive, coagulable the same as the whites, and used along with them for that purpose, as also to render oily substances miscible with water.

SEPIA. *Cuttle fish ink*. When fresh taken from the cuttle fish, it is a black glary liquid, of a viscid consistence, a peculiar fishy smell, and very little taste; it is preserved for use by being spread round saucers or gallipots, so as to dry before putrefaction commences; used for writing ink, and for a paint, much superior in ease of working to Indian ink, which latter dries so quick, that it is difficult to colour a large pale shadow with it, and when once dry, some part always adheres to the paper, and cannot be removed, whereas sepia may be washed almost clear off.

HUMAN BLOOD. *Sanguis hominis*. Anti-epileptic, dried ℥ss, in powder, in cinnamon water, omni mane.

GOATS BLOOD, DRIED. *Sanguis hirci siccatus*. Sudorific, antipleuritic.

SHEEPS BLOOD.

OX BLOOD. Used instead of eggs to clarify liquids; dried by a gentle heat, regulated by several water-baths placed one within another, so as not to be coagulated, they have been exported for the purpose of clarifying cane juice.

HUMAN URINE. *Urina hominis*. Aperient; used in jaundice, ℥j—ij, omni mane.

ALL FLOWER WATER. *Cows urine*. *Urina vaccæ*. Used as a purge, half a pint drank warm from the cow.

OX GALL. *Fel tauri*. *Fel bovis*. Cosmetic, detergent, used in ear-ache, also as a collyrium, and gtt. xx—xxx in wine as an emmenagogue, and to facilitate labour; used with oil to take off oil paint.

PREPARED OX GALL. The fresh gall is left for a night to settle, the clear fluid poured off, and evaporated in a water-bath to a proper consistence; used by painters in

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water colours to destroy the greasiness of some of their colours, and thus enable them to form an even surface of colour; and also instead of soap to wash greasy cloth.

WHITE-BEAR GALL. *Fel ursi*. Anti-epileptic.

HARES GALL. *Fel leporis*. Used as a collyrium.

GALL OF EELS. *Fel anguillarum*. Used to facilitate labours.

COWS MILK. *Lac vaccinum*. Nutritive, the fattest of those usually employed; boiled with sugar will keep some time.

SKIMMED MILK. Sits easy on the stomach; used as a varnish, and vehicle for painting in distemper.

ASSES MILK. Used in consumption.

GOATS MILK. Used in consumption.

EWES MILK. Thinner than that of the cow; antiphthisic.

MARES MILK. Like goats milk in quality, restorative.

RENNET WHEY. *Serum lactis*. Made by mixing an infusion of rennet with milk, and straining.

BUTTER MILK. *Lac ebutyratum*. By straining churned cream, the butter being left on the strainer, and the butter milk passing.

WOMAN'S MILK. *Lac mulieris*. Are principally composed of sugar of milk dissolved in water; highly nutritive, laxative; popular remedies in atrophy and phthisis.

FRANGIPANE. Prepared by evaporating skimmed milk to dryness, by a gentle heat; used to form artificial milk, when the real cannot be obtained.

STONE-HORSE DUNG. *Fimus equinus*. *Stercus equi non castrati*. Antipleuritic, and of great efficiency in asthma and difficulty of breathing; infused in pennyroyal, or hyssop water, or in white wine, and the strained infusion drank: its effects probably owing to the sulphur that it contains.

COW DUNG. *Fimus vaccæ*. Used as a cataplasm in erysipelatous swellings, being previously mixed with some unctuous matter to prevent its growing hard, and highly commended in the gout; also used in calico printing as a cheap mucilage, in such quantity, that the printers are obliged to keep great numbers of cows to supply this article.

SHEEPS DUNG. Used in dyeing, for the purpose of preparing cotton and linen to receive certain colours, particularly the red of madder and crosswort, which it performs by impregnating the stuffs with an animal mucilage, of which it contains a large quantity, and thus assimilating them to wool or silk.

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ALBUM GRÆCUM. *Stercus canis*. The white excrements emitted by dogs in good health; detergent, also outwardly, with honey, in sore throats.

PIGEONS DUNG. *Stercus columbæ*.

PEACOCKS DUNG. *Stercus pavonis*.

GOOSE DUNG. *Stercus anseris*. Used as poultices to the feet in malignant fevers.

EDIBLE BIRDS NESTS. *Nidi esculenti*. The nest of a species of swallows inhabiting the Indian Archipelago; these nests are formed of a mucous slime secreted in the stomachs of these birds, and flung up for that purpose: they are added to soup, to render it thicker; the feathers sticking to them are then separated by straining.

11. GELATINOUS EXTRACTS.

CARPENTERS' GLUE. *Gluten commune*. Prepared from the skins of animals, their bones, and other offal, by boiling them with water for a long time, skimming off the fat, adding a little alum, and boiling the broth down to a thick jelly, which is then poured out, and, when cold, cut into squares, and dried in the air upon nets; used as a cement.

FISH GLUE. Is made in like manner from various membranous and solid parts of sea fish and cetaceous animals.

SIZE. Is made from skins, in the same manner as glue, but is not boiled down so low, only so far that it is a tremulous jelly when cold. There are two sorts sold in London, namely single and double size, differing in their consistence.

12. ROSINS.

ARNOTTO. *Orleana*. Prepared from the seeds of *bixa orellana*, by steeping them in water for seven or eight days, stirring the liquid, passing it through a sieve, and boiling it, when the colouring matter is scummed off and put up while soft into balls. Three sorts are distinguished in England, *Egg*, *Flag*, and *Spanish*: when dry, the druggists beat it up with whale oil; astringent, discussive, febrifuge, but little used in medicine; chiefly employed as a dyeing drug: boiled in water, it gives a brownish yellow colour; with spirit of wine, it forms a high orange or yellowish red; alkalies render it perfectly soluble in water, and the solution communicates to wool or silk a deep, but not very durable orange dye, which is washed out by soap, and destroyed by exposure to air: much used for colouring cheese.

2. A superior kind is prepared, of a bright shining red, almost equal to carmine, by rubbing the seeds with the hands, previously dipped in oil, till the red pellicles come off, and are reduced into a clear paste, which is scraped off and dried in the shade. De Laet says this is used by the ladies as a paint.

GUM ANIME. *Cancamy. Gummi anime. Cancamum.* The extravasated juice of *hymenæa courbaril*, in dry lumps of various sizes, outwardly white, inwardly yellowish white, somewhat transparent, friable, a resinous taste, sweet scented when burnt, and totally soluble in spirit of wine; cephalic, uterine; dose, in powder, ʒj.

BENJAMIN. *Benzoinum. Assa dulcis. Styracis benzoini balsamum.* The best is obtained by incision from the *styrax benzoin*, and inferior sorts from the *terminalia benzoin* and the *laurus benzoe*; odoriferous, fragrant, of a resinous taste; fat, yet breaking readily between the fingers: the best is yellowish, with white spots in it, resembling blanched almonds: the next is greyish, inclining to a dark brown, and is very sweet scented: the worst is black, full of dross, and having but little scent; balsamic, anti-asthmatic, and used in perfumery and odoriferous fumigations.

JAMAICA-BIRCH ROSIN. *Resina chibou.* Obtained from the *bursera gummifera*; transparent, yellow, glutinous, but dries by time; is excellent for varnishes.

CARANNA. *Gummi Caragna. Tacamahaca Caragna.* The tree which yields it is not well known: the rosin is, when fresh, ductile like pitch, when old, hard, friable, outwardly blackish grey, inwardly pitch-black, of a resinous, viscous, bitterish taste, and when burnt sweet smelling: brought from New Spain in masses, covered with broad leaves; less efficacious than true *tacamahaca* as a resolvent.

2. One kind of caranna has a fetid smell when burnt, and is thought to be the rosin of some sort of *chamerops*.

WEST INDIAN COPAL. *Copal occidentale.* Produced by the *rhus copallinum* of Spanish America; it is hard, transparent, yellowish, in lumps, and of a very weak smell.

EAST INDIA COPAL. *Gum Kikekanumala. Copal orientale.* Which is rarer, is produced by the *elæocarpus copalifera*. They are both used in cephalic fumigations and plaisters, but more commonly in varnishes. Great confusion exists between copal and anime, which are frequently mistaken for one another; but anime is soluble in spirit of

wine, and copal is not. It is even difficult to dissolve copal in oils, but it is soluble in oil of rosemary; ground with camphor, it becomes in a few minutes a tough coherent mass.

MELTED COPAL. Obtained by putting not more than 2 oz. at once of copal into a wire net, suspended in an iron tube placed upright, and surrounded with fire, so that as soon as the copal melts it may drop into a pan of water; a kind of oil separates from it, and the copal becomes soluble in spirit of wine, and still more so if the melting is repeated.

WEST INDIA ELEMI. *Icica. Elemi occidentale.* Obtained, by incision, from the amyris elemifera of South America, is greenish and yellowish white, soft, almost transparent; brought over in longish cakes rolled up in flags, and yielding a sweet odour when burnt.

EAST INDIA ELEMI. *Elemi orientale. Cancame antiquorum?* Obtained from the gardenia elemifera of Ceylon. They are antiseptic, detergent, and used in the composition of ointments.

GUM GUAIAECUM. *Gummi guaiacum. Guaiaci resina.* Obtained, by incision, from the guaiacum officinale, is dry, friable, transparent, rather blackish, of a sharp taste, and rather grateful smell; sometimes mixed with the juice of the manchineel apple, and sometimes common rosin is sold for it; the powder changes to a green by exposure to air and light; it turns blue when mixed with wheat flour, the blue being the finer as the wheat contains more gluten: is tonic, antiscorbutic, diaphoretic, in doses of gr. v to ℥j, in pills or in emulsion, purgative in doses of gr. xv to ℥ij. To discover the addition of manchineel gum, dissolve it in spirit of wine, and add a few drops of sweet spirit of nitre, then dilute with water, the gum guaiacum is precipitated, but the adulteration floats. Gum anime and gum manchineel are, however, used for it in the West Indies.

STICK LAC. *Lacca in ramulis. Lacca in baculis.* Formed by the insects called coccus lacca, on the branches of trees. This sort, in its rough state adhering to the sticks, is of a deep red colour, which it gives out to water, for the purpose of dyeing.

SEED-LAC. *Lacca in granis.* Stick lac broke off the branches, and which has been digested in warm water by the dyers, for the extraction of its colour; is brownish.

SHELL LAC. *Lacca in massis. Lacca in tabulis.* Which has been boiled in water, by which it has been melted, and then poured upon a slab; transparent, lightish red. Calefacient, attenuant, aperitive, diaphoretic, diuretic; used in dentifrices, in varnishes, and to form the basis of the best kinds of sealing-wax.

CEYLON LAC. *Lacca Zeylanica.* Exudes from the croton lacciferum; is in red sticks, purer than that collected by the insects just mentioned; is astringent, and dyes silk red.

WHITE LAC. In grey, opaque, roundish pieces, the size of a pea; taste salt and bitterish, smell none unless rubbed, resembles bees wax, and is secreted by insects like the red lac.

LADANUM. *Labdanum.* Exudes from the cistus Creticus, obtained by lashing the tree with leather straps, to which it adheres and is scraped off.

2. An inferior sort is obtained by boiling the twigs of cistus ladaniferus in water: digestive, tonic, astringent; also used in tooth-ache.

MASTICH. *Mastiche. Resina lentiscina. Pistacia lentisci resina.* Obtained, by incision, from the pistacia lentiscus; tonic, detersive, and chewed to sweeten the breath and fasten the teeth.

BARBARY MASTICH. From the pistacia Atlantica.

BURGUNDY PITCH. *White pitch. Pix Burgundica. Pix alba. Resina abietis humida. Resina alba humida. Pini abietis resina sponte concreta. Pix arida* P. L. since 1809. Obtained, by incision, from the Norway spruce fir, pinus abies, and becomes solid immediately: a vigorous tree will yield in one year 30 or 40 lb of juice: it is melted with water and strained through coarse cloths: it is of a close consistence, rather soft, of a reddish brown colour, and not unpleasant smell: it is very adhesive to the skin, and therefore forms excellent plaisters when they are wanted to remain on for some time; rubefacient, useful in colds, short breath, &c.

COMMON FRANKINCENSE. *Perrosin. Thus femininum. T. vulgare. Olibanum vulgare. Resina abietis sicca. Resina abietis* L. P. since 1809. Exudes from the Norway spruce fir; it differs from Strasburg turpentine in being compact, opaque, and of a deep yellow; and also differs very slightly from Burgundy pitch, but is by no means so adhesive: it yields, by distillation, an oil, substituted for oil of tur-

pentine, but very inferior, and not possessed of the same qualities.

NATIVE ROSIN. *Resina pini nativa.* Exudes from the *pinus sylvestris*, the turpentine drying upon the wound, and forming a white crust over it.

COMMON ROSIN. *Resina pini communis.* Prepared from native pine rosin by melting and straining through a cloth; used indifferently with Burgundy pitch; adheres to the fingers.

GUM JUNIPER. *Gum sandarach. Pounce. Gummi juniperi. Sandaraca.* Yielded by the *thuya articulata*, and not by the *juniperus oxycedrus*, as supposed by Linnæus and his followers; astringent and tonic, used also to prevent ink from sinking in parchment, bad paper, or where they have been scraped, and to make a varnish by dissolving it in spirit of wine, or in oil of turpentine.

DRAGONS BLOOD IN THE TEAR. *Sanguis draconis in lacrymis.* Obtained from the *dracæna draco*, by incision: the purest, used in varnishes and dentifrices; powder a bright red: *cinnabris* of the ancients.

DRAGONS BLOOD IN STICKS. *Sanguis draconis in caninis. Pterocarpis draconis resina.* In small masses, wrapped in leaves, dark red, breaks smooth; powder crimson: also obtained from the red sanders tree.

DRAGONS BLOOD IN BALLS. *Sanguis draconis in globulis.* Obtained by macerating or steaming the fruit of the *calamus draco*; in round masses wrapped up in leaves of reeds, coarse grained; powder brownish red. Are all astringent, especially this last, which contains a portion of tannin.

RED STORAX. *Gum storax. Thus Judæorum. Styraç rubra. Styraçis balsamum. Bals. Styraçis officinalis.* Obtained, by incision, from the *styrax officinale*, and perhaps from the *liquidambra orientalis*; the purest, in tears, but it has lost some of its smell in drying.

COMMON STORAX. *Styraçis calamita.* Has been received in reeds or vessels, and saw-dust added immediately to thicken it; is preferred by the perfumers, as more fragrant: storax is soluble in spirit of wine, but not in oil.

PURIFIED STORAX. *Styraç colata. S. purificata.* The Dublin college orders it to be heated till it softens, and then pressed between heated iron plates; the London college directs it to be dissolved in spirit of wine, and the solution

strained and distilled to a proper consistence: 1lb storax, warmed in bags, and pressed between iron plates, so hot, that they are nearly sufficient to make water hiss, yields two oz. and a half of strained storax. Storax is stimulant and expectorant in doses of gr. x to ʒss.

TACAMAHAC. *Tacamahaca*. Is yielded by the *fagara octandra*; imported in gourds, greenish, soft, smells of lavender, tastes aromatic, is rare; cephalic, nervine, and externally suppurative, astringent; used in fumigations.

AMERICAN TACAMAHAC. *Balsamum Focot*. Is yielded by the *populus balsamifera*; greenish yellow, in tears run into a mass; sweet scented; stomachic.

BALSAM OF TOLU IN JARS. *Red balsam of Peru. Balsamum Tolutanum. B. Peruvianum rubrum*. Brought over in cocoa shells, red, solid, having been dried in the air; nervine, cephalic, anti-asthmatic.

YELLOW GUM. *Gummi flavum N. S. W. Gummi resina acaroidis*. Resin of the *xanthorrhœa hastilis*, or *acarois resinifera*; friable, easily separable into scales by the nails, fracture shining and compact, yellow, pleasant balsamic smell like poplar buds, clots in pounding, and adheres strongly to the mortar, becomes electric by friction; its powder stains the paper in which it is kept of a deep indelible yellow colour, swells up in boiling water like gum kuteera, but is not soluble; dissolves in spirit of wine leaving seven per cent. of an insipid grumous substance, neither soluble nor diffusible in water; antidysenteric, and employed to unite the lips of wounds however large or dangerous; also used to compose a cement: strongly resembles bee bread.

TRUE VARNISH RESIN. Yielded by the *terminalia vernix*; used by the Chinese in varnish.

MANCHINEEL GUM. Yielded by the *hippomane mancinella*. Used instead of *guaiacum*.

CANARIUM GUM. Yielded by *C. balsamiferum*; sweet-scented, used for incense.

CLOVE GUM. Reddish brown, found among cloves.

GUM CHANDRA. *G. chandetros. Gum chamderros*. Obtained from the *valeria Indica*, it resembles amber, and is sometimes found among Sumatra camphire.

SAUL DAMMER. Exuded from the saul tree, *shorea robusta*. Used in India for all the purposes of turpentine, resin, and pitch.

TECAMEZ SANDAL RESIN. Is yielded by the sandal tree of Tecamez.

HOG GUM. Exudes from the hog-gum tree, *rhus metopium*. Is black, very adhesive, so called because the wild hogs when wounded rub themselves against the tree.

RESIN OF TABERNEMONTANA. Is the concreted juice of *T. arcuata*.

MOMBIN ROSIN. The produce of *spondias myrobalanus*.

BURSELA ROSIN. The produce of *B. Orientalis*; is tonic, styptic.

UVARIA GUM. From *U. tripetaloides*, very odoriferous.

AUGIA ROSIN. From *A. Sinensis*; black, used in China for varnish, and medicinally as a purgative.

PERUVIAN MASTICH. From the moly tree, *schinus molle*; white, smelling like fennel and pepper.

COUMIA RESIN. From *amyris ambrosiaca*; used as incense, and in chronic diarrhoea.

TICUNA. From *amyris toxifera*; used to poison weapons for war and hunting.

KINA-KINA RESIN. Yielded by *myrospermum pedicellatum*; used by gouty persons to hold in the hand.

LOVAGE RESIN. *Resina ligustici*. Exuded by Cornish lovage, yellow.

COMMON PITCH. *Stone pitch. Pix sicca. P. atra. P. nivalis. P. arida* P. L. before 1809. Obtained by boiling or distilling tar to the desired consistence; but very frequently an artificial compound is substituted for it: in medicine used only as a resolvent in plaisters.

YELLOW ROSIN. *White rosin. Pix Græca? Colophonia. Terebinthina cocta. Resina alba. R. flava. R. pini oleo volatile deprivatum*. Obtained by boiling or distilling turpentine with water, or by boiling or distilling turpentine per se, and pouring the residuum, while yet fluid, into water, of which it absorbs about 1-8th of its weight; suppurative externally, used in ointments and plaisters.

BROWN ROSIN. *Black rosin. Pix Græca. Colophonium. Resina nigra*. Obtained by boiling or distilling turpentine without water; suppurative externally.

13. RESINOUS EXTRACTS.

ROSIN OF SCAMMONY. *Resina scammonii*.

ROSIN OF JALAP. *Resina jalapæ*. One pound of root yielded one oz. rosin; 10lb yielded 1lb.

ROSIN OF GUAIACUM. *Resina guaiaci*.

ROSIN OF TURBITH. *Resina turpethi*. Eight oz. yielded 3v. Are all obtained by digesting spirit of wine upon the several substances repeatedly, till the last portion is not tinged; distilling off the spirit till but a fourth part remains, and then adding a little cold water, which causes the rosin to settle; this rosin is then washed and dried: they have the qualities of the substances from which they are extracted, but must be given in smaller doses.

EXTRACTUM CINCHONÆ RESINOSUM. Soak 1lb bruised bark in 4lb spirit of wine for four days, and distil off the spirit to a due consistence.

RESINA NUCIS VOMICÆ. Prepared by distilling slowly the tincture of nux vomica in rectified spirit; useful in paralysis, particularly in paraplegia; dose gr. viij, ter die.

ROSIN OF ALOES. *Resina aloes*. Is the insoluble residuum left in making washed aloes.

OPIUM PURIFICATUM, P. D. Digest lbj of sliced opium in ℥xij of proof spirit of wine, and after filtration, distil off the spirit till the mass is reduced to a proper consistence; it is ordered to be kept in two states.

1. *Opium purificatum molle*. Fit for pills.

2. *Opium purificatum durum*. Sufficiently hard to powder.

14. TURPENTINES AND BALSAMS.

BALM OF GILEAD. *Balsamum Gileadense verum*. *B. Judaicum*. *B. de Mecha*. *Opobalsamum*. *Amyridis Gileadensis balsamum*. Of which there are three sorts:

1. That which exudes from incisions made in the amyris Gileadensis, or in the amyris opobalsamum, and is limpid, white, of a very penetrating sweet turpentine smell, and has a sharp bitter astringent taste, very rare; a drop of it, let fall on warm water, spreads over the whole surface, and on the water cooling, again contracts itself.

2. Obtained by boiling the twigs and leaves in water, thin and oily.

3. Obtained by a longer continued decoction, is thicker and less odoriferous; this is the most usual: antiseptic, vulnerary; its fumes are useful against barrenness: used also as a cosmetic, stimulating the skin so as to cause redness

and swelling. Balsam of Canada, scented with essence of lemons, is usually sold for it in England.

CANADA BALSAM. *Balm of Gilead. Resina strobilina*, P. L. *Balsamum Canadense. Terebinthina Canadensis. Pini balsameæ resina liquida*. Contained in vesicles under the bark of the *pinus balsamea*, or balm of Gilead fir, or exudes from its cones, limpid, yellowish, odoriferous, very fine: one of the finest of this class.

BALSAM OF CAPEVI. *Balsamum Copaibæ. Copaiba. Copaiifera officinalis resina liquida*. Flows from the *copaifera officinalis*; is limpid, yellowish, of a sharp bitter taste, aromatic penetrating smell, of a syrupy consistence; when pure, drops of it let fall into water, retain their spherical form, whether they sink or swim; detersive, vulnerary, diuretic, and astringent, may be given to gtt. lx, or more, if the stomach will bear it, in leucorrhœa and gonorrhœa. By taking about gtt. xxx of elixir of vitriol, in a glass of water, twice a day, the stomach may be made to retain gtt. lxx to c of the balsam nocte maneque; it is a good dressing for fresh wounds. Retailers usually mix an equal quantity, or even more, of rape oil with it, and some sell rape oil for it.

HUNGARIAN BALSAM. *Resina strobilina* of the Germans. Exudes from the extremities of the branches of the mountain or Mugho pine; it is also obtained by expression from the cones; highly esteemed in Germany: an essential oil, called *oleum templinum*, or Krumholtz oil, is obtained from it by distillation.

WHITE BALSAM OF PERU. *Natural balsam. Balsamum album. Styraæ alba. Balsamelæon*. Obtained by incision from the *myrospermum peruifera*; liquid, yellowish white, like honey.

STRASBURG TURPENTINE. *Resina abietis* P. L. before 1809. *Oleum abietis. Terebinthina Argentoratensis*. Obtained by piercing the tubercles of the bark of the silver fir, *pinus picea*. A man can collect only four oz. in a day, hence it is three times as dear as common Venice turpentine; clear, but grows yellow when a year old, thin, smells like frankincense, and tastes like citron peel.

CHIO TURPENTINE. *Cyprus turpentine. True Venice turpentine. Resina terebinthi. Terebinthina vera. T. Chia. T. Cypria*. Obtained, by incision, from the turpentine

tree, pistacia terebinthus; white, pellucid, glass-like, with a blueish green cast, and a sharp taste.

COMMON VENICE TURPENTINE. *Resina laricis. Terebinthina Veneta. Pini laricis resina liquida.* Obtained from the larch by boring it nearly through; transparent, pale yellowish, bitter, smells resinous: substitutes are generally sold for all the above in this country.

COMMON TURPENTINE. *Horse turpentine. Resina pini. Terebinthina vulgaris. T. communis.* Obtained from the Scotch fir, by cutting a hollow in the tree to catch the turpentine, and taking off the bark for a space of about eighteen inches above it: 3000 trees in North Carolina are reckoned to keep a man in constant employ for four years, and will yield about 100 or 110 barrels of turpentine: distilled for oil of turpentine in large quantity.

BRIANÇON TURPENTINE. *Terebinthina Brianzonica.* Obtained from the pinus cembro. All the turpentine are stimulant and diuretic; dose ℥j to ʒj in pills, or made into an emulsion with yelk of egg or almonds; used externally, they are vulnerary and suppurative.

BLACK BALSAM OF PERU. *Common balsam of Peru. Myroxyli peruviferi balsamum. Balsamum Peruvianum vulgare. B. Peruanum.* Obtained by boiling the bark and branches in water.

The balsams of Peru all contain benzoic acid, which gives them a very fragrant smell, taste sharp and bitter; are nervine, cephalic, stomachic, anti-asthmatic, externally vulnerary; dose gtt. x to xxx: used also in perfumery.

BALSAMUM POPULI. From the buds of the populus balsamifera, expressed between heated plates, as those of the black poplar yield scarcely any; is buttery, brown, reddish, rather fragrant: 4 oz. of buds yielded ʒij of balsam.

RACKASIRA BALSAMUM. Is transparent, brownish red, thick, drawing in threads, balsamic smell and taste, rather bitter when tasted and glues the lips together.

LIQUID STORAX. *Styrax liquida.* Is obtained by boiling the young shoots of the liquidambar styraciflua in water.

LIQUID AMBER. *Liquidambra. Ambra liquida.* Obtained, by incision, from the liquidambar styraciflua; is resolvent, suppurative, and used in perfumes, as it has the smell of benzoin.

EAST INDIA TACAMAHAC. *Balsamum viride. Oleum Mariae. Balsamum Calaba.* Is yielded by the calophyl-

lum inophyllum; yellowish, becomes thick and green by drying, sweet-scented.

BALSAM OF TOLU IN GOURDS. *Balsamum Tolutanum.*
B. de Tolu. *Toluiferae balsami balsamum.* From the *toluifera* balsamum, which is now supposed to be the same as the *myrospermum peruifera*; a resin of a reddish colour, an agreeable sweetish taste, of a middle consistence between liquid and solid, very glutinous, an excellent smell, and having the fragrance of lemons; anti-phthysical, vulnerary, anti-arthritic, nervine; dose, gr. x—xxx.

BALSAM ACOUCHI. Flows from the *amyris acuchini*; odorous, vulnerary, nervine.

WOORAROO POISON. *Balsam Arouarou.* Flows from the *icica heptaphylla*; smells like citron: used to poison weapons.

BALSAM HOUMIRI. Flows from the *myrodendron houmiri*; red, transparent, balsamic: used for torches.

JAPAN TURPENTINE. Obtained by incision from *rhus vernix*; used in varnishing.

WOOD OIL. A kind of balsam obtained from the trunk of the *dipterocarpus turbinatus*.

SOFT MASTICH. *Mastich oil.* Obtained from mastich trees, which have been grafted upon the turpentine tree; is of the consistence of turpentine.

15. GLUTINOUS MATTERS.

CAOUTCHOUC. *Indian rubber.* *Gummi elasticum.* The concrete juice of *jatropha elastica*; the bark being wounded, a milky juice flows out, which, being spread upon clay moulds, dries very soon in the air, or by being held over torches; in this manner are formed water-proof boots and portmanteaus, as also bottles, of which great numbers are brought to Europe, and used for rubbing out the traces of black-lead pencils, and for syringes: Caoutchouc softens by heat and dissolves in oils, petroleum, and ether; its brown colour is partly derived from the smoke of the torches used in drying it; it is not used as a medicine, but only for varnish, and to make elastic catheters, bougies, and probes.

A very elastic kind of caoutchouc is yielded by the *urceola elastica* of China. A soft kind is yielded by the *ficus Indica*, and other sorts by the jack-tree, and the *castilla elastica*.

