

conductors of heat and electricity. The alloys of copper are of enormous importance in manufactures. The best known are bell-metal, brass, bronze, gun metal, and speculum metal. Sulphate of copper, formed into large blue crystals and known as blue vitriol or bluestone, is used in calico printing and electroplating, and in the manufacture of various pigments. Acetate of copper is commonly known as verdigris.

Copperas.—Sulphate of iron, or green vitriol. It is used for dyeing black, in the manufacture of inks, and also as a dressing for crops.

Copra.—The commercial name for the dried kernel of the cocoa-nut when broken into small pieces. It is imported, mainly from Ceylon, for the sake of the cocoa-nut oil that it contains and which is expressed from it.

Coprolites.—The fossilised dung of certain extinct animals, chiefly of the lizard tribe. They are found in various strata, and occur in different shapes. Owing to the presence of phosphate of lime, coprolites have been largely used for manuring land and also in the preparation of artificial manures.

Coquilla Nut.—The seed of a South American palm. The seeds are largely exported from South America, the wood being cut and polished, and then used in the manufacture of buttons, umbrella knobs, etc. The wood is hard, takes a high polish, and has a beautiful brown mottled appearance.

Coral.—The name applied to the stony skeletons of certain marine animals belonging to the same class as the sea-anemone. The red coral used for making beads, necklaces, etc., is found in the Mediterranean at a considerable depth. It is capable of taking a high polish, is very hard, and the finer qualities command high prices.

Coralline.—A red colouring substance resulting from the action of oxalic and sulphuric acids upon phenol.

Cordite.—The explosive made principally from gun-cotton and nitroglycerine, with the addition of vaseline.

Coriander.—An annual plant of the *Umbelliferae* order, a native of S.E. Europe and the Levant, but now widely distributed. Its seeds are red and aromatic, and a volatile oil is obtained from them. The seeds are sometimes used in medicine, and domestically they are employed for flavouring curries and spirits, and in the manufacture of confectionery, etc.

Cork.—The developed outer bark of

the cork tree. This tree is grown largely in Spain and Portugal, from which countries the chief supplies are obtained, and also in Algeria and Tunis.

Corn.—The general name applied to food grains. In England the word generally signifies wheat, and in the United States maize, but in both countries rye, barley, and oats are included under the name "corn."

Cornel.—The fruit of the *Cornus mas*, also called the Cornelian cherry. It is the size of a small plum, and generally of a shining red colour. When ripe its taste resembles that of wine, and the fruit is used when preserved in the manufacture of various kinds of confectionery. In Turkey it is employed in flavouring sherbet. The wood of the cornel tree is hard and tough, and in much request by turners, joiners, and instrument makers.

Coromandel Wood.—The wood of the *Diospyrus hirsuta*, imported in logs and planks from India. It is employed in cabinet making.

Corozo.—A palm tree which grows in Central and South America. Its fruit is known as Corozo nuts, and these nuts contain a milky liquid which, when condensed, acquires a hardness almost equal to that of ivory. On this account the nuts are often called "vegetable ivory nuts." The milky substance, when hardened, is used for the manufacture of buttons, collar studs, sleeve links, and similar small articles. Supplies are obtained principally from Ecuador and Costa Rica.

Corrosive Sublimate.—The common name for bichloride of mercury, or mercuric chloride, a compound of chloride and mercury. It is a deadly poison, but is used as a preservative.

Corundum.—The name of a mineral species, including a variety of precious stones, such as the ruby, the sapphire, and the topaz, but confined commercially to the crystalline forms of emery. It is composed essentially of pure alumina, and is extremely hard, in this respect being inferior to the diamond alone. It is in great request for grinding and polishing machinery, plate glass, etc. Corundum is found abundantly in Asia Minor, India, China, and the United States.

Coto Bark.—A medicinal bark obtained from certain trees of tropical South America. Its use is very limited.

Cotton.—One of the most important of vegetable fibres, cultivated extensively in various parts of the world up to the

36th parallel of latitude. It is obtained from the seeds of various species of *Gossypium*, a genus of plants belonging to the mallow family, but there are really not more than three which yield the cotton of commerce.

Cowslip.—A common plant in many parts of England, and in other parts of Europe. Its flowers are somewhat like those of the primrose. These flowers are used in the manufacture of cowslip wine, when they are fermented with sugar.

Crab.—The well-known edible shell fish, belonging to the same family as the lobster and the cray fish.

Cranberry.—The name of a small, slender, creeping evergreen shrub. There are three species in Europe and Northern Asia. The cranberry of the United States and Canada is larger than the European plant. The berries, which have a sharp acid taste, are valuable for the making of tarts and preserves, and on account of their anti-scorbutic properties are much used on board ship. Wine is made from them in Siberia, and a beverage derived from them is sold in Russia.

Crape.—The thin gauze-like fabric made from raw silk, gummed and twisted at the mill, and from which all the gloss has been removed. It is usually dyed black, and is used for mourning. England is the principal country in which crape is made, though Lyons has no mean trade in the article.

Cream.—The fat of milk which exists in minute globules in new milk.

Cream of Tartar.—The crystallised bitartrate of potash. It occurs naturally in grape juice, and as it is insoluble in alcohol it is gradually deposited as argol. Cream of tartar is used medicinally as a diuretic and purgative.

Creasote.—The antiseptic oily substance obtained from the destructive distillation of wood. The creasote of commerce, however, is obtained from the distillation of coal tar. It is much used in the preservation of meats, etc., and it prevents the rotting of railway sleepers or other kinds of wood likely to be exposed to an excess of wet.

Cretonne.—The name originally applied to a particular white cloth of French manufacture. It is now used to denote printed cotton fabrics which are employed for making curtains and furniture covers, cretonne having taken the place of chintz.

Croton Oil.—An extremely powerful purgative oil expressed from the seeds

of a plant grown in many parts of the West Indies, and in South-Africa. The oil is of a brownish colour, and has an extremely rancid and nauseous odour. Owing to its drastic properties, great care is required in its use. Externally, croton oil is employed as a liniment.

Crucible.—A vessel used for fusing metals, glass, etc. Crucibles are generally made of materials capable of being exposed to high temperatures. The most common are formed of porcelain or clay, or of a mixture of plumbago and clay. In certain cases platinum, gold, silver, iron, and lime are used.

Cryolite.—A double fluoride of sodium and aluminium, occurring in large deposits in Greenland, and also found in the Ural Mountains. It was at one time the principal source of aluminium. Now it is chiefly valuable on account of the alum and bicarbonate of soda obtained from it. Cryolite is also employed in the manufacture of glass.

Cubeb.—Otherwise cubeb pepper, the dried berries of the *Piper Cubeba*, or *Cubeba officinalis*, a climbing shrub of the East Indies. The seeds contain a volatile oil, a substance known as cubebin, and various resinous bodies, one of which is cubebic acid.

Cucumber.—The well-known tender annual table vegetable, *Cucumis sativus*, belonging to the gourd family.

Cudbear.—A preparation of archil, made in the form of a brownish red powder. It is very useful to the wool-dyer, as giving a brilliant bloom, but it is somewhat fugitive.

Culilaban Bark.—An aromatic bark, also called clove bark, obtained from a tree of the same genus as the cinnamon. It is imported from the East Indies. The odour of the bark resembles that of nutmegs and cloves. Its medicinal use is confined to cases of diarrhoea and indigestion.

Cummin.—A plant resembling the fennel, cultivated in southern Europe, North Africa, and India. The cummin seeds are the fruit of the *Cuminum cyminum*, the properties of which are similar to those of the caraway seeds, but somewhat stronger. The Dutch are said to mix cummin with their cheese, and in the north of Europe it is often added to bread. At one time used as a medicine it is now employed only by veterinary surgeons. Morocco is the chief exporting country.

Curaçoa.—The liqueur manufactured largely in Holland, principally at Amsterdam, from the dried rind of the

Curaçoa oranges. These oranges are obtained from the West India Island Curaçoa, a Dutch possession in the Gulf of Maracaybo.

Currants.—The common name for various species of plants of the genus *Ribes*. The best variety for jellies, wines, and preserves is the red currant, with its white variation, though the black currant is much prized. The grape currant is the fruit of the Corinth vine, a variety of the ordinary vine cultivated in the Ionian Islands. Greece possesses practically a monopoly of the supply of currants. The kinds distinguished in commerce are Cephalonia Gulf, Patras, Vastizza, and Zante.

Cutch.—(See *Catechu*.)

Cutlery.—The general name for cutting instruments such as knives, forks, scissors, razors, etc. In the manufacture of cutlery France and Germany have long been competitors with England in foreign markets, and the trade of Sheffield, the centre of the manufacture in the United Kingdom, has been much affected. In the United States also England has a most formidable competitor. The finest surgical instruments are made in Paris. In the manufacture of razors Sweden has become especially famous.

Damask.—The name given to certain fabrics, first worn at Damascus, into which elaborate patterns are introduced. There are silk, woollen, linen, and cotton damasks, but the chief are linen, and they are used for table-covers, napkins, furniture covers, etc. In Great Britain the principal seats of the linen manufacture are Barnsley in England, Dunfermline in Scotland, and Belfast in Ireland. Cotton damasks are produced at Manchester, Glasgow, and Paisley, and woollen damasks at Halifax and Bradford. Silk damasks are made in the neighbourhood of London.

Dammar.—(Also known as gum cat's eye.) The word is an Eastern one, signifying resin, but the dammar resin of commerce is the produce of certain pine trees. These trees are found in the East Indies, New Guinea, and New Zealand. The resin is also found in many places in a fossil condition, and this species is of the greatest commercial value. Dammar is chiefly used in the preparation of transparent and rapidly drying varnishes. Singapore is the chief exporting town of this article.

Damson.—The small oval variety of the common plum, much used for making preserves. A native of Damascus, the

damson tree is now found in various parts of the world.

Dandelion.—A plant belonging to the natural order *Compositae*, common in all temperate regions. Dandelion abounds with a milky juice, of which the principal constituents are resin, inulin, sugar, and a peculiar crystalline principle taraxacin. This juice has a bitter taste, but is valuable medicinally as a tonic and in liver troubles. The root, when ground, is often mixed with coffee and chocolate, and is sometimes used as a substitute for coffee.

Date Palm.—A species of palm cultivated in immense quantities all over northern Africa, western Asia, and southern Europe. The fruit is in many instances used as the principal food of the inhabitants of the countries in which it grows, and when dried, the dates are exported from Egypt, Turkey, and Morocco.

Date Plum.—A tropical tree belonging to the ebony order, valuable on account of its timber and its fruit. From the fruit, when pounded, fermented and distilled beverages are made. The bark is bitter, and is employed medicinally in cases of cholera and diarrhoea.

Deals.—The name applied to particular sizes of pine wood when exported from the Baltic ports, though properly it should refer to any thicknesses in which timber is cut up. Deals are 3 inches thick and 9 inches wide.

Dextrine.—Also known as British gum. It is prepared from starch by the action of dilute acids at a high temperature, and also by the action of diastase. Dextrine is much used as a substitute for gum arabic in calico printing, and also as a mucilage for stiffening fabrics. It serves as a coating for adhesive stamps, envelopes, etc.

Diamond.—The most brilliant of all precious stones, though less highly valued than the ruby. It is the natural form of crystallised carbon, and is well known by its peculiar lustre. India, Brazil, and South Africa, especially the last named, are the principal diamond producing countries, and it is believed that the precious stones exist in Australia. An imperfect variety of diamond is bort, or boart, which is not capable of being used as an ornament, but is employed as an abrading agent when ground. Another variety is carbonado, black and opaque, found only in Brazil. Its density is less than that of the crystallised diamond, but its hardness is greater. Hence it is used for mounting

in the steel heads of rotary diamond drills for rock-boring.

Diaper.—A variety of linen or other cloth, generally figured with some pattern. It is produced by a process of twilling. Diaper is mainly used for table-linen, towels, etc.

Digitalis.—A genus of plants of the natural order *Scrophulariaceae*, natives chiefly of Europe and the north of Asia. One species only is found in Britain, the *Digitalis purpurea*, or common foxglove. The leaves of the plant are useful in medicine, especially in cases of heart disease.

Dill.—An aromatic plant, common in the East, in South Africa, and in the Mediterranean countries. The seeds are extensively used for flavouring pickles, sauces, etc., and medicinally they are employed as a remedy for flatulence and, in the form of dill water, for soothing infants. A volatile oil is obtained from the seeds by distillation, which is useful in scenting soaps.

Dimity.—A cotton fabric, stout and figured, used principally for bed-hangings and window curtains.

Dividivi.—The twisted pods of the *Caesalpinia coriaria*, a great leguminous tree, native of South America. They are very rich in tannin, and are extensively imported into Great Britain from South America, especially Venezuela, for the use of tanners and dyers.

Dogwood.—(Also called Dogberry.) A species of cornel tree. The wood is very hard, and is largely used for making the handles of tools, cogs for wheels, etc., while the young branches are cut to make skewers. An oil is extracted from the tree, which resembles olive oil, while the bark is employed medicinally as a purgative and a febrifuge. The best charcoal for the manufacture of gun-powder is produced by burning dogwood.

Dragon's Blood.—(Also called gum dragon.) The resinous exudation of different plants, principally the *Pterocarpus draco* of South America, and the red sandal tree of the East Indies. From Sumatra it is exported in sticks wrapped in palm leaves. Dragon's blood forms a part of the most useful varnishes. It is also used for dyeing horn the colour of tortoise-shell, for staining marble, for making certain tinctures, and for the manufacture of various kinds of tooth powder.

Dugong.—A marine animal, of the genus *Sirenia*, allied in some respects to the whale. It is found in the Indian and Pacific Oceans. From its fat an

oil is boiled down, which has the peculiar virtue of not turning rancid, and which is medically employed as a substitute for cod-liver oil.

Durra.—A genus of grasses, also called durra millet, Indian millet, and sorgho grass. They are extensively cultivated in Africa and the East Indies. The common durra is a coarse strong grass, having a round grain, rather larger than a mustard seed. The produce yielded is very abundant, even rivalling maize, and when ground is largely used in Africa as a substitute for flour in making bread, and for rice in making puddings, etc. The leaves of the durra, as well as the grain, make excellent food for cattle.

Dye-stuffs.—The materials used by dyers for producing colours upon textiles and other substances. Those dyes which produce their effect without the aid of any other substance are called substantive dyes, while those which require an adjunct or mordant are called adjective dyes. The chief mordants used are the various metallic salts, especially those of tin and iron. Artificial dye-stuffs are now derived from coal-tar, especially the aniline colours.

Dynamite.—The powerful explosive first made of practical and commercial importance by Mr. Alfred Nobel, in 1867. It is composed of a mixture of nitro-glycerine and kieselguhr, a siliceous infusorial earth found chiefly in Germany.

Ear-Shell.—A genus of molluscs, belonging to the order *Haliotidae*. The shell is ear-shaped, and is pierced on the margin with a series of holes. On account of the beautiful tints of their linings these shells are much used for inlaying work and for ornamentation generally.

Earthenware.—A general name for cheap crockery or ordinary pottery ware. (See *Pottery*.)

Eau de Cologne.—The celebrated perfume first prepared in Cologne. For many years the process of its manufacture was kept a profound secret, but now the article is prepared in Great Britain. Eau de Cologne is made from the essential oils obtained from each of the following trees belonging to the orange tribe, viz., citron, orange, bergamot, neroli, and rosemary, added to a certain quantity of rectified spirits. An extract of geranium flowers is sometimes added.

Ebonite.—A species of vulcanised rubber, prepared at a very high temperature with sulphur, exposed to

pressure, and polished. It is used in the manufacture of various small articles such as toys.

Ebony.—A very hard wood, heavy and deep black in colour. It is obtained from various trees of the order *Ebenaceae*. It is only the heart wood, or the inner part of the trunk, that yields the black ebony, the outer part being white and soft. The best ebony comes from Mauritius, and the next in value is exported from Ceylon. It is used largely by cabinet makers and turners, and piano keys are often made from it. Many small articles, such as door-knobs, knife handles, etc., are likewise made out of this wood.

Edge Tools.—The general name applied to cutting instruments of metal, such as axes, chisels, knives, etc. The great centres of the edge tool industry are Sheffield and Birmingham, but the trade is now carried on extensively abroad.

Eel.—The soft-finned bony fish, distinguished by its serpent-like form. Eels are widely distributed over all the fresh waters and seas of the temperate and tropical zones.

Eggs.—The ova of birds. The eggs of fowls, which comprise about 80 per cent. of those used, enter largely into commerce and are imported both as an article of food and for use in manufactures. Great Britain imports them from most European countries and from various of her colonies. The dried white of eggs, or egg albumen, is a substance largely used in calico printing and in photography.

Eider Down.—The feathers obtained from the nests of the eider duck, noted for their softness, lightness, and warmth. The bird itself is a native of the frozen coasts of northern Europe and America, and the principal supplies of eider down are obtained from Greenland, Iceland, Sweden, and Norway.

Ejoo Fibre.—The fibre obtained from the *Arenga saccharifera*, a species of palm which grows in the East Indies. It is dark in colour and like horsehair in texture. On account of its durability it is often made into cordage and cables.

Elaterium.—A powerful purgative drug, obtained from the fruit of the squirting cucumber, a native of the Mediterranean countries.

Elecampane.—The bitter and aromatic roots of the *Inula Helenium*, a native of damp meadows in the south of Europe, and now grown in parts of North America. The powdered root

is used medicinally as a stimulant, and as it possesses a peculiar violet-like odour it is employed in the manufacture of perfume.

Elemi.—A fragrant resinous substance obtained from different trees of the myrrh order. At one time there were various varieties of elemi in use, Mexican, Brazilian, and Mauritius, but the only one now in demand comes from Manilla. It is used in making ointments and plasters, and on account of its agreeable odour it enters into the composition of incense.

Elm.—A genus of trees belonging to the order *Ulmaceae*. The trees grow in all parts of Europe, and there are many fine varieties in England. The wood of the English elm is valuable on account of its strength, toughness, and durability.

Emerald.—A highly valued precious stone, a variety of the beryl, and differing from it only in the brilliancy of its colour. This colour is a velvety green. The finest specimens have been obtained from Colombia and Venezuela, while inferior ones are found in various parts of Europe.

Emery.—An impure dark-coloured variety of corundum, the colour being due to the presence of oxide of iron. It occurs in large masses in the Grecian Archipelago, in Asia Minor, and in Massachusetts. On account of its hardness emery is extensively employed for grinding, cutting, and polishing plate glass, flint glass, gems, jewels, edge-tools, etc.

Endive.—An annual plant of the same order as chicory. It is a native of China, but grows well in English gardens. Its leaves are much used as a salad.

Ergot.—A powerful medicinal agent obtained chiefly from the seed of rye or wheat by the action of a fungus which changes the appearance and constitution of the grain. The chief exporting countries are Germany and Russia.

Ermine.—The name of a carnivorous mammal belonging to the weasel family. Its white fur has long been used for trimming the robes of state dignitaries. The ermine is widely distributed through the northern parts of Europe, Asia, and America, and the skins are imported from Norway, Lapland, Siberia, and the Hudson Bay territories.

Esparto.—A species of grasses found in the various countries bordering on the Mediterranean Sea. They have long been used for the manufacture of carpets, ropes, baskets, nets, etc., but their

chief application in modern times has been for paper-making, and much care is now given to their cultivation and treatment. There are very large exports from Algiers to Great Britain.

Ether.—A colourless and very volatile liquid, composed of carbon, oxygen, and hydrogen. It is prepared by heating alcohol with sulphuric acid. Ether possesses an agreeable odour and a somewhat fiery taste. It is highly inflammable, and when its vapour is mixed with air an explosive mixture is formed. It volatilises spontaneously when unconfined, and this action takes place so rapidly that intense cold is produced. Hence its common use in freezing mixtures and freezing machines. When inhaled it produces temporary insensibility, and is often used as an anaesthetic, being sometimes preferred to chloroform owing to the absence of any of the ill-effects produced by the latter.

Eucalyptus.—A genus of plants belonging to the myrtle family, of which there are about 150 species. They form the most characteristic vegetation of Australia, the trees being remarkable for their great height. The cultivation has been introduced into Africa and Central America. They possess an aromatic odour of a peculiar character, and this is their main peculiarity. A resinous exudation is obtained from the eucalyptus tree, and this is used medicinally as an antiseptic, its camphor-like smell giving it a virtue of its own. A volatile oil is obtained from several species by distillation with water.

Euphorbium.—An excessively acrid gum-resin obtained from various species of the spurge family, in northern Africa, Arabia, the East Indies, and the Canary Islands. It is of a dirty yellow colour, and exudes from the bark of the trees when an incision is made. Its use is now chiefly confined to veterinary medicine, though it is sometimes mixed with Burgundy pitch for making plasters for affections of the joints.

Everlasting Flower.—The popular name of certain plants of the order *Compositae*, which have the peculiar property of retaining their colour and appearance for a long period after they have been gathered. The most common species is the *Helichrysum bracteatum*, which is largely cultivated in the south of France, in Italy, and southern Germany.

Extract of Meat.—A preparation obtained by separating all the nutritious elements from animal food and condensing the same into small bulk.

Faience.—A name formerly given to all kinds of glazed earthenware, derived from the town of Faenza, where it was manufactured. It is a term now confined to the finer kinds of pottery.

Fan.—An instrument manufactured for the purpose of creating a current of air. Large fans used in mechanical operations and for ventilating purposes are generally made of various metals in the form of blades, and the current is kept up continuously by rotation. The ordinary fan is made of any light flat expanded substance, and the current is set up by the backward and forward movements of the hand. The huge fans used in India for ventilating rooms are called punkahs. Fan-making is a very considerable industry of China. Japan also does a large trade in the same articles. Ornamental fans, made of feathers, ivory, silk, tortoise-shell and other delicate and costly materials are chiefly manufactured in Paris, this industry forming one of the special trades of the French capital.

Farina.—The general name applied to many substances which are like flour or other starchy materials. In South America the meal of the cassara is called farina. Commercially the name is confined to the starch obtained from potatoes, and this article is prepared, for the purposes of adulteration, with arrowroot, tapioca, butter, and various other articles of food.

Feathers.—The plumage of birds of various kinds in which a large trade is done by many countries, and of which Great Britain annually imports enormous quantities.

Felt.—A fabric formed without either spinning or weaving. It depends for its structure upon the natural tendency of woollen fibres and certain kinds of hair to combine with each other. Felt is largely used for making carpets and covers of various kinds, and in many cases a printed pattern ornaments it. A peculiar coarse felt is the material out of which the Russian peasantry make their winter garments, and especially boots and shoes, as it alone is capable of resisting the intense cold of Siberia. Gun-wads and pianoforte hammers are other uses to which felt is put.

Fennel.—A plant of the umbelliferous order, rather like the dill, but distinguished from it by the nature of its fruit. It is very widely distributed throughout Europe and Asia. The seeds have an agreeable odour and flavour, and are

used as a condiment, especially in the preparation of macaroni by the Italians.

Fenugreek.—A genus of plants of the same class as the clover. It was used as fodder for cattle by the Greeks—hence its name. The seeds of the common fenugreek are largely used as a condiment in India, and in the manufacture of curry powder.

Feverfew.—A plant of the *Compositae* order, somewhat resembling the chrysanthemum, and closely allied to the camomile. It is commonly found in corn-fields and hedgerows.

Fibre.—Properly the name "fibre" is applied to all substances which are employed to make cordage or to be woven into webs, whether animal, vegetable, or mineral. Commercially, however, the term is used only for those animal or vegetable substances which are suitable for textile manufactures. Of the animal ones the chief are silk, wool, and hair, and of the vegetable the principal are cotton, flax, jute, hemp, and esparto.