BIRD-LIME. *Viscus aucupum.* The best is obtained by

boiling mistletoe berries in water till they break, then pounding them in a mortar, and washing away the branny refuse with fresh water; but it is usually made from the bark of holly stripped in June or July, and boiled in water for six or eight hours, until it becomes tender: the water being then separated carefully from the bark, it is laid in layers with fern, and left to ferment for two or three weeks, until it goes into a kind of mucilage, which is then to be pounded in a mortar into a mass; this mass is well rubbed in the hands in running water, till all the refuse is worked out, and the bird-lime then put into an earthen vessel and left for some days to purge itself: it may also be made from other vegetables; it is discutient externally, and is also used from its adhesive quality to rub over twigs, for the purpose of catching birds or small animals.

The milky juice of *sapium aucuparium* is used as a bird-lime to catch parrots; as is also that of *hippomane biglandulosa*: the seeds of *pittosporum tobira* are surrounded with a resinous bird-lime, and the fruit of *schozolana* is covered with a kind of bird-lime.

GLUTEN OF WHEAT FLOUR. Is obtained by mixing flour with a little water into a stiff paste as for pastry, and then kneading this paste in water until the starch and saccharine matter is washed out. It is of a grey colour, extensible like Indian rubber. The superiority of wheat flour depends upon this substance, which turns blue when mixed with guaiacum.

16. MUCILAGINOUS OILS.

OIL OF SWEET ALMONDS. *Oleum amygdalarum*. *O. amygdalæ*. *O. amygdalæ communis*. Is usually made from bitter almonds for cheapness, or from old Jordan almonds, by heat; the oil from which soon grows rank, while that from fresh Barbary almonds, drawn cold, will keep good for some time. The almonds are sometimes blanched by dipping in boiling water, or by soaking for some hours in cold water, so as to part with their skin easily; but are more usually ground to a paste, which is put into canvass bags, and pressed between iron plates in a screw press, or by means of a wedge: 1 cwt. of bitter almonds unblanched produces 46℔ of oil; the cake pays for pressing.

OIL OF STAR-ANISE SEEDS, BY EXPRESSION. *Oleum anisi stellati*. Is of an agreeable fragraney.

SIMPLE SUBSTANCES.—16. Mucilaginous Oils. 215

GROUND PEA OIL. From the *arachis hypogæa*; eatable, but has a strong taste, keeps and burns well, and makes good soap.

OIL OF BEN. *Oleum de ben.* From the nuts of the *guilandia moringa*; scentless, colourless, keeps long without growing rank, used in perfumery to receive and retain the odour of those vegetables that yield but little essential oil, and thus forms the basis of the best sort of huiles antiques.

CAMELLIA OIL. From the seeds of *camellia oleosa*. Used for the table.

HEMP OIL. *Oleum cannabis.* From hemp-seed; good for frying in, used by the painters as a drying oil.

NETTLE-TREE OIL. From the seeds of *celtis australis*. Excellent for the lamp.

CORNEL OIL. From the seeds of *cornus mascula* and *c. sanguinea*. Answers for lamps, but not for the table.

OIL OF COMMON PHYSIC-NUT. *Oleum cicutum.* *O. jatrophæ curcadi.* Used as castor oil for a purge.

NUT OIL. *Oleum nucum coryli.* From the kernel of the hazel nut, very fine; substituted for oil of ben: as it will keep better than that of almonds, it has been proposed to be substituted for that oil in the college lists, being nearly equal to it; is drank with tea in China, probably in lieu of cream; used by painters as a superior vehicle for their colours.

BEECH MAST OIL. *Oleum fagi.* Very clear, keeps well, and is a very good salad oil, is used in Silesia in lieu of butter.

BUCK-WHEAT OIL. From the seeds of buck-wheat, or *fagopyrum*.

HEMP-NETTLE OIL. From the seeds of *galeopsis tetrahit.* Yielded very plentifully.

GINGKO OIL. From the seeds of *gingko biloba*. Used for the table.

SUN-FLOWER SEED OIL. From the seeds of *helianthus annuus*: they yield well, and are recommended for cultivation; perhaps the Jerusalem artichoke would answer better, as both the root and seed would be saleable.

WALNUT OIL. *Oleum nucum juglandis.* Makes good plaisters, will not keep; used by painters, is very drying: they yield about half their weight of oil.

216 SIMPLE SUBSTANCES.—16. Mucilaginous Oils.

EXPRESSED OIL OF BAYS. From bay-berries; very fluid, insipid.

COLD-DRAWN LINT-SEED OIL. *Oleum lini sine igne. O. lini usitatissimi.* Viscous, bitter; makes but a soft soap; used in lamps, but chiefly in painting, is very drying, dissolves 1-4th of litharge, and forms with it a kind of transparent varnish.

OIL OF MACE IN JARS. *Oleum macis in ollis.* Obtained from nutmegs by the press; buttery, having the smell and colour of mace, but grows paler and harder by age: 2lb nutmegs in Europe yielded six oz. of this oil.

TRUE OIL OF MACE BY EXPRESSION. *Oleum macis expressum verum.* Red, remains always liquid or soft, has a strong smell of mace, subacid taste, imported in jars or bottles, the lower part being rather thicker than the top: 1lb and a half of mace yielded in Europe, 3jss of oil.

MADI OIL. From the seeds of *madia sativa*; very fine.

OLIVE OIL. *Salad oil. Sweet oil. Oleum. O. olivarum. O. olivæ. O. fixum fructus olivæ Europææ.* The most agreeable of the oils; demulcent, emollient, gently laxative, also used as an emetic with warm water, dose ʒj, or coch. maj. j; externally, when warm, to the bites of serpents, and cold to tumours and dropsies; rank oil is best for plaisters; but fresh oil makes the best hard soap.

2. *Sallet oil. Droppings of sweet oil.* Used for oiling iron-work.

OIL OF POPPY SEEDS. *Poppy oil. Oleum papaveris.* Used as a salad oil; is not narcotic, as has been supposed; keeps well, is drying, does not burn well, and smokes very much, makes a soft soap, but very good plaisters.

OIL OF STONE-PINE KERNELS. *Oleum nucis pini.* Grows rank very soon: 16lb of kernels yield 5lb of oil.

APRICOCK OIL. *Huile de marmotte.* Agreeable to the taste, used for that of almonds.

ARGAN OIL. From the seeds of *rhamnus Siculus*: sold for olive oil.

CASTOR OIL. *Oleum de kerva. O. kervinum. O. palmæ liquidum. O. ricini.* Commonly distinguished into the foreign oil, imported either from the West Indies, where it is obtained by decoction with water: 10lb of seeds yield 1lb of oil. 2. Or from the East Indies, where it is obtained by grinding in a mortar, with a hole in the side for the supernatant oil to run off, being in common use there

for lamp oil. 3. That made at home by the press, which is the best, especially some that is prepared from cold blanched seeds, with the eye taken out. Some chemists are said to take out the colour from the foreign oils, by certain additions, and sell them for English, or as it is called, cold drawn castor oil. The virosity communicated to the oil by the eyes of the seeds, may be got rid of by washing the oil with boiling water, or with weak spirit of vitriol, but it is seldom done in this country. It is soluble in warm spirit of wine, and its adulteration may thus be discovered if thought necessary: but as all the fat oils have nearly similar qualities, the taste is sufficient for practical purposes: purgative, in doses of ℥ss to ℥jss, floated on some distilled water or on wine, or, if it does not usually stay well on the stomach, on some tincture of senna; or made into an emulsion with yelk of egg, and a little distilled water, with gtt. xx of lavender drops, and a teaspoonful of simple syrop: it may also be used in clysters: is particularly useful where a stimulant would be hurtful, as it operates quickly without disturbing the system: externally in swelling, pains. Contrary to most medicines, on frequent repetition a less dose is sufficient.

RAPE OIL. *Oleum rapæ.* Is made from rape seed, dries slowly, makes but a softish soap, fit for ointments, but does not make good plaisters: the mucilage it contains may be got rid of in great measure, by adding half an oz. of oil of vitriol to two pints of the oil.

GINGELLY OIL. *Oleum sesami verum.* From the seeds of the sesamum orientale; used for food, and in painting.

OIL OF SESAMUM. *Oleum scsami commune.* From the seeds of gold of pleasure, myagrum sativum; used for burning in lamps and in ointments, &c.

MUSTARD OIL. *Oleum sinapeos.* From the hulls of black mustard, after the flour has been sifted from them: resembles rape oil, and sold for it.

OLEUM SINAPEOS, per expressionem validiorem. Obtained from mustard seed, after the common mild oil has been procured; is acrid, and recommended by Dr. Ruttly in rheumatism.

KUTEERA OIL. From the seeds of sterculia platanifolia.

TEA-SEED OIL. From the seeds of thea oleosa, very limpid.

HUTSELLA OIL. From the seeds of verbesina sativa, very fine.

218 SIMPLE SUBSTANCES.—16. Mucilaginous Oils.

OIL OF VERNICIA MONTANA. Yellow, used as a varnish, is extracted from the kernels.

17. VEGETABLE BUTTERS.

BOILED OIL OF BAYS. *Oleum laurinum verum. O. fixum lauri nobilis.* From bayberries, by pounding them into a mass, boiling it in water for some hours, and when the water is cold, skimming off the oil, which is thick like butter, and green.

BUTTER OF LAURUS GLAUCA. Used for candles, obtained by expression.

MYRTLE OIL. *Myrteum.* From the myrtle berries; concrete, odoriferous, astringent.

MAVA BUTTER. Expressed from *bassia butyracea.*

PALM OIL. *Mackaw fat. Oleum palmæ. O. palmæ sebaceum. O. fixum nucum cocos butyraceæ.* Yellow, butyraceous, sweet scented, used for food, and in emulsions as a demulcent; externally it is peculiarly emollient, and well adapted for ointments.

OIL OF MACE IN CAKES. *Banda soap. Oleum macis in massis.* Is cut out of the jars of oil of mace when it is discoloured and grown solid by age.

AFRICAN BUTTER, of which there are two sorts, obtained from different nuts not well known.

BUTTER OF CACAO. *Oleum cacao.* Obtained from the kernels of the chocolate nut; that by expression is liquid, but by boiling is concrete, and keeps well; used for food: yields about 1-8th of oil by expression, or 1-4th by boiling.

AMERICAN GREEN WAX. *Cera viridis.* Obtained from the candleberry myrtles by boiling the berries in water, they yield 1-4th of their weight of wax; used to make sweet-scented candles, and also for the darker ointments and plasters, instead of bees wax.

VEGETABLE TALLOW. Obtained from the seeds of the tallow tree, *croton sebiferum*, and from the Bencoolen nuts of the *c. moluccanum*, is concrete, and used for candles.

GUY-AMADOU. A concrete oil, like tallow, extracted from the fruits of the *virola sebifera* or *myristica sebifera*; used to make odoriferous candles.

OIL OF FABA PICHURIM. White, butter-like, smelling like sassafras, becomes yellowish and tallowy by age: 1^{lb} yields about one oz. and a half of oil.

18. ESSENTIAL OILS.

All these oils, unless otherwise expressed, are obtained by distillation, with a sufficient quantity of water to prevent the articles from adhering to the still and the oil and water acquiring a burnt taste; they are all stimulant, in doses of gtt. ij to x upon sugar.

DISTILLED OIL OF WORMWOOD. *Oleum essentielle absinthii*. From the herb; stomachic: 25lb of green wormwood yielded from 6 to 10 drachms of oil; 4lb of dry yielded an oz. and 18lb only ℥jss.

OIL OF ANISE SEEDS. *Oleum anisi*. *O. volatile pimpinellæ anisi*. From the seeds; is congealed, except in warm weather; carminative; poisonous to pigeons, if rubbed on their bill or head: 1lb yielded ℥ij.

OIL OF STAR ANISE SEEDS. *Oleum anisi stellati*. From the capsules; liquid, very fragrant, has the scent of anise.

ESSENCE OF NEROLI. *Oleum florum aurantiorum*. From the flowers of the orange tree: 6 cwt. of flowers yield only 1 oz. of oil.

2. From orange peel; very fragrant.

3. From unripe oranges; gold colour.

ESSENCE OF BERGAMOTTE. *Oleum limonis Bergamottæ*. From the peels of the Bergamot lemon; very fragrant.

OLEUM STILLATITIUM RADICIS CARLINÆ. From the root of the carline thistle; is fragrant, sinks in water.

CAJEPUT OIL. *Oleum cajuputi*. *O. volatile melaleucæ leucadendri*. From the leaves; imported from the East Indies, generally in large copper flasks; is cooler than that of peppermint but smells of turpentine; stimulant, antispasmodic, gtt. iij—v, on sugar, and externally in rheumatism.

OIL OF CARUI. *Oleum carui*. From the seeds; carminative: 2lb yielded more than 1 oz., and 1 cwt. only 83 oz.

DISTILLED OIL OF CACAO. From the chocolate nut; thick, reddish, rather buttery.

OIL OF CLOVES. *Oleum caryophyllorum aromaticorum*. *O. caryophylli*. From that spice, is very heavy, acrimonious; supposed to contain some part of the rosin of the clove: 1lb cloves yielded from ℥jss to ℥ijss: 7lb and a half yielded 1lb of oil.

2. Expressed from the cloves when ripe.

3. Muller, by digesting ʒfs of cloves in ether, and then mixing it with water, obtained ℥vij of oil, greenish yellow, swimming upon water.

Oil of cloves is imported from the Spice islands, is stimulant, and added to purgative pills to prevent griping; externally applied to aching teeth.

OIL OF CASSIA. *Common oil of cinnamon. Oleum cassia.* From the bark of inferior cinnamon, imported under the name of cassia: 1lb yields from ʒj to ʒjfs: stimulant, stomachic.

2. From cassia buds.

DISTILLED OIL OF CAMOMILE. *Oleum essentielle chamamelii. O. anthemidis.* From the flowers; stomachic: 1lb yielded a drachm, 82lb yielded ʒxiiij, and at another time ʒxviiij: it is of a fine blue, even if distilled in glass vessels.

OIL OF CINNAMON. *Oleum cinnamomi.* From the fresh bark: imported from Ceylon.

De Guignes says the cinnamon of Cochin China is so full of essential oil, that it may be pressed out by the fingers.

ESSENCE DE CEDRAT. *Essentia citri.* From the flowers of the citron tree; amber coloured, slightly fragrant: 60lb yield 1 oz.

2. From the yellow part of citron peel; colourless, very thin, and fragrant.

3. The second oil obtained by the distillation of the yellow part of citron peel; greenish: 100 citrons yield 1 oz. of the white essence, and half an oz. of this.

4. From the yellow part of citron peel by expression between two glass plates.

5. From citron peel by expression; very fragrant, but does not keep so well as the distilled oil.

6. From the cake left on squeezing citron peel, by distillation with water; thick.

7. *Common essence of cedrat.* From the fæces left in the casks of citron juice; clear, fragrant, greenish: 50lb of fæces yield, by distillation, 3lb of essence.

OLEUM FENICULI. From sweet fennel seeds; carminative: 1 bushel yielded 18 oz.

ESSENCE OF JASMINE. *Essentia jasmini.* From the flowers not picked from their cups: yielded in very small quantity, highly fragrant.

OLEUM JUNIPERI. *O. baccarum juniperi communis.*

SIMPLE SUBSTANCES.—18. Essential Oils. 221

From the berries; diuretic: 1℔ yielded ʒij, and 48℔ yielded 6 oz.

ESSENCE OF LAVENDER. *English oil of lavender. Oleum lavandulæ. O. lavandulæ spicæ.* From the flowers of narrow-leaved lavender.

FOREIGN OIL OF LAVENDER. *True oil of spike. Oleum spicæ verum.* From the flowers and seeds of broad-leaved lavender, and more commonly those of French lavender, stœchas, with a quick fire: sweet scented, but the oil of the narrow-leaved lavender, or English oil, is far the finest.

TRUE RIGA BALSAM. *Baume de Carpathes. Balsamum Libani.* From the shoots of the Apherousli pine, pinus cembra, previously bruised and macerated for a month in water; pellucid, very liquid, whitish, smell and taste of oil of juniper; vulnerary, diuretic.

ESSENCE OF LEMONS. *Essentia limonum. Oleum essentielle epidermidis fructus limonis. O. volatile citri Medicæ corticis fructus.* From the fresh peels of lemons; limpid, watery, fragrant.

DISTILLED OIL OF MACE. *Oleum macis stillatitium.* From that spice: liquid, pale citron, smelling of the mace.

OIL OF PEPPERMINT. *Oleum menthæ piperitæ. O. herbæ menthæ piperit. floresentis.* From the dried plant: 4℔ of the fresh herb yielded ʒij; in general it requires rectification to render it bright and fine; stimulant, carminative,

OIL OF MINT. *Oleum menthæ viridis. O. menthæ sativæ.* From the dried plant: 6℔ of fresh leaves yielded ʒijss, and 4℔ dried yielded 1 oz. and a half; stimulant, carminative, antispasmodic.

ESSENCE OF MYRTLE. *Oleum essentielle myrti.* From the flowers and leaves, fragrant.

DISTILLED OIL OF NUTMEGS. *Oleum nucis moschatæ stillatitium.* From that spice: liquid, pale yellow; a sebaceous insipid matter swims upon the water in the still.

OIL OF THYME. *Oleum origani.* From the plant: 2 cwt. fresh yielded 5 oz. and a half, 3½℔ dried yielded ʒjss; stimulant, caustic, used in tooth-ache applied to the tooth, and by the ferriers.

OIL OF PIMENTO. *Oleum pimentæ. O. fructus myrti pimentæ.* From allspice; stimulant: 1 oz. yielded gtt. xxx.

OLEUM PIMPINELLÆ. From the roots of pimpernell; blue.

OIL OF PENNY ROYAL. *Oleum pulegii*. From the herb when in flower: 13lb yielded ʒvj; emmenagogue.

OIL OF RAVENTSARA. *Oleum raventsaræ*. From the leaves; resembles that of cloves, for which it is sold in Europe.

OIL OF RHODIUM. *Oleum e ligno rhodii*. From the true lignum rhodium; genista Canariensis? 80lb yielded ʒix; and in another parcel of very resinous old wood, 80lb yielded 2 oz.; light, yellowish, but by keeping grows red.

2. From the root of rosewort, rhodiola rosea; yellowish, having the smell and taste of that from the true lignum rhodium: 1lb yielded ʒj.

BUTTER OF ROSES. *Adeps rosarum*. From the flowers of damask roses, white, solid, separating slowly from the rose water: having but little scent of its own, it is used to dilute the scent of musk, civet, and ambergrise: 1 cwt. of roses yielded from half an oz. to an oz.

ATTAR OF ROSES. Imported from the East and the Barbary coast, where it is obtained from the evergreen rose and the musk rose; the newly distilled rose water being exposed to the cool night air.

OIL OF ROSE MARY. *Oleum rosmarini*. *O. summitatum floresentium rosmarini officinalis*. From the flowering tops; sweet-scented: 1 cwt. yielded 8 oz.; 1lb of dry leaves yielded from ʒj to ʒiij; 70lb of fresh leaves yielded 5 oz. It affords a good specimen of the sesquipedalian names of the Edinburgh college.

DISTILLED OIL OF RUE. *Oleum rutæ*. From the dried plant; carminative, antispasmodic: 10lb of leaves yielded ʒij to ʒiij; 4lb in flower yielded ʒj; 60lb yielded 2 oz. and a half; 72lb, with the seeds, yielded 3 oz.

OIL OF SAVINE. *Oleum sabinæ*. From the dried plant; stimulant, powerfully emmenagogue; externally rubefacient.

OIL OF SASSAFRAS. *Oleum sassafras*. *O. rad. lauri sassafras*. From the root of sassafras: 24lb yielded 9 oz.; 30lb yielded 7 oz. ʒj; and 6lb yielded 2 oz.

19. CAMPHIRE.

JAPAN CAMPHIRE. *China Camphire*. *Camphora*. Obtained from the roots and shoots of the laurus camphora and laurus cinnamomum, as also the capura curundu, by distillation with water, and distinguished in trade by the place from which it is imported, into East India and China cam-

phor: this crude camphire is refined by sublimation with one sixteenth its weight of lime, in a very gentle heat.

SUMATRA CAMPHIRE. *Borneo camphire.* Is obtained by merely splitting a large tree not belonging to the genus *laurus*, being the *dryobalanus camphora* of Forster; the heart of this tree containing camphire mixed with essential oil in lumps the thickness of a man's arm, 12 or 14 inches apart; a middling tree contains 11lb; a large one, double that quantity. Camphire is stimulant, narcotic, and diaphoretic, gr. v to ℥j, in pills or a bolus; small doses frequently repeated being most stimulant, and a full dose at once most sedative; too large a dose occasions vomiting and convulsions, to be counteracted by the exhibition of opium: it may also be given suspended in liquids, by means of mucilage, yolk of egg, or almonds. Camphire is put into drawers or boxes to keep insects from them, and is used in fireworks: combined with drastic purgatives, it moderates their acrimony, and it augments the efficacy of the Peruvian bark, whether employed to cure fever or gangrenes.

SOUTH AMERICAN CAMPHIRE. *Brazil camphire.* In tears, from the caratte.

LIQUID CAMPHIRE. *Oleum camphoræ.* From the same tree as the Sumatra camphire.

CAMPHIRE FROM ESSENTIAL OILS. Obtained from the oils of the labiate plants, by a careful distillation, without addition, of one third of the oil; the residuum will be found to contain crystals of camphire, on separating which, and redistilling the remaining oil two or three times, the whole of the camphire may be obtained: oil of rosemary or of sweet marjoram yields about 1 oz. of camphire from 10 of the oil; of sage 1 oz. from 8; and of lavender 1 oz. from 4, or even less of oil: it seems to differ from that of the camphire of the laurel, as that from oil of thyme is in cubical crystals, does not form a liquid solution either with nitric or sulphuric acid, and is precipitated from nitric acid in a glutinous mass: that from oil of marjoram is not volatile, and although it takes fire it soon goes out. This rosin, like the others from essential oils, may be obtained in a larger proportion if the oil is kept in slightly stopped bottles in a cool place.

ARTIFICIAL CAMPHIRE. Obtained from oil of turpentine, by passing the muriatic acid gas disengaged from an equal weight of common salt by means of oil of vitriol

through it, when about one half of the oil will be changed into camphire, which however differs from the common, in that it is not dissolved by aquafortis, and when dissolved by strong spirit of nitre, it is not separated by the addition of water.

20. DISTILLED OILS.

OIL OF TURPENTINE. *Turps. Common oil of spike. Oleum terebinthinæ. O. spicæ vulgare.* Distilled from common turpentine, in Europe with the addition of about six times as much water; but in America, where the operation is carried on upon a very large scale, no water is added, and its accidental presence is even dreaded, lest it should produce a disruption of the stilling apparatus.

SPIRIT OF TURPENTINE. *Rectified oil of turpentine. Oleum terebinthinæ æthereum. O. volatile pini purissimum.* From oil of turpentine, by a fresh distillation with a gentle heat, either with or without water, by which, however, it is very little improved; vermifuge, ℥j to ℥jfs.

KRUMHOLZ OIL. *Oleum templinum.* By distillation from Hungarian balsam: distinguished from oil of turpentine, which is commonly sold for it, by its golden colour, agreeable odour, and acrid oiliness of taste.

BALSAM OF TURPENTINE. *Dutch drops. Balsamum terebinthinæ.* Obtained by distilling oil of turpentine in a glass retort, till a red balsam is left.

2. By distilling rosin, and separating the oils as they come over; first a white oil, then yellow, lastly a thick red oil, which is the balsam; stimulant, diuretic.

TAR. *Cedria. Pix liquida.* From old trees of the Scotch fir, by distillation in a coarse manner: the heat produced by the combustion of one part of the pile being managed so as to carry on the distillation of the other part. The coarsest of these oils. Same qualities as the other terebinthaceous oils.

OIL OF TAR. *Jeran? Oleum pini. O. tædæ.* Obtained by distilling tar: highly valued by painters, varnishers, &c. on account of its drying qualities; it soon thickens of itself, almost to a balsam: the acid spirit that comes over with it, is useful for many purposes where an acid is wanted.

OIL OF BRICKS. *Oleum lateritium.* From olive oil,

mixed with brick-dust or sand, and distilled; very resolvent, useful in palsy and gout.

BUTTER OF WAX. *Oleum cereæ.* From wax by distillation; emollient.

OIL OF BOX. *Oleum buxi.* From box wood, by distillation, without addition; resolvent.

BIRCH OIL. *Oleum betulæ.* Obtained by distilling twenty parts of birch bark, and one of ledum palustre, crammed in layers into an earthen pot, with a handful of tripoli between each layer; the mouth of the pot is closed with a perforated oak plug, and being inverted, it is luted to the mouth of another pot sunk in the ground: the upper pot being then surrounded with fire, a brown empyreumatic oil distils per descensum into the lower jar: an eight gallon pot, properly filled, yields about 2lb or 2lb and a half of oil. In Siberia it is prepared without the ledum. This oil is liquid when fresh, but grows thick in time; used in Russia for currying leather, to which it gives a very peculiar smell, much disliked by insects.

OIL OF GUM BENJAMIN. *Oleum benzoini.* Obtained by distilling the residuum left after making flowers of benjamin, by a strong fire; used instead of birch oil, in making an imitation of Russia leather.

DIPPEL'S OIL. *Animal oil. Rectified oil of hartshorn. Oleum Dippelii. O. animale. O. cornu cervi rectificatum.* From hartshorn, distilled without addition, rectifying the oil, either by a slow distillation, in a retort, &c. no bigger than is necessary, and saving only the first portion that comes over, or with water, in a common still: very fine and thin, and must be kept in an opaque vessel, or in a drawer or dark place, as it is quickly discoloured by light; antispasmodic, anodyne, diaphoretic, gtt. x—xxx in water; externally stimulant.

21. ANIMAL OILS AND FATS.

GOOSE GREASE. *Adeps anseris.* From roasted geese; esteemed highly emollient, and used in clysters.

THE FAT OF EELS. *Adeps anguillæ.* Collected from eels while roasting; used to preserve steel from rusting.

CAPONS GREASE. *Adeps gallinæ caponis.* Emollient, more so than hog's lard, but less than goose grease.

HUMAN FAT. *Adeps hominis.* The most emollient of any kind of fat; used in the Russian hospitals.

HARES FAT. *Adeps leporis*. When old, used as a suppurative.

PIKES FAT. *Axungia lucii*. Used to anoint the soles of the feet and chests of children in coughs and colds.

BADGERS FAT. *Adeps melis*. More solid than hog's lard, and more efficacious.

VIPERS FAT. *Pinguedo viperæ*. *Axungia viperina*. Used in eye ointments, and to anoint the back in consumptions.

BEARS GREASE. *Pinguedo ursi*. Emollient, discutient, and much used to make the hair grow.

HOGS LARD. *Barrows grease*. *Axunge*. *Axungia*. *Adeps suilla præparata*. *A. præparata*. Obtained, like the rest of the animal fats, from the raw lard, by chopping it fine, or rather rolling it out to break the cells in which the fat is lodged, and then melting the fat in a water bath, or other gentle heat, and straining it while warm: some boil them in water, but the fats thus obtained are apt to grow rank much sooner than when melted by themselves; emollient in ointments and poultices.

MUTTON SUET RENDERED DOWN. *Sevum ovillum curatum*. *S. præparatum*.

BEEF SUET RENDERED DOWN. *Sevum bovinum curatum*. *S. vaccinum curatum*. Enumerated separately in the old lists of the materia medica of the London Pharmacopœias, until 1745. *S. præparatum*.

GOATS SUET. *Sevum hircinum*.

STAGS MARROW. *Medulla cervina*.

BEEF MARROW. *Medulla bovina*. Are all emollient.

DEERS SUET. *Sevum cervinum*. Used by the gilders: a small quantity is put by them into their *gold size*.

YELK OF WOOL. *Æsypus*. Obtained by washing raw wool in warm water.