Fig.—The fruit of the *Ficus carica*, a plant belonging to the nettle order, but sometimes included in the mulberry order. It is a native of the East, but it is now successfully cultivated in many sub-tropical countries, and especially in the south of Europe. Enormous quantities are annually imported by Great Britain from Mediterranean countries. The best come from Smyrna, of which there are three qualities, Eleme, Erbeli, and Aidin.

Filberts.—(See *Hazel Nuts.*)

Fir.—A comprehensive name for many species of trees belonging to the order *Coniferae*. For the most part they are lofty and hardy, and their leaves are evergreen. One of the best known is the Norway spruce, which penetrates within the Arctic circle. It yields various products, such as resin, turpentine, tar, and lampblack.

Fireclay.—A variety of clay used in the manufacture of retorts, crucibles, etc., which can be heated to a very high temperature without fusing or softening. It is usually found in districts where coal is mined. It is obtained in Belgium, Germany, France, Sweden, and the United States as well as in Great Britain, the principal deposits in this country being near Newcastle-on-Tyne, Stourbridge, and Glasgow. There is a considerable export trade in Stourbridge clay.

Flagstones.—Stones used for paving, cisterns, etc. They are generally composed of sandstones combined with

argillaceous or calcareous matter, and split easily into large flat slabs. The flagstones obtained from Festiniog in North Wales are remarkable for their even grain, those of Yorkshire for their hardness, and those of Caithness for their durability.

Flannel.—Woven woollen fabric, loose in texture, much used for underclothing on account of its warmth. Wales early gained a great reputation for its flannel, and that made from the wool of its mountain sheep still commands the best prices. Lancashire takes the second place and Yorkshire the third place as to both the extent and the value of the flannel manufactured. The chief towns in Wales engaged in the manufacture of flannel are Newtown, Welshpool, and Llangollen, in Lancashire, Bury and Rochdale, and in Yorkshire, Leeds and Halifax. Flannel shirtings are made at Auchterarder, in Scotland. There is now a large trade done by the United States in special flannels, and France produces fine dyed varieties.

Flavine.—A yellow dye-stuff, the concentrated preparation of quercitron bark, obtained from a species of oak, imported from the United States, and used for dyeing wool.

Flax.—The fibre obtained from plants of the order *Linaceae*. The best known of the many species of the plant, as well as the most important, is the annual common flax, *Linum usitatissimum*. It grows largely in Russia, Saxony, Belgium, Holland, Italy, and the north of France. For our linen manufactures we are almost entirely dependent upon the flax imported from various continental countries, the largest supply coming from Russia.

Flocks.—The refuse of wool, the ends of waste feathers, the husks of old cotton, and various other substances of the same kind, used for filling cheap mattresses and cushions.

Floor Cloth.—The name applied to various kinds of carpets, matting, and other coverings for the floors of rooms. In trade, however, a floor cloth generally signifies a strong thick canvas, oiled and painted, though it has been extended to linoleum and other substances in which cork is the chief article used. Oilcloths made of canvas are largely manufactured in Dundee and London.

Flour.—The meal of corn, especially wheat, finely ground and sifted. When exported from most countries it is ordinarily sent out in sacks, each sack containing 280 lbs., but from America

flour comes in barrels containing 196 lbs. each. The United States, Canada, Germany, and Austria are the countries from which we import most of our flour.

Flowers, Artificial.—Imitations of flowers extensively used for ornamentation and decoration. France manufactures more than the rest of the world put together. The making of wax flowers, which is a completely distinct trade, is almost exclusively carried on in England.

Fluor Spar.—A mineral of very frequent occurrence in Derbyshire, and on that account often known as Derbyshire spar. It is usually found in veins with other ores in the shape of cubical crystals. It is really fluoride of calcium. This mineral is hard, brittle, and transparent. Its most common colours are green, violet blue, and yellow, but many other varieties are met with. Besides its use for ornamental purposes, such as the manufacture of vases, etc., fluor spar is a valuable flux in the reduction of metallic ores.

Fox.—The well-known carnivorous animal valuable in commerce, however, only on account of its fur.

Frankincense.—A species of resin, soft, tough, and yellowish in colour, possessing an agreeable odour when burned. It is not fully ascertained what are the trees or shrubs from which the resin exudes, but they are certain species of firs and pines. The best frankincense is obtained from India, that of Arabia being much inferior in quality.

Fuchsine.—One of the aniline colours. It gives all the various tints of red, magenta, etc., to silk and wool. In France this dye is much used not only in the manufacture of light tissues, but also in the making and colouring of artificial flowers.

Fucus.—The name given to various species of sea-weed, which form the principal vegetation of rocky shores between the marks of high and low tides. It is found abundantly on the northern shores of Europe, Asia, and America. Its main use is for manuring land, its value depending upon the presence of a large proportion of ash. It is also employed in the preparation of iodine.

Fuller's Earth.—A soft, greasy, earthy clay, deriving its name from the fact that it is much used by the fuller in cleaning woollen cloth from grease. Fuller's earth is found in many localities in England, but the greatest quantities are obtained from Nutfield, near Reigate, in Surrey, and from the neighbourhood of Bath.

Fulminates.—The name of explosive compounds of which there are many varieties. They are formed by the action of alcohol on the nitrate of a metal in the presence of free nitric acid. The principal fulminates are those of mercury and silver.

Fur.—The short, fine, soft hair of certain animals, growing thick upon the skin, and distinguished from hair, the longer and stiffer material. The term is applied, however, to all skins which are covered with hair. The furs of the larger kinds are chiefly obtained from Siberia and North America, and of the smaller from various parts of Europe.

Fusel Oil.—(Also known as Potato Spirit.) The name "fusel oil" is given to the less volatile products separated during the distillation of various alcoholic liquors. It is often used in the adulteration of whisky.

Fusible Metal.—An alloy composed of the three metals bismuth, lead, and tin, with the addition in some cases of a small amount of cadmium. This alloy is known as fusible metal on account of the fact that it melts at a temperature below that of boiling water. As it expands upon solidifying, the metal is useful in stereotyping, and in taking casts of medals, etc.

Fustian.—A thick fabric made of twilled cotton, but including moleskin, velveteen, corduroy, and various other varieties. Manchester is the great centre of the industry.

Fustic.—The wood of a tree known as *Morus tinctoria*, which flourishes in India and in certain parts of tropical America. A yellow colour is obtained from it which is used in dyeing wool.

Galam Butter.—The name of a fatty substance obtained by boiling the roots of a species of *Bassia*, a native of the East Indies. It is of lard-like consistence, with a taste resembling that of cocoa.

Galangal.—A tree of the ginger order. The rhizome forms the bulk of the preserved ginger exported from China.

Galbanum.—A gum resin of a disagreeable odour and sharp taste. Medicinally it is very similar to asafoetida, though not so powerful. When taken internally it is supposed to alleviate rheumatic pains; externally it is applied as a plaster in cases of indolent swellings.

Galena.—(Also called Lead Glance.) This mineral is massive sulphide of lead, consisting of 86.6 parts of lead and 13.4 parts of sulphur. It is heavy and opaque, has a greyish colour, possesses metallic lustre, and occurs crystallised

in veins in granites, sandstones, limestones, etc. Almost all the lead of commerce is obtained from galena. It is abundantly distributed not only in Great Britain, but also in most of the European countries and in the United States.

Gallic Acid.—An acid occurring in small quantities in gall-nuts, sumach, dividivi, and other plants. It is generally prepared, however, from gall-nuts alone. Commercially it is used in the manufacture of inks. Medicinally it acts as an astringent, and owing to its peculiar properties it has been found very efficacious in cases of Bright's disease.

Galls.—(Also known as Gall-nuts and Oak Apples.) They are the abnormal excrescences formed upon the leaves and stalks of certain trees, especially species of oak trees, by gall insects which introduce their eggs and leave the larvae to develop. The best galls are obtained from Aleppo. They are useful by reason of the presence of large quantities of gallic and tannic acids, substances of value in the manufacture of ink and in tanning.

Galvanised Iron.—Iron coated with zinc to prevent its rusting by the oxidising action of air and water. Galvanised iron was first used for cooking vessels, but afterwards became very common for roofing purposes, and making buckets, telegraph wire, bolts for ships, etc. It is also used for water pipes. When galvanised iron is wrinkled it is termed corrugated iron.

Gambier.—An extract obtained from the leaves of certain shrubs which grow extensively in the East Indies. Gambier is of a brownish colour. It is chiefly valuable in tanning and dyeing. It is exported almost exclusively from Singapore.

Gamboge.—An acrid, yellowish gum resin, the product of various trees which grow in the East Indies. The best gamboge comes from Siam. When exported it is generally in the form of a pipe or roll, or in cylindrical masses. In the arts gamboge is employed in water-colour painting, in staining wood, and in coating brass-work.

Garancine.—A dye-stuff prepared from the madder root by treating it with sulphuric or hydrochloric acid.

Garnet.—The name rather of a group of minerals than of any one particular stone. Garnets are of various colours, though brownish red is the most ordinary. The garnet of commerce is obtained from Bohemia, Ceylon, Brazil,

and Pegu, the best coming from the last mentioned place.

Gasolene.—A highly volatile distillate obtained from rectified petroleum. It is used for gas-engines and horseless carriages.

Gauze.—A thin, delicate, transparent texture woven of very fine fibre. Its name is said to have been derived from Gaza, in Palestine, where it was first made. Originally, it was a silken fabric, and large quantities are now produced by France and Switzerland.

Gelatine.—The name applied commercially to the product obtained from various animal tissues, and used for human food or in the arts according to its source and method of preparation. Gelatine proper is chiefly obtained from the softer parts of the hides and skins of oxen, calves, and sheep.

Gentian.—A plant of the order *Gentianaceae*, of which there are over one hundred species. The best known is the *Gentiana lutea*, which is gathered in many parts of the mountainous districts of southern Europe.

Geranium Oil.—The name of several kinds of essential oil which enter into commerce on account of their rose-like odour, and which are consequently used as a cheap substitute for oil of roses. Practically the whole of this substance is obtained from Algiers.

German Silver.—This metal is sometimes called nickel silver. It is a hard, silvery white compound, being an alloy of copper, nickel, and zinc. The three are mixed in various proportions. It has entirely superseded copper as the foundation of electro-plated goods.

Ghee.—(Or Ghi.) A species of fluid butter made from the milk of the buffalo. It is employed by the Hindoos for cooking, and also in the making of sweetmeats.

Gherkins.—(See *Cucumber.*)

Gin.—A distilled spirit prepared from malt or from raw grain, and then flavoured with juniper berries. The name is derived from the French name for juniper, *genièvre*. The manufacture of the best gin is peculiarly a Dutch industry, the principal town engaged being Schiedam. Hence the names Schiedam and Hollands.

Ginger.—The well-known spice, the product of the herbaceous tropical plant *Zingiber officinale*. The chief supplies of ginger are obtained from the West Indies and Africa, though a certain amount comes from the Far East. The best of all is imported from Jamaica.

Gingham.—A cotton fabric used for making dresses which was originally manufactured in India, but afterwards introduced into Europe. It is now essentially a British manufacture, Manchester and Glasgow being the principal centres.

Ginseng.—The root of the *Panax Ginseng*. The Hindoos, Chinese, and Japanese attribute most extraordinary medicinal properties to this root. The largest trade in ginseng is done between Korea and China, but there are considerable imports of the species of the plant into China from the United States.

Girasol.—A precious stone remarkable for its beautiful reflections of red and yellow under the influence of a strong light. It is a variety of quartz or rock crystal, having the appearance of the opal or the calcedony. The finest specimens have been found in Brazil and Mexico, but good varieties are also obtained in Hungary and Siberia.

Girder.—A beam supported at both ends and used for the purpose of carrying loads placed between the points of support. They are made of cast or wrought iron and steel.

Glass.—The mineral product, generally transparent, formed by the fusion of certain siliceous and alkaline matters, the mixture varying according to the requirements of the substance. Glass is largely made in England, especially at St. Helen's, in Lancashire, but there is a considerable import as well as export trade in this substance. The best sand for glass-making is obtained from France and Belgium.

Glauber's Salt.—Sulphate of soda, formed of compact, white, massive crystals, which effervesce rapidly. The powder has a bitter and saltish taste, and it enters into the composition of several mineral waters, such as those at Carlsbad and Cheltenham. It is also found in certain lakes in the United States.

Gloves.—Gloves are either woven and knitted, and made of cotton, silk, or wool, or cut out from leather and afterwards stitched. The first is a part of the hosiery trade. In England, Derby and Nottingham have a large trade in cotton gloves, whilst Leicester sends out great quantities of woollen gloves. On the Continent of Europe, Berlin and various towns in Saxony are the chief centres of the thread and cloth glove trade. France has long been renowned for the finish of its gloves. The best of the kid are made at Paris and Grenoble,

whilst Vendôme is celebrated for its military gloves. Belgium and Denmark both export largely, Copenhagen having a very considerable trade. In England the chief seats of the manufacture of leather gloves are Worcester, Yeovil, Ludlow, and London. English dog-skin gloves are without a rival in the market.

Glucose.—The name of a variety of substances prepared from animal or vegetable products, but closely resembling each other in their properties. It is imported into the United Kingdom in liquid and solid form from France and the United States, especially for the use of brewers.

Glue.—An impure gelatinous substance obtained from a large number of animal products, and useful for its adhesive properties. Many thousands of tons are made and used annually in the United Kingdom, Scotch glue being accounted the best in the world. Bone glue is made in France and Germany, and is obtained as a by-product in the manufacture of bone charcoal. Marine glue is a substance used by shipbuilders for cementing purposes, though containing no gelatine at all.

Glycerine.—A colourless syrupy liquid with a pure sweet taste. It belongs to the series of alcohols, and is a compound of carbon, hydrogen, and oxygen. Glycerine is used as a preservative and an antiseptic, as a cosmetic and an emollient, in the manufacture of soap and perfumery, as a substitute for cod-liver oil, and in the preparation of nitro-glycerine, dynamite, and other explosives. It is further employed in calico-printing, in the preparation of leather, and for the purposes of improving the quality of wine and of imparting keeping power to beer.

Goats.—Animals found in many parts of the world, and reared on account of their flesh, their skin, and their hair. In Europe the largest numbers are reared in Spain, and the fewest in England, where the species is not considered of great value. The Angora and other Eastern goats are best known and are most highly prized. The skins of goats are tanned and employed in the manufacture of gloves and various kinds of leather.

Gold.—The beautiful yellow precious metal, which is largely imported as ore, bullion, and coin, and which is employed for coinage, ornaments, plate, and jewellery. It was formerly obtained in small quantities in various parts of Europe, in South America, and in India,

but for the last half-century Australia and California, and latterly South Africa especially, have supplied the demands of the world. The valley of the Yukon, in Alaska, promises well in the future.

Gold-beater's Skin.—The thin but tough membrane prepared from the outer coat of the great intestine of the ox.

Gold Leaf.—The thin leaf of gold, pure or alloyed, obtained by hammering. The best gold leaf is made from 23-carat gold. The metal is cast into a thin ingot, and ultimately the thickness is reduced to $\frac{1}{257000}$ of an inch. The finished leaves are trimmed and generally made up into books of 25 leaves. They are employed for gilding.

Gold Plate.—(See *Plate.*)

Gooseberry.—The fruit of the *Ribes Grossularia*, a prickly shrub with small, greenish flowers. The fruit is well known, and is sold in enormous quantities in the northern parts of Europe and America. In the south of Europe it is very little known. There are many varieties, and the cultivation is rapidly extending. The best gooseberries in England are produced in Lancashire.

Gourd.—A genus of plants of the order *Cucurbita*, found in many parts of Europe, Asia, and North America. In the tropics the fruit attains a great size, and is used as a food, both for mankind and for cattle. In English gardens there are various species of gourd to be found, especially the common pumpkin and the vegetable marrow.

Grains of Paradise.—Otherwise known as Malaguetta pepper. The name given to the seeds of the *Amomum Grana Paradisi*, a plant of the Ginger order, which grows in Madagascar, Ceylon, and Guinea. By the natives these seeds are used as a spice and a condiment, but in Europe their legitimate employment is confined to veterinary medicines.

Gram.—(Or Chick-pea.) The name given in India to various kinds of pulse belonging to the order *Leguminosae*. It is somewhat extensively cultivated in the south of Europe and in India for the sake of its seeds, which are eaten by the natives of the latter country. There are considerable imports into Great Britain from India for horse and cattle food.

Granite.—The well-known and easily recognised rock, of igneous origin, composed of felspar, mica, and quartz in varying proportions, though felspar is the main ingredient, seldom forming less than one-half of the whole. The felspar

is of a pinkish colour, and occurs in crystals of varied sizes, the mica, which is of a yellowish tint, occurs in thin plates irregularly distributed throughout the rock, while the quartz is in glassy masses. The texture and colour of granites naturally differ according to the colour and proportion of their constituents. The principal colours are red, grey, and white. The best British granites are the grey Aberdeen and the red Peterhead. The latter is much admired when polished, and is especially used for columns in public buildings and for ornamental grave stones. On the continent, Sweden, Italy, Switzerland supply most of the granite required, and the rock is extensively worked for home use in the United States and Canada.

Grape.—(See *Wine.*)

Grape Sugar.—(See *Sugar.*)

Graphite. (See *Blacklead.*)

Grass Cloth.—The fine soft fabric woven in China, and made from the fibre of a species of nettle. The plant is often wrongly called China grass.

Grass Oil.—The name applied to a certain number of volatile oils, derived from different plants.

Grease.—The general name for any kind of unctuous refuse, more especially animal fat. It has, however, been frequently confined to those fatty matters which possess a certain amount of solidity, and which are deteriorated by impurities to such an extent that they cannot be used for such purposes as candle-making. Grease is extensively used as a lubricant; and is in great demand for certain processes, such as currying leather. Currier's grease is a mixture of tallow and cod oil. That used for the axles of wagons and carts is made of tallow, palm-oil, common soda, and water. Sometimes a little tar is added, and the proportions of the ingredients differ in summer and winter.

Greasy Wool.—The wool or fleece of sheep when shorn and still unscoured. A great portion of the wool which comes from Australia and the Cape is in this condition, and greasy.

Greengage.—A cultivated variety of the common plum, its round fruit being green in colour. By the French it is esteemed as one of the finest varieties in cultivation, and known by them under the name of "Reine Claude."

Greenheart.—A large tree of the laurel order, a native of Guiana. The name "greenheart" is derived from the colour of the wood. The timber itself is of considerable value, being very hard and

durable, and heavier than water. It is much used for shipbuilding and for turning. It is also employed in large engineering works where great strength is required.

Grindstones.—Cylindrical shaped sharp sandstone or gritstone employed for grinding and giving an edge to cutlery, tools, etc. In the trade they are commonly known as "foots." The best natural stones are obtained in Staffordshire. Artificial stones, made by combining grains of sand with silicate of lime, are now largely superseding natural stones.

Groats.—Oats which have been shelled and deprived of their husks.

Ground Nuts.—The product of a plant which is a native of Africa, though it is cultivated in the West Indies and in India. It is remarkable from the fact that the pods of nuts are first formed in the air, and are afterwards forced into the ground as they increase in size and there ripen. Ground nuts are valuable as a food in the regions where they abound, and enter largely into commerce on account of the oil which they contain.

Gruyère.—The name of a famous cheese manufactured at the town of the same name and in the whole canton of Freiburg, in Switzerland.

Guaiacum.—The resinous product of a West Indian tree, which flows spontaneously from the stem. It is of a greenish colour, has an agreeable odour, and possesses a sweetish taste. Medicinally it is used in the preparation of various powders, pills, and tinctures—its best known use being in the compounding of Plummer's Pills.

Guano.—The accumulated dry excrement of animals, especially of sea-fowl, found in enormous quantities in many of the islands of the Pacific and off the coast of Bolivia.

Guava.—The pulpy many-seeded fruit of a species of *Psidium*, a tree belonging to the Myrtle family. There are many varieties of the plant, the best known being the large yellow guava of the West Indies and Brazil, which is now grown somewhat extensively also in the East Indies.

Guiana Bark.—The bark of a species of cinchona tree, extensively grown in French Guiana, the only country from which the bark is exported. This bark is medicinally valuable as a powerful febrifuge.

Gum.—The general trade name for various exudations from plants and trees growing in the tropics. Many of

the so-called gums are, in fact, resins. They differ widely in their characters and properties, but generally speaking, gums may be divided into three classes, those containing arabin, those containing bassorin, and gum-resins. The chief imports are obtained from the West Coast of Africa and from India.

Gun Cotton.—The powerful explosive used in mining and other operations when a great rending or shattering effect is desired. In England the substance is generally obtained in the following manner. Cotton waste, thoroughly freed from grease by boiling with alkalies, is carefully picked, and the fibre separated by passing the waste through what is called a teasing machine. It is then dried, cut into specified lengths, and prepared for dipping into a mixture of sulphuric and nitric acids, the mixture consisting of three parts of the former and two of the latter. Any excess of acid is washed off, and the residue is reduced to a pulp, pressed hydraulically to one-third of its bulk, and moulded into various shapes and sizes for storing.

Gunjah.—A narcotic drug akin to bhang and hashish, obtained from the flowering tops of the Indian hemp plant. The cultivation is almost entirely confined to a small tract in Bengal, called Rajshahye.

Gunny Bags.—Sacks woven from the coarse fibre of the jute plant. The name gunny is also applied to the coarse strong sacking manufactured from the same fibre. The bags and the sacking are largely exported from India, especially Bengal, to the United States, Australia, the Straits Settlements, and other countries. The gunny bags are mainly used for wool packs, and as sacks for grain, seed, and salt. Bags and cloth of a similar kind are now made in Dundee.

Gunpowder.—The well-known explosive used for firearms, blasting, and in the manufacture of fireworks. It is a mechanical mixture of nitre, charcoal, and sulphur. The ingredients are mixed in different proportions in different countries, but in England the three are in the ratio of 75, 15, 10.

Gurjun Balsam.—(Also called Wood Oil.) This is an oleo-resinous substance resembling copaiba in its appearance and medicinal properties. It is procured from various trees in Bengal by incisions and heating the trees with fire. In the East gurjun has been much used in skin diseases, and latterly it has found favour in England for cases of eczema and lupus.

In tropical Asia it is also used as a varnish for boots, and for resisting the attacks of ants upon timber.

Gutta-percha.—A substance resembling india-rubber in many respects, and often confounded with it in the public mind. The great difference between the two consists in the fact that gutta-percha is non-elastic, while india-rubber is elastic. Gutta-percha is the exudation of many species of trees, though the principal one is the *Isonandra Gutta*, which grows extensively in Sumatra, Borneo, and other East Indian Islands, and whence the whole supply of gutta-percha is obtained.

Gypsum.—A widely distributed and abundant mineral, usually white, but often with a yellowish or brownish tint. It is composed of sulphate of lime and water. The marble-like variety is called alabaster, the transparent and crystallised selenite, and the fibrous satin spar. Gypsum is used for ornamental purposes, though its liability to be scratched, on account of its softness, has not made its employment very extensive.

Haberdashery.—The general trade name for threads, tapes, fringes, trimmings, and small wares of the same nature. The haberdashery trade is generally combined with the woollen drapery trade, and in the export returns it is classed with millinery, embroidery, and needlework.

Haddock.—The small fish, *Gadus aeglefinus*, of the same genus as the cod-fish, which enters largely into commerce, in both its fresh and its dried state. It is almost entirely confined to the coasts of Britain, and when dried and smoked is exported, especially to the countries of southern Europe, in large quantities.

Haematite.—One of the principal ores of iron. It is so called on account of the blood-red colour of one variety, a sesquioxide of iron, which occurs in large kidney-shaped masses in different parts of Great Britain, but especially in North Lancashire and Cumberland. It is valuable in the preparation of the purest form of iron.