NEATS FOOT OIL. *Nerve oil*. *Trotter oil*. *Oleum nervinum*. Obtained by boiling neat's feet, tripe, &c. in water: a coarse animal oil, very emollient, much used to soften leather, and keep it in that state.

GUACHARO OIL. Obtained from the peritoneum, &c. of the guacharo bird; half liquid, transparent, scentless, and may be kept a year without becoming rank: used in cookery.

CAROLINA PIGEON OIL. Obtained from Carolina pigeons in large quantities.

SIMPLE SUBSTANCES.—21. Animal Oils, &c. 227

SPERMACETI. *Cetaceum*. Obtained from train oil by filtration or long standing; pectoral internally, ℥ss to ℥jss with sugar, or made into an emulsion; emollient externally.

THRAN OIL. *Train oil. Oleum cetaceum*. A coarse oil, of an ill smell; used as food by the northern nations, but only for lamp oil in the south; distinguished by the shops into whale oil, seal oil, liver oil, refined spermaceti oil: many methods have been tried to get rid of its smell: the spermaceti contained in it is separated by repeated filtration, or by long standing, and the oil itself is purified by stirring it with lime-water, or a weak ley of potash.

FRESH BUTTER. *Butyrum insulsum*. Obtained from cream by agitating it; emollient, used in ointments.

CLARIFIED BUTTER. *Butyrum purificatum*. Made by melting fresh butter in a gentle heat, letting it settle, and pouring off the clear.

OIL OF YELKS OF EGGS. *Oleum e vitellis ovorum*. Obtained by boiling eggs, so that the yolks may be hard, separating the whites, roasting the yolks, first broken in two or three pieces each, in a frying pan over the fire till the oil begins to exude out of them, and then pressing them with great force; very emollient; fifty eggs yield about five oz. of oil. Old eggs yield the greatest quantity. Morelot advises to dilute the raw yolks with a large proportion of water, and to add spirit of wine in order to separate the albumen, after which, the oil will rise up to the top by standing some time, and thus may be separated by a funnel.

22. BEES WAX.

BEES WAX. *Cera flava*. Deposited by bees in their hives, forming the partitions of the cells in which they store their honey: obtained from the honey-comb, by melting it: demulcent, used in diarrhœa and dysentery, made into an emulsion by first melting it with olive oil, and triturating it with the yolk of an egg, adding by degrees some mucilaginous liquid, ℥j, ter quaterve in die. Adulterated with tallow coloured with turmeric: the fracture and taste are the marks by which druggists judge of it.

CERA FLAVA PURIFICATA. Common bees wax is melted, scummed, and let to settle; the upper part is then only used.

VIRGINS WAX. *Cera alba in officis*. Obtained from bees wax, by exposing it in thin flakes to the action of the sun,

wind, and rain; frequently changing the surface thus exposed, by remelting it and reducing it again to thin flakes; used in making candles, and in white ointments, for the sake of its colour: it is kept in the shops in round cakes.

BLACK WHITE WAX. *Cera alba in massis.* Is rather cheaper than that in offis.

BEE BREAD. *Propolis.* Collected or formed by bees, for the purpose of covering the bottom of the hive, and every thing in their way which is too heavy to be removed by them; it is a mixture of rosin with wax; fume anti-asthmatic.

23. ANIMAL RESINS.

AMBERGRIS. *Ambra grisea.* Found in the sea and in the intestines of the spermaceti whale, *physeter macrocephalus*, mixed with the beaks of the cuttle fish; appears to be the excrement of the animal when in a morbid state, though some still suppose it to be a fossil substance, oozing out into the sea, where, swimming about, it is sometimes swallowed by that whale; aphrodisiac, gr. ij—x, triturated with sugar in wine; principally used in perfumery, when diluted with spirit of wine. Adulterated, or even supplied by mixtures of musk, civet, aloes wood, storax, dried blood, and the like; but these never have the true smell: it is nearly totally soluble in warm spirit of wine, although the paleness of the solution, and the apparent bulk of the residue, would induce an unwary person to suppose it was not at all dissolved.

BLACK AMBER. *Ambra nigra.* Is of a darker colour than the ambra grisea, but in other respects the same.

MUSK. *Moschus in granis.* Secreted by the moschus moschiferus, or musk deer; stimulant, antispasmodic, gr. ij—℥ss, horis tertiis vel quaternis, in a bolus. Adulterated with dried blood, and supplied by a substance obtained by mixing oil of amber with aquafortis. The true musk is much used in perfumery, having the strongest smell of any natural substance hitherto known, and, when used in a very small quantity, augmenting the smell of other substances without imparting its own.

CASTOR. *Castoreum.* Of which there are two sorts, Russian and New England; secreted by the beaver, in bags near the rectum: the best is orange brown, bitter, acrid,

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with a peculiar strong and unpleasant smell; antispasmodic, perhaps emmenagogue, gr. x to ℥j, in a bolus.

CIVET. *Zibethum*. Secreted by the civet cat, in follicles near the anus. Like musk, its smell is unpleasant unless diluted. Adulterated with ox gall, storax, and honey. Antispasmodic, but scarcely ever used alone internally; used in perfumery to augment the smell of other odoriferous substances.

RAW SILK. *Sericum*. Secreted by the phalena bombyx, for its security while in the state of a pupa or grub; cordial, restorative, in powder.

COB WEB. *Tela araneorum*. Secreted by spiders to form their nets; externally styptic, internally febrifuge; used in quartan agues, dose gr. x; the cobwebs of the different kinds of spiders appear, however, to differ in their effects.

CHEESE. *Caseus*. Separated from milk by the addition of rennet and subsequent straining; for the purpose of keeping, it is generally salted and pressed. There are many varieties of it arising from the addition of cream to the milk, or its subtraction from the milk, the separation of the whey with or without compression, the salting of the curd, the breaking of the curd or not, before pressure, the making with pressure or without, the colouring with saffron or annatto, the keeping, &c.

24. MINERAL OILS.

Distinguished from vegetable oils by their miscibility with or solubility in naphtha.

NAPHTHA. *Oleum petrae album*. Pale yellow, fine, thin, very inflammable.

OIL OF PETRE. *Rock oil. Petroleum. Oleum petrae.* Red or brown.

BARBADOES TAR. *Pissoleon Indicum. Petroleum Barbadoense. Bitumen. Petroleum.* Dark, very thick, semi-liquid.

ASPHALTUM. Pitch black, hard, strong-scented; used in varnishes.

AMBER. *Succinum. Carabe.* The whitest is preferred for medical use; balsamic, in powder, ℥j to ʒj, in gonorrhœa and the whites: the transparent kinds are used in jewellery, and the coarser are distilled for oil of amber. A resin from Muschat, in Arabia, is often cut into beads, and sold for amber.

COLOGNE EARTH. *Umber. Terra Coloniensis.* Black, or blackish brown, mixed with brownish red, fine grained, earthy, smooth to the touch, becomes polished by scraping, very light, burns with a disagreeable smell: found near Cologne; used in painting, both in water colours and in oil; used also in Holland, to render snuff fine and smooth: very different from the brown ochre, which is also called Umber, and is not combustible.

OIL OF AMBER. *Oleum succini.* Distilled from coarse pieces of amber, which are not fit for jewellery, and rectified by another distillation in a small retort; stimulant, antispasmodic; externally discutient, rubefacient, used in rheumatism, hooping-cough, and paralytic limbs.

OLEUM PETROLEI BARBADENSIS. Distilled from Barbadoes tar, by the retort, in a sand heat. Blue, when viewed with the back to the light, and orange when placed between the eye and the light.

COAL TAR. Distilled from fossil coals; used as a coarse cheap varnish, and, when rectified by a fresh distillation with water, sold for oil of amber.

ARTIFICIAL MUSK. *Moschus factitius.* Rectified oil of amber one part, nitric acid four parts; digest, a black matter is deposited, to be well washed in water; smell similar to that of musk or ambergris, and may be used for them in medicine.

25. ÆTHER.

ETHER. *Æther sulphuricus. Æther rectificatus. Naphtha vini.* Obtained by mixing gradually equal weights of spirit of wine and oil of vitriol, and as soon as the mixture is completed, placing the retort in a sand bath, previously heated to 200 deg. so that the liquor may boil as soon as possible, continuing the distillation until a heavier liquor begins to appear under the ether in the receiver, adding to every 14 oz. meas. of the ether thus obtained, half an oz. of pure potash, dissolved in 2 oz. of distilled water, and distilling, by a very gentle heat, 12 oz. meas. of rectified ether. If half the former quantity of spirit of wine is added to the residue left in the retort in the first distillation, more ether may be obtained, which may be rectified as the first portion: stimulant, antispasmodic, gtt. xx—3jfs, in water or wine; externally refrigerant, used in head-ache, and in burns, and dropped into the ear in ear-ache.

NITROUS ETHER. *Æther nitrosus.* Obtained by putting ʒxxiv of nitre into a retort, placed in a pan of cold

water, and pouring upon it, by degrees, a mixture of ℥xij of oil of vitriol with ℥xix by measure of spirit of wine, which had been made gradually and grown cold, and letting the vapour, the evolution of which must be regulated with great caution by the addition of warm or cold water to that in the pan, pass through a pint of spirit of wine: to the ethereal liquor thus obtained, add q. s. of dried salt of tartar, about ℥j is generally sufficient, to neutralize the acid, upon which the ether will in a short time separate and swim on the surface: if it be required very pure, it may be rectified to one half, by distillation in a water bath, at about 140 deg. Fahr.; scarcely ever used, probably stimulant, &c. as common ether.

OIL OF WINE. *Oleum vini.* Is formed by mixing equal measures of spirit of wine and oil of vitriol, and distilling by a gentle heat, taking care that the black scum does not pass over into the receiver; separating the oily portion that passes over, adding soap ley to it, to correct the acidity, then distilling it by a gentle heat, ether passes over, and the oil remains floating on the watery liquor in the retort.

2. **OLEUM ÆTHEREUM.** By continuing the distillation of the ingredients for ether, with a less degree of heat, after the ether is come over, until a black froth begins to rise, then removing the retort from the fire, adding sufficient water to the liquor in the retort, that the oil may float on the surface, separating this oil, and adding lime water, q. s. to neutralize the adherent acid, on which the oil will separate itself: antispasmodic.

26. SPIRITUOUS LIQUORS.

The various degree of strength of these was technically denominated by numbers, referring to an arbitrary strength, called, in the English laws, proof spirit, a gallon of which weighs 7℔ 11 oz. 3 drachms av. When spirit is said to be 1 to 3 over proof, it is meant that 1 gall. of water added to 3 gall. of the spirit, will reduce it to proof; on the contrary, 1 in 3 under proof, signifies that in 3 gall. of that spirit there is contained 1 gall. of water, and the remaining 2 gall. are proof spirit. As a gallon of water weighs by law 8℔ 7oz. 5 drachms, av.; the specific gravity of proof spirit is to that of water as 910 to 1000. Of late, by a new re-

gulation of the excise laws, the use of a hydrometer is introduced which shows the number of hundred parts of spirit that any liquor contains above proof, or their deficiency below proof.

The spirit distilled from the wash or vinous liquor, until a glass of it, flung upon the still head, does not take fire by a candle or lighted paper, is called low wines, and this being again distilled, is called spirit.

BRANDY. *Eau de vie. Aqua vitæ. Spiritus vini Gallicus.* From wine; the best is obtained from the wines of the middle of France; those of Languedoc and Spain yield about one quarter of brandy, Burgundy less than an eighth, Bordeaux about a fifth. New wine yields more than old. An inferior sort is obtained from wines which have turned sour, and from the lees left in the casks on racking the wine from one vessel to another for the sake of fining it; and a still worse sort from the cake and refuse of the wine-press, fermented for this purpose with the addition of water: when first distilled, it is white like water, but by keeping in oak casks it acquires a deep colour; as it improves by keeping, extract of oak is frequently dissolved in it to give a false appearance of age.

MALT SPIRIT is made by mixing 60 quarters of barley grist ground low, and 20 quarters of coarse ground pale malt, with 250 barrels of water, at about 170 deg. Fahr. taking out 30 barrels of the wort, and adding to this 10 store of fresh porter yeast, and when the remaining wort is cooled down to 55 deg. adding 10 quarters more malt, previously mixed with 30 barrels of warm water, stirring the whole well together, and putting it to ferment along with the reserved yeasted wort: this wash will be found to weigh by the saccharometer 28—32lb per barrel, more than water. In the course of 12 or 14 days, the yeast head will fall quite flat, and the wash will have a vinous smell and taste, and not weigh more than 2—4lb per barrel, more than water. Some now add 20lb of common salt, and 30lb of flour, and in three or four days put it into the still, previously stirring it well together. It is estimated that every 6 gall. of this wash will produce 1 gall. of spirit at 1 to 10 over proof, or 18 gall. of spirit from each quarter of grain.

In Holland they first mix 10 quarters of rye meal with a small quantity of cold water, and then add as much boiling water as is necessary to make a thin mash, and set it to fer-

ment with a small quantity of yeast; about the third day they add 3 quarters of malt meal previously mixed with warm water, and as much yeast as at first, stirring the whole well together: this wash weighs only 18lb per barrel, more than water, and sometimes less: their stills are from 300 to 500 gallons each, and they draw in the first distillation three cans of phlegm after the runnings cease to burn on the still head, and five cans when distilling *low wines*.

JAMAICA RUM is obtained from the refuse of the raw sugar manufactories, by taking equal quantities of the skimmings of the sugar pans, of lees or returns as they are commonly called, and of water; and to 100 gallons of this wash are added 10 gallons of melasses; this affords from 10 to 17 gallons of proof rum, and twice as much low wines; it is sometimes rectified to a strength approaching to spirit of wine, and is then called double distilled rum.

SUGAR SPIRIT is obtained from the washings, skimmings, and other waste of the sugar boilers; it is a very pure spirit, free from the peculiar flavour of rum, and is used to mix with brandy.

CANE SPIRIT is obtained from the juice of the sugar cane, and is the purest kind of rum.

MELASSES SPIRIT. *Rum*, is obtained from melasses, by mixing 2 or 3 gall. of water with one gall. of melasses, and to every 200 gall. of this mixture adding a gall. of yeast; once or twice a day the head as it rises is stirred in, and in three or four days, 2 gall. more of water is added to each gall. of melasses originally used, and the same quantity of yeast as at first: four, five, or six days after this, there is added a third portion of yeast, as before, and about 1 oz. of jalap root powdered (or in winter 1½ oz.), on which the fermentation proceeds with great violence, and in three or four days, the wash is fit for the still: 100 gallons of this wash is computed to yield 22 gall. of spirit 1 to 10 over proof.

RAISIN SPIRIT is obtained from raisins fermented with a proper quantity of water, and distilled with a quick fire, in order to bring over as much as possible of the flavour, this spirit being used to mix with malt spirit: 10 gall. is sufficient to give a vinous flavour to 1600 of common malt spirit.

CYDER SPIRIT is obtained from cyder.

BATAVIA ARRACK. *Goa arrack*. Is obtained from the juice of the palm tree.

CHINA ARRACK is obtained from rough rice, or from millet.

POTATOE SPIRIT, which turns blue when mixed with water.

SKIRRET SPIRIT.

CARROT SPIRIT. Are obtained in the north of Europe from those roots.

WHISKEY, from oats, carelessly distilled and suffered to burn to; the empyreumatic flavour being by habit rendered agreeable.

PEACH BRANDY. From that fruit; much drank in some parts of the United States.

BIRD CHERRY SPIRIT. Twelve gallons of the berries will yield 9 pints of spirit.

JUNIPER BERRY SPIRIT. A tun measure of berries will yield 6 or 8 gallons of spirit.

SPIRIT FROM FAINTS. In rectifying spirits, and in distilling compound spirits, after the first strong portion has been drawn off, the weaker, and in some cases discoloured, spirit that arises is saved, as long as it will take fire when thrown on the still head by a candle or lighted paper, under the name of faints, and when a sufficient quantity has been collected it is rectified: the spirit thus obtained is principally used to make anise seed cordial, as the strong flavour of the anise seed will overpower any other flavour the spirit may have acquired.

KOUMISS is obtained from mare's milk by the Tartars, the separation of the curd and cream being prevented by frequent agitation. A similar spirit, but much weaker, has been obtained from cow's milk, by the same manœuvre being practised.

KIRSCHENWASSER. From common cherries.

MARASQUINA. From morello cherries.

SPIRIT OF WINE. *Copying liquid. Spiritus vinosus rectificatus. S. rectificatus. Alcohol*, Ph. Ed. All spirit 1 to 20 over proof is thus deemed in the English laws: the London college and that of Edinburgh order it for medical use to have the specific gravity of .835, but the Dublin only .840.

VAENISH MAKERS SPIRIT. *Alcohol*. Is obtained either by careful rectification to the highest possible strength, or by distilling spirit of wine from dried pearl ash, or dry muriate of lime. The London and Dublin colleges order it for

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medical use to have the specific gravity of .815, but for chemical purposes it has been prepared as high as .800 and even .798.

PROOF SPIRIT. *Spiritus vinosus tenuior. S. tenuior. Alcohol dilutum.* Differs from the raw spirits above described, although of the same strength, by being always formed of spirit of wine, diluted with water. The London college mentions no proportions, but requires the spec. grav. of .930: the Dublin advises the mixture of four measures of spirit with three of water, and the Edinburgh orders equal measures of their alcohol and water, the spec. grav. of which mixture they quote as .935. The chemists in London are in the habit of making their proof spirit, by taking half spirit of wine and half water, whenever it is required, as they seldom or never keep it in that state.

TINCTURE OF SALT OF TARTAR. *Tinctura salis tartari.* Melt 6 oz. of salt of tartar in a crucible; powder it while hot, and immediately pour upon the powder a quart of spirit of wine, and digest it for several days.

TINCTURE OF ANTIMONY. *Tinctura antimonii.* Take crude antimony 1 oz., salt of tartar and saltpetre, of each 2 oz. and a half: mix and throw them into a red hot crucible; when melted, pour them out into an iron mortar, powder the mass while hot, and before it grows cold, put it into a bottle with q. s. of spirit of wine.

This and the preceding are to be considered as alcohol made without distillation, but they receive an alkaline taint, which renders them impure.

All these spirits are stimulant, but more employed as luxuries than medicines; externally used in burns, and, when diluted, in ophthalmia; employed also in chemistry as a solvent of resinous matters. The rectified spirit renders paper transparent, and soon evaporating, the paper becomes opaque again, but is a poor substitute for tracing paper.

27. CHARCOAL.

CHARCOAL. *Carbo ligni.* Varies in its qualities according to the wood from which it is prepared: that of the soft woods, as the willow, alder, &c. well burned, is best for crayons, for making gunpowder, and for clarifying liquids; that of the harder woods is used for fuel, or for a support for substances exposed to the flame of a blowpipe: the charcoal of the chestnut is employed by the smiths in the

south of Europe, on account of its slow consumption when not urged by the blast of the bellows, and of the fire deadening immediately upon the blast being stopped. The charcoal of the holly, if the bark be left on, is believed to render iron brittle when worked by a fire made of it. Charcoal powder is used as a tooth-powder, and in poultices to correct fetid ulcers; that of the areca nut is the most fashionable dentifrice, but is no otherwise preferable to any other soft charcoal.

BEECH BLACK. *Blue black.* Beech wood, burned in close vessels; mixed with white lead, produces a blueish gray colour: used as paint.

FRANKFORT BLACK. Charcoal made of the lees of wine, well washed and ground with water, used to make printer's ink.

NOIR D'ESPAGNE. Charcoal made of cork burnt in close vessels; used as a colour in painting.

PEACH STONE BLACK. Peach stones, cherry stones, &c. burnt in close vessels; mixed with white lead it produces the colour called old gray.

VINE TWIG BLACK. Vine twigs burnt in close vessels; blueish black; when mixed with white lead it produces a silver white colour.

TARTAR BLACK. Argol burnt in close vessels, then washed and ground with water; used by the copper plate printers, and for superior letter press printing.

IVORY BLACK. *Cologne black. Cassel black. Ebur ustum.* From ivory shavings burned; used as a dentifrice and a paint; with white lead forms a beautiful pearl gray colour.

BONE BLACK. *Common ivory black. Ebur ustum vulgare.* The residuum left in the iron still, after the distillation of bone; reddish, used for making blacking for shoes, &c.

BURNT SPONGE. *Spongia usta.* The sponge being cut to pieces, is well burnt to separate the sand it contains, and which makes up the far greater part of its weight, and is then burnt in a close vessel, until it is black and friable; used in bronchocele and scrofulous complaints; ℥j—ʒiij, in an electuary, or in lozenges held under the tongue.

VEGETABLE ETHIOPS. *Pulvis quercus marina.* From fucus vesiculosus, or bladder wrack, burned in a close vessel,

till it is black and friable: in bronchocele, &c. as the preceding. Is also prepared from the *pila marina*.

LAMP BLACK. *Fuligo lampadum*. Made by suspending a copper funnel over a lamp having a long smoking wick; or by burning the chips of resinous deals, made from old fir trees, in tents, to the inside of which it adheres.

BURNT LAMP BLACK. Lamp black heated in close vessels to get rid of the oiliness of that made from resinous woods; as the lighter it is the more it is esteemed; used as a paint.

WOOD SOOT. *Fuligo ligni*. Collected from chimnies, under which wood is burnt for fuel; contains sulphate of ammonia; bitter, antispasmodic.

BISTRE. From wood soot, by pulverisation, and washing over, an excellent brown water colour, superior to Indian ink for drawings, when they are not intended to be tinted with other colours.

FLOREY BLACK. The soot of coal fires, sifted, used as a coarse black colour for making gray mortar.

ROASTED COFFEE. The seeds of the coffee shrub roasted by a gentle fire; used to make an infusion, which being poured off or strained, and sugar added to it, is a grateful drink, with or without milk.

HUNT'S ECONOMICAL BREAKFAST POWDER. Rye roasted and used as coffee. It is a good substitute, and can scarcely be distinguished from it.

ENGLISH COFFEE. Wheat, barley, holly berries, acorns, sunflower seeds, beech mast, peas, beans, succory root, seeds of gooseberries and currants left in making wine, and washed, and even sliced turneps have been used as substitutes for foreign coffee, and roasted with the addition of a little butter or oil; but they want the agreeable aroma of the foreign: the best substitute is said to be the seeds of the yellow water flag, *gladiolus luteus*, or *iris pseudacorus*, which is frequently found by the sides of pieces of water.

CACAO. The roasted husks of the cacao bean, or chocolate nut; used to make a poor kind of coffee drink.

PATENT MALT. Germinated barley roasted till nearly black; used as coffee, and also to colour beer.

ROASTED QUASSIA. Sold ground to embitter beer, and give it colour, but the beer soon grows turbid.

28. CALCULI.

Formed in organized bodies.

CALCULUS HUMANUS. Used in obstructions, and in preventing the growth of calculi!

BEZOAR STONE. *Lapis bezoar.* Of this there are several kinds, but all sold under the same name. 1. From the stomach of the cercopithecus nemæus, which it throws up when it is beaten. 2. From the gall bladder of the porcupine. 3. From the several Asiatic gazelles, or antelopes, which is esteemed the best. 4. From the goat. 5. From the bos grunniens, or Tartar cattle. Divided, by the shops, into oriental and occidental; that of the antelope being the oriental, which is very considerably dearer than the other, being of equal value with about half its weight of gold: formerly esteemed as the greatest known cordial, and much used, notwithstanding its dearness.

TABASHEER. *Tabaxir.* A stony concretion formed in the joints of the bamboo cane. Used in diseases arising from obstructions.

29. SULPHURS.

NATIVE SULPHUR. *Rock sulphur. Sulphur nativum.* Found near volcanoes, fine yellow colour, burning away entirely, leaving no fæces; much used by silversmiths.

SULPHUR VIVUM VERUM. Found near Mount Vesuvius, gray, burns with a blue flame when heated, but the flame soon goes out, earthy; principally used for the manufacture of brimstone and alum.

ROUGH BRIMSTONE. *Sulphur factitium.* Obtained by sublimation from pyrites, or by eliquation from the earthy minerals containing sulphur.

ROLL BRIMSTONE. *Sulphur in rotulis.* Is brimstone, purified by redistillation, and poured into moulds.

HORSE BRIMSTONE. *Sulphur caballinum. S. vivum commune.* The fæces left in the purification or sublimation of sulphur; very impure; used in external applications to the inferior cattle.

FLOWERS OF SULPHUR. *Flores sulphuris. Sulphur sublimatum.* From brimstone, by sublimation, into large chambers built for the purpose; pulverulent; when kept in loosely stopped jars or drawers, the surface becomes acid.

WASHED FLOWERS OF SULPHUR. *Sulphur sublimatum lotum.* The common flowers washed with water to get rid

of the acid; ordered by the colleges when the flowers are intended for internal use, but scarcely ever performed, and seems an useless subtlety.

Sulphur is laxative, propelling the fæces with very little stimulus to the system; useful in piles $\mathfrak{z}\text{fs}$ to $\mathfrak{z}\text{j}$, nocte maneque; diaphoretic, communicating its peculiar smell to the sweat: used internally, and externally in ointments, as a specific in the itch and other cutaneous affections; its suffocating fume while burning is used to whiten linen, straw bonnets, &c. and to kill bees and other insects.

MILK OF SULPHUR. *Lac sulphuris.* *Sulphur præcipitatum.* From sulphur 1lb , fresh burned lime 2lb , boiled in water, filtered, and the milk thrown down by adding spirit of salt q. s. and washing the sediment till it is insipid. P. L. 1815.

2. From liver of sulphur $\mathfrak{z}\text{vj}$, dissolved in water $1\text{b}\mathfrak{j}\text{fs}$, adding spirit of vitriol q. s. and washing the precipitate till it is insipid.

3. Sulphur 1 part, quicklime or kali ppm. 3 parts, water q. s.: boil, filter while hot, add spirit of vitriol q. s. and wash the precipitate.

Used internally in preference to the flowers, probably contains water.

LIVER OF SULPHUR. *Hepar sulphuris.* Brimstone in powder 1lb , kali ppm. 3lb : mix by infusion in a covered vessel; the most usual practice.

2. Fl. sulph. and pure caustic potash or soda, ana p. æq. melt.

3. Fl. sulph. $\mathfrak{z}\text{iv}$: melt and add kali ppm. $\mathfrak{z}\text{fs}$. P. L. 1720.

4. *Kali sulphuratum, Potassæ sulphuretum* P. L. 1809, Flowers of sulphur $\mathfrak{z}\text{j}$, kali ppm. $\mathfrak{z}\text{v}$: unite by fusion.

5. *Potassæ sulphuretum* P. L. 1815. Fl. sulph. $\mathfrak{z}\text{j}$, kali ppm. $\mathfrak{z}\text{ij}$. Melt.

6. *Sulphuretum kali* P. D. *Sulphuretum potassæ* P. E. Fl. sulph. kali pp. ana p. æq.: mix and melt: expectorant, diaphoretic; used in catarrh and cutaneous affections; dose, gr. x to xv; proposed as an antidote to arsenic, but of doubtful utility.

PHOSPHORUS OF URINE. *Kunckel's phosphorus.* *Phosphorus urinæ.* P. *Kunckelii.* From urine putrefied and distilled in an iron pot, with a glass or stone-ware head; the

residuum taken out, ground, put into small earthen retorts, and distilled, with a very violent heat, into water.

2. From phosphoric acid mixed with charcoal powder, and distilled into water.

3. By pouring a solution of sugar of lead into urine, which precipitates a white powder, to be mixed with charcoal powder, and distilled with a violent heat into water.

Inflammable at a very low heat, and therefore it must be kept under water, purified by being kept in fusion in a glass tube under water until the impurities have settled; principally used as an easier and speedier method of procuring fire than the common; also used to analyse atmospheric air and to form phosphoric ether.