Hair.—Besides the hair of various animals used in the manufacture of implements and for the purposes of stuffing, etc., human hair is an article of commerce of no inconsiderable dimensions. The supplies of Great Britain are obtained chiefly from France, Germany, India, and China. It is used for making up into wigs. The hair imported from Asia is of a coarser description, and

this is worked up into watch guards, brooches, bracelets, etc.

Hake.—A genus of fish of the cod family found in the seas off the English and North American coasts. It is an important article of food and commerce, both in its fresh and in its dried state. It is dried in the same manner as cod and ling.

Halibut.—A large flat fish, somewhat like the turbot. It is common in the northern seas, though it is rarely found in latitudes lower than the English Channel. It is much prized in Greenland, and is not only used as an article of food, but as the source of a valuable oil. When dried it is sent, like so much other dried fish, to the countries of southern Europe.

Ham.—The cured hind legs of pigs, though the name is not infrequently applied to the preserved flesh of other animals, especially to mutton and beef.

Hardware.—The general trade name for all kinds of articles manufactured from iron, steel, copper, brass, etc., especially ironmongery, cutlery, and implements. In England the chief centres of manufacture are Birmingham, Sheffield, and Wolverhampton.

Hare.—The well-known rodent, valuable on account of its flesh and its fur.

Harmonium.—A keyed musical instrument, generally of a compass of five octaves, in which the sounds are produced by a current of air passing through vibrating reeds, the air being supplied from bellows worked by the feet of the performer. The French excel in the manufacture of this instrument, though large numbers are made every year in England.

Hartshorn.—The filings of the antlers of the red deer. The products derived on distillation are known as oil of hartshorn, salt of hartshorn, spirits of hartshorn, etc.

Hat.—The covering of the head, made of innumerable varieties of material when intended for women, and of straw, cloth, felt, or silk when intended for men. In the felt-hat trade the fur of rabbits and beavers is mostly used, but the commonest felt hats are made of sheep's wool. For the finest felt hats camels' hair is the article in demand. There are extensive exports of hats from Great Britain, particularly of straw and felt. The felt-hat trade is principally carried on in the small towns around Manchester.

Hay.—Dried grass, often mixed with clover and other allied plants, used as

fodder for horses and cattle. In England meadow grass is that used for the preparation of hay.

Hazel Nuts.—The edible fruit of the *Corylus Avellana*, a small tree grown in Britain and in the temperate parts of Europe, Asia, and America. Different species are known as filberts and cob-nuts. The Spanish or Barcelona nuts are another species of hazel nuts, and a still further variety is found in and exported from Turkey. Imports into Britain are obtained chiefly from Tarragona. An oil is extracted from the nuts which is used by painters on account of its drying properties, and by perfumers in the manufacture of fragrant oils. From the bark of the hazel tree another oil is obtained which is sometimes used medicinally as a vermifuge.

Hellebore.—The name of two distinct plants, *Veratrum album* and *Veratrum viride*, the roots of which are sometimes used in medicine on account of their powerful effects in cases of mania, epilepsy, and dropsy.

Hematite.—(See *Haematite*.)

Hemp.—The name applied to various vegetable substances cultivated on account of their fibre, but principally to the *Cannabis sativa*, a native of central Asia, though now widely distributed over Asia, Europe, and Africa. The hemp fibre is obtained from the bark after long steeping in water. Hemp, dressed and undressed, is a most important article of commerce, and there are very large exports to various parts of the world from Russia, Germany, and Italy. The finest hemp is produced by the last mentioned country. It is specially employed for the weaving of cloth and the manufacture of thread, rope, and cordage. In India hemp is grown not so much on account of its fibre, but for the narcotic obtained from a resinous secretion. From hemp seed an illuminating oil can be extracted by pressure. The oil is used by the Russian peasantry.

Henbane.—A plant belonging to the same order as the potato, tobacco, deadly nightshade, etc. It grows spontaneously in Great Britain in waste places, and also in many parts of Europe. Though containing a poisonous alkaloid of great power, henbane can often be usefully employed medicinally, both externally and internally, the dry leaves being the valuable part of the plant. As a narcotic it has peculiar advantages over laudanum and opium. It forms a good substitute for belladonna.

Henna.—The leaves of a small shrub cultivated in N. Africa and S. Asia, sometimes known as Egyptian privet or Jamaica mignonette. From the leaves a colouring matter is obtained which, when dried, powdered, and made into a paste with water and catechu, is used throughout the East to stain the nails and tips of the fingers. It is also employed to dye skins and leather a reddish-yellow colour. There are considerable exports from Persia and Egypt, especially into Turkey.

Herring.—The well-known fish *Clupea harengus*, caught in great shoals for food. The fishery is largely carried on off the coasts of Great Britain, Norway, and Newfoundland. The shoals visit the east coast of Britain in June, appearing first at Wick, and they gradually move southwards, reaching Kent before the end of the year.

Hides.—The skins of large animals. They enter into commerce either as market hides, delivered direct from slaughter houses, or salted and dried hides imported from pastoral countries abroad in bundles or bales.

Hock.—A light German wine, either still or sparkling, the name generally applied to those wines which come from the Rhine provinces. Hock is a contraction of Hochheim, a town in the province of Hessen Nassau, the centre of the manufacture of Rhine wines.

Honey.—The thick saccharine liquid substance secreted by bees, and deposited by them in the combs of their hives. The two principal kinds are yellow and white. The most celebrated continental honey comes from Narbonne and Chamounix, and the greatest quantity is imported from America, especially from California. The honey is extracted by straining the comb in a very gentle heat. Honey is used in the preparation of the fermented liquor mead.

Hoofs.—The horny protection of the feet of many domestic animals, which are imported for the manufacture of combs and buttons. Hoofs are also employed in the manufacture of prussiate of potash and of artificial manures.

Hop.—The hop is a plant with twining stems, of luxuriant growth and abundant foliage. It is allied to the hemp and the nettle. It is cultivated on account of its catkins or strobiles which, when powdered, contain a substance called lupuline, of a golden yellow colour. The catkins are extensively used for brewing, the lupuline giving the bitter flavour to the beer. Medicinally hops are

employed on account of their narcotic properties. Hop-growing is now carried on chiefly in Kent, Sussex, Worcester, and Hereford in England, but the English crop falls far short of what is required. The deficiency is made up by imports from America and various countries of Europe.

Horns.—The hard-pointed excrescences growing on the heads of various animals, especially oxen, sheep, and goats. The antlers of the various kinds of deer are not horn. The largest supply is obtained from India, South America and the Cape being next in order. Horn is employed, according to its size, in the manufacture of a vast number of articles, ornamental and otherwise, cups, carvers, knife-handles, and umbrella handles being amongst the most common.

Hornbeam.—A tree quite common in Europe, and valued on account of its wood, which is white, compact, hard, and tough. The wood is much used for making the cogs of mill-wheels, and in the manufacture of agricultural implements. When burned it produces good charcoal.

Horsehair.—Horsehair is imported to a considerable extent, one-fifth of the whole coming from Russia. The hair combed from the tails of horses is the most valuable, that obtained from the manes being much inferior in quality. Short hair is used for stuffing couches, mattresses, etc., and long hair is employed in the manufacture of hair seating, sacking, gloves, brushes, etc.

Horse Radish.—The root of the *Cochlearia Armoracia*, a plant cultivated in Britain and in many other parts of Europe, and exported from Germany in considerable quantities. This root is highly stimulating, and is most frequently used when scraped as a condiment with roast-beef. Medicinally it is valuable as being the most powerful antiscorbutic known.

Horses.—A large export and import trade is done by the United Kingdom in live horses, the largest number of animals coming until recently from Germany. The hides, grease, and hair of horses are commercial articles of vast importance, and many hides are received annually, principally for the manufacture of leather. The greater portion of the hides come from South America.

Hosiery.—The name originally applied to stockings, but now extended so as to comprise under garments generally, made either of cotton, wool, or silk. The centres of manufacture in England

are Nottingham, and Leicester, and in Scotland, Hawick. Hosiery is one of the most important exports of Great Britain.

Huckaback.—A coarse hemp fabric, sometimes figured like damask. It is commonly used for the manufacture of table-cloths and towels.

Hydrochloric Acid.—One of the most important compounds in inorganic chemistry. Under ordinary conditions it is a gas, and is easily prepared from common salt by the action of sulphuric acid, the other product of the reaction being sulphate of soda. Its uses are very extensive in dyeing, calico-printing, bleaching, etc.

Hydrocyanic Acid.—Otherwise prussic acid, a compound of carbon, hydrogen, and nitrogen. This is a most deadly and violent poison, and remarkably rapid in its action. Medicinally it is used in a very diluted form as an ingredient of lotions to diminish itching in skin diseases, and internally, it is taken in small quantities to relieve pains of the stomach, vomiting, and functional palpitation of the heart.

Hydrogen Peroxide.—A thick, transparent, colourless liquid, which has no smell, but possesses a bitter taste. It bleaches the majority of vegetable colours, and is much used for the hair. In dilute solution it is frequently employed for the restoration of oil paintings.

Hyssop.—A plant of the order *Labiatae*, of which there are but few species. Common hyssop, *Hyssopus officinalis*, is a native of southern Europe, especially of the Alps and Austria, but it now grows extensively in the East. It has an agreeable aromatic odour. The leaves and the young shoots of the plant are sometimes used as a seasoning for culinary purposes.

Ice.—An enormous quantity of ice is now produced artificially by freezing machines and freezing mixtures. These are of various kinds, but in the main, the manufacture of ice is carried on through the abstraction of heat from water, by the vaporisation of liquid ammonia or ether. But in addition there is a large amount of natural ice imported annually into Great Britain, almost the whole of the supply for Great Britain being derived from Drobak, a small town near Christiania, in Norway.

Iceland Moss.—A leafy lichen found in northern latitudes generally, and valued for its nutritive and medicinal qualities. Naturally it has a bitterness of taste,

but this bitterness is removed by steeping in water. It forms an excellent food for invalids, and medicinally it is used in cases of lung diseases.

Iceland Spar.—A glassy mineral, otherwise known as calcite or calc-spar. It is frequently found associated with metallic ores, and often in connection with limestone and other rocks. It has the peculiar phenomenon of double refraction, and is therefore used in the construction of polarising instruments.

Ignatius Beans.—The seeds of the *Ignatia amara*, a tree closely allied to the *Nux vomica*, and a native of the Philippine Islands.

Immortelles. (See *Everlasting Flowers.*)

Indian Corn.—(See *Maize.*)

India-rubber.—(See *Caoutchouc.*)

Indigo.—This important dark-blue dye-stuff is obtained from many species of plants which grow in the tropics and at the Cape. The chief source, however, of commercial indigo is the *Indigofera tinctoria*, a plant of Bengal. Other kinds are obtained from Java, Central America, and West Africa. Indigo is the best substance for dyeing woollen cloth and for calico printing. Latterly artificial indigo has been obtained from a coal-tar product, and the production of natural indigo is seriously threatened.

Ink.—The substance used for writing and printing, the former kind being fluid and the latter thick or viscous. There are many methods of manufacturing writing inks, but the best black consists of a solution of ferrous sulphate, or copperas, added to an infusion of gall nuts, together with a small quantity of gum. For inferior inks shumac takes the place of gall nuts. Coloured inks are obtained by the addition of vegetable dyes or aniline solutions. In the manufacture of copying ink, sugar, and gum or glycerine are mixed with ordinary ink. Printer's ink is a greasy or oily compound, the commonest kind being a mixture of oils made from paraffin and resin and ordinary lampblack. For the better sort lampblack, or other mineral colouring matter, is mixed with special oils or varnishes. Marking ink consists of a solution of nitrate of silver, gum, carbonate of soda, and ammonia.

Iodine.—One of the chemical non-metallic elements which is very widely distributed over the world in combination with other substances. It was at one time largely prepared from kelp or seaweed ash, but more recently it has been obtained from the salines of France and England, and in South America

it is prepared from the iodate of sodium, a substance which is associated with nitrate of sodium in native Chili salt-petre. Iodine is extensively used in photography, and some of its compounds are most important in medicine, iodine of potassium having a prominent position in the pharmacopoeia.