30. METALLIC SULPHURETS AND CARBURETS.

CRUDE ANTIMONY. *Antimony, of the world at large. Sulphuret of antimony. Antimonium crudum. Sulphuretum antimonii.* Found native, separated from the stones, with which it may be mixed, by fusion and pouring into conical moulds: prepared for medical use by trituration and washing over: diaphoretic, used in rheumatism, scrofula, and cutaneous diseases as an alterative, ℞j—ʒj nocte maneque; given largely to horses, mixed with their food to smooth their coats; used in the arts to purify gold, and by the ladies to paint their eyebrows and eyelashes black.

MEDICINAL REGULUS OF ANTIMONY. *Regulus antimonii medicinalis.* Crude antimony 5 oz. kali ppm. 1 oz. common salt 4 oz.; powder, mix, melt; when cold, separate the scorix at top, powder the mass, and wash it well: more active than crude antimony.

LIVER OF ANTIMONY. *Hepar antimonii.* Crude antimony 2℔, potash 4℔: mix and melt; emetic, in doses of gr. iij—vj, but mostly used as a violent purge for grease in horses' heels.

KERMES MINERAL. Crude antimony, finely ground, 4℔, kali ppm. 1℔, soft water 2 gall.; boil for half an hour, filter through paper supported by linen, into deep pans previously warmed; let it cool very slowly; the kermes settles as it cools: the antimony left upon the filtre may be boiled again several times with fresh kali and water. Deyeux, the usual process.

2. Crude antimony 1 oz. aqua kali 6℔. Beaumé.

3. Crude antimony 1℔, aqua kali 6℔. Chaptal.
4. Crude antimony 1℔, natron ppm. 3℔, water q. p. Dizé. Proceeding as before.
5. Prepared antimony 3℥s, natron ppm. 5x, distilled water a gallon; boil for half an hour, filter, let it settle, wash the precipitate with cold water which has been recently boiled, dry the precipitate by a heat of 90 deg. Fahr. folded up in glazed paper to keep the air and light from it: produces a very dark crimson powder, of a smooth velvety appearance. Cluzel: obtained the prize given by the Paris society of apothecaries.
6. Crude antimony 16 oz. kali ppm. 8 oz. flowers of sulphur 1 oz.: mix, melt together, pour out; when cold, reduce the mass to powder and boil in water q. s.; filter while hot; the kermes precipitates as the water cools, and is to be well washed.

This preparation occupies in foreign practice the place of our James's powder, in doses of gr. ʒs—ij, as a diaphoretic, cathartic, and emetic.

GOLDEN SULPHUR OF ANTIMONY. *Sulphur auratum antimonii*. Is separated from the alkaline liquor which has deposited the kermes mineral, by adding any acid, but generally the acetic: when the acid is added in separate portions, the precipitate may be obtained of different colours and strength, the first being redder and stronger, the latter yellow and weaker.

2. Crude antimony 2℔, flowers of sulphur 1℔, aq. kali puri q. s. to dissolve the whole; filtre, precipitate immediately with spirit of vitriol, wash and dry the precipitate. Weigleb.

3. Crude antimony 2 oz. sulphur 3 oz. and proceed as in the preceding process. Goettling.

It may be used as kermes mineral, but requires a double or treble dose.

SULPHUR ANTIMONII PRÆCIPITATUM P. L. before 1788. Scorix obtained in the process for regulus of antimony, no. 2, q. p. dissolve in water, filter through paper, precipitate immediately by adding spirit of salt; wash and dry the precipitate.

Sulphur antimonii præcipitatum P. L. since 1788. Crude antimony powdered 2℔, aqua kali 4℔, water 3℔: boil for three hours, strain while hot, and add immediately

spirit of vitriol q. s. to precipitate the sulphur, which is to be well washed and dried.

Sulphur antimonii fuscum. Crude antimony, kali ppm. ana 1 oz.: melt together, powder, and dissolve in water 4℔; let it cool; when cold, add spirit of vitriol q. s. to precipitate the remainder of the sulphur, agitate the mixture, that this last precipitate, which is yellow, may be mixed with the other; wash and dry: these are mixtures of kermes mineral with golden sulphur of antimony, and therefore to be esteemed inferior to the former; dose, gr. j to v.

ORPIMENT. *King's yellow.* *Hartall.* *Yellow sulphuret of arsenic.* *Auripigmentum.* Native in mines, yellowish green, with brilliant gold-coloured spangles: used by painters. Caustic: composed of about 43 parts of sulphur and 57 of metallic arsenic.

REALGAR. *Red arsenic.* *Red sulphuret of arsenic.* *Risigallum.* *Sandaracha Græcorum.* *Auripigmentum rubrum.* Native in mines; fine red colour like vermilion; used also by painters: composed of about 25 parts of sulphur and 75 of metallic arsenic: made into cups, in which the juices of acid fruits being left become cathartic.

YELLOW ARSENIC. *Yellow sulphuret of arsenic.* *Arsenicum flavum.* *A. citrinum.* Made of white arsenic 100℔, brimstone 30℔, by sublimation; yellow, heavy, taste very sharp and burning.

RED ARSENIC. *Red sulphuret of arsenic.* *Arsenicum rubrum factitium.* From arsenical and sulphureous pyrites exposed to sublimation together.

MAGNES ARSENICALIS. Sulphur, white arsenic, and crude antimony, ana p. æq. mix by fusion: corrosive.

IRON PYRITES. *Brass balls.* *Horse gold.* *Copperas balls.* *Native sulphuret of iron.* *Pyrites ferri.* Brass yellow, in balls or crystallized; collected for the manufacture of green vitriol; by exposure to the weather they are decomposed into a saline powder, from whence the vitriol is extracted by elixiviation and crystallization.

CHALYBS CUM SULPHURE PREPARATUS. With a red hot bar of steel melt a roll of brimstone, so that it may fall into a vessel of water; separate the brimstone which falls at the same time into the water, and reduce the chalybs into a fine powder.

2. By melting iron filings and brimstone, p. æq. in a covered crucible.

3. *Sulphuretum ferri*. Iron filings 6 oz. flowers of sulphur 2 oz. : mix together and melt in a covered crucible. Used in preparing hepatized ammonia.

POTTERS LEAD ORE. *Sulphuret of lead. Galena*. Found in mines, breaks in cubes; used by the potters in glazing earthen vessels.

CINNABAR. *Vermilion. Cinnabaris. Sulphuretum hydrargyri rubrum* P. E. Found native, liable to be confounded with realgar or red arsenic, and also manufactured by the chemists, by grinding 170lb of quick silver and 50lb of brimstone together, throwing the mixture by ladle-fulls into heated earthen sublimers, where it takes fire, the superfluous sulphur is consumed, the mouths of the vessels are then covered with tiles, which stops the conflagration, when the sublimation commences, and is continued until the whole is risen up. The process of the Dutch manufacturers.

2. By making a paste of æthiops mineral, and spirit of nitre, at 36 deg. Baumé; drying this paste the next day, pulverising it and subliming as usual. *Martin*.

3. By triturating 300 parts of quick silver and 68 of flowers of sulphur, with aqua kali q. s. to moisten them, until they are converted into æthiops mineral, then add 160 parts of kali præparatum and as much water: continue the trituration over a fire, adding water occasionally, so that the powder may be constantly covered with about an inch deep of water: in about two hours it turns brown, and soon afterwards red: no more water is then to be added, but the trituration is continued until the colour has acquired its greatest beauty, when it must be withdrawn from the fire, otherwise it will pass to a dirty brown. *Kirchoff*.

4. *Cinnabaris factitia*. Quick silver 25 oz. sulphur 7 oz. Triturate and sublime.

5. *Hydrargyrus sulphuratus ruber. Sulphuretum hydrargyri rubrum* P. D. P. L. 1809. Quick silver 40 oz. sulphur 8 oz. as before.

6. Extemporaneously, by shaking quick silver in a solution of liver of sulphur in water; and still better in Boyle's fuming liquor or sulphuret of ammonia.

7. *Cinnabaris antimonii*. Is obtained as a secondary product in the making of butter of antimony, by raising the fire after the butter has come over: brown.

8. *Cinnabaris antimonii*. Quick silver 15lb, rough brimstone 5lb, crude antimony 1lb and a half; mix and sublime.

Diaphoretic; used in cutaneous diseases and gout; also as a vermifuge, gr. x to ʒss; externally ʒss thrown upon a red hot iron is used as a fumigation to check the progress of venereal ulcers in the throat, nose, or mouth; it should be totally volatile by heat, and communicate no colour to spirit of wine.

AURUM MUSIVUM. *Sulphuret of tin. Aurum mosaicum.* Quick silver, tin, sulphur, sal ammoniac, ana p. æq. the tin being first melted, the quick silver poured into it, and then the whole ground together, and sublimed in a bolt head, the aurum musivum lies at the bottom.

2. Tin ℥j, quick silver ℥ss; melt together, grind with flowers of sulphur ʒvij, sal ammoniac ℥ss: sublime.

3. Dissolve tin in spirit of salt, precipitate by natron ppm.: mix the precipitate with half its weight of sulphur, and sublime.

4. Dissolve tin in spirit of salt; add liver of sulphur dissolved in water, which throws down the aurum musivum.

5. Tin filings, sulphur, sal ammoniac, ana p. æq.: sublime. In these sublimations, if the fire is too great, only a gray sulphuret of tin is obtained. Used as a metallic gold colour in varnish work, sealing-wax, &c.: is supposed to be the basis of Blain's powder for the distemper in dogs.

BLACK LEAD. *Plumbum nigrum. Cerussa nigra. Plumbago.* Found native; derives its name from its colour, as it is really composed of iron and charcoal, the last being in a much greater proportion than in steel; used for pencils, crayons, and the coarser sort to give a metallic lustre to other bodies, or to diminish the friction, in cases where grease or oil would be improper.

31. METALS.

GOLD LEAF. *Aurum foliatum. Aurum in libellis.* Used to gild pills and other substances: there is a green variety, not arising from any alloy, but tinged externally.

PARTY GOLD. Is gilt silver, hammered into leaves.

SHELL GOLD. *Aurum in musculis.* Made by grinding the cuttings of gold leaf with thick gum water, and spreading the ground gold in pond-muscle shells.

TRUE GOLD POWDER. *Aurum pulveratum.* Grain gold 1 oz. quick silver nearly boiling 6 oz.; rub together; then

either distil off the quick silver, or corrode it away with spirit of nitre, and heat the black powder that is left red hot.

2. Grain gold 1 oz. dissolve in a mixture of spirit of nitre 16 oz. with common salt 4 oz.; add to the clear solution green vitriol 4 oz. dissolved in water; wash the precipitate and heat it red hot.

3. Dissolve gold in aqua regia, and draw off the acid by distillation; used in painting, gilding, &c.

SILVER LEAF. *Argentum foliatum*. Used to cover pills and other substances.

SHELL SILVER. *Argentum in musculis*. By grinding the cuttings of silver leaf with strong gum water, and spreading it in pond-muscle shells; used for writing silver-coloured letters, but tarnishes, and is inferior to argentum musivum.

SILVER DUST. *Crocus argenti*. By adding slips of copper to a solution of silver in spirit of nitre, and washing the precipitated metal with spirit of wine; used in japanning.

QUICK SILVER. *Quick. Mercury. Argentum vivum. Mercurius. Hydrargyrus. Hydrargyrum*. Found native, but mostly extracted from the native sulphurets.

PURIFIED QUICK-SILVER. *Argentum vivum purificatum. Hydrargyrus purificatus. Hydrargyrum purificatum*. Rub the quick silver with 1-6th or 1-4th of iron filings, and distil it.

2. Distil 2-3rds. P. D. Very wasteful.

3. Distil it without addition, and then wash it with vinegar or brine.

4. By straining through chamois leather: this is the most usual method; but if lead is mixed with bismuth by melting them together in a gentle heat, and then put into quick silver, they will pass along with it through leather: on standing, however, the bismuth is thrown up in the form of a dark-coloured powder, the lead remaining combined.

5. By distilling it from cinnabar and iron filings ana p. aeq. when great purity is required.

Given in obstinate costiveness to the extent of ℥ij or ℥jss, in hopes of forcing a passage by its weight: used by water gilders to dissolve their gold, by looking-glass makers to soften their tinfoil, by barometer and thermometer makers for their instruments, and in some other arts.

COPPER. *Cuprum*. This, like pewter, is used for making vessels, which are now generally tinned on the inside: these vessels have been proscribed by the colleges upon in-

sufficient grounds, since, like lead, it cannot be dissolved while tin is co-existent in the mixture. When acids are boiled in vessels, part of whose tin lining is abraded, the acids take up some of the tin, and deposit it on the abraded part, thus repairing the damage, in the same manner as brass pins are tinned by boiling with tin filings and cream of tartar. Acid syrups and stews are and have been prepared for centuries in untinned copper vessels, without any ill effects, although in gentlemen's houses and elegant inns they have occasionally produced of late direful effects; but the common cooks use only pewter spoons for stirring, and, by leaving them in the liquid, render the acids ineffective upon copper, which effect is not produced by the silver spoons of superior establishments. Although the salts of copper are violent emetics, yet ʒj of filings has been taken against the rheumatism; and Rouelle used to exhibit in his lectures a lock of green hair he had himself cut from the head of an aged founder.

BRASS. *Æs. Orichalcum.* Produced by stratifying granulated copper, with lapis calaminaris and charcoal powder, for hours in a red heat, and then melting the altered copper. Different varieties are produced by melting copper with zinc in various proportions.

DUTCH METAL. Brass hammered into leaves like gold leaf; used for inferior gilding, but soon loses its colour, as may be frequently observed in the dial plates of turret clocks, particularly when one part has been gilded with gold leaf, and the other with Dutch gold, as that of Fulham church is at present.

BELL METAL. *Æs caldarium.* Copper 100lb, tin 20—25lb; melted together; used, on account of its toughness, for caldrons and mortars; this has shared the same obloquy as pewter and copper for vessels, and as unjustly.

WHITE COPPER. *Britannia metal.* Copper 40—50lb, white arsenic 10lb, oil q. s. to make the latter into a paste; melted together; used as an imitation of silver.

ARTIFICIAL GOLD. *Petit or?* Copper 16 oz. platina 7 oz. zinc 1 oz.; melt together.

POWDER GOLD. *Aurum sophisticum.* Verdigrise 8 oz. tutty 4 oz. borax, nitre, ana 2 oz. corrosive sublimate ʒij, made into a paste with oil, and melted together; used in japan work as a gold colour.

IRON FILINGS. *Ferri ramenta. F. limatura. F. scobs.*

Tonic and astringent, used in chlorosis, gr. v—x, bis terve in die.

IRON WIRE. *Ferri fila*. Only used in preparations, being the purest, which alone can be drawn into wire.

STEEL. *Chalybs. Mars*. Found native, and also made from iron, by stratifying or melting it with charcoal, of which it takes up a minute portion, which gives the hardness to the compound; the filings are sometimes used as a stimulant and tonic; also in fireworks.

INDIAN STEEL. *Wootz*. A kind of steel, which retains its edge when ground for a long time; it has been made by first melting highly carburetted steel with alumine, by which a white brittle alloy was produced, 67 gr. of which, remelted with 500 gr. of good steel, produced a metal perfectly similar to wootz, in perfection of edge, and damask by spirit of vitriol.

ARGENTINE STEEL. By melting 500 parts of steel with one of silver: far superior to the very best common steel.

LEAD DUST. *Pulvis plumbi*. By melting lead, adding bruised charcoal, and diffusing the lead among it, then pounding and washing away the charcoal; used by potters.

GRANULATED LEAD. By melting lead, pouring it, in a small stream, from an iron ladle with a hole drilled in its bottom, into a pail of water: this operation is performed for the purpose of facilitating its mixture with other bodies.

PEWTER. Is made of lead hardened with tin, and in the best kinds with antimony; used for making vessels, which have been proscribed by the colleges, who have in this instance been influenced by unauthorized prejudices, since Proust has shown, *Journ. de Phys.* for 1806, that acids boiled in pewter vessels took up none of the lead, which they will not touch while tin is present; that when even a solution of sugar of lead was boiled in a pewter vessel, the lead was precipitated in its metallic state, and tin extracted from the vessel: lemon juice, diluted with water, left for a day and a night in the coarsest pewter vessels, did not dissolve an atom of lead, but acted only on the tin. Lead and tin ana p. æq. melted together, and ʒj, taken for two successive days, produce not the least inconvenience.

TIN FOIL. *Stannum foliatum. Stanniolum*. In thin leaves; used for ornament, and to cover the hind surface of looking-glasses, being softened with a small quantity of

quick silver, which is afterwards pressed out of it by heavy weights.

TIN FILINGS. *Limaturæ stanni*. Vermifuge, ℥j in syrop, in the morning fasting.

POWDER OF TIN. *Pulvis stanni verus*. Melt tin in an iron mortar, and stir it while cooling, until it become a powder, then sift it.

2. Melt tin and pour it into a wooden box, rubbed on the inside with chalk, put on a cover that fits close, and shake it violently, till the metal is reduced to powder; vermifuge, in doses of ʒij—ʒfs.

SPELTER. *Zinc*. *Zincum*. From lapis calaminaris, mixed with charcoal and distilled.

2. Sublimed, as a secondary product, in the fusion of some German ores; used to produce galvanism, and in fireworks.

AMALGAM OF ZINC. *Amalgama zinci*. To zinc 2 oz. heated in a crucible, add quick silver 5 oz. also heated; used to spread upon the rubbers of electrical machines.

SPELTER SOLDER. Brass and zinc ana p. æq. melted together; melts with a less heat than brass: used to solder metallic substances together.

TIN GLASS. *Bismuth*. *Marcasita argentea*. Eliquated from its ores; used in metallic mixtures to communicate fusibility; also in powder, as an imitation of silver for writing and painting.

FUSIBLE METAL. Bismuth 8 oz. lead 5 oz. tin 3 oz. melted together: spoons are made of this mixed metal and used for toys, as they melt in boiling water.

SILVERING FOR GLOBES. Bismuth 2 oz. lead, tin, ana 1 oz. quick silver 4—10 oz.: when used, the internal surface of the globes must be made very clean and dry, when the liquid metal is to be strained through linen, poured in, and when every part has been covered the superfluous fluid is withdrawn.

ARGENTUM MUSIVUM. Bismuth, tin, ana ʒlb; melt together, and add quick silver 1lb: brittle, used as a silver colour.

SOFT METAL. Bismuth, tin, and regulus of antimony, ana 1lb, melted together; used for taking impressions of medals or coins.

TUTENAG. Bismuth 1lb, tin 2lb; melt together: used for buttons and vessels.

REGULUS OF ANTIMONY. *Antimony, of the philosophical chemists. Regulus antimonii. Plumbum antimonii.* From crude antimony, saltpetre, and argol, ana p. æq. pulverised, injected by degrees into a red hot crucible, and melted; the regulus settles at the bottom.

2. Crude antimony 1lb, tartar 12 oz. nitre 6 oz. : melt and pour out into a melting cone; when cold, separate the regulus, and if required to be very pure, remelt it once or twice, throw upon it, whilst in fusion, 1 oz. of nitre, and keep it melted for a quarter of an hour.

3. From crude antimony, calcined in a shallow vessel until no sulphureous vapour arises from it, by a low red heat, then mixed with fat or oil and charcoal powder and melted.

4. *Martial regulus of antimony. Regulus antimonii Martialis.* Upon 1lb and a half of small nails heated to redness in a crucible, throw a mixture of 1lb crude antimony, 4 oz. nitre, and 2 oz. tartar : melt and pour out; separate the regulus, and remelt it three or four times, throwing upon it each time 2 oz. nitre.

5. Crude antimony 2lb, iron 1lb, potash half a pound; melt : productive, but impure.

6. Crude antimony 3lb, iron 1lb, potash half a pound; melt : less productive, but purer.

When this operation is well performed, the regulus always has on its upper surface the appearance of a star, it is then called *regulus antimonii stellatus*; used to form small cups, in which wine, being let to stand for a night, becomes emetic, or balls are made of it, which are infused in wine for the same purpose; used also to harden lead, and thus make a compound metal fit for the best kind of pewter and for printers' types.

REGULUS JOVIS. Made by melting regulus of antimony with tin, generally in equal quantities, and casting it into the form of a cup, for rendering wine emetic; is less brittle than the pure regulus: these metals, mixed in various proportion, are used for making mirrors, medals, &c.

METALLIC ARSENIC. *Regulus of arsenic. Arsenic. Regulus arsenici.* From white arsenic mixed with oil or charcoal powder and sublimed; used in making metallic alloys.

32. METALLIC SUB-SALTS;

Or combinations of the oxides of the metals, with acids or alkalies; the compounds differing from salts by not being very soluble in water.

AURUM FULMINANS. By dissolving gold in aqua regia made with common salt, or a mixture of the spirits of nitre and of salt, and adding spirit of hartshorn q. s. to precipitate the gold.

2. By dissolving gold in aqua regia made with sal ammoniac, and precipitating the gold with kali ppm. Requires much care, as it explodes with the utmost violence, on the least friction, or a very slight heat: its fulminating quality may be destroyed, and the gold recovered, by boiling it in oil of vitriol, or oil of tartar, as also by mixing it with sulphur, and exposing it to a gentle fire, which burns the sulphur away: it first becomes purple, and then appears in its metallic form. Aurum fulminans is sedative, antispasmodic, and carminative; used in spasmodic colic, in doses of gr. iij—vj.

FULMINATING SILVER. *Brugnatelli's fulminating powder.* By dissolving silver gr. xl, in spirit of nitre ℥ij, or lunar caustic ℥j, in distilled water ℥ij; to this solution add spirit of wine ℥ij, and boil the mixture in a retort or flask, so that the condensed steam may run back into the boiling liquid, a white crystalline powder forms at the bottom; when no more seems to form, let it cool, wash the fulminating silver with river water, and dry it between bibulous paper, but without heat: explodes with the slightest friction; a small portion, about 1-3rd of a grain, being put in the middle of a bit of silver paper, the edge of which is smeared with paste, a bubble of glass is then wrapped up in this paper; the bubble thus loaded will explode if thrown upon the ground, or trod upon: is a good alarm, if put in places where it may be trodden upon by thieves, &c.

TURBITH MINERAL. *Turpethum minerale. Mercurius emeticus flavus. Hydrargyrus vitriolatus. Oxidum hydrargyri sulphuricum. Subsulphas hydrargyri flavus.* The quick silver is to be corroded by boiling it in about an equal weight of oil of vitriol to dryness; the white mass is then flung into a large quantity of boiling water, it immediately changes to a yellow powder, which is to be well washed and dried; emetic in doses of gr. ij—viij; useful in inveterate

gonorrhœa, and particularly in swelled testicles from a venereal cause, has also been recommended as a preservative against hydrophobia; alterative, gr. j—ij in leprosy and obstinate glandular obstructions; as an errhine, diffused among other powders.

SWEET SUBLIMATE. *Calomel. Chloride of mercury. Mercurius dulcis sublimatus. Calomelas. Hydrargyri submurias. Submurias hydrargyri sublimatum.* By grinding 40lb of corrosive sublimate with 30lb of quick silver, subliming the gray powder, repeating this sublimation two or three times, powdering and washing the sublimate with boiling water. Its crystals are rectangular prisms, whose solid angles have large quadrangular planes substituted in their place.

2. *Sweet precipitate. Chloride of mercury. Mercurius dulcis præcipitatus. Hydrargyrus muriatus mitis. Submurias hydrargyri præcipitatum. S. hydrargyri præcipitatus.* Dissolve quick silver in spirit of nitre, by boiling, observing to have more quick silver than the acid will take up, pour off the solution into a boiling brine, composed of common salt equal to half the weight of the quick silver dissolved in water in the proportion of about half an oz. of salt to a pint; the precipitate thus produced is to be well washed and dried.

Both these are the same in quality, differing only in the manner by which they have been prepared, and very slightly in external appearance, the sweet precipitate being in very fine powder, and of a clear white, the sublimed preparation requiring, in general, levigation to reduce it to any fineness, and then of a dull white or ivory colour, though some few chemists distil the calomel into water, and thus render it as fine and white as the other.

Cathartic, sialogogue; the former in particular has been justly called *panacea*, it being used as an almost universal medicine by the English practitioners, unless the intestinal canal is inflamed, but usually united with other medicines whose activity it increases; dose, as an alterative, gr. j—ij nocte maneque; if it does not pass through the bowels it affects the mouth, which may be avoided by joining purgatives with it; as a cathartic, gr. v to viij or x, but was formerly, and still by some persons, given in doses of ʒj.

WHITE PRECIPITATE. *Mercurius præcipitatus albus. Calx hydrargyri alba. Hydrargyrus præcipitatus albus.*

Produced by dissolving corrosive sublimate and sal ammoniac ana 1℔, in half a gallon of water, adding half a pint of aqua kali, washing the precipitate, and drying it.

2. *Hydrargyrum præcipitatum album.* Corrosive sublimate ʒvj, sal ammoniac ʒiiij, aqua kali half a pint, distilled water four pints, proceeding as above.

3. *Suburias hydrargyri ammoniatum.* Add to the liquor poured off from the sweet precipitate in its manufacture, spirit of sal ammoniac q. s. to throw down a new precipitate; wash this with cold distilled water, and dry it on blotting paper.

4. By dissolving 1 oz. of quick silver in spirit of nitre q. s. diluting this solution with distilled water, adding to it a solution of sal ammoniac ʒij—iiij in half a pint of water, and precipitating by aqua kali q. s.; if, in consequence of adding too much kali, the fine white colour is injured, a few drops of spirit of sal ammoniac will restore it.

Was confounded with sweet precipitate, from which it may be readily distinguished by its not becoming black when rubbed with lime water: used externally in making a detergent ointment.

ROUGH VERDIGRIS. *Ærugo. Viride aris.* Prepared by putting plates of copper into a cask between layers of vine twigs, and moistening them with sour wine.

2. By corroding copper with vinegar, tartar, and common salt.

3. Blue vitriol 1℔, common alum or Epsom salt 1—2℔; dissolve in water 4℔; filter; add kali ppm. q. s. and wash the precipitate.

4. Clippings of copper 2℔, sal ammoniac 1℔; moisten with water, and when the corrosion is perfected, wash the crocus: emetic internally, in very small doses; externally caustic; mostly used as a paint.

SCHÉELE'S GREEN. Precipitate a solution of blue vitriol 2℔, in water q. s. by a solution of white arsenic 11 oz. and kali ppm. 2℔, in boiling water 2 gall. and wash the precipitate: used as a paint.

Æs USTUM. Copper, rough brimstone, ana p. æq. laid in strata, common salt, a small quantity sprinkled on each layer, exposed to the fire till the brimstone is burned out: when one piece is rubbed against another, it ought to have a red colour like cinnabar: caustic.

FLAKE WHITE. *Cerussa vera. Plumbi carbonas. P.*

subcarbonas. P. oxidum album. Made by suspending rolls of thin sheet lead over vinegar in close vessels, the evaporation from the vinegar being kept up by the vessels being placed in a heap of dung, or a steam bath.

2. By dissolving litharge in dilute nitrous acid, and adding ppd. chalk to the solution; astringent, cooling; used externally; or employed as paint, mixed with nut oil. It should be completely soluble in nitric acid, and the solution should not yield a precipitate when added to a solution of sulphate of soda.

PATENT YELLOW. Muriate of lead. Chloride of lead. Common salt 1 cwt. litharge 4 cwt. ground together with water, kept for some time in a gentle heat, water being added to supply the loss by evaporation, the natron then washed out with more water, and the white residuum heated till it acquires a fine yellow colour: used as a paint, instead of King's yellow, is not so bright, but does not injure the health of the painters so much as that poisonous colour.

NAPLES YELLOW. Lead 1℔ and a half, crude antimony 1℔, alum and common salt ana 1 oz. calcined together. Passeri.

2. Flake white 12 oz. diaphoretic antimony 2 oz. calcined alum half an oz. sal ammoniac 1 oz.; calcine in a covered crucible with a moderate heat, for three hours, so that at the end of that it may be barely red hot: with a larger proportion of diaphoretic antimony and sal ammoniac, it verges to a gold colour. Fougereux. Used as a yellow colour.

PRUSSIAN BLUE. Cyanuret of iron. Hydrocyanate of iron. Cæruleum Berolinense. Red argol and saltpetre, of each ℔ij, throw the powder by degrees into a red hot crucible: dry bullock's blood over the fire, and mix ℔ij of this dry blood with the prepared salt, and calcine it in a crucible till it no longer emits a flame; then dissolve common alum ℔vj, in water ℔xxvj, and strain the solution; dissolve also dried green vitriol ℥ijss, in water ℔ij, and strain while hot; mix the two solutions together while boiling hot: dissolve the alkaline salt calcined with blood in water ℔xxvij, and filter through paper supported upon linen; mix this with the other solution, and strain through linen: put the sediment left upon the linen, while moist, into an earthen pan, and add spirit of salt ℔jss, stir the mass, and when the effervescence is over, dilute with plenty of water, and strain again; lastly, dry the sediment.

2. Mix 1lb of kali præparatum with 2lb of dried blood, or any dry animal substance, put it into a high crucible, or long pot, and keep it in a red heat till it no longer flames or smokes; then take out a small portion, dissolve it in water, and observe its colour and effects upon a solution of silver in aqua fortis; for, when sufficiently calcined, it will neither look yellowish, nor precipitate silver of a brownish or blackish colour: it is then to be taken out of the fire, and when cool dissolved in a pint and a half of water.

Take green vitriol p. j, common alum p. 1 to 3, mix and dissolve them in a good quantity of water, by boiling, and filter while hot; precipitate this solution by adding q. s. of the solution of prepared alkali, and filter. The precipitate will be the darker the less alum is added, but at the same time it will be greener from the great admixture of the oxide of iron which is precipitated, and which must be got rid of by adding, while moist, spirit of salt, diluting the mixture with water, and straining.

3. Precipitate a solution of green vitriol with the solution of prepared alkali, and purify the precipitate with spirit of salt; precipitate a solution of common alum with a solution of kali præparatum: mix the two sediments together while diffused in warm water, strain and dry.

CHROMATE OF IRON. Found in mines, black, hard enough to cut glass, with an imperfect metallic lustre. Used for making chrome yellow.

CHROME YELLOW. *Chromate of lead.* Prepared from chromate of iron, by heating it with nitre or pearl ash; elixivating the mass, and mixing the ley with a solution of lead in spirit of nitre, or of sugar of lead in water; it should not effervesce with nitric acid; used as a gold colour paint.

33. METALLIC OXIDES.

PURPLE PRECIPITATE. *Cassius' purple. Præcipitatum Cassii.* Solution of gold in aqua regia 1 oz. distilled water 1lb and a half; mix and hang in the liquid slips of tin.

2. By precipitating the diluted solution of gold by dyers' spirit: used to communicate a purple colour to glass when melted in an open vessel; in a close vessel the glass receives no colour.

CROCUS OF GOLD. *Crocus Solis.* By dissolving gold in aqua regia, made of common salt, and adding kali ppm. q. s. to precipitate the whole; also used to colour glass

purple; but it is difficult to produce by either of these means an equable colour: if heated strongly, it recovers its metallic lustre, and may be used for true gold powder.

2. By dipping rags in the solution of gold, drying and burning them: used to gild metals by rubbing it on them with a cork.

ÆTHIOPS PER SE. By shaking quick silver in a large bottle, or by triturating it with water; pulverulent, black.

OXYDUM HYDRARGYRI CINEREUM P. L. Boil calomel ℥j in a gallon of lime water; wash the gray sediment with water, and dry it.

PULVIS HYDRARGYRI CINEREUS. Quick silver ℥ij, dilute nitrous acid ℥ij, distilled water ℥viii, aqua carbonatis ammoniæ q. s. about ℥jss.

2. *Oxidum hydrargyri cinereum P. E.* Quick silver ℥iv, dilute nitrous acid ℥v, distilled water ℥xv, aqua carbonatis ammoniæ q. s.

Dissolve the metal in the acid, dilute the solution with the water, and precipitate with the alkali, wash and dry the precipitate.

Totally different from the London oxide of the same name: all three are used in syphilis, and are not apt to disorder the stomach and bowels; dose gr. j—iij, bis in die.

CALCINED MERCURY. Precipitate per se. Mercurius præcipitatus per se. Mercurius calcinatus. Hydrargyrus calcinatus. Hydrargyri oxydum rubrum. Oxidum hydrargyri. By exposing a thin stratum of quick silver to the action of heat sufficient to keep it boiling, in a vessel, called Boyle's hell, contrived to admit air without letting the vapour of the quick silver escape. In red scales, darker than red precipitate, may be used for the same purposes.

RED PRECIPITATE. Mercurius corrosivus ruber. Hydrargyrus nitratus ruber. By dissolving quick silver in an equal weight of spirit of nitre (previously adding to each pound of acid ℥j of spirit of salt, P. L. 1788, or distilling it from common salt, ℥j to a lb, P. L. 1745), then driving off the acids by heat in a flat bottom glass on a sand bath, till red crystals are produced: this compound acid is stated by Dr. Pemberton, Introd. P. L. 1745, to secure the crystalline appearance of the product.

2. *Mercurius præcipitatus corrosivus. Hydrargyri nitrico-oxidum. Oxidum hydrargyri nitricum. Oxidum hydrargyri rubrum per acidum nitricum.* By dissolving

quick silver in spirit of nitre with heat, and evaporating till a dry mass is left, which is then calcined in a broad shallow vessel until it no longer emits red vapours.

3. *Arcanum corallinum. Mercurius corallinus.* By digesting the preceding in three times its weight of spirit of wine for two or three days, then setting fire to the spirit, and stirring the precipitate as the spirit burns.

4. *Pulvis principis.* By triturating the preceding with the oil of tartar, and then washing out the salt again with water: both this and the preceding manipulation are employed with a view of rendering the preparation milder for internal use.

Antisyphilitic, gr. fs—ij nocte manequē, but principally used externally as an escharotic, and stimulant to foul ulcers, for which purpose it must be finely pulverised.

GREEN PRECIPITATE. *Mercurius præcipitatus viridis. Lacerta viridis.* By dissolving quick silver ʒj in spirit of nitre q. s. at the same time dissolving also copper ʒj in another parcel of spirit of nitre, mixing the two solutions, evaporating to dryness, and calcining the residuum in a shallow vessel till no more red fumes appear: caustic.

VERDITER GREEN. *Copper green. Viride montanum vulgare.*

GREEN BICE. *Malachite. Viride montanum optimum. Chrysocola.*

BLUE BICE. *Cæruleum montanum. Lapis Armenus præparatus.* Found in mines, prepared by grinding and washing for paints.

VERDITER BLUE. *Azurum cinereum.* Made by the refiners from the solution of copper obtained in precipitating silver from nitric acid by heating it in copper pans; this solution they heat, and pour upon whiting moistened with water; stirring the mixture every day, till the liquor loses its colour, when it is poured off, and a fresh portion of the solution poured on, until the proper colour is obtained: an uncertain process, the colour sometimes turning out a dirty green, instead of a fine blue.

DROSS OF LEAD. *Plumbum ustum.* Obtained by melting lead, and raking off the scum till it is entirely reduced to dross.

2. By putting thin plates of lead into a pot with powdered brimstone between them, setting it on fire, stirring it

until it is reduced to ashes, and washing it with water; used in making plaisters and ointments.

MASSICOT. *Ochra plumbaria factitia*. Made by roasting potter's lead ore, or dross of lead, until it acquires a yellow colour; used as a paint.

LITHARGE OF GOLD. *Lithargyrus auri*. Yellow, impure.

LITHARGE OF SILVER. *Lithargyrus argenti*. White: obtained in the extraction of silver.

ENGLISH LITHARGE. *Lithargyrus. Oxidum plumbi semivitreum*. Made by melting red lead; used in making plaisters, being more convenient than red lead, and from its peculiar scaly appearance it cannot be adulterated. In grinding litharge, 12 oz. of olive oil are added to each cwt. to prevent dust.

RED LEAD. *Minium. Plumbi oxidum rubrum*. By roasting litharge in a flaming fire; used in making plaisters, and as a paint: adulterated with red earths.

ORANGE RED. *Sandia*. Made by calcining white lead: is a brighter colour than red lead.

THE LOADSTONE. *Magnes*. Found in iron mines; astringent; used externally to draw weapons out of wounds, also as an amulet against the gout, and by some to draw over or stroke certain parts in painful diseases, as a magical remedy.

THE BLOOD STONE. *Lapis hæmatitis. Hæmatitis*. Found in mines; dark red, extremely hard, fibrous; made into polishers, and when prepared by grinding and washing over, drying, astringent, agglutinating; used also as a polishing powder.

SCALE OF IRON. *Black oxide of iron. Protoxide of iron. Squama ferri. Oxidum ferri nigrum*. The scales of iron beaten off by the blacksmith in his work, separated from the dirt by means of a magnet, reduced to powder in a mortar, and washed over: dissolve in acids without disengaging hydrogen gas, and therefore do not occasion flatulence, hence preferable to the filings.

2. *Æthiops Martialis*. By keeping iron filings under water, shaking them occasionally (to hasten the process, a few drops of any acid may be added), washing the black powder thus obtained, and drying it as quick as possible to prevent rust.

3. By heating, in a covered crucible, iron filings with half their weight of red oxide of iron.

4. By heating the red oxide of iron with oil; but this is either black lead, or contains a portion of it, and is therefore improper.

RUST OF IRON. *Crocus Martis aperitivus. Ferri rubigo. Chalybs præparatus cum aceto. Chalybis rubigo. Carbonas ferri præparatus.* Iron filings, or iron wire, is exposed to the air, and frequently moistened with water, to which a small quantity of vinegar may be added to hasten the process; the rust is then ground to powder and washed over: seems to be rather a red oxide, although referred to the carbonate by the Edinburgh college.

2. *Carbonas ferri. C. ferri præcipitatus.* A solution of 4 oz. of green vitriol in water, is precipitated by another solution of 5 oz. of natron præparatum in water, the precipitate is washed with warm water, and dried without exposure to the air, that it may retain its green colour.

3. By precipitating the solution of green vitriol with kali præparatum, instead of natron, performing the process in hot water, and drying it by steam. Powell.

4. *Subcarbonas ferri* P. L. 1815. By precipitating a solution of 8 oz. of green vitriol in water, by a solution of 6 oz. of natron præparatum.

CROCUS MARTIS. *Peroxide of iron. C. Martis astringens. Oxidum ferri rubrum.* By calcining iron or steel filings till they become of a red colour.

2. *Crocus Martis aperitivus* P. L. 1720. *C. M. sulphuratus.* By melting together equal parts of iron filings and sulphur, and calcining the mass till all the sulphur is driven off.

3. *Brown red. Colcothar vitrioli. Oxidum ferri rubrum.* By re-calcining green vitriol (previously calcined to whiteness) by an intense heat until it becomes very red, and washing the residuum. P. E. omits this washing.

4. By washing the residuum left in the distillation of aqua fortis till all the saline matter is abstracted.

5. *Crocus Martis Zwelferi.* Iron filings and nitre ana p. æq. injected into a red hot crucible, kept in the fire for an hour, and then well washed.

6. By pouring upon iron filings twice their weight of aqua fortis, and washing the crocus with warm water.

7. *Crocus Martis antimonialis Stahlii*. Scorïæ of the Martial regulus of antimony well washed, p. j, nitre p. 2 or 3; calcined together for some time, and then washed.

8. By precipitating a solution of green vitriol in water, by a solution of natron præparatum or of kali præparatum, and exposing the precipitate to the air while it is dried.

Is tonic, stimulant, gr. v to x; used in the composition of astringent, drying, and strengthening plaisters and ointments: employed also for polishing metals.

CHALCITIS. Found occasionally, being native green vitriol calcined by natural causes, but rare, and no ways preferable to colcothar.

POTEE POWDER. *Polisher's putty*. *Cineres stanni*. Procured by melting tin, raking off the dross as it is formed, and calcining this dross till it becomes whitish.

2. By melting tin with an equal weight of lead, and then raising the heat so as to render the mixed metal red hot, when the tin is immediately flung out in the state of potee powder: very hard, used for polishing glass and japan work.

BEZOARDICUM JOVIALE. Tin 1 oz. nitre 3 oz. flung into a red hot crucible, and the calx well washed.

ANTIHECTICUM POTERII. Tin, regulus of antimony, ana p. æq. melted together, then deflagrated with three times as much nitre, and well washed: are astringent ʒj—ij, used in phthisis.

LAPIS CALAMINARIS. *Calamina*. *Carbonas zinci impurus*. Found in mines; drying, astringent: used in ointments; but cawk, sulphate of barytes, coloured, has been lately sold for it; used also to furnish zinc, and for making brass.

TUTTY. *Tutia*. *Tuthia*. *Oxidum zinci impurum*. The sublimate collected in the chimnies of furnaces in which ores mixed with lapis calaminaris are smelted, this sublimate being mixed with clay on cylindrical moulds and baked; or it is collected during the roasting of blende, attaching itself to the upper part of the furnace: drying, astringent; used in eye waters and eye ointments.

FLOWERS OF ZINC. *Flores zinci*. *Zincum calcinatum*. *Zinci oxydum*. *Oxydum zinci*. Procured by burning zinc in a long deep crucible, conveniently placed to collect the flowers as they form: antispasmodic; used in epilepsy, gr. v—x; also in painting, as a substitute for white lead.

2. *Pompholia. Nihil album.* Collected in the smelting furnaces, wherein zinc ores or brass are melted: used in ointments for tutty.

PROTOXIDE OF ANTIMONY. *Powder of Algaroth. Mercurius vitæ.* Pour butter of antimony into distilled water, wash the precipitate, and dry it by a gentle heat.

2. Digest 1lb of liver of antimony for a day in three pints of water, to which 1lb of oil of vitriol and 1lb of common salt has been previously added: decant the clear solution and pour it into hot water, wash the precipitate and dry it. *Scheele.*

3. *Oxidum antimonii nitro-muriaticum.* Spirit of salt ʒxj, spirit of nitre ʒj, crude antimony ʒij, dissolve, pour the clear solution into a gallon of water, and wash the precipitate. P. D.

4. *Oxydum antimonii* P. L. 1809. Mix in a matrass; spirit of nitre ʒj, with spirit of salt ʒxj, add by degrees crude antimony ʒij, strain the solution and pour it into a gallon of water, in which kali ppm. ʒij has been previously dissolved: wash and dry the precipitate; process very uncertain, often produces peroxide, ʒj of spirit of nitre having been directed instead of ʒj, as in the preceding.

5. *Oxydum antimonii* P. L. 1815. Dissolve emetic tartar ʒij in distilled water, and ammonia ppa. ʒij in another portion of water, mix the two solutions, boil till the precipitation is complete, and wash the precipitate.

6. Peroxide of antimony 4 oz. regulus of antimony 1 oz.: mix and melt.

Dirty white, fusible in a low red heat, and may be kept melted in contact with regulus of antimony without undergoing any alteration, soluble in acids, and in a solution of cream of tartar in water: violently emetic, gr. fs—j.

PEROXIDE OF ANTIMONY. *Diaphoretic antimony. Antimonium diaphoreticum. Calx antimonii. Antimonium calcinatum.* Crude antimony 1lb, purified nitre 3lb, inject by spoonfuls into a red hot crucible, powder the mass, and wash it well; the flowers that stick to the side of the crucible must be carefully separated, otherwise they render it emetic.

2. *Bezoar mineral. Bezoarticum minerale.* Upon butter of antimony drop slowly as much spirit of nitre, distil it off, and pour it on again, adding one third new spirit of nitre; repeat this operation, and calcine the residuum.

3. To powder of algaroth add twice as much spirit of nitre, distil to dryness, calcine the residuum and edulcorate it with warm water.

4. *Magistery of diaphoretic antimony. Materia perlata.* To the water that was used in washing the diaphoretic antimony, add spirit of vitriol, or some other acid, as long as any precipitate is produced, which is to be washed.

5. *Cerussa antimonii.* Regulus of antimony 2℔, purified nitre 3℔: grind together, and proceed as for diaphoretic antimony: in this operation and similar ones, the admixture of the emetic flowers may be avoided by sinking the crucible deep in the coals, so that the sides, up to the very top, may be too hot for them to settle on; or they may be collected by using a tubulated earthen retort.

6. To 4 oz. of regulus of antimony finely powdered, add by degrees 12 oz. of spirit of nitre, distil to dryness, powder the mass and wash it.

White, not soluble in acids as the protoxide, requires a violent heat for its fusion, but rises in silvery white crystals at a lower heat; melted with a fourth part of regulus of antimony it is changed into protoxide; diaphoretic, in doses of gr. ij—x; but Wilson, *Course of Chymistry*, p. 106, says he has known diaphoretic antimony given with good success by half an ounce at a dose, and repeated two or three times a day, and that for several days successively.

FLOWERS OF ANTIMONY. Flores antimonii. Throw into an ignited tubulated retort powdered crude antimony by spoonfuls, till as many flowers come over into the receivers as you desire; the bottom of the retort must be very hot, and the fire kept up steadily; emetic, in doses of gr. j—ij.

ARGENTINE FLOWERS OF ANTIMONY. Flores antimonii argentei. Are obtained by keeping regulus of antimony in a state of fusion in vessels which admit the air, but prevent the escape of the flowers, and afford them a cool place on which they may settle: referred, by the philosophical chemists, to the peroxide, but, unless they have been confounded with the preceding, they are considerably emetic, and therefore seem to be a protoxide.

GLASS OF ANTIMONY. Vitrum antimonii. Antimonium vitrificatum. Oxidum antimonii cum sulphure vitrificatum. Formed by roasting powdered crude antimony in a shallow vessel, over a gentle fire, till it is of a whitish gray, and emits no fumes in a red heat, then melting it in a quick fire

into a clean brownish red glass. If the antimony has been calcined too much, it will require a little crude antimony to be added to render it transparent: composed of eight parts of protoxide, united with one of crude antimony; violently emetic, in doses of gr. j—ij, and very uncertain in its operation; used in making antimonial wine and emetic tartar.

CROCUS METALLORUM. *Crocus antimonii* P. L. 1745. Crude antimony and saltpetre ana equal weights, mix and melt.

2. *Crocus antimonii* P. L. 1788. Crude antimony and saltpetre, of each 1lb, common salt 1 oz.: mix and melt.

3. *Crocus antimonii lotus*. *Oxidum antimonii cum sulphure per nitratem potassæ*. Crude antimony and saltpetre, of each equal weights: mix and melt, pour out, separate the reddish part from the whitish crust, reduce the former to powder, and wash it as long as it communicates any taste to the water; another beautiful sesquipedalian name.

4. Crude antimony 8 oz. rough saltpetre 7 oz. ground together, put into an iron mortar, and set on fire by a lighted coal: an inferior article.

5. By roasting crude antimony to a dull gray, and melting it: the common process.

These are emetic, in doses of gr. ij—viij, but uncertain and sometimes violent; used for making emetic wine, &c. and a purge for cattle: the yellowish red varieties contain four parts of protoxide and one of antimony; the dark red two parts of protoxide to one of antimony.

MAGISTERY OF BISMUTH. *Pearl white*. *Fard*. *Spanish white*. *Magisterium marcasitæ*. Dissolve bismuth in spirit of nitre q. s. and add river or distilled water, which throws down a white powder, to be washed and dried in the shade.

2. Bismuth 1bfs, nitre 1bj; grind together, and inject by degrees into an ignited tubulated earthen retort, with receivers annexed to catch the flowers.

3. Bismuth 4lb, spirit of nitre q. s. about 2lb; dissolve and precipitate by kali ppm. 4lb, in water 6lb: wash the precipitate well: used as a cosmetic paint; grows yellow by keeping, especially in the light.

MANGANESE. *Magnesia nigra*. Found in mines; used in a small proportion to render glass colourless, or in a large proportion to colour it purple; and in chemical processes to produce oxygen gas by distilling, or to supply oxygen to the

species for spirit of salt, and thus convert it into oxymuriatic acid.

BLACK WAD. Found in mines; earthy, mixed with lint-seed oil, in moist weather grows hot, and takes fire.

PERIGORD STONE. *Lapis Petracorius.* Found in mines; used to colour glass black.

ANTIMONIAL POWDER. *Pulvis antimonialis* P. L. 1788. *Oxidum antimonii cum phosphate calcis.* Crude antimony in gross powder, hartshorn shavings, ana ℥℥; roast in an iron pot until they form a gray powder, put this into a long pot, with a small hole in the cover, keep it in a red heat for two hours, and grind it to a fine powder.

2. *Dr. James's powder.* *Pulvis antimonialis* P. L. since 1809. Crude antimony ℥℥, hartshorn shavings ℥℥; proceed as in the former.

3. *Chenevix's antimonial powder.* Precipitate obtained by pouring butter of antimony into water, and phosphate of lime obtained by dissolving burnt bones in spirit of salt and precipitating the solution by sp. corn. cervi, ana equal weights; dissolve these in spirit of salt, and pour the solution into water alkalized with spir. corn. cervi. Febrifuge and diaphoretic, gr. iij—viij; in larger doses, gr. x—℥j, emetic and purgative: used also as an alterative in cutaneous diseases.

34. EARTHS AND CLAYS.

As these are more used as paints than medicines, they are arranged by their colours. The modern mineralists pay too little attention to these substances, notwithstanding their great use, so far superior to that of stones, that it almost seems necessary to remind them that earths and clays exist in nature.

TERRA LEMNIA ALBA. Dirty white with a gray cast, very heavy, rough, harsh, not colouring, burns very hard, outwardly dark brown, inwardly brownish yellow; used in dysenteries and malignant fevers.

BOLUS ARMENA ALBA. Bright white, compact, very smooth and soft, not colouring, burns very hard, and at last forms a whitish gray glass; sudorific.

BOLUS CANDIDUS. *Axungia Lunæ.* Pearly white, light, smooth, not unctuous nor colouring; burns to a very pale whitish yellow: astringent, cordial.

TOBACCO-PIPE CLAY. *Blanc d'Espagne. Cimolia alba.* White, smooth, unctuous, slightly colouring, burns rather hard, and very white; used to make tobacco-pipes, and to take grease out of clothes.

WHITE LUMBER STONE. *Terra Samia vulgaris.* The same; made into cakes with a stamp.

SOAP-ROCK. *Spanish chalk. Parætonium. Creta Hispanica. C. Sartoria.* White, firm, compact, weighty, hard, smooth, unctuous, not colouring, burns to a stone; writes upon glass, and if rubbed off, the marks become again visible by breathing upon the place: used by tailors to draw their patterns; to take out grease spots; and to engrave upon, the engraving being afterwards hardened by fire.

TERRA CIMOLIA. White, compact, smooth, colouring, burning rather harder; found in the island Argentiere: used to wash clothes.

CHALK. *Creta. C. argentaria.* White, differing in hardness; when newly burned, it grows hot with water, and falls into powder: antacid, used in heartburn, gr. x—ʒij; externally absorbent.

WHITING. *Blanc de Troyes.* Prepared from the soft variety of chalk, by diffusion in water, letting the water settle for two hours, that the impurities and coarser particles may subside, then drawing off the still milky water, letting it deposit the finer sediment, decanting the water when clear, and drying the sediment; is much finer than the common ppd. chalk of the apothecaries, but is principally used as a cheap white paint.

CRETA PRÆCIPITATA. Precipitate a solution of muriate of lime by a solution of natron ppm. in water, and wash the sediment: no ways different from common whiting.

MAGNESIA ALBA. *Magnesia P. D. Magnesiæ carbonas.* Obtained by precipitating the bittern or liquor left in the boiling of sea water, after the common salt has been separated by evaporation, by a ley of wood ashes or kali ppm.

2. Epsom salt, kali ppm. ana p. æq.; dissolve separately in plenty of water, add the two solutions while boiling hot, strain, and wash the sediment till the water is insipid.

3. Epsom salt 56lb, dissolve in water, and precipitate with natron ppm. q. s. dissolved in water, wash the sediment well, and finish the washing with rose water: is made up while drying, either into large cubes with the edges bevelled, or in small dice; is powdered by being rubbed

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through a sieve; antacid, laxative, ℥ss—ʒij, mixes well with milk, sometimes occasions flatulence, recommended in calculous complaints.

CALCINED MAGNESIA. *Magnesia usta. Magnesia P. L.* and P. E. Expose magnesia alba to a red heat for two hours, or until it exhibits a peculiar luminous appearance: antacid, laxative, ℥ss—ʒij, does not occasion flatulence, but is not so soluble in the stomach as the other.

MAGISTERY OF ALUM. *Earth of alum. Alumine.* Dissolve alum in water, and add to the solution spirit of hartshorn, or aqua kali, sufficient to precipitate the earth: used as a basis for paints.

ITALIAN WHITE CHALK. *Gesso. Bianchetto di pittori.* Dull white, hard, compact, regular texture, colouring, burns rather harder; used for a crayon.

BLANC DE BOUGIVAL. White marle, composed of two parts clay and one of chalk, made up in oblong cakes; used in painting.

BLANC DE MOUDON. *Blanc de Morat. Earth of Gera?* Silvery, silky, white, very fine, effervescing with acids; used in painting.

BLANC DE ROUEN. White marle made up in masses of 1lb each; used in painting.

STRIGAU EARTH. *Bole. Terra sigillata Silesiaca. Axungia solis.* Deep dull yellow, smooth, coarse but compact, heavy, not colouring, burns very hard, and to a fine red; from Strigau in Silesia: astringent and alexiterial.

YELLOW OCHRE. *French ochre. Spruce ochre. Powder ochre.* Fine dusky yellow, compact, firm, smooth, unctuous, slightly colouring, when moist very viscid, burns very hard, and to a fine bright red; Shotover Hill, Oxfordshire, and elsewhere: used in painting.

VENICE TRIPOLI. *Terra Tripolitana vera.* Whitish yellow, or pale straw, firm, harsh, dry, colouring, burns rather harder, and to a pale rose colour; used for polishing and cleaning metals.

CLAY OCHRE. Deep yellow, heavy, close, firm, smooth, not colouring, burns to a fine deep colour, without any hardness; from Mendip Hills: used in painting.

YELLOW EARTH. *Argilla lutea.* Pale yellow, very fine, loose, friable, colouring greatly, astringent taste, burns to a fine rose colour, but not harder; from Saxony: used for polishing, and as a paint.

ITALIAN OCHRE. Fine yellow, firm, compact, very light, colouring, astringent; burns very hard, and to a dull red: used in painting.

COARSE OCHRE. Fine bright yellow, heavy, hard, firm, irregular texture, harsh, dusty, colouring, very impure; burns to a very pale ashen red, but no harder; Mendip Hills: used in painting.

ROMAN OCHRE. Hard, heavy, very deep or brown yellow, firm, regular, harsh, dusty, colouring very much, burns rather hard, and to a fine purplish red; Somersetshire, also near Rome: used as a paint.

FOUNDERS LOAM. Deep yellow, fine, soft, with spangles of mica, slightly colouring; burns to a pale red, but not harder; Thrup, in Northamptonshire, also near Highgate Archway: used by founders for their moulds.

RED ARMENIAN BOLE. *Bolus Armena rubra*. Deep red, hard, heavy, close, rough, colouring the hands; burns rather harder, and to a brighter red: astringent and alexiterial.

COMMON LEMNIAN EARTH. *Terra Turcica*. Pale flesh red, not very close, heavy, slightly unctuous; burns very hard and to a dusky yellow.

GERMAN BOLE. *Bolus Bohemica rubra*. Pale yellowish red, compact but unequal, heavy, smooth, burns rather harder, without changing colour: astringent.

TERRA LEMNIA RUBRA. Pale red variegated with yellow, close, very heavy, rough, but scrapes smooth, not colouring, burns very hard and to a fine deep red; Lemnos: astringent, sudorific.