Ipecacuanha.—The valuable medicine derived from the creeping herbaceous plant *Cephaelis Ipecacuanha*, a member of the Peruvian bark family. It is a native of Brazil, and the dried root is exported from Rio Janeiro, Buenos Ayres, and other South American ports. Recently the cultivation of the plant has been introduced into India and Ceylon.

Iridium.—A rare and expensive metal, found native in the Ural Mountains, and also combined with osmium. It is very hard, white, and brittle, and is not acted upon by any acid, though as an alloy it dissolves in aqua regia. On account of its hardness iridium is used for pen nibs, for the wearing points of scientific instruments, and for contact points in telegraphy.

Irish Moss.—(See *Carrageen.*)

Iron.—The most important of all minerals. Iron occurs native almost exclusively in meteorites, where it is usually associated with nickel, and in certain volcanic rocks, such as the basalts of Greenland, in which it is scattered about in grains and nodules. The iron of commerce is obtained exclusively from ores of the metal, and, in by far the greater quantity, from the oxides of iron. The most important ore of iron is the red oxide known as haematite, which occurs in a variety of forms. Considerably less important than haematite, but yet very important in itself, is the yellow oxide of iron, or limonite. In some of its forms it has much the appearance of haematite, but it can generally be distinguished by its brown colour, yellow streak, and yellow powder. It is largely a bog deposit, hence the name bog iron ore, and it is frequently even used as an ore for manufacturing purposes, in a crumbly earthy condition. Brown and yellow ochre pigments are manufactured from limonite. A third oxide of iron is magnetite, which, as the name suggests, has the quality of being attracted by a magnet. One variety, known as lode-stone, is a true magnet in itself. A mineral much resembling magnetite, but with much feebler magnetic qualities, and having both zinc and manganese

in its composition, in addition to iron, is franklinite. The ore known as spathic iron is obtained from the carbonate of that metal, forming the mineral siderite. It occurs in yellowish-brown rhombohedral crystals, having a specific gravity of less than four. One of the most familiar of all iron ores, but of no service for the extraction of the metal itself, is the sulphur ore, or iron pyrites. The beautiful and highly lustrous crystals of this mineral are likely to occur in almost any kind of rock. Almost the only service to which pyrites are put to-day in the arts is the making of sulphur and sulphuric acid. Another sulphur ore of iron is known as pyrrhotite, or magnetic pyrites. Its reddish or bronze colour readily serves to distinguish it from ordinary pyrites, and its frequent association with nickel makes it one of the most valuable ores of that metal.

Iron Wood.—The name given to the timber of various trees, on account of its hardness and weight. The timber in almost every case is exceedingly close grained, and sinks in water. The trees from which the timber is obtained are almost entirely Asiatic or African.

Isinglass.—A variety of gelatine, prepared from the air bags or sounds of certain fishes. Brazil does a considerable trade in the substance, Maranhão being the exporting town. Other supplies are obtained from the United States, Canada, and the East Indies. It is used in the manufacture of glues, plasters, diamond cement, jellies, and confectionery, in refining wines and liquors, and in giving a gloss to silk ribbons.

Istle.—The fibre obtained from the *Bromelia sylvestris*, a tree of Mexico, and valuable for brush-making.

Ivory.—The general name for the white dentine in the teeth and tusks of certain large animals, such as the elephant, narwhal, walrus, and hippopotamus. The ivory of commerce is chiefly obtained from the tusks of elephants, and is shipped mainly from Zanzibar and Pemba. Asiatic ivory, obtained in India, Further India, and in the Eastern Archipelago, is used in the regions where it is obtained, and very little is exported. African ivory is preferred to Asiatic, as its texture is closer, and it takes a much finer polish. Asiatic ivory is very white when fresh, but becomes yellow on exposure to the air. A small quantity of ivory is obtained from Siberia, being the tusks of the extinct mammoth.

Ivory Black.—An animal charcoal, obtained by heating the shavings of ivory in a closed iron cylinder. (See *Charcoal.*)

Ivory, Vegetable.—The product of a species of palm-tree, the *Phytelephas macrocarpa*, which grows in the Andean plains and along the banks of the Magdalena. The so-called ivory is obtained from the nuts of the palm, and are known also as Corozo nuts in commerce. Vegetable ivory is used in the manufacture of buttons, umbrella handles, knobs for doors, toys, etc., and for inlaying.

Jaborandi.—The name of certain drugs obtained from various plants in South America. Jaborandi is sometimes employed by oculists, and is considered efficacious in cases of Bright's disease.

Jacaranda.—A general name in Brazil for many species of rosewood which are grown there. The wood itself is very hard, heavy, and brown, and has a faint, agreeable, rose-like smell. It is extensively used by joiners and cabinet makers, and the whole supply is obtained from South America.

Jaconet.—The name of a species of light soft muslin of an open texture, used for dresses, neck cloths, frills, ruffles, etc.

Jade.—A hard, compact, translucent mineral, of different shades of colour, white, yellow, green, etc., much prized in China, where it is found in considerable quantities. It is also found in Burmah and New Zealand. The Chinese work up this mineral into most beautiful ornaments, and there is a special jade market in Canton.

Jaggery.—The name used in India for a variety of crude sugar obtained from the palm.

Jalap.—The well-known purgative, obtained from the dried tubers of the *Ipomoea purga*, a native of Mexico. It derives its name from the city of Jalapa, where it is found in great plenty.

Jamaica Pepper.—(See *Pimento.*)

Jamun.—The fruit of the *Syzygium Jambolana*, an Indian plant. It is a species of long dark-coloured plum and about the size of a large date. Its taste is sharp, but it makes an excellent preserve. Large quantities of the fruit are sent from India to England, and besides its use as a substitute for black currant jam it is employed to flavour other jams.

Japan Wax.—The vegetable wax obtained from the leaves, branches, and small berry fruit of the *Rhus succedanea*.

a Japanese plant. Japan wax is more unctuous than ordinary beeswax, but it is more easily worked. Although it is an article of commerce the amount imported into Great Britain is very slight.

Japanned Wares.—Articles of wood, metal, and papier maché coated with varnish or lacquer and hardened by heat. The art of japanning is carried to perfection in Japan, hence its name. Japanned wares are turned out in large quantities at Birmingham, the commonest kinds being tea-trays, coal-boxes, canisters, etc. White japan is often used to give the internal finish to portable baths.

Jarrah.—A valuable timber obtained from the *Eucalyptus rostrata* and the *Eucalyptus marginata*, trees which grow somewhat extensively in Western Australia. When the wood is sound and the trees are felled at the proper season, jarrah is of great value for use as wharf piles, railway sleepers, and telegraph posts, owing to the presence of a pungent acid which repels certain destructive insects. It is also employed for the parts of ships below the water line, and the use of jarrah planks dispenses with the necessity for copper sheathing.

Jasmine.—A name of several species of shrubs or climbing plants, highly prized on account of their fragrant flowers. They are chiefly found in subtropical countries. From the flowers an oil is extracted which is valuable in the preparation of a number of perfumes.

Jean.—Cloth made of twilled cotton, and sent in large quantities from Manchester and the surrounding district to China. Satin jean is a jean woven smooth and glossy after the manner of satin.

Jerked Beef.—Salted or sun-dried meat, prepared in South America, Mexico, and Texas. Frozen meat has practically ousted it from European commerce.

Jesuits' Bark.—(See *Cinchona*.)

Jet.—A lustrous mineral, a species of pit coal resembling cannel coal, of a deep brown or velvety black colour. The largest supplies are obtained at Whitby, in Yorkshire, where it forms part of a thick bed of lignite. In other parts of the world jet is found in small, thin, detached layers in bituminous shales, principally in Bohemia, the Baltic provinces, and Spain.

Jewellery.—Articles manufactured in precious metals, precious stones, and other valuable materials, used for the purposes of personal adornment.

Amsterdam is the centre of the diamond cutting trade, while Paris, Vienna and New York produce novelties in jewellery in rapid succession. In England, Birmingham is the city in which most of the cheaper jewellery is made, and almost all the imitation jewellery in general use. In the better classes of jewellery the manufacturers of Clerkenwell, in London, have the highest repute in the United Kingdom.

Jew's Ear.—The name given to a species of fungus, *Excidium auricula Judae*, which grows on the decaying parts of living trees, especially elders.

Job's Tears.—The hard, shining, grey seeds of the *Coix lachryma*, a grass of India, which somewhat resembles maize. The seeds are edible, and are also reputed to have certain medicinal value, but they are mainly prized for making ear-rings, necklaces, and bracelets, and for adorning the dresses of the Indian natives. The plant has been introduced into Spain and Portugal, and the seeds have been employed in the manufacture of rosaries and other ornaments.

Jonquil.—A species of narcissus or daffodil, with rush-like leaves. An essential oil is extracted from the flowers of the *Narcissus Jonquilla*, and the *Narcissus odoratus*, which is extensively used in the preparation of a perfume.

Jowarri.—The Indian name for the large seeded millet, *Sorghum vulgare*, used as a food by the natives, and exported for feeding cattle.

Juniper.—The name of several evergreen trees or shrubs belonging to the natural order *Coniferae*. The berries or fruit of the common juniper, which is quite common in Europe, Asia, and North America, are of a bluish colour, and are used for flavouring gin.

Junk.—Old pieces of hemp, rope, and cordage, cut into short lengths, and used for making rope mats, ship sacks, oakum, and thick brown paper.

Jute.—Jute is an important Indian fibre, obtained mainly in Calcutta from two very similar species of plants. The fibre is the inner bark of the plant, and is separated from the woody stalk by steeping in water. In India the fibre had long been used for the manufacture of gunny bags (*q.v.*) and native clothing. Since 1850 Dundee, outside India, has had the greatest trade in the article. On account of its glossy nature, jute has been much used in adulterating or imitating silk textures. It is also employed in the manufacture of stage wigs, tresses, and ladies' hair pads.

Juvia.—A local name for the Brazil nut of commerce.

Kaat.—The name given to Abyssinian tea, the leaves of the *Catha edulis* and the *Catha spinosa*. By the natives of Abyssinia and Arabia these leaves are chewed as a stimulant and exhilarant. There is practically no European commerce in this substance, though the trade done at Aden is not inconsiderable.

Kaffir Corn.—The name given in South Africa to the grain of a species of *Davia*.

Kainite.—A mineral found in the Strassburg deposits of Germany. It is a hydrated compound of the chlorides and sulphates of magnesium and potassium. It is used to a considerable extent as a manure.

Kale.—An open-leaved variety of the cabbage plant known as *Brassica oleracea*. It is cultivated as a winter and spring vegetable.

Kali.—A name often applied to a soluble tartrate of potash.

Kamala.—Also known as Wurrus, a fine orange-coloured powder obtained from the minute glands which cover the seed capsules or ripe fruit of an Indian tree known as *Mallotus philippensis*. The powder is used in India as a dye for silk, to which substance it imparts a fine orange colour.

Kangaroos.—Kangaroo skins are extensively exported from Australia to Great Britain and the United States. The leather made from the skins is suitable for strong light boots, and for the manufacture of gloves.

Kaolin.—A very pure white clay, commonly known as China clay. Its name is derived from Kauling, in China. On account of its purity it is valuable in the manufacture of china and the finest kinds of porcelain, and it is also used by paper makers. For a long period the only supplies were obtained from China and Japan, but in 1755 kaolin was discovered in Cornwall. The chief British supplies are now derived from that county. There are deposits near Limoges in France, and in Nebraska, in the United States.

Kapok.—The Dutch name for a species of short silky cotton stuff surrounding the seeds of the *Bombax malabaricum*. The tree grows in the Dutch East Indies, and many hundreds of bales of kapok are annually exported to Holland for upholstery purposes, filling beds, pillows, coverlets, etc.

Kauri.—The native name for the pine tree, *Dammara australis*, which flourishes

in New Zealand. The timber is white or straw-coloured, close-grained, durable and very easily worked. It is valuable for masts, yards, and planks, and is largely exported.