BOLE OF BLOIS. *Bolus Blesensis*. *Bolus Armena lutea*. Pale red with an orange cast, close, hard, heavy, not colouring, effervescing violently with acids, very astringent taste, burns to a stony hardness and a dark red; astringent, sudorific, highly commended in the plague.

FRENCH BOLE. *Bolus rubra Gallica*. Pale red, with white and yellow veins, heavy, close, slightly unctuous, not colouring, slightly astringent; burns very hard, but of the same colour: astringent.

BARROS. *Bucaros*. *Terra Portugallica*. Fine florid red, heavy, harsh, colouring, strongly astringent, burns brighter but not harder; used in dysentery, and in dentifrices.

MAHOGANY EARTH. Pale red, sometimes darker, com-

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compact, heavy, smooth but neither glossy nor unctuous, not colouring, burns very hard, without change of colour; Isle of Wight and elsewhere: used in painting, and to stain wood of a mahogany colour.

SOFT RUDDLE. *Clay iron ore. Rubrica fabrilis mollis.* Dusky red, loose, very heavy, extremely unctuous, with an oily gloss, colouring very much; burns very hard, externally little altered, but internally resembles iron; in iron mines: used as a colour, and also as an iron ore.

HARD RUDDLE. *Red chalk. Rubrica fabrilis.* Deep red, hard, heavy, solid, smooth, rather unctuous, colouring very strongly; burns very hard and darker: used as a crayon, also as an astringent.

RED LUMBER STONE. *Terra sigillata rubra.* The same, but ground, made into small cakes and sealed.

COMMON BOLE. *Bolus communis.* The same, but ground and made into large round cakes; astringent, used for cattle, and in tooth powders.

RED STONE-OGHRE. *Ochra rubra.* Fine deep red, solid, harsh, very dusty, colouring, not altered by burning; Warwickshire: used as a colour.

RED OGHRE. *Ochra friabilis rubra. Sil Syriacum.* Fine strong red, heavy, loose, rough, dusty, colouring very much; burns very hard, and much paler: used in painting.

INDIAN STONE RED. Fine purplish red, very solid, hard, rough, dusty, colouring; burns rather darker: used as a paint.

SPANISH BROWN. *Almagra. Ochra Hispanica.* Fine deep red with a purple cast, heavy, not hard, rough, colours very much, burns very hard and paler: used as a colour.

INDIAN RED. *Ochra purpurea Persica.* Fine purple, extremely heavy, very hard, solid with glittering particles, colours very much, burns very hard, with no change of colour; from Ormuz: used as a paint.

VENETIAN RED. *Bolus Veneta.* Dull red, not very heavy, firm but dusty, colouring, burns very hard, and of a dusky colour; from Venice as a colour.

BROWN RED OGHRE. Very deep brown red, extremely heavy, firm, very rough, colours very much, slightly altered by burning; used as a colour.

TERRA DI SIENNA. Deep brown or coffee colour, fine, compact, very light, very smooth and glossy, does not co-

lour, when wetted marks a fine yellow upon paper; burns to a pale reddish brown, but does not harden; from Italy, and an inferior sort from Wycombe: used as a paint.

BURNT TERRA DI SIENNA. Used also as a paint.

COMMON CLAY. *Argilla lateritia*. Drying, astringent; used for artificial stones, as bricks, &c. and common pottery.

FULLERS EARTH. *Cimolia purpurescens*. *Smectis*. *Terra saponaria*. *Terra fullonica*. Grayish brown, but varying greatly, hard, very compact, rough but scrapes glossy, does not colour, burns hard and yellowish brown; being very fine, and absorbing grease very readily, used to full woollens.

ROTTEN STONE. *Terra cariiosa*. Ash brown, very light, moderately hard, dry, colouring, burns to a deep ash, but no harder; Derbyshire: used as a polishing powder.

UMBER. *Terra Umbria*. *Creta Umbria*. Fine pale brown, close, very light, dry, colouring, burns deep reddish brown, but no harder; used as a colour.

BURNT UMBER. Used for paint.

WINDSOR LOAM. Yellowish brown, very hard, heavy, harsh, colouring slightly, burns very hard and fine deep red; from Hedgerly, near Windsor: used for setting the bricks of wind furnaces, glasshouse furnaces; also for making lutes and coating glass and earthen vessels to be exposed to a strong fire.

BATH BRICKS. Windsor loam made into bricks; used for a coarse polishing powder.

FOUNDERS CLAY. *Penny earth*. Dusky brown, very hard, heavy, harsh, not colouring; Woolwich, also Northamptonshire: used for moulds in large foundries, as for cannon balls, &c.

CHEAM CLAY. Very light ash-colour nearly white, compact, fine, very smooth, not colouring, burns pale white and very hard; used for making melting pots.

BOHEMIAN TRIPOLI. *Creta cinerea*. *Schistus mollis*. *Terra Melia*. Light ash-colour, heavy, moderately hard, open, harsh, dusty but not colouring, not altered by burning; used for polishing, and as a plate powder.

TERRE VERTE. *Terra viridis*. Deep blueish green, very heavy, hard, smooth, glossy, not colouring but marking a green line, coppery taste, burns very hard and to a dusky brown; from near Rome, also near Woolwich: used as a lasting green paint.

SIMPLE SUBSTANCES.—34. Earths and Clays. 269

FRENCH CHALK. *Creta Brianzonica. Morochtos. Leucogæa.* Greenish, semitransparent, compact, smooth, unctuous, glossy, not colouring, scrapes white, marks an unctuous silvery line; burns very hard and white; astringent, but more used to mark woollen cloth, and to take out grease: frequently confounded with Spanish chalk.

MYRSEN. *Meer schaum. Keffekil. Marga viridescens.* Pale grayish green resembling tallow dropped upon brass, close, heavy, smooth, unctuous, glossy, not colouring, burning extremely hard and pale white; used for bathing as a soap, also to close the eyes of corpses, and to make the large bowls of German tobacco-pipes.

ITALIAN BLACK CHALK. *Drawing slate. Schistus pictorius.* Fine black, compact, laminated, slightly smooth, colours and writes, burns white and friable, some burns red; in coal mines: used as a crayon.

KILLOW. *Nod dû. Killoia molliuscula.* Fine black with a blueish cast, slightly smooth, friable, colours very much, tastes astringent, burns hard and gray; Wales: made into balls or sticks, used in painting.

HARD KILLOW. *Marking stone. Common black chalk. Black shale. Schistus carbonarius.* Fine black, firm, slightly flaky, dusty, colouring, burns to a fine white soft ash; used as a paint.

35. STONES AND GLASSES.

FIVE PRECIOUS STONES. Garnet, hyacinth, sapphire, carnelian, emerald: cordial!

FINE WHITE SAND. *Maidstone sand. Arena rotunda.* To dry up ink, and to filter acid and corrosive liquors.

POWDERED GLASS. *Vitrum pulverisatum.* Used to filter acids; also glued upon paper as a polishing powder, and to wear down corns on the feet.

EMERY. *Smyris. Smerillus.* Found in rocks; extremely hard; ground in mills, and sorted by being stirred with water, the water left to settle for a determinate number of minutes, then drawn off into another vessel, and left finally to deposit the powder with which it is loaded; used for polishing, either in the state of powder, or glued upon paper for scouring.

PUMICE STONE. *Lapis pumex.* Spongy, swims upon water; used whole as a kind of file, in powder as a polishing powder, and added to some dentifrices.

EAGLE STONE. *Ætites.* A hollow stone with another in it, that may be heard to rattle when shaken; facilitates delivery if bound upon the thigh, prevents abortion if bound upon the arm!

IRISH SLATE. *Alum slate. Lapis Hibernicus.* Sweetish, agglutinant, in bruises, fractures, a spoonful in beer.

ENGLISH TALC. *Asbestos.* Fibrous; used to make wicks for lamps, and cloth which is incombustible by a moderate heat; also to absorb oil of vitriol and prevent its being accidentally spilled from the bottles sold with chemical matches.

PARKER'S CEMENT. Made from the indurated marle called clay balls, or the waxen vein found in the London clay strata, by calcining and then grinding them, without any admixture whatever: used as a cement, and also for coating the outside of houses.

LIME-STONE. *Lapis calcarius.*

MARBLE. *Marmor.* Used to ascertain the strength of acids, to yield carbonic acid gas while dissolving in them, 100 gr. yielding about 100 cub. in., or to make lime.

STONE LIME. *Calx viva.* From lime-stone by a red heat; corrosive, antacid, depilatory: used for cements, to make lime water, and render the alkalies caustic.

OSTEOCOLLA. Agglutinant; used in fractures, ℞j, night and morning.

GYPNUM. *Sulphate of lime.* Used to render cloudy white wines transparent; also as a forcing manure.

PLASTER OF PARIS. *Gypsum ustum.* Used as a cement, and to make models of statues, &c.

CAWK. *Heavy spar. Spathum ponderosum. Sulphas baryta.* Found in mines, very heavy: used to mix with flake white, to make muriate of barytes, and lately sold for lapis calaminaris, but is not soluble in spirit of vitriol. When heated it absorbs light, and is phosphorescent in the dark.

PERMANENT WHITE. *Artificial sulphate of barytes.* Made by precipitating muriate of barytes by oil of vitriol, or a solution of Glauber's salt; used to mark jars in laboratories, as it is affected by very few substances.

COCKS COMB SPAR. *Witherite. Terra ponderosa. Carbonas baryta.* Found in mines, but rare; used as a poison for rats, and to prepare muriate of barytes.

KEMP'S WHITE FOR WATER COLOURS. *Artificial carbonate of barytes.* Cockscomb spar q. p. spirit of salt q. s.;

dissolve, add carbonate of ammonia to precipitate the white, wash, and dry in cakes for use.

ZAFFRE. *Saffra.* Is a mixture of one part of roasted cobalt, ground with two or three parts of very pure quartzose sand; is either in a cake, or reduced to powder; used as a blue colour for painting glass.

SMALT. *Powder blue. Smalta. Azurum.* Is made from roasted cobalt, melted with twice or thrice its weight of sand, and an equal weight of potash: the glass is poured out into cold water, ground to powder, washed over and sorted by its fineness, and the richness of its colour: used in painting and in getting up linen.

ULTRAMARINE BLUE. *Caruleum ultramontanum.* Lapis lazuli 1lb is heated to redness, quenched in water, and ground to a fine powder; to this is added yellow rosin 6 oz. turpentine, bee's wax, lint-seed oil, ana 2 oz. previously melted together, and the whole made into a mass; this is kneaded in successive portions of warm water, which it colours blue, and from whence it is deposited by standing, and sorted according to its qualities: a fine blue colour in oil.

ENAMEL COLOURS. *Encausta.* Lead 10lb, tin 3lb, calcined together; the calx mixed with white sand 10lb, kali ppm. 2lb, forms a white enamel, to which the oxides of different metals being added, forms coloured enamels; used in glazing and painting earthen ware, the dial plates of clocks and watches, &c.: imported from Venice in flat round cakes. A number of receipts for making enamel and glass colours may be seen in the Transactions of the Society of Arts, vol. xxxv. where the whole art of painting upon glass is given in detail.

SHELL LIME. *Calx e testis.* From oyster or other shells, by calcination: corrosive, antacid, depilatory; used for cements, to make lime water and render the alkalies caustic. The same as stone lime.

36. ALKALINE SALTS.

Under which are included, not only the pure alkalies, but also the carbonates of them, as the acid combined with them is so weak as scarcely to alter their properties.

ASH BALLS. Principally the ashes of fern, made up into balls: used for washing instead of soap.

POT ASH. *Alumen catinum*. From land plants burned to ashes, part of the ashes elixated with water, and the ley used to moisten the remainder of the ashes, mixed with quicklime, stratifying this paste with billets of wood, and setting the pile on fire: contains more earth than pearl ash, but is more pungent; saturates more acid, and dissolves oil more powerfully.

PEARL ASH. *Cineres Russici*. *Cineres clavellati*. *Potassæ carbonas impurius*. *Potassa impura*. From the ashes of land plants, by calcination, solution in water, filtration, and evaporation.

BURNT LEES OF WINE. *Cinis infectorius*. *C. fæcum*. *Alumen fæcum*. From the ashes of lees of wine, and vine twigs, very pure: used by the Continental dyers, in preference to pearl ash.

SALT OF WORMWOOD. *Sal absynthii*. *S. herbarum*. *Kali præparatum*. *Subcarbonas kali*. *Carbonas potassæ*. *Potassæ subcarbonas*. Pour upon pearl ash an equal weight of boiling water; filter and evaporate until the liquor grows thick, then remove the fire and stir the salt continually, until it concretes into small grains.

2. *Salt of tartar*. *Sal tartari*. *Kali ppm. e tartaro*. *Kali e tartaro*. *Subcarbonas potassæ purissimus*. *Potassæ subcarbonas e tartaro*. Burn argol in a crucible until it emits no more smoke, then powder and calcine it afresh till it is nearly white; dissolve it in water, filtre and evaporate.

3. *Nitre fixed by charcoal*. *Nitrum fixatum a carbonibus*. Nitre and charcoal powder ana mens. æq.; mix, and set it alight by a red hot coal.

4. *White flux*. *Fluxus albus*. Nitre and tartar ana p. æq.; deflagrate as before: diuretic, in doses gr. v to ℥j, cathartic in larger doses; used in making glass, in bleaching and scouring cloth, and to precipitate alum.

KALI AERATUM. *Bicarbonate of potash*. *Potassæ carbonas*. Salt of tartar, water ana 1℥; dissolve, add ammonia præparata ℥ij, keep it in a heat of 180 deg. Fahr. for three hours, and set it by to crystallise: by evaporation a second crop of crystals may be obtained.

2. Dissolve kali ppm. 1℥ in water 3℥, and pass through the liquor; the gas expelled by adding pounded marble to spirit of vitriol; the kali aeratum crystallises as fast as it is

formed: preferable, as being milder tasted than the subcarbonate; used to form effervescent mixtures.

LAPIS INFERNALIS. *Lapis septicus. Kali purum. Potassa. P. fusa. Kali causticum.* Soft soap ley q. s. evaporate till the boiling ceases, and the salt melts smoothly like oil, then pour it out on an iron plate, and cut it into pieces: caustic, but is apt to spread.

NITRE FIXED BY METALS. *Nitrum fixatum a metallis.* Regulus of antimony 4 oz. melted in a large crucible, purified nitre 20 oz. added at three separate times an hour apart, and the matter kept in fusion for some time. Very caustic, but rendered impure by the oxide of antimony.

BARILHA ASHES. *Sal alkali. Barilla. Soda impura. Carbonas sodæ impurus.* The ashes of salicornia Europæa.

KELP. The ashes of fucus vesiculosus and several other species; used in bleaching.

COMMON SODA. From kelp, by boiling in water, filtration, and evaporation to dryness: used in washing, not affecting the hands so much as pearl ash.

NATRON PRÆPARATUM. *Sodæ subcarbonas. Carbonas sodæ P. E. & D.* Dissolve barilha ashes or kelp 1lb, in water 1 gall. filter and evaporate to 2lb, set it aside to crystallise: antacid, deobstruent, gr. x—ʒfs, bis terve in die.

SODÆ SUBCARBONAS EXSICCATA. *Carbonas sodæ siccatum.* Melt natron ppm. until it becomes dry, stirring it continually: antacid; used also in calculous complaints, in small doses frequently repeated so as to take ʒj—ij in the day.

BICARBONATE OF SODA. *Sodæ carbonas P. L.* Natron ppm. distilled water ana 1lb; dissolve and add ammonia ppa. ʒij, apply a gentle heat of 180 deg. Fahr. for three hours, and set it by to crystallise; a second crop of crystals may be obtained by evaporating what remains.

2. Pass the gas from pounded marble, dissolving in spirit of vitriol through a solution of natron ppm. in water, as in making aerated kali: antacid, gr. x—ʒj.

SALT OF HARTSHORN. *Volatile salt. Smelling salt. Bakers' salt. Sal cornu cervi. S. volatilis salis ammoniaci. Ammonia præparata. Carbonas ammoniæ. Subcarbonas ammoniæ.* Is obtained in the same process with spirit of hartshorn, and is purified by mixture with 1-8th of chalk and sublimation with a gentle heat.

2. Sal ammoniac 1℔, powdered chalk 2℔; mix accurately, and sublime.

3. Sal ammoniac, natron ppm. ana ℥j; sublime. P. D. Stimulant, and used as an errhine, like the spirit: much used by the bakers, as it makes better bread with unsound flour than either natron or kali ppm.: if the flour is not very unsound, 1 oz. of this salt is sufficient for 14℔ of flour; but the very worst of flour may be brought into use if sufficient of this salt is added. The salt is dissolved in the water, and the dough kneaded up very stiff.

37. NEUTRAL SALTS.

It is a curious phenomenon, and one on which the purification of several salts is founded, that water when saturated with any one salt, will dissolve another, or even several other salts: hence a small quantity of water poured upon a large mass of impure salt, saturates itself with the most abundant, and then dissolving the other salts which render it impure, leaves the remainder in a state of purity.

COMMON ALUM. *Rock alum. Alumen commune. Alumen rupeum. Sulphas aluminæ.* In large lumps, formed by pouring a saturated solution into barrels, where it forms a solid mass.

ROMAN ALUM. *Alumen Romanum.* In crystals, pale red when broken, and covered with a reddish efflorescence: not refined, used by the dyers, contains no ammonia.

ROCHE ALUM. *Alumen de Rochi.* From the original manufactory at Roccha, formerly called Edessa, in Syria, in pieces the size of an almond to that of an egg, covered with a reddish efflorescence.

COMMON ROCHE ALUM. *Alumen rupeum vulgare.* Fragments of common alum, moistened and shaken with prepared lapis calaminaris. Obtained from different minerals by elixation and crystallisation, previously adding potashes or urine, or both: tonic, astringent, gr. v—xx, in gargles ℥ss to water ℥iv, in eye-waters and injections gr. xij to water ℥vj; used largely by the dyers, also to harden tallow for mould candles, and many other purposes in the arts.

BURNT ALUM. *Alumen ustum. A. exsiccatum. Sulphas aluminæ exsiccatum.* By melting common alum, and

keeping it on the fire until it cease to boil; used in colic, ℞j for a dose; externally escharotic.

SAL AMMONIAC. *Sal ammoniacus. Murias ammoniac.* Originally manufactured by subliming the soot formed by burning camel's dung; 26℔ of that soot yielding 6℔.

2. By adding oil of vitriol to spirit of hartshorn, or ammonia ppa. crystallising the product, mixing it with common salt, and subliming: in this process the residuum, by solution in water and crystallisation, yields Glauber's salt.

3. By adding spirit of salt to spirit of hartshorn or ammonia ppa. and either crystallising or subliming the sal ammoniac. Diuretic, also added to Peruvian bark to increase its febrifuge power; externally stimulant, ℥j to water ℥viij, as a lotion in gangrene, indolent tumours, and chilblains; used in dyeing to brighten certain colours, and by other artists for various purposes.

SULPHATE OF AMMONIA. *Sal secretus Glauberi.* By adding spirit of vitriol either to sal ammoniac or ammonia ppa. evaporating and crystallising: diuretic, aperitive.

MURIATE OF BARYTES. *Chloride of barium. Murias baryta.* Dissolve carbonate of barytes, i. e. cockscomb spar 1℔, in spirit of salt 1℔ previously mixed with water 3℔; filter, and crystallise by repeated evaporation.

2. Mix sulphate of barytes, i. e. cawk, 12℔, with charcoal 4 oz.; keep it red hot in a covered vessel for six hours, boil the mass in water 8℔, strain, and to the clear liquor add spirit of salt as long as it produces any effervescence; lastly, crystallise by evaporation. Vermifuge, alterant; used gr. j, bis terve in die, in cancer and scrofula.

MURIATE OF LIME. *Murias calcis.* Dissolve the mass left in the distillation of lime and sal ammoniac in water; filter, and evaporate to dryness.

2. Dissolve white marble or chalk in spirit of salt, and evaporate to dryness. Used for preparing the liquid muriate employed as a substitute for the preceding.

EPSOM SALT. *Sal Epsomensis. S. catharticus amarus. Magnesia vitriolata. Sulphas magnesiæ.* Originally obtained from the springs at Epsom in Surry, but since from sea water: the residuum in the salt-pans after the common salt has crystallised, usually called bittern, is an almost pure solution of this salt: purgative ℥j—℥ij; allays the pain of the colic; although nauseous to the taste, yet if taken in small, but repeated doses largely diluted, it is usually retain-

ed on the stomach, although other substances are rejected by it; also used in purgative clysters.

2. *Purified Epsom salt.* Obtained by moistening Epsom salt with a small quantity of water, and then draining it off. Is not so purgative as the common.

SAL DIURETICUS. *Terra foliata tartari. Kali acetatum. Acetis potassæ. Acetas potassæ. A. kali.* Saturate kali ppm. with distilled vinegar, and evaporate to dryness; re-dissolve the salt in distilled water, and evaporate until it concretes on cooling into a crystalline foliated mass: diuretic or cathartic, as it is managed, dose ℥ss to ʒij.

ROUGH SALT PETRE. *Sal petræ. Nitrum.* Obtained from the putrefaction of animal matters in contact with calcareous or alkaline earths, by elixivation, adding, if necessary, wood ashes to supply the alkaline basis.

REFINED SALT PETRE. *Nitre. Sal nitri. Kali nitratum. Nitras potassæ.* Obtained from rough salt petre, by redissolving it in water, and crystallising.

2. By adding only a small quantity of water to the rough nitre, letting it remain some time, and draining it off. A cooling diuretic in small repeated doses of gr. v—x each, every two hours; taken to ʒj it occasions bloody stools, and even death; a small piece dissolved slowly in the mouth frequently stops a sore throat in the beginning; used also in gargles: employed in artillery and fireworks.

CRYSTAL MINERAL. *Lapis prunellæ. Sal prunellæ.* Melt nitre 1℔, inject upon it gradually flowers of sulphur 2 oz. and pour it out into moulds, either balls or cakes.

2. Melt nitre, and when it flows smooth, pour it into warm moulds; used in medicine as nitre.

MACQUER'S NEUTRAL ARSENICAL SALT. *Arsenias kali.* Distil white arsenic and nitre ana p. æq.; dissolve the residuum in water, evaporate and crystallise: tonic, gr. 1-16th to 1-4th in pills; the liquid that comes over, although generally blue, is spirit of nitre.

MURIATE OF POTASH. *Sal febrifugus Sylvii. Spiritus salis marini coagulatus.* By saturating spirit of salt with kali ppm. evaporating and crystallising.

2. By heating or distilling sal ammoniac and kali ppm. dissolving the residuum in water, evaporating and crystallising: aperient, diuretic.

OXYMURIATE OF POTASH. *Potassæ oxymurias.* Mix

common salt 3℔, manganese 2℔, and add oil of vitriol 2℔, previously diluted with water q. s.; distil into a receiver containing kali ppm. 6 oz. dissolved in water 3℔: when the distillation is finished, evaporate the liquid in the receiver slowly in the dark, the oxymuriate will crystallise first in flakes: stimulant, gr. j—ij; explodes when struck, or dropped into acids.

SALT OF SORREL. *Quadroxalate of potash. Sal acetosellæ verus.* From the leaves of wood sorrel, bruised and expressed, the juice is then left to settle, poured off clear, and crystallised by slow evaporation: 1 cwt. of wood sorrel yields 5 or 6 oz.

2. From the leaves of sheeps' sorrel, treated in the same manner.

3. By dropping aqua kali into a saturated solution of oxalic acid in water, when it precipitates, and may be separated by filtration: if too much alkali is added, it is taken up, and will require an addition of the acid to throw it down again: cooling; used to make lemonade and whey, as also salt of lemons.

VITRIOLATED TARTAR. *Tartarum vitriolatum. Nitrum vitriolatum. Kali vitriolatum. Sulphas potassæ.* Saturate spirit of vitriol with aqua kali, add water if any salt is precipitated; filter the liquor, evaporate, and crystallise.

2. Dissolve green vitriol in water, precipitate with aq. kali, wash the precipitate, filter, evaporate and crystallise.

3. Dissolve the residuum left in distilling Glauber's spirit of nitre in water, add aqua kali, if necessary, to saturate any superfluous acid, evaporate and crystallise.

4. Evaporate the liquid that is left in making magnesia alba, and crystallise: aperient, ℥j to ʒss; cathartic, ʒiij to ʒvj; useful in visceral obstructions: being very hard, it is used in compound powders to divide jalap or scammony while triturating with them.

SAL ENIXUM. Obtained by boiling the residuum left in the distillation of aqua fortis in water, straining and evaporating to dryness: used as a flux by silversmiths and platers, also to adulterate cream of tartar, and, being powdered and rubbed into the wood with a hard brush, to stop the ravages of the dry rot; contains superabundant acid, but less than the next substance.

SUPERSULPHAS POTASSÆ. Dissolve the salt that remains

in distilling nitre with an equal weight of oil of vitriol in water, evaporate to a pellicle, crystallise, and dry the crystals on bibulous paper: a cooling purgative, ℥j to ʒij.

SULPHAS POTASSÆ CUM SULPHURE. Mix nitre and flowers of sulphur ana p. æq. throw them by small portions into a red hot crucible; let the mass cool as soon as the deflagration is over.

2. *Sal polychrestus Glaseri.* Proceed as before; but as soon as the deflagration is over, raise the heat, keep the mass in fusion for some time, pour it out, dissolve it in water; filter, evaporate, and crystallise: use the same as vitriolated tartar, from which that of Glaser differs very little, if at all.

RED ARGOL. *Tartarum rubrum.* From red wines.

WHITE ARGOL. *Tartarum album. Supertartris potassæ impurus.* From white wines: the essential salt of the grape, deposited during the fermentation of the wine, especially in the northern wine countries, where the fruit does not ripen thoroughly. Choice white argol is preferred by some, for a medicine, in preference to cream of tartar, as less apt to gripe: used as fluxes, for preparing the best kali præparatum, in dyeing and many arts.

CRYSTALS OF TARTAR. *Cream of tartar* (when in powder.) *Crystalli tartari. Cremor tartari. Potassæ supertartras.* Obtained by boiling white argol in water, with some white clay; filtrating, evaporating, and crystallising.

2. By clarifying the solution with white of eggs and wood ashes, instead of white clays, as in the former.

3. By dissolving argol three parts, sal enixum one part in water, and crystallising: cooling, laxative, may be taken ad libitum; used as a diuretic in dropsy.

SOLUBLE TARTAR. *Tartarum solubile. T. tartarissatum. Kali tartarissatum. Tartris potassæ. Tartras potassæ. Tartaras kali.* Dissolve kali ppm. ℥ss in a gallon of water, add cream of tartar as long as any effervescence arises, i. e. rather less than ʒ℥; evaporate and crystallise: purgative ʒj; laxative ʒj—ij; also added to senna and resinous purgatives ℥j—ʒj, to prevent their griping.

TINCAR. *Rough borax. Chrysocola. Borax cruda.* Found in lakes, dried upon their edges; used in soldering, and for a flux.

REFINED BORAX. *Borax raffinata. Sodæ boras. S. subboras.* By dissolving tincar in water, boiling the solution for some time, filtering, and crystallising by slowly cooling

the liquor: diuretic, emmenagogue, ℥ss—℥ij; externally as a gargle in thrush, or to stop excessive salivation: used also in soldering.

ROCK SALT. *Sal gemmæ. S. fossilis.* Found native in mines.

BAY SALT. *Sal marinus. S. niger.* From sea water slowly evaporated by the sun, in warm countries; is in large crystals, preferred for salting meat and fish, contains iodine.

COMMON SALT. *Muriate of soda. Sal communis. S. culinaris. Sodæ murias.* From rock salt, dissolved in water, and crystallised by boiling down the liquor as long as any crystals are produced, taking out the crystals as they are formed, and putting them in baskets to drain; or from sea water and salt spring water, by boiling down in like manner: stimulant, antiseptic; but more used as seasoning for food, or to preserve animal substances, than in medicine, ℥j in clysters as a purge; also ℥j to 2℔ water, used as a stimulant lotion for wens and bruises.