Kekune Oil.—The fixed oil, thin, odourless, and tasteless, obtained from the seeds of the *Aleurites tribola*, by boiling them in water.

Kelp.—The ash of burnt seaweed from which at one time soda was obtained in large quantities, but which is now valuable as the source of iodine and bromine.

Kermes.—(Also known as Alkermes.) The name of a dye-stuff obtained from the dried bodies of certain female insects which live on a species of oak, *Quercus coccifera*, abounding in southern Europe.

Kerosene.—The general name applied to mineral oils, whether petroleum, paraffin, or shale oils, which are used in various countries for burning in lamps. In America the name "kerosene" is most generally applied to petroleum oil refined for domestic use. It is exported from America, Russia, and Great Britain, principally to India and China.

Kid Skins.—The skins of young goats which are valuable in the manufacture of gloves.

Kidderminster.—The name of a species of carpets, so called from the town where they were first made. (See *Carpets*.)

Kimmel.—(Or Kümmel.) A continental liqueur. It is made from brandy flavoured with cummin or coriander seed.

Kimmeridge Clay.—A dark, bluish-grey, shaly clay, found chiefly at Kimmeridge in the Isle of Purbeck, rich in bituminous matter and sometimes used as fuel.

Kinderscout Grit.—Coarse grits and flagstones which are quarried at Eyam, in Derbyshire, and used for engine-beds, foundations, and reservoir works. They occur towards the base of the Millstone Grit which forms the tableland of the Peak district.

Kingwood.—A beautiful cabinet wood, obtained from a species of *Dalbergia*, and imported from Brazil in trimmed logs of from two to seven inches in diameter. It is also known as violet wood.

Kino.—The astringent red or brown resin obtained from several species of trees which are found in Africa, India, and Australia. The best is derived from the exuding sap of the *Pterocarpus marsupium*, of Madras and Ceylon. The Bengal kino, obtained from the

Butea frondosa, is used by the natives for tanning leather.

Kirschwasser.—(Also known as Kirsch and Kirschenwasser.) A liqueur manufactured on the Continent, especially in Germany, Holland, and Denmark, made from cherries.

Kitt Fox.—The name of the smallest of all the American foxes, of which about 10,000 skins are annually imported into Great Britain.

Kittool.—(Otherwise known as Indian Gut.) It is a fibre obtained from the leaf of a Ceylon palm tree, the *Caryota ureas*. It is used in Great Britain for making fishing lines, and also for brush making.

Kohl Rabi.—A curious variety of cabbage, having a stalk resembling that of a turnip. It is used extensively as a cattle food, and forms a very common field crop in Sweden.

Kokra Wood.—(Or Cocus Wood.) The wood of a certain species of elder tree which grows in many districts of India. It is exceedingly hard and of a rich deep brown colour. In the East it is used for many purposes by wood turners, and in Europe it is employed in the manufacture of various musical instruments, especially flutes.

Kokum Butter.—The fat extracted from the seeds of the *Garcinia purpurea*, an Indian plant. It is a semi-solid substance, and is used medicinally in the making of ointments, etc.

Kola Nuts.—The seeds or fruit of the *Sterculia acuminata*, a much-prized tree which grows extensively in tropical Africa. The nuts are also known as Guru nuts.

Kolinski.—The skins of the Tartar sable, obtained in Siberia, and sent to various European markets. The largest trade in these skins is done at Leipsic. The hair of the tail of this sable is used for making paint brushes.

Koumiss.—A fermented liquor made in Russia from mare's milk. A spirit, called rack, is distilled from it.

Kukui Oil.—The oil obtained from the candle nut, *Aleurites tribboa*, a tree of the Pacific Islands. The oil is used by the islanders for illuminating purposes, and it is imported in small quantities for its drying qualities when mixed with various colours.

Kundah Oil.—The concrete oil obtained from the seeds of the *Carapa guineensis*, a species of tree found in West Africa. It is used by the natives for lighting.

Kuskus.—The fibrous roots of the *Andropogon muricatus*, a grass grown

in the East Indies. The roots are useful as a perfume and for driving away moths.

Labdanum, or *Ladanum*.—A black-brown, soft, and delicately scented gum, the exudation of the *Cistus creticus*, growing in Crete, Cyprus, and Asia Minor. It is now mainly employed in the manufacture of perfumery, being held in much esteem in Turkey. It is an article rarely met with in England.

Lac.—A resinous incrustation found on certain trees in India, especially trees of the *ficus* genus. It is formed by the insect *Coccus lacca*. In its natural state it is known as stick-lac. After having been removed from the trees upon which it is found, stick-lac is placed in tubs of water and beaten. It is then called seed lac. Lac has many important uses. It is largely employed in the manufacture of polishes and varnishes, for stiffening the calico frames of silk hats, and for making the best sealing-wax. In the East it is made up into various ornaments, and used as a coating for wooden toys. In China it is extensively used to decorate the surfaces of boxes, trays, vases, and other similar articles.

Lace.—The open ornamental fabric of linen, cotton, silk, or gold and silver threads, constructed by looping, twisting, or plaiting the threads into definite patterns. The manufacture of hand-made lace is an extremely delicate and complex operation. It is carried on at various places in France and Belgium, and the varieties are known as Valenciennes, Lille, Mechlin, Cluny, and Brussels. The best point or needle lace is *point d'Alençon*, and some of the Brussels lace, which is also needle-made, is distinguished as *point à l'aiguille*. The greater portion, however, of Brussels lace is a pillow-made fabric. Other well-known varieties of hand-made lace are Maltese and Honiton. There is a large business done in the manufacture of machine-made lace in England, Nottingham being the centre of the trade.

Lacquer.—A varnish prepared by dissolving seed lac or shellac in alcohol, with the addition of small quantities of one or more gum-resins, such as sandarach, amber, etc. The varnish is applied to brass and gilded articles so as to heighten their colour and to prevent tarnishing, and the process of lacquering is very much like that of japanning. The lacquer ware of Japan is made in a different manner. Their lacquer is

the sap of the lacquer varnish tree, the *Rhus vernicifera*, and it is applied almost exclusively to wooden articles. Unlike the European lacquer this coating will bear the application of great heat without injury.

Lamb Skins.—The skins of lambs are now extensively used as a substitute for kid skins in the manufacture of gloves. The best supplies are derived from Hungary, Greece, and Southern Russia, the black varieties coming from the last named, especially from the Crimea and Astrakan.

Lametta.—An Italian name for foil or wire made from copper or from the precious metals.

Lamp Black.—The intensely black pigment formed of the soot or amorphous carbon obtained by burning such substances as resin, petroleum, or tar. The best is obtained from the combustion of camphor. This pigment is useful for artists in oil and water colour. The commonest kind is used by house painters. It is a most important substance in the preparation of printing ink, Indian ink, and carbon paper. Some curriers employ it in the preparation of certain kinds of leather.

Lancewood.—A strong, light, and elastic wood obtained from two species of trees which grow in the West Indies, mainly in Jamaica. Lancewood is principally used by coach-builders for shafts and carriage poles. It is also employed in the manufacture of billiard cues and archers' bows.

Lanoline.—An unctuous substance obtained in the washing of wool. It is a mixture of the ethers of cholesterin with fatty acid, and is used as the basis of ointments and in the manufacture of the cheaper kinds of soap.

Lapis Lazuli.—A mineral of beautiful blue colour, consisting principally of silica and alumina, with the addition of a small quantity of sulphuric acid, soda, and lime. It is generally found massive, and associated with crystalline limestone, the finest specimens being obtained from Bokhara. It is much employed in ornamental and mosaic work, and for church ornamentation, especially altars. When powdered it constitutes the beautiful colour known as ultramarine. The cost, however, of obtaining ultramarine from this mineral is so great that the colour is now prepared artificially.

Larch.—A kind of fir tree, grown extensively in most parts of Europe, and valuable for its timber, which is exceedingly durable, not liable to rot on

exposure, and free from insect destruction. Larch bark is used for tanning.

Lard.—The congested fat of the pig, generally mixed with a small quantity of salt in order to improve its keeping qualities. This substance is exported in enormous quantities from America.

Lastings.—A common name for certain plain or figured fabrics, made either in wool or cotton.

Latakia.—The name of a Turkish tobacco, the product of the *Nicotiana rustica*, which grows in the hilly districts behind Latakia, in North Syria.

Laths.—Thin strips of wood, from 3 to 6 feet long, 1 inch broad, and $\frac{1}{4}$ inch thick. They are used by builders for walls and ceilings to retain the covering of plaster.

Latten.—The name given to brass or bronze used for crosses, and also to tin rolled out into plates.

Laudanum.—The commonest of all the preparations of opium, and often called tincture of opium. It is a liquid of a darkish red colour.

Lavender.—The flower-heads of the *Lavendula vera*, from which, as well as from the stalks, an essential oil is obtained by distillation. Though the plant is grown in Great Britain, the French oil is that which chiefly enters into commerce as it can be prepared more cheaply in France than in England.

Lawn.—A fine kind of cambric, made chiefly at Belfast. (See *Linen*.)

Lead.—One of the most useful of metals, used very extensively as sheet lead, for piping, for the manufacture of bullets, etc. The chief source of lead is the ore galena, a sulphide of lead found in several European countries. In Great Britain the chief lead supply is obtained from the mines of Cumberland, but there is a considerable amount of galena imported from Spain. Lead enters into the composition of several useful alloys, of which the most important are type metal, stereo metal, plumbers' solder, pewter, and shot metal. An oxide of lead, known as red lead or minium, is much used in the manufacture of fluid glass, as a cement, and as a pigment. A mixture of lead oxide and antimony, known as yellow lead, is employed as a pigment for giving a yellow colour to earthenware. White lead, a substance extensively employed as a pigment and for pottery glazes, is a carbonate of lead.

Leather.—The skins or hides of animals, especially the larger mammals, prepared by certain chemical processes

so as to preserve them from decomposition and putrefaction, and to give them increased strength, toughness, and pliancy, together with insolubility in water. There are several distinct methods of preparing leather, but all depend upon the combination of the tannic acid of some tannin material with the gelatinous substance of which the skins or hides are largely composed. Of the various special kinds of leather, morocco leather is the name applied to the skins of goats tanned with sumach. Roan leather is prepared from sheep skins treated in the same way as morocco leather. Russia leather is smooth-finished leather, impregnated with the oil of birch bark, from which it derives its peculiar odour. Chamois leather, originally made from the skin of the chamois, is a kind of soft leather prepared from sheep skins by treatment with oil alone. The skin is not tanned at all.

Leek.—A cultivated variety of the *Allium Ampeloprasum*, a member of the onion family, much valued for culinary purposes. It is very generally cultivated in Scotland and Wales.

Lemon.—The fruit of the *Citrus Limonum*, a small tree commonly found in the south of Europe. The supplies of northern Europe are obtained exclusively from Mediterranean ports. The peculiar and pleasant flavour of the lemon is due to the citric acid contained in the juice of the fruit.

Lemon Grass.—A perennial grass, cultivated in Ceylon and the Straits Settlements, with a lemon-like fragrance, from which a volatile oil, sometimes called oil of verbena, is extracted. This oil is used in the manufacture of perfumes.

Lentils.—A leguminous plant closely related to the vetch. It is extensively cultivated in Egypt, Syria, and southern Europe generally. From the seeds a palatable and nutritious food is obtained. In the East they are cooked as a sort of porridge.

Leopard Skins.—Used for rugs, for which purpose the skins are imported from India.

Letter Wood.—(Also called Leopard Wood and Smoke Wood.) It is procured from a large tree belonging to the bread fruit, a native of British Guiana and Trinidad. The wood is beautifully mottled and streaked with black spots, and is very effective when polished. It is used for making cabinets, for fine veneering, and for inlaying work.

Lettuce.—The well-known garden vegetable used in the preparation of salads. It is a plant belonging to the order *Compositae*, the cultivation of which is widespread.

Lign Aloes.—The wood of the *Aquilaria Agallocha*, otherwise called garrow wood. It has a fragrant odour when burned, somewhat resembling patchouli. It is obtained and most valued in Further India.