DECREPITATED COMMON SALT. *Sal communis decrepitatus. Murias sodæ siccatus.* Heat the salt in a covered vessel till it ceases to crackle.

TASTELESS PURGING SALT. *Soda phosphorata. Phosphas sodæ.* To phosphoric acid dissolved in water, add natron ppm. also dissolved in water, q. s. to saturate the acid: evaporate and crystallise.

2. Dissolve well-burnt bones in spirit of nitre; dissolve also Glauber's salt in water, and pour it into the nitrous solution, as long as a precipitation takes place; distil to recover the spirit of nitre, wash the residuum, evaporate the ley thus produced and crystallise: purgative ℥vj—3x, in broth instead of common salt, the difference of taste being very little to those who are accustomed to eat much salt with their broth.

GLAUBER'S SALT. *Sulphate of soda. Sal mirabilis Glauberi. S. catharticus Glauberi. Natron vitriolatum. Sodæ sulphas.* Dissolve the residuum left in making Glauber's spirit of salt, in water, saturate the excess of acid, either with natron ppm. or powdered chalk: filter, evaporate and crystallise.

2. To common spirit of hartshorn add oil of vitriol, crystallise the sulphate of ammonia thus made, mix this with common salt, sublime the sal ammoniac from it, and the

Glauber's salt remains, which is to be dissolved in water, and crystallised. This is the process of the manufacturers.

3. *Common Epsom salt.* When the crystallisation of Glauber's salt is disturbed by stirring the liquor, it shoots in small spiculæ, and is sold under this name: purgative, ℥s—℥jss, if in crystals; but when it has dried to a white powder, the dose must be reduced one half.

ROCHELLE SALT. *Sal Rupellensis. Natron tartarisatum. Soda tartarisata. Tartris potassæ et sodæ. Tartras potassæ et sodæ.* Dissolve natron ppm. 20 oz. in water 10℔; add, while boiling, cream of tartar 24 oz.: filter, evaporate to a pellicle, and crystallise.

2. Dissolve cream of tartar ℔iij, in water 3 gall. add kali ppm. q. s. to saturate the superfluous acid, as in making soluble tartar, filter, add common salt ℥xj, evaporate and crystallise. P. Suce. A more agreeable purgative than Glauber's salt, but rather weaker.

SANDIVER. *Glass gall. Fel vitri.* The saline scum that swims on the glass when first made; is principally composed of common salt and vitriolated tartar: used as a flux by some artists.

38. METALLIC SALTS.

BUTTER OF ANTIMONY. *Butyrum antimonii. Cauticum antimoniale. Antimonium muriatum. Murias antimonii.* Crude antimony, corrosive sublimate, ana p. æq.; grind together; distil in a wide-necked retort, and let the buttery matter that comes over run in a moist place to a liquid oil.

2. Crude antimony 1℔, corrosive sublimate 2℔: proceed as before.

3. Liver of antimony 1℔, dry common salt 2℔; mix, and add them to oil of vitriol 1℔; distil, and let the buttery mass run into a liquid.

4. Antimony calcined to grayness, or powdered glass of antimony 9 oz. common salt 32 oz. oil of vitriol 24 oz. water 16 oz.; distil: this yields 40 oz. of butter of antimony.

5. Crude antimony, or glass of antimony 1℔, common salt 4℔, oil of vitriol 3℔, water 2℔; distil. Caustic, but apt to spread; used, however, largely by the ferriers.

EMETIC TARTAR. *Tartarus emeticus. Tartarum emeticum. Antimonium tartarizatum. Tartarum antimoniatum. Tartris antimonii.* Crocus metallorum 1℔, white

tartar 4℔; boil them in water, filter, evaporate to a pellicle, and crystallise: the common process.

2. Crocus metallorum, or glass of antimony 3℔, cream of tartar 4℔, water four gallons: proceed as usual.

3. Protoxide of antimony P. D. ʒij, cream of tartar ʒijss, distilled water ʒxviij: proceed as before.

4. Oxide of antimony P. L. 1809, ʒij, cream of tartar ʒij, distilled water ʒxviij: very uncertain, as depending upon the state of the oxide.

5. Oil of vitriol ʒij, distilled water ʒviiij, heat, and add gradually crude antimony ʒij, mixed with nitre ʒj; boil to dryness, wash the residuum until it is insipid; while moist, mix it with cream of tartar ʒij, distilled water 1℔; boil and crystallise.

6. Boil 8℔ of crude antimony with 16℔ of oil of vitriol in an iron pot to dryness, wash the gray mass until the uncombined sulphuric acid is carried off, mix it with an equal weight of crude tartar; boil in water, and crystallise: 10℔ of the gray mass yields about 9 of emetic tartar in the first crop of crystals, the second crop will require to be redissolved and crystallised afresh. *Philips.* Emetic, in doses of gr. j—iv; alterative and diaphoretic, in very small doses, as gr. 1-16th to 1-4th.

LUNAR CAUSTIC. *Causticum Lunare. Argentum nitratum. Nitrus argenti.* Formed by dissolving pure silver in spirit of nitre, evaporating to dryness, melting and pouring the melted mass into moulds, which may be made by thrusting a greased stick into a piece of clay: deliquescent; used as a caustic.

LUNAR CRYSTALS. *Crystalli Lunares.* By dissolving silver in spirit of nitre, and crystallising the salt, in the usual manner; tonic, hydragogue, gr. fs—ij, made into pills with crumb of bread: sometimes causes the skin to turn purple, or black, even after the use of the medicine has been left off for some time.

BLUE VITRIOL. *Blue stone. Roman vitriol. Vitriolum caeruleum. V. Romanum. Cupri sulphas.* Obtained by evaporating the waters of copper mines, or by roasting copper, then boiling the oxide in oil of vitriol, adding water, and crystallising: tonic, astringent in doses of gr. fs—ij; emetic, gr. ij—x, either in substance, or dissolved in water; externally escharotic; used to keep down fungous flesh.

CUPRUM AMMONIATUM. *Ammoniuiretum cupri.* Blue vi-

triol ℥iv, ammonia ppa. ℥vj; grind together, and dry by means of bibulous paper: tonic, antispasmodic; used in epilepsy, gr. fs, gradually increased to gr. v.

FRENCH VERDIGRIS. *Distilled verdigris. Acetate of copper. Ærugo crystallisata. Crystalli Veneris.* From verdigrise, dissolved in distilled vinegar; the solution filtered and crystallised.

2. Blue vitriol 24 oz. dissolved in water q. s. sugar of lead 30 oz. and a half, also dissolved in water; mix the solutions, filter, and crystallise by evaporation: yields about 10 oz. of crystals: a superior paint to common verdigrise, and certainly ought to be used in medicine instead of the other.

GREEN VITRIOL. *Copperas. Sulphate of iron. Vitriolum viride.* Obtained by moistening Martial pyrites, or leaving them exposed to the weather, washing out the vitriol which effloresces over them with water, and crystallising: strikes a black colour with astringent substances; used in dyeing black, blacking leather, making aqua fortis, and many other trades.

SAL MARTIS. *Ferrum vitriolatum. Ferri sulphas.* Oil of vitriol 8 oz. water 4℔; mix, and add clean nails till they are no longer dissolved; filter, evaporate, and crystallise.

2. Green vitriol 1℔, water 4℔; dissolve, filter, add oil of vitriol ℥ij; crystallise: tonic, emmenagogue, anthelmintic, gr. j—v; used in glysters against ascarides.

VITRIOL CALCINED TO WHITENESS. *Vitriolum ad albedinem calcinatum. Sulphas ferri exsiccatus. Sulphas ferri exsiccatus.* Green vitriol heated in an unglazed pot, or spread upon the top of an oven, or in a sunny place, until it is white: astringent, drying; and as a preparative for distillation.

FERRUM TARTARIZATUM. Rub iron (not steel) filings 1℔, with cream of tartar 2℔, and water 1℔; expose to the air for a week, dry, powder; add water 1℔, expose it again to the air for a week, dry and powder.

2. *Tartarum ferri.* Carbonas ferri (or rust of iron) 1 oz. cream of tartar 2 oz. water 1℔; boil, filter, cool, filter again, evaporate to a pellicle, cool, it will form a saline mass, which is to be powdered: tonic, gr. x—℥fs, being less nauseous than other preparations of iron is preferred for females and children; employed also, dissolved in water, as an astringent lotion.

SIMPLE SUBSTANCES.—38. Metallic Salts. 283

ENS MARTIS. *Flores salis ammoniaci Martiales. Flores Martiales. Ferrum ammoniacale. Ferrum ammoniatum. Murias ammoniacæ et ferri.* By subliming with a quick sudden heat sal ammoniac, rubbed with 2-3ds or an equal weight of iron filings, or red oxide of iron; and repeating the sublimation with fresh salt, as long as the flowers are well coloured.

2. Sal ammoniac 6lb, iron filings (not steel) 4 oz. sublimate.

3. Dissolve iron in spirit of salt, add water and sal ammoniac, then evaporate to dryness.

4. Green vitriol 1lb, water 4lb; dissolve, add kali ppm. 8 oz. dissolved in water; wash the precipitate, mix it, while moist, with sal ammoniac 6lb, spirit of salt 2 oz.: sublime in a short wide-neck retort into a receiver: deobstruent, astringent, gr. iij—xv; useful in glandular enlargements of the breasts.

HYDRARGYRUS ACETATUS. *Acetas hydrargyri. Acetis hydrargyri.* Quick silver 3ij, diluted spirit of nitre q. s.; dissolve it, without heat; dissolve also kali acetatum 3ij, in boiling water 1 gall.; mix the two solutions, set them to crystallise, and wash the crystals.

2. Quick silver 1lb, diluted spirit of nitre q. s. to dissolve it; precipitate with aqua kali, wash and dry the precipitate; dissolve this precipitate in spirit of verdigrise q. s.; filter, evaporate to a pellicle, and crystallise: antivenereal, gr. j nocte maneque, increasing the dose gradually.

CORROSIVE SUBLIMATE. *Bichloride of Mercury. Mercurius sublimatus corrosivus. Mercurius corrosivus albus. Hydrargyrus muriatus. Murias hydrargyri. Oxymurias hydrargyri. Murias hydrargyri corrosivum.* Boil quick silver 2lb, in oil of vitriol 2 to 3 lb, to dryness; when cold, add common salt 2lb and a half to 4lb, and sublime.

2. Green vitriol calcined to redness 400lb, nitre and common salt ana 200lb, quick silver 180lb, residuum of a preceding operation 50lb, impure corrosive sublimate of a preceding operation 20lb; moisten with a portion of the acid that distilled over in a former process, and sublime.

3. Green vitriol calcined to redness 2lb, nitre, common salt ana 1lb, quick silver 1lb: mix and sublime.

4. Quick silver 40 oz. common salt 33 oz. nitre 28 oz. green vitriol cal. to redness 66 oz.: mix and sublime.

5. Quick silver 2℔, spirit of salt 2℔, spirit of nitre 1℔; distil; it yields 2℔ and a half of sublimate.

6. Dissolve red precipitate in spirit of salt, and crystallise: antisyphilitic, acting quickly, but not permanently, gr. 1-8th to j, twice a day, in gargles gr. ij to water 1℔, or as a wash in itch.

SAL ALEMBROTH. *Sal sapientia*. Corrosive sublimate, sal ammoniac ana p. æq. water q. s. to dissolve them; evaporate and crystallise: easily soluble in water, and on that account preferable to corrosive sublimate as a medicine.

PRUSSATE OF QUICK SILVER. Red precipitate 1 oz. Prussian blue 2 oz. distilled water 6 oz.; boil for half an hour, filter, pour on fresh water, boil and filter; mix the two solutions, evaporate and crystallise: antisyphilitic ℥j, taken in distilled water.

SUGAR OF LEAD. *Saccharum Saturni*. *Cerussa acetata*. *Acetis plumbi*. *Acetas plumbi*. *Superacetis plumbi*. Ceruss 1℔, distilled vinegar 10 or 12 ℔; boil, filter, evaporate to a pellicle, and crystallise: the manufacturers use flake white: internally, gr. ij—vij, as a specific in whooping-cough; externally gr. ij to water ℥j, as an eye-water; ℥j to water ℥v, as a strong lotion, or ℥x, for a weak. Precipitates the colouring matter from wine and spirit, is used by the excise office to take out of seized Holland gin the colour it obtains by being kept for some time in the tubs in which it is smuggled over, and by which its value is depreciated; but this practice renders the gin liable to produce the colic, if drank liberally.

WHITE VITRIOL. *White copperas*. *Sulphate of zinc*. *Vitriolum album*. *Zincum vitriolatum*. *Sulphas zinci*. Obtained at Goslar, by quenching the roasted silver ores in troughs of water, evaporating this water, setting it by to crystallise, melting the crystals, skimming off the impurities, pouring the melted mass into wooden boxes, and disturbing the regular crystallisation by frequent stirring.

2. *Vitriolum album depuratum*. By dissolving white vitriol in water and recrystallising it.

3. *Sal vitrioli* P. L. 1745. *Zincum vitriolatum purificatum*. White vitriol 1℔, oil of vitriol ℥j, water 3℔; dissolve and crystallise.

4. White vitriol q. p. dissolve in water, add a piece of zinc and digest for some hours; filter, evaporate, and crystallise: tonic and antispasmodic, gr. j—ij; emetic and operating very quickly, gr. x to ℥ss; externally astringent.

39. ACID SALTS.

FLOWERS OF BENJAMIN. *Benzoic acid. Flores benzoini. Flores benzoës. Acidum benzoicum.* Melt benjamin in a glazed earthen pot, to the neck of which a paper cone or chamber is annexed, regulating the heat with great care that little or no oil may arise with the flowers; if the flowers are tinged with oil, press them between bibulous paper, mix with white clay, and sublime again: ℥j of benjamin yielded ℥ij of flowers.

2. Benjamin ℥jss, lime ℥iiij; rub together and boil in water 1 gall.: decant the clear, and boil the sediment in water ℥iiij; decant, mix the two liquors and boil down to a half, filter, add spirit of salt q. s. to precipitate the flowers, decant the liquor, dry and sublime the flowers. *Scheele.* ℥j of benjamin yields ℥j ʒvj ʒij of flowers.

3. Benjamin ℥xxiv, natron ppm. ℥viiij; rub together, boil in water ℥lxvj, strain, boil the residue in water ℥lvj, strain, mix the two liquors, boil to ℥ij; filter and precipitate with spirit of vitriol q. s.; dissolve the precipitate in boiling water, strain and crystallise. *Gren.* ℥j benjamin yielded ℥j ʒj ʒj of flowers.

4. May be obtained from urine. A manufactory of sal ammoniac at Schoenbec, near Magdeburgh, which uses urine, is able to supply flowers of benjamin by the cwt. Expecto- rant; used in chronic coughs, gr. x—ʒfs.

SEDATIVE SALT. *Boracic acid. Sal acidum boracis.* Borax ʒ oz. water ℥ij; dissolve, add oil of vitriol ʒvj, evaporate to a pellicle and crystallise: sedative.

CONCRETE ACID OF LEMONS. *Citric acid. Acidum citricum. Acidum citricum crystallis concretum.* Saturate lemon or lime juice with powdered chalk, wash the sediment with cold water and dry it; each gallon of lemon juice forms 8 oz. 1-4th to 12 oz. 3-4ths of this citrate of lime: upon this powder pour spirit of vitriol fl. ℥ix to each ℥ of chalk previously used; or, if the imported citrate of lime is used, 15℥ will require 40℥ of a spirit of vitriol, whose specific gravity is 1.15; strain through a cloth and expose the liquor in shallow vessels, that it may crystallise by spontaneous evaporation: an agreeable acid, cooling, and antiseptic; ʒfs in water ℥j, is equal to lemon juice. Gr. xxvj saturate kali ppm. gr. lxj, or ammon. ppa. gr. xlij, or magnesia alba

gr. xl. If heat is employed for the evaporation it is apt to become brown, and is thus spoiled.

SUCCINIC ACID. *Sal succini. Acidum succini.* Obtained by distillation from amber, expressing the acid salt between blotting-paper, and either subliming it again, or dissolving it in water and crystallising: antispasmodic, diuretic, gr. v—ʒj.

OXALIC ACID. *Acid of sugar. Acidum oxalicum. A. sacchari.* Dissolve 1lb white sugar in aqua fortis 4lb, distil gently rather more than 1lb of the acid: the residual liquor will yield crystals to be separated, and the liquor again evaporated to one half, when a second crop will be obtained. These crystals are dissolved in water, and again crystallised: they are about half the weight of the sugar employed. Used for cleaning boot-tops: poisonous, and from their resemblance to Epsom salts have occasioned several fatal accidents.

CRYSTALLISED ACID OF TARTAR. *Acidum tartari crystallisatum.* Ppd. chalk 2lb, river water 4 gall.: boil, add cream of tartar or argol q. s. to saturate the chalk, about 7lb; cool a little, pour off the clear, and wash the sediment once or twice: upon this sediment pour spirit of vitriol, no. 2, 15lb, stirring it often for a day, pour off the liquid, and wash the residuum with water 2 gall. which mix with the liquid, evaporate to the consistence of a syrop; then examine whether hitherto successful by diluting a small portion with four times as much water, and adding a solution of sugar of lead, which throws down a white precipitate, if this is redissolved on adding a little spirit of nitre all is right; but if the liquor remains milky, the whole must be diluted with water 6lb, and digested for some hours upon a few oz. of the sediment left when the cream of tartar was added to the chalk, which must be kept for this purpose: this point being ascertained, and corrected if necessary, strain, and evaporate gently till all the acid is crystallised, breaking the crystalline crust at top every two hours: yields about 1-3d the weight of the tartar; used instead of citric acid as a substitute for lemon juice.

WHITE ARSENIC. *Oxide of arsenic. Arsenicum album. Oxydum arsenici.* Obtained by subliming some kinds of cobalt ore.

2. *Oxydum arsenici præparatum.* From the former by a fresh sublimation: this preparation seems useless, as plenty of fine transparent pieces may be picked from the crude ar-

senic: tonic, but scarcely ever used in medicine, although frequently for empoisoning or self-destruction; in metallic mixtures to whiten copper, and in dyeing.

40. ACID LIQUORS.

VINEGAR. *Acetum vini. Acidum acetosum.* From wine, left exposed to the air, in pairs of casks, one full, the other only half full, but filled up daily from the other in turn: those wines that contain the most mucilage are fittest for the purpose.

COMMON WHITE WINE VINEGAR. *Alegar. Acetum cerevisia.* From ale, treated in the same way.

COMMON VINEGAR. *Acetum.* From weak malt liquor, brewed for the purpose; its various strength is in England denoted by numbers, from 18 to 24.

SUGAR VINEGAR. To each gallon of water add 2½ lb of brown sugar, and a little yeast; leave it exposed to the sun for six months, in a vessel slightly stopped.

GOOSEBERRY VINEGAR. To each quart of bruised gooseberries add 3 quarts of water, and to each gallon of liquor 1½ lb of coarse sugar, or more; expose to the sun until sufficiently sour.

RAISIN VINEGAR. After making raisin wine, lay the pressed raisins in a heap to heat, then to each cwt. put 15 gall. of water, and a little yeast.

Vinegar is used principally as a sauce, and to preserve vegetable substances; but it is employed externally as a refrigerant and repeller: useful also internally when an overdose of strong wine, spirit, opium, or other narcotic poison has been taken. A false strength is given to it by adding oil of vitriol, or some acrid vegetable, as pellitory of Spain, grana Cnidia, capsicum; it is rendered colourless by adding fresh burned bone black, 6 oz. to a gallon, and letting it stand for two or three days to clear.

QUASS. *Posca?* Is made by mixing rye flour and warm water together, and leaving it till it has turned sour: much drank in Russia, looks thick and unpleasing at first, but becomes agreeable by use.

DISTILLED VINEGAR. *Verjuice. Acetum distillatum. Acidum aceticum P. L. Acidum acetosum distillatum.* From vinegar by distillation, rejecting the 4th or 8th part that comes over first, and avoiding its acquiring a burnt flavour. P. D. requires it to have the specific gravity of 1.006.

2. Vinegar, water, ana p. æq. distil the original quantity. Distilled vinegar is weaker than the common, but is used sometimes in pickles, where its want of colour is an advantage.

VINEGAR OF WOOD. *Improved distilled vinegar. Pyroligneous acid. Acetum lignorum.* From wood distilled in large iron cylinders for the manufacture of charcoal for gunpowder; when rectified it is used for all the purposes of distilled vinegar.

STRONG ACETOUS ACID. *Acidum acetosum forte.* Vitriol calcined to whiteness ℥j, sugar of lead ℥x; rub together and distil.

2. *Acidum aceticum P. D.* Kali acetatum ℥vj, add gradually oil of vitriol ℥ij, allowing the mixture to cool between each addition; distil to dryness.

3. *Radical vinegar. Spiritus Veneris. Acidum acetosum.* Verdigrise 2℔, dry it in a water-bath, then distil in a sand heat, and redistil the produced liquor. Its specific gravity is stated to be 1.050.

4. Sugar of lead 7℔, oil of vitriol 4℔ and a half, distil 2℔ and a half: used to make aromatic vinegar, and as a very active errhine.

The strength of distilled acetous acids is examined by Taylor's Revenue Acetometer, which consists in saturating a sample of the acid with slaked lime, and then ascertaining the specific gravity of the solution. The best malt vinegar, no. 24, contains about five per cent. real acetous acid, and is taken as the standard or proof acid, 200 grains of which will saturate 29 grains of well-crystallised subcarbonate of soda. The best common distilled vinegar is about half this strength. The pyroligneous acid may be procured of any degree of concentration, from 6 deg. or 2.898 per cent. of acid, up to 130 deg. or 63.09 per cent. of acid, or even higher. Dr. Powell states, that a fluid ounce of the London College distilled vinegar ought to dissolve at least 13 grains of white marble, or 39.67 grains of crystallised subcarbonate of soda, i. e. 6 deg. of the revenue acetometer. Acetic acid, containing 45 per cent. of real acid, dissolves camphire and the essential oils very readily.

ACID OF ANTS. *Acidum formicarum.* Ants ℥j, boiling water ℥iij; infuse for three hours, press out the liquor, and strain: stimulant; used as a lotion in impotency.

HONEY WATER FOR THE HAIR. *Aqua mellis.* Honey

4lb, very dry sand 2lb, put into a vessel that will hold five times as much, distil with a gentle heat a yellowish acid water: encourages the growth of the hair.

SPIRIT OF SALT. *Marine acid. Spiritus salis communis. Acidum muriaticum.* Common salt 10lb, common clay 20lb, water sufficient to make them into balls: distil while moist with a violent heat, and rectify by redistillation.

2. Dried common salt 24lb, oil of vitriol 20lb, water 6lb; mix and distil into 12lb more of water kept cool; when distilled in an iron pot with a stone-ware head, all the water is put into the receivers. A bottle that holds 6 oz. of water, ought to hold 7 oz. of this acid, and an ounce measure of it should dissolve ʒij ʒij of limestone, which will show if it is free from oil of vitriol.

3. Bittern, or residuum of sea water after the common salt has been obtained by evaporation, 5lb, oil of vitriol 1lb previously diluted with water 2lb; distil: tonic, diuretic, antiseptic, gtt. x—xx, well diluted in typhus, ʒs—ʒij in water ʒvj as a gargle in putrid sore throat, gtt. viij in water ʒiv as an injection in gonorrhœa: used in the arts as a cheap acid; a small portion improves salted provisions.

ACIDUM MURIATICUM DILUTUM. Spirit of salt, spec. grav. 1.170, distilled water ana p. æq.; mix: the specific gravity should be 1.080: as the former.

STRONG SPIRIT OF NITRE. *Nitre fortis. Spiritus nitri. Acidum nitrosum.* Nitre 6lb, oil of vitriol 4lb; distil to dryness. A bottle that holds 4 oz. of water ought to hold 6 oz. of this acid, and an ounce measure of it, diluted with water, should dissolve ʒvij of limestone.

2. Nitre 1lb, clay or brickdust 4lb: mix and distil.

COLOURLESS SPIRIT OF NITRE. *Acidum nitricum.* Distil nitrous acid in a glass retort into an unluted receiver until the acid in the retort has lost its colour.

2. Nitre very pure and dried, oil of vitriol, ana 2lb; distil till red fumes appear; redistil from nitre 1 oz.: produces 4lb.

AQUA FORTIS DUPLEX. Green vitriol calcined almost to redness, nitre, ana p. æq.: distil.

2. Spirit of nitre 3lb, water 2lb, or q. s. that a bottle holding 6 oz. of water shall hold 8 oz. of this acid.

3. Spirit of nitre 4lb, aqua fortis simplex 6lb, oil of vitriol 2lb; mix: for ferriers only.

AQUA FORTIS COMMUNIS. *Acidum nitrosum dilutum.*

290 SIMPLE SUBSTANCES.—40. Acid Liquors.

Nitre, green vitriol not calcined, ana 6lb, green vitriol calcined 3lb: distil.

2. Spirit of nitre, distilled water, ana p. æq. by weight. A bottle that holds 6 oz. and a quarter of water should hold 8 oz. of this acid.

AQUA FORTIS SIMPLEX. Green vitriol 2lb, nitre 1lb: distil.

2. Spirit of nitre 2lb, water 3lb, or q. s. that a bottle holding 4 oz. and a half of water should hold 5 oz. of this acid.

3. Aqua fortis duplex, water, ana p. æq. by weight.

ACIDUM NITRICUM DILUTUM. Colourless spirit of nitre ʒj measure, distilled water ʒix measure.

The stronger kinds of this acid are used as a caustic to warts, &c. particularly by ferriers, for which the addition of oil of vitriol is an advantage; diluted so as not to injure the teeth, viz. of the strong acid gtt. j—x, in a small tumbler of water, is useful in liver complaints, lues venerea, nausea from dyspepsia, sea-sickness, &c.: in the arts to dissolve metals or cleanse their surfaces. The accidental mixture of spirit of salt, arising from impurities in the nitre, may be got rid of by dissolving refined silver in some of the acid, pouring off the clear, and dropping it into the remainder as long as any precipitation takes place; the mixture of oil of vitriol is best got rid of by distilling again with the addition of some nitre, if such precision is necessary.

AQUA REGIA. Spirit of nitre 16 oz. common salt 4 oz.: dissolve.

2. Spirit of nitre 16 oz. sal ammoniac 4 oz.: dissolve.

3. Common aqua regia. Spirit of salt 2lb, spirit of nitre 1lb; dissolves gold: used in some arts.

DEPHLOGISTICATED SPIRIT OF SALT. *Oxymuriatic acid. Acidum oxymuriaticum. Aqua oxymuriatica.* Common salt 3lb, manganese 1lb, oil of vitriol 2lb, water 1lb: distil, placing water q. s. in the receiver: pale greenish yellow, scarcely heavier than water; used in syphilis and scarlatina, ʒiſ—ʒiij, in water ʒviij, taken, by small doses, in a day: bleaches linen, straw, and takes out fruit spots, iron moulds, or ink marks.

ACID OF PRUSSIAN BLUE. *Acidum Brussicum.* Prussian blue 10 oz. calcined mercury 5 oz. distilled water 30 oz.: boil till the blue colour is changed to a yellowish green, filter, add hot water 10 oz. to wash the sediment perfectly;

pour the liquor upon clean iron filings 2 oz. and a half, and add oil of vitriol 1 oz.; pour the liquid from the quick silver that has separated, and distil till 1-4th part has passed. Scheele.

2. Proceed as before, but instead of distilling 1-4th part, draw off only 1-6th, and redistil upon chalk, gr. ij to the oz. drawing off only 3-4ths; this is of an uniform strength, and may be kept some time, provided the place is cool and dark. La Planche.

3. Prussian blue 4 oz. oil of vitriol, water, ana 2 oz.: distil. Parkes. Strong Prussic acid in very small quantity, gtt. j—ij, either applied to the tongue or even to the skin, kills instantaneously, as if by lightning, and the body exhales for several days a strong smell of bitter almonds; gtt. vj—x of Scheele's or La Planche's acid in water ℥ij to iv, taken by tea-spoonfuls every two hours, is beneficial in chronic cough and in phthisis.

OIL OF VITRIOL. *Oleum vitrioli*. *Spiritus vitrioli fortis*. *Acidum vitriolicum*. *A. sulphuricum*. From green vitriol, calcined till it is yellow, by distillation.

2. *Common oil of vitriol*. *Oleum vitrioli vulgare*. *O. sulphuris per campanam*. Sulphur 1 cwt. nitre 12℔; mixed together and burned gradually in large chambers, lined with lead or varnished inside, the bottom being covered with a thin surface of water to absorb the acid: the acid liquor is then exposed for some time to the air, the superfluous water abstracted by evaporation in leaden boilers, and the operation finished by distilling till the acid in the retort is sufficiently concentrated. A bottle that holds 12 oz. of water should hold full 22 oz. of this acid. The contact of any organic matter renders it black; it is rendered clear again by adding a little spirit of nitre, gtt. ij to each oz. and heating it to boiling: used as a caustic to warts, wounds, &c. and by many artisans to dissolve metals or alter colours.

SPIRIT OF VITRIOL. *Vitriol to clean coppers*. *Spiritus vitrioli*. *S. vitrioli tenuis*. *Acidum vitriolicum dilutum*. *A. sulphuricum dilutum*. Oil of vitriol ℥ij measures, distilled water ℥xxxix meas.: mix. P. L.

2. Oil of vitriol 1 oz. distilled water 7 oz. mix. P. E. and P. D. Astringent, tonic, gtt. xx—5ij, in a cup of water; in a gargle ℥j to ℥viiij water to check salivation; by workmen and maid-servants to clean copper and iron work;

also used as a cheap acid in punch and acid stews, instead of lemons, and to give strength to poor vinegar.

COMMON ELIXIR OF VITRIOL. *Elixir vitrioli*. Spirit of vitriol added to water to a grateful acidity: tonic.

SULPHUREOUS ACID. *Gas sulphuris* P. L. 1720. Collected by burning brimstone under a glass jar, standing with its mouth downwards in a plate of water, till the water is sufficiently acid.

2. Oil of vitriol, quick silver, ana p. æq. boil in a retort and pass the gas into water q. s.: used to bleach silk, straw, take fruit stains out of linen, or stop the fermentation of wine.

SPIRIT OF TARTAR. *Spiritus tartari*. Distil argol and separate the acid spirit from the oil by a funnel: the residuum yields, by burning in the open air, very pure kali ppm.: may be used for distilled vinegar.

SPARRY ACID. *Fluoric acid. Acidum spathosum. A. fluoricum*. Derbyshire spar, oil of vitriol, ana p. æq. distil in a leaden retort into a leaden receiver containing water: the acid must be kept in a leaden or silver bottle, as it dissolves glass: very caustic, producing deep and painful sores; used to engrave upon glass, which is to be covered with wax, the parts to be acted upon are then laid bare, a border of soft wax put round the place, and the acid poured on, the surface it leaves is rough; but when glass, thus partly defended, is exposed to the vapour arising from the mixture of spar and oil of vitriol heated in a leaden vessel, the corroded surface is left smooth, and by this means a variety of etchings upon glass may be made.

41. ALKALINE LIQUORS.

SALINE OIL OF TARTAR. *Oleum tartari per deliquium. Aqua kali. Liquor potassæ subcarbonatis. Aqua subcarbonatis kali*. Kali ppm. 1lb, distilled water ʒij; dissolve and filter.

2. Spread potash, or any other of the above alkalies, thin, on plates, in a damp cellar, and when it has run into water, strain through linen: used in scouring.

SOAP LEY. From barilha or kelp, treated with quick lime, as in making soft-soap ley: used in making hard soap.

SOFT-SOAP LEY. *Lixivium saponarium* P. L. 1745. *Aqua kali puri. A. potassæ. Liquor potassæ. Aqua kali caustici*. Upon quick lime 1lb pour boiling distilled water

6℥, and add kali ppm. 1℥, dissolved in water 2℥: cover the vessel, and when cool filter through cotton cloth; if it effervesce with a dilute acid, it must be treated again with fresh lime. A pint should weigh exactly ℥xvj; if it weigh more, for every drachm of excess add ℥ss of distilled water to each ℥ troy; if less, evaporate some part of it: used in making soap.

SPIRIT OF HARTS HORN. *Spiritus cornu cervi. Liquor volatilis cornu cervi.* Obtained from bones which have been previously ground and boiled to separate the grease they contain, as also from the guts and garbage of the slaughter-houses, by distillation in iron pots with stone-ware heads; separating the oil and salt by filtration; it is then rectified for sale by distillation from 1-8th of wood ashes, or charcoal powder, ammonia ppa. first arises; when it begins to melt by the spirit that succeeds, the distillation is stopped for the present, the ammonia taken out, and then the distillation begun again, till nearly the whole of the liquor has come over. It is also obtained largely from urine.

2. *Spiritus salis ammoniaci. Aqua ammoniacæ P. L. Aqua carbonatis ammoniacæ.* Kali ppm. sal ammoniac ana 3℥, water 6℥; distil to dryness.

3. *Liquor ammoniacæ carbonatis.* Ammonia ppa. ℥viij, distilled water ℥j; dissolve and filter.

4. *Liquor ammoniacæ subcarbonatis.* Ammonia ppa. ℥iiij, distilled water ℥j; dissolve and filter: stimulant, gtt. xx to ℥j, also as an errhine.

SPIRIT OF SAL AMMONIAC. *Aqua ammoniacæ puræ.* Lime, water ana ℥ij; slake, and add sal ammoniac ℥j, boiling water ℥vj, cover the vessel immediately, when cold pour off the liquor, and distil with a gentle heat ℥j.

2. *Liquor ammoniacæ P. L. 1809.* Quick lime, sal ammoniac ana ℥ij; mix and pour immediately into a retort containing water ℥j, distil into water ℥viij, kept cool.

3. *Aqua ammoniacæ causticæ.* Lime ℥ij, water ℥j, slake and cover it up; the next day add sal ammoniac ℥xvj, water ℥vj, distil ℥xxj. The specific gravity ought to be .934; or a bottle holding ℥xij of water should hold ℥xj ℥iijss of this fluid.

4. *Aqua ammoniacæ P. E.* Lime ℥jss, water ℥ix, slake, when cool, add sal ammoniac ℥j; distil into distilled water ℥j, until the retort becomes red hot.

5. *Liquor ammoniac* P. L. 1815. Lime ℥vj, water ℔ij; slake, and cover up for an hour, then add sal ammoniac ℥viij, boiling water ℔iij, and cover till cold, then strain and distil ℥xij. Specific gravity should be .960; or a bottle holding ℥xij of water should hold ℥xjss of this fluid.

6. Spirit of harts horn q. v. fresh slaked lime 1-4th its weight; distil into water kept cool, and if necessary, adjust its specific gravity by the addition of distilled water, or by repeating the operation: antacid, stimulant.

42. WATERS.

The quantity of salts contained in any mineral water may be estimated with considerable accuracy, by finding the difference of weight between a bottle filled to a certain mark with distilled water, and the same filled with the mineral water: to this difference add 1-5th, and again another fifth, the weight will then denote that of the salts contained in the bottle of water: large square case-bottles are well adapted for this purpose. Let the difference be ℥j, ℥ss, gr. ix, or 79 gr.; 1-5th is 15 gr. 4-5ths, the other 5th the same; total 110 gr. 3-5ths.

The salts obtained by the evaporation of a mineral water, are not to be considered as its real contents, because new combinations are formed during the process, and the most insoluble compounds possible are separated first: whereas in the original water there is good reason to suppose the real mode of composition is that of the most soluble compositions that are capable of being formed from the remote principles contained in the water. Hence those common products, sulphate of lime and muriate of soda, probably exist in mineral waters as sulphate of soda and muriate of lime, and it is to the presence of the latter salt that much of the medical effects of mineral waters is to be ascribed.

RIVER WATER. *Aqua fluvialis.*

RAIN WATER. *Aqua pluvialis.* Are the purest of the common waters, and those generally employed.

ACIDULOUS WATERS. *Acidulae.* Taste acid, sparkle on being poured out; contain an excess of carbonic acid, and almost constantly common salt, with some of the earthy carbonates.

CHALYBEATE WATERS. *Aquæ chalybeatae.* Strike a black

colour with oak bark or other vegetable astringents, sometimes are also acidulous, these deposit their iron upon boiling, as those of the Spa and Pymont; others are vitriolic and retain their power of striking a black colour after being boiled and filtered, as that of Westwood in Derbyshire.

SULPHUREOUS WATERS. *Aquæ sulphurææ*. Stink like rotten eggs, blacken silver and lead, contain sulphuretted hydrogen, either uncombined or united to lime or an alkali. Harrowgate is well known.

HARD WATERS. *Aquæ fontanæ*. Curdle soap even after boiling, contain sulphate of lime.

SALT WATERS. *Aquæ salinæ*. Easily recognised by their saline taste, and the salt crystallising in cubes; precipitate the solution of silver, lead or quick silver in spirit of nitre, forming a white cloud.

PURGING WATERS. *Aquæ catharticæ*. Bitter, purgative, precipitate the solution of silver, lead, or quick silver in spirit of nitre, forming a yellow cloud; not affected by acids, but afford a precipitate with kali ppm.; contain Epsom salt; the springs of Bagnigge Wells, Dulwich, and Epsom are of this nature.

ALKALINE WATERS. *Aquæ alkalinæ*. Change blue vegetable colours to a green, effervesce with acid, yield a precipitate with alum water. Tilbury water is an example.

COPPER WATERS. *Aquæ cuprææ*. Turn blue with spirit of harts horn, if not already of that colour, cover iron left in them with a coat of copper: contain blue vitriol: found near copper mines.

ALUMINOUS WATERS. *Aquæ aluminosæ*. Change vegetable blue to a red, even after standing some time in the open air, effervesce with alkalies, and are decomposed, precipitating in flocculi.

PETRIFYING WATERS. *Aquæ lapidificantes*. Deposit an earthy sediment on standing or by boiling; unwholesome.

STYGIAN WATER. *Aqua Stygis*. Corrodes glass and earthen ware, contains fluoric acid: poisonous, reported to have been exhibited to Alexander the Great, and to have occasioned his death, the water being carried from the spring in Arcadia in a horse's hoof: another spring of this kind has been lately found in Prussia, and closed up by the government.

SEA WATER. *Aqua marina*. Contains common salt and Epsom salt in large quantity; purgative, and the usual

clyster at sea: many attempts have been made, by landsmen, to obtain fresh water from it at sea: distillation is the only method known, but sea captains say they may as well carry water with them as fuel to distil the sea water, not to mention the cost of the apparatus and the trouble; most large ships, however, have a rude method of saving the steam arising in boiling their victuals: and when only one of the two parts into which their large copper boiler is divided is used, they put sea water into the other part, and distil it by the same rude way. A person of the name of Beaumont at Calcutta, is said, in Heyne's India, p. 422, to have offered, for £25,000, to disclose the secret of converting salt water into fresh water in large quantity, without heat, and with very little expense: he says the process is so simple, that he can scarce speak of it without betraying the secret.

DISTILLED WATER. *Aqua distillata.* Water 10 gall. distil; throw away the first half gall. and draw off four gall. which keep in glass or stone ware: used as a diet drink in cancerous diseases, and should be used in making medicines when the salts contained in common water would decompose them.

43. FERMENTED LIQUORS.

CANARY SACK. *Vinum Canarinum.* Rich, full bodied, sweet; fermentation checked by adding gypsum or lime.

SHERRY. *Vinum album Hispanicum.* *Vinum P. L.* since 1809. Dry, well fermented.

MOUNTAIN WINE. *Vinum album montanum.* Sweet.

RHENISH WINE. *Hock.* *Vinum Rhenanum.* Acerb, made from scarcely ripened grapes: when made into hypocras has a fine perfume.

PORT WINE. *Vinum rubrum Portugallicum.* Dark red, made from grapes gathered without selection flung into a cistern, trod, and their skins and stalks left in the mass, which separate during fermentation, and form a dry head over the liquid; when the fermentation is completed, the liquor underneath is drawn out, and casked; before being brought to England it is mixed with 1-3d of brandy to enable it to keep during the voyage, otherwise the carriage brings on the acetous fermentation, and the wine is converted into vinegar; acerb.

FRENCH WINES. *Vina Gallica.* Made from selected grapes (the bad ones being cut off the stalks with brass

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scissors), pressed, and only the expressed juice fermented; these are cordial, but seldom used in making medicines, currant or raisin wine being substituted.

RAISIN WINE. Raisins 1 cwt. water 16 gall. soak for a fortnight, stirring every day, press, put the liquor in a cask with the bung loose till it has done hissing, then add brandy 2 to 4 lb, and bung up close: some use little more than half, or 2-3ds of this quantity of raisins. The cake left on pressing will serve to make vinegar.

2. Raisins 1 cwt. cider that is not rough half a hogshead: ferment as before.

GRAPE WINE. May be made from the juice of ripe or even unripe grapes, or from an infusion of about 50lb of the young leaves or cuttings of the vine in 7 or 8 gall. of water, adding sugar about 3lb to each gallon of liquor.

GOOSEBERRY WINE. Ripe berries bruised 10 gall. water 30 gall. soak 24 hours, strain; to each gallon add Lisbon sugar 2lb, and ferment.

2. Bruised berries 80lb, water 10 gall. soak for a day, strain; to each gall. add loaf sugar 6lb, and ferment.

3. Juice 10 gall. water 20 gall. sugar 70lb; ferment.

4. Berries 100lb, brown sugar 6lb, water q. s. to fill a 15-gall. cask; yields a good yellowish white, very transparent wine.

5. Green berries 40lb, water 4 gall. bruise together, the next day press out the juice; to every gallon add sugar 3lb: ferment.

CURRANT WINE. Red currants 70lb, bruised and pressed, brown sugar 10lb, water q. s. to fill up a 15-gall. cask; yields a pleasant red wine, rather tart, but keeping well.

2. White currants 1 sieve, red currants 1 gall. press; to each gall. of juice add 3 gall. water; to 10 gall. liquor add 30lb sugar, and ferment: when you bung it up, add brandy 2lb to each 10 gall. of wine.

3. Juice 11 quarts, i. e. the produce of a sieve, sugar 20lb, water q. s. to fill up a 9-gall. cask; ferment, and when it has done working, add brandy 4lb: for a half hogshead use currants 3 sieves, sugar 84lb, brandy 1 gall.

BLACK CURRANT WINE. Berries 20lb, brandy 2 to 4 lb, water 12 to 14 gall. yeast 2 spoonfuls, fermented for 8 days, then bottled and well corked; yields a pleasant, rather vinous, cooling liquor of a purple colour; or they may be

made into wine like the common currants: by the first process the wine is dark purple, rather thick but good.

2. Juice of boiled fruit and water p. æq.; to each quart of liquor add sugar 1lb, and ferment.

MIXED FRUIT WINE. White currants 3 sieves, red gooseberries 2 sieves, these should yield 40 pints of juice; to each gallon add water 2 gall. sugar 3lb and a half; ferment.

2. White, red, and black currants, cherries especially black heart, rasp berries, ana p. æq.; to each 4lb of the bruised fruit add water 1 gall. steep for three days, press, and to each gallon of liquor add yellow sugar 3lb; ferment, and when finished add to each 9 gall. 2 pints of brandy; if it does not fine soon enough, add half an oz. of isinglass dissolved in a pint of water to each 9 gallons.

3. Fruit, any that is to be had quite ripe, q. p. express the juice, and if very rich in flavour an equal quantity of water may be added; to each gallon of liquor add 4lb of sugar, and ferment as usual.

These English fruit wines differ from those made from the grape, by containing the malic acid instead of the tartaric.

CHERRY WINE. Cherries 30lb, moist sugar 5lb, water q. s. to fill a 7-gall. cask; ferment.

METHEGLIN. Honey 1 cwt. boiling water q. s. to fill a half hogshead or 32-gall. cask, stir it well for a day or two, add yeast, and ferment; some boil the honey in the water, with an oz. of hops to each gallon, for an hour or two, but this boiling hinders its due fermentation.

MEAD. Is made from the honey combs, from which honey has been drained out, by boiling in water, and then fermenting; generally confounded with metheglin.

COWSLIP MEAD. Honey 30lb, water 15 gall. boil; when cold, add lemons sliced no. 18, cowslip pips 14 gall. yeast 8 oz. and sweet briar one handful: ferment and bottle.

MADE WINES. *English Champagne.* Raw sugar 10lb, loaf sugar 12lb, water 9 gall. concrete acid of lemons or crystallised acid of tartar 3vj; dissolve by a gentle boil, before it grows cold add yeast about 1lb, and ferment; when the working is nearly over, add perry 1 gall. brandy 3lb, and bung it up for three months, then draw out 2lb of the wine, dissolve isinglass 1 oz. in it, pour it again into the cask, and in a fortnight bottle it: it may be coloured pink by adding cochineal 1 oz. when first bunged up.

2. *English Port.* Cider 24 gall. juice of elder berries 6 gall. Port wine 4 gall. brandy 1 gall. and a half, logwood 1lb, isinglass 12 oz. dissolved in a gallon of the cider: bung it down; in two months it will be fit to bottle, but should not be drank till the next year: if a rough flavour is required, alum 4 to 6 oz. may be added.

3. *Southampton Port.* Cider 36 gall. elder wine, damson wine, ana 11 gall. brandy 5 gall.

4. *English Madeira.* Pale malt ground 4 bushels, boiling water 44 gall. infuse, strain, of this wort, while warm, take 24 gall. sugar candy 14lb; when dissolved, add yeast 2lb; ferment, keep scumming off the yeast; when the fermentation is nearly finished, add raisin wine 2 gall. and a half, brandy, Port wine, ana 2 gall. bung it down for six or nine months. A second infusion of the wort may be brewed for beer.

5. *English Sherry.* Loaf sugar 32lb, sugar candy 10lb, water 16 gall. boil, add pale ale wort (as for English Madeira) 6 gall. yeast 1lb: on the third day add raisins stoned 10lb, and in another two or three days brandy 1 gall. bung it down for four months, draw it off into another cask, add brandy 1 gall. and in three months bottle it.

Imitations of foreign wines for those who wish to make a show above their circumstances, but far inferior to our own fruit wines.

CLARY WINE. Sugar 45lb, water 15 gall. boil, add it gradually to a pint of yeast, infuse in it for three days, clary flowers 3 gall. then strain; ferment as usual, and then add 1 gall. brandy.

COWSLIP WINE. To each gallon of water add 3lb white sugar; add yeast, and ferment a day and an half, then add cowslip flowers 1 gall. the rind and peel of 2 lemons or Seville oranges to each gallon, the third day strain, and continue the fermentation.

ELDER WINE. Juice of the berries 8 gall. water 12 gall. brown sugar 60lb, dissolve by boiling, add yeast, and ferment, then add brandy 4lb, and bung it up for three months: disagreeable when cold, but is mulled with allspice, and drank warm in winter time as a stimulant.

WHITE ELDER WINE. *English Frontinac.* Water 6 gall. white sugar 18lb, flowers of white-berried elder half a gall. lemon juice 8 oz. yeast 6 oz. raisins 6lb; ferment and bottle.

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GINGER WINE. Bruised ginger 12lb, water 10 gall. boil for half an hour, add sugar 28lb, boil till dissolved, then cool, and put the liquor along with 14 lemons sliced, and 3lb of brandy, add a little yeast, and ferment; bung it up for three months, and then bottle it.

ORANGE WINE. Sugar 23lb, water 10 gall. boil, clarify with the white of six eggs, pour the boiling liquor upon parings of oranges, no. 100, add the strained juice of these oranges and yeast 6 oz. let it work for three or four days, then strain it into a barrel, bung it up loosely; in a month add brandy 4lb, and in three months it will be fit to drink.

CIDER. From the juice of apples.

PERRY. From the juice of pears, particularly the rough-tasted sorts: fermented in the open air.

ALE. *Ala. Cerevisia alba.* For 36 gall.: malt (usually pale) 2 bushels and a half, sugar 3lb, just boiled to a colour, hops 2lb 8 oz. coriander seeds 1 oz. capsicum 5s; work it two or three days, beating it well up once or twice a day; when it begins to fall, cleanse it by adding a handful of salt, and some wheat flour mixed with cocculus Indicus ʒj.

TWOPENNY. For 36 gall.: malt 1 bushel and a half, hops 1lb, liquorice root 1lb 8 oz. treacle 5lb, Spanish liquorice 2 oz. capsicum ʒij; frequently drank the week after it is brewed: used in cold weather as a stimulant.

BEER. *Cerevisia.* For 10 barrels: malt 8 bush. hops 8lb, sugar 8lb, made into colour, Spanish liquorice 8 oz. treacle 10lb.

LONDON PORTER. For 5 barrels: malt 8 bushels, water q. s. mash at twice, add in the boiling hops 8 to 12 lb, treacle 6lb, liquorice root 8lb, moist sugar 16lb, one half of which is usually made into *essentia binæ*, and the other half into colour, capsicum ʒiiij, Spanish liquorice 2 oz. lint-seed 1 oz. cinnamon ʒij, heading ʒij; cool, add yeast 1 to 2 gall.; when it has got a good head, cleanse it with ginger 3 oz. cocculus Indicus 1 oz. then barrel and finish the working; fine with isinglass or harts-horn shavings. The public brewers use a mixture of pale, amber, and brown malt, but amber alone is best for private families.

Sugar 6lb is esteemed equal in strength, and coriander seed 1lb in intoxicating power, to a bushel of malt: the sugar employed is burnt to colour the beer instead of brown malt, and it has been proposed to employ roasted coffee for

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this purpose; the other substances are merely to flavour the liquor, and may be varied at pleasure.

The desire of evading the duty on malt has occasioned the discovery of its being necessary to malt only 1-3d of the corn, as this portion will convert the other into its own nature during the process.

MUM. Is brewed as beer, but from wheat malt.

GINGER BEER. Lump sugar 3lb, bruised ginger 2 oz. cream of tartar 1 oz. lemons sliced no. 4, pour on them boiling water 4 gall., add yeast 8 oz. work for 4 days, then bottle in half pints, and tie the corks down.

2. Moist sugar 6lb, ginger 5 oz. cream of tartar 2 oz. lemons no. 4, yeast 8 oz. water 7 gall. work two or three days, strain, add brandy 1lb, bung very close, and in fourteen days bottle it: a cooling effervescent drink in summer.

WHITE SPRUCE BEER. To water 10 gall. put sugar 6lb, essence of spruce 4 oz. (a 3s. pot), add yeast, work as in making ginger beer, and bottle immediately in half pints.

BROWN SPRUCE BEER. As the white, using treacle in lieu of sugar.

TREACLE BEER. Hops 1lb 4 oz. boil in water 36 gall. for an hour, add treacle 14lb, a little yeast, and ferment.

2. Hops 1 oz. and half, water 1 gall. treacle 1lb.

PARS-NEP WINE. May be made by cutting the roots into thin slices, boiling them in water, pressing out the liquor and fermenting it: this wine, when made strong, is said to be of a rich and excellent quality and flavour.

The purer kinds of the above liquors are mixtures of spirit of wine, water, and extractive matter; the spirit may be separated by careful distillation, or, if the extractive matter be first got rid of by the addition of extractum Saturni and filtration, the spirit may be separated by adding very pure and dry kali ppm. when it will swim upon the liquor: the spirit constitutes from 12 to 25 per cent. of the proper wines, and from 2 to 8 per cent. of the malt liquors.

Wines may also be made of blackberries and other English fruits upon the same principles. The above are the methods generally employed, but most persons have peculiar ways of proceeding, which may indeed be varied to infinity, and so as to produce at pleasure a sweet or dry wine; the sweet not being so thoroughly fermented as the dry. The addition of brandy destroys the proper flavour of the wine, and it is better to omit it entirely (except for elder or Port

wine, whose flavour is so strong that it cannot well be injured), and to increase the strength by augmenting the quantity of the raisins or sugar. In general, the must for wines ought to be made of raisins 6lb, or sugar 4lb, to the gall. allowing for that contained in the fruit; and in most fruits, especially the black currant, it is advantageous to boil them previously to making them into wine, as this improves the flavour greatly.

The fermentation of these liquors is usually hastened by the addition of yeast, crude tartar or bruised vine leaves, but this is seldom necessary for wines if the liquor be kept in a proper warmth, but malt liquors are more sluggish.

If the fermentation is in danger of proceeding too far, it may be stopped by drawing off the liquor clear into another vessel, in which some brimstone has been newly burned, or in the case of red wine, some nutmeg powder upon a hot shovel, or which has been washed with brandy: the sediment left in the old cask may be strained through flannel or paper till clear, and added to the other: instead of this a part only may be drawn out of the cask, and some rags dipped in melted brimstone and lighted may be held by a pair of tongs in the bung-hole, slightly covered, so as to impregnate the liquor with the fumes, about 1 oz. brimstone to a hhd. then returning what had been drawn out, and bunging up very close: or a small quantity of oil of vitriol may be poured in: lastly, the addition of black manganese has been proposed on theoretical grounds.

If the fermentation has already proceeded too far, and the liquor become sour, the further fermentation must be stopped as above, and some lumps of chalk, or burned oyster shells added to saturate the acid already generated.

If the liquors do not become clear soon enough, for each 36 gall. dissolve isinglass 1 oz. in water 2lb, strain, and mix this with part of the liquor; beat it up to a froth and pour it into the rest of the liquor; stir the whole well and bung it up: instead of isinglass some use harts-horn shavings in rather larger quantity: red wines are fined with eggs no. 12 to the pipe, beaten up to a froth, mixed with the wine and well stirred in.

If the liquor has acquired a bad flavour, the best way is to let the fermentation go on, and convert it at once into vinegar.

Wines are usually doctored as it is called, in order to

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give them peculiar flavours, and render them similar to some celebrated grape wines. Thus bitter almonds are added to give a nutty flavour; sweet briar, orrice root, clary, cherry laurel water, and elder flowers, to form the bouquet of high-flavoured wines; alum, to render young and meagre red wines bright; Brazil wood, cake of pressed elder berries and bil berries, to render pale faint Port of a rich deep purple colour; oak sawdust, and the husks of filberts, to give additional astringency to unripe red wines; and a tincture of the seeds of raisins to flavour factitious Port wine. Wine is coloured with red beet, but in this case it is rendered colourless by lime water. Genuine red wines yield a greenish gray precipitate with a solution of sugar of lead, but those coloured with bil berries, elder berries, or logwood, give deep blue precipitates, and those coloured by Brazil wood, red sanders, and red beet, red precipitates. Gypsum is used to clear cloudy white wines, as also lime: and the size of a walnut of sugar of lead, with a table spoonful of sal enixum, is put to 42 gall. of muddy wine to clear it.

Capsicum and grains of paradise are used to give a pungent taste to weak beer, but to avoid detection, concentrated tinctures are mostly used; and ginger, coriander seed, and orange peel, are used to flavour it: besides these, opium, cocculus Indicus, nux vomica, tobacco, and extract of poppies, are used to increase the intoxicating quality. Quassia is employed instead of hops as a bitter, but as this does not precipitate the mucilage, the beer soon grows muddy unless kept very cool.

Mild or new beer is made to taste like stale by adding a little oil of vitriol, or some alum; and, on the other hand, stale or sourish beer is made to resemble mild by neutralising the acid by oyster-shells or chalk.

When porter is reduced by adding table beer, publicans usually add melasses to enable it to form a head, and extract of gentian to keep up the flavour.