Lignite.—The name applied to a mineral substance of vegetable origin, and sometimes called brown coal. It is considered to be wood in a state of fossilisation, intermediate between peat and coal. A variety of lignite is jet. The mineral is not found in any great quantities in England, but there are deposits of great thickness in Germany. In the last-named country it is burned as fuel, and it is likewise used as a source of paraffin oil, the oil being obtained by distillation.

Lignum Vitae.—The hard, heavy, close-grained wood of the *Guaiaecum officinale*, a tree which grows extensively in the West Indies. It has a greenish colour, and is much used in the manufacture of blocks, pulleys, rollers in machinery, pestles, etc.

Lima Wood.—The dye-wood used for the production of various tints of red, orange, and peach colour. It is obtained from the *Caesalpinia echinata*, a tree which is found in Brazil and Central America. Lima wood is also known as Pernambuco wood and Nicaragua wood.

Lime.—(1) The fruit of the *Citrus Limetta*, a tree which flourishes in the South of Europe, and in both the East and West Indies. There are many varieties of the fruit, and its uses are in the main the same as those of the lemon.

(2) The popular name of the *tilia*, otherwise the linden tree, which grows in many parts of Europe, but especially in Germany and Russia. Its wood is light and soft, and much used for carving and turning. The charcoal obtained from burning the wood of the lime tree is considered to be the best for the manufacture of gunpowder.

(3) The oxide of calcium, one of the alkaline earths. It is obtained by heating carbonate of lime, or limestone, in a furnace or kiln. The carbonic acid is burned out and lime remains. This residue is commonly known as the quicklime of commerce. Lime is largely employed in the manufacture of mortar, and as a manure. Amongst its other

uses are the purification of coal-gas, the preparation of hides for tanning, the manufacture of stearic acid for candle-making, and the smelting of various metals.

Limestone.—The common name for a species of rock of a yellowish white colour composed mainly of carbonate of lime. It is very widely distributed, in fact, limestone rocks occur in every geological system. Compact limestone is hard, smooth, and fine-grained, and can be polished and made into ornaments. Crystalline limestone is another variety, sometimes known as statuary marble. Limestone is, however, principally valuable as being the source from which lime is obtained.

Linen.—The fabric manufactured from the fibres of flax and hemp. The industry is one of the most important of the United Kingdom, and finds its centres at Belfast in Ireland, Leeds in England, and Dundee in Scotland. Other large towns in the last-named country engaged in linen manufacture are Arbroath, Kirkcaldy, and Dunfermline.

Ling.—A variety of cod fish, taken in large quantities off the British coasts. From the liver of the ling an oil, similar to cod liver oil, is extracted. This oil is used as an illuminant in the Shetland Isles.

Linoleum.—The name of a kind of floor cloth. It is made by incorporating ground cork with india-rubber, and rolling the mass into sheets and drying the same. It is easily stained for receiving patterns.

Linseed.—The seed of the flax plant, *Linum usitatissimum*, an important oil seed exported largely from India, the East Indies, and Russia. It is much used in the manufacture of paints, varnishes, printing ink, oil-cloths, etc., on account of its drying qualities. The cake left after the expression of the oil is valuable as a cattle food.

Lint.—The soft woolly material used for surgical dressing and soaking up discharges, prepared by machinery from a soft linen texture woven for the purpose, having one side soft and fluffy.

Liqueurs.—The name for a variety of alcoholic preparations which are flavoured and sweetened. They differ widely in their composition and qualities. Chartreuse is made by a secret process and derives its name from the monastery where it was manufactured. There are two kinds—green and yellow. Benedictine is another well-known liqueur, made at Fécamp, which enters into

competition with Chartreuse. Others which enter into British commerce are anisette, clove cordial, curaçoa, kirschwasser, kümmel, maraschino, noyau, and peppermint. Absinthe is not a liqueur, but belongs to the class of bitters and unsweetened spirits.

Liquidambar.—A genus of trees of the balsam order. Several species yield a resinous substance, when incisions are made in the bark, from which benzoic acid is obtained. From one species, found in the Levant, liquid storax is extracted. This substance is used for scenting tobacco, and driving moths from woollen clothing. The ordinary balsam is collected in the United States and Mexico, and is exported thence for commercial purposes.

Liquorice.—An herbaceous perennial, largely cultivated in the south of Europe, and valuable on account of its root, which contains a substance called glycyrrhizine, allied to sugar, soluble in both water and alcohol. Liquorice is used in the manufacture of sweet tobacco, and is also employed by brewers to give "body" to porter.

Litharge.—The fused monoxide of lead. It is known as massicot when pure, and enters into the composition of flint glass. It is also used by painters.

Lithium.—A rare metal, silver white in colour, the lightest known solid. The oxide of lithium, known as lithia, is valuable in the formation of a series of salts. Lithium is found in combination with various minerals in Sweden.

Lithographic Stone.—The fine, hard, close-grained stones used for taking impressions in lithographic work. They are generally prepared from thin slabs of a variety of limestone, or stones composed of lime clay, and siliceous earths. The grey-coloured stones are considered the best, and the principal supplies are derived from the quarries of Solenhofen, Bavaria. Stones of an inferior quality are obtained in Italy and France.

Litmus.—A blue colouring or dyeing material obtained from various species of lichens, like archil, and cudbear. It is turned red by the presence of acids, and consequently litmus is a valuable test in the chemical laboratory.

Lobsters.—The well-known crustaceans, found on the coasts of many European countries. The largest supplies for European markets are obtained from Norway, the fish being shipped alive. There is an enormous business done in canning lobsters for the markets

of the world in Nova Scotia, New Brunswick, and Newfoundland.

Logwood.—The heart wood of the *Haematoxylon campechianum*, a tree of the West Indies, Central America, and the northern parts of South America. The wood is hard, close-grained, very durable, takes a high polish, and is heavier than water. The chief supplies are obtained from Jamaica and Honduras, whence the timber is exported in logs.

Longan.—The product of the *Nephelium Longanum*, one of the most delicious and pleasing fruits of China and the Malay Archipelago. It is largely used for making preserves, and in a dried state is exported from China to Great Britain.

Lucifer Matches. (See *Matches.*)

Luminous Paint.—A powder such as sulphide or oxysulphide of calcium ground up with a colourless varnish or other similar substance and used as a paint. The object painted is visible in the dark.

Lunkah.—The name of a kind of tobacco grown on the rich soils of Ceylon and on the banks of the Godavery.

Lycopodium.—A kind of vegetable sulphur, the spores of a fern *Lycopodium clavatum*. It is used for coating pills, for flash lights in firework displays, and for theatrical imitation of lightning. A considerable quantity of this substance is annually exported from Russia.

Lynx.—The furs of the lynx are used for rugs, muffs, etc., and are easily dyed. Though the animal is fairly widespread it is the Canadian species which supplies the furs of commerce.

Macaroni.—A preparation made from the ground meal of wheat when mixed into a stiff paste with water, and formed into slender pipes, like quills. When the apertures of the pipes are very small the substance is called vermicelli. The principal town of production is Genoa, though Cagliari in Sardinia has a wide reputation for the quality of its output. Recently the trade has spread to Marseilles and various other towns in the south of France.

Mace.—The net-like inner covering of the nutmeg. When fresh it is of a scarlet colour, but when dried it becomes yellow and is so found in commerce. Mace is used as a cheap spice, and as a substitute for nutmegs. The chief supplies of mace are obtained from Penang and Singapore.

Mackerel.—The well-known fish, taken in great quantities every year off the coasts of the British Isles.

Madder.—The root of the *Rubia tinctorum*, a perennial shrub which grows in the South of Europe. From the root is extracted the colouring matter for dyeing Turkey red. The chief supplies are obtained from the Levant, Asia Minor, and France. Aniline dyes have almost entirely superseded all others, and the cultivation of the madder root is rapidly declining.

Madeira Wines.—The name of various kinds of wine made in the Madeira Islands. Those most appreciated are Baal, Malmsey, Palhetinho, Sercial, and Tinto.

Magnesia.—The only oxide of the metallic element magnesium. It is a fine white powder, obtained by the combustion of the metal, but often prepared by heating the carbonate. When calcined magnesia is mixed with water a compact mass is formed, much resembling plaster of Paris, and sometimes used as a substitute for that article.

Magnesium.—A metal usually grouped with the metals of the alkaline earths, but having many properties resembling those of zinc. It is obtained by fusing chloride of magnesium with sodium. It is brilliantly white and resembles silver in appearance. When drawn out into wire or ribbon it burns with a brilliant light, and is largely used for photography in dark places.

Mahaleb.—The *Cerasus Mahaleb*, a cherry tree cultivated extensively in the state of Baden. Its fruit yields a violet dye, and from the cherries much of the kirschwasser of Germany is prepared.

Mahogany.—A very valuable and beautiful timber, obtained from the *Swietenia mahogani*, a tall and beautiful tree of the West Indies and Central America. The wood is of a close texture, reddish brown in colour, and takes a fine polish. It is also free from warping. The value of the wood varies according to its colour and markings. It is mainly used in the manufacture of furniture. The largest supplies are obtained from Honduras, Campeachy, and the West India Islands generally. That of Honduras and Campeachy is known as bay wood, that of Cuba and Hayti as Spanish mahogany.

Maize.—The well-known cereal, the produce of the *Zea mays*, a species of grass. It is very commonly known as Indian corn, and is one of the most important grain crops of the world, next in importance to rice. It is grown chiefly in the United States, but its cultivation is now very widespread. In

Britain, however, it thrives only in favourable summers.

Malacca Canes.—Walking sticks, obtained from a tree called *Calamus Scipionum*, which grows in Sumatra.

Malachite.—An ornamental green mineral, composed of carbonate of copper. It occurs most frequently amidst copper ores, and is found in the greatest abundance in Siberia. It is also obtained in Cornwall and in South Australia. It is capable of taking a fine polish, and is employed for making ornaments and in inlaying work.

Malaga Wines.—The sweet rich wines obtained from Malaga, a Mediterranean seaport of Spain.

Malaguetta Pepper. (See *Grains of Paradise.*)

Malt.—Barley or other grain prepared for the purpose of brewing beer. The best malt used is made from the finest barley. An extract of malt, called maltine, is used medicinally as a cure for scorbutic complaints.

Mandarin Oranges.—A variety of oranges, both large and small, grown in Sicily. One of the best known is the Tangerine. There is a very large export trade from Palermo.

Manganese.—A black, metallic ore, rarely found pure in nature, but widely spread in combination with other minerals. In its chemical and physical properties it somewhat resembles iron. Manganese is largely imported into this country, particularly from Sweden, for use in glass manufacture, for glazing black earthenware, and for giving colour to enamels.

Mango.—The fruit of the *Mangifera indica*, a tree which attains a considerable height in India. It is about the same size as a pear and shaped like a kidney. The mango is eaten as a fruit in India, and also in the West Indies, where the cultivation has been successfully introduced. If gathered before ripening an excellent pickle can be made, and it is chiefly as a pickle that the mango is known in Europe.

Mangold-Wurzel.—(Or Mangold.) The general name used in Great Britain and America to describe the varieties of the field beet cultivated for feeding cattle.

Mangosteen.—The fruit of the *Garcinia mangostana*, a tree found in most of the East India Islands. It is generally considered to be one of the most delicious fruits known. It is about the size of a small orange, white and juicy.

Mangrove Bark.—The bark of a large variety of trees, *Rhizophora*, which grow

in marshy districts in South America. It is particularly rich in tannin and dye-stuffs, and is exported from South America to Great Britain, France, and Germany.

Manilla Hemp.—The name used in commerce to describe the fibre of the wild plantains of the East Indies and the Philippine Islands.

Manillas.—The trade name for cigars and cheroots made in and exported from the Philippine Islands.

Manioc.—(Also called Mandioc and Cassava.) It is the name of a certain species of *Manihot*, a shrub extensively cultivated in tropical America, especially Brazil, on account of the roots. From the starch of manioc, separated in the ordinary manner from the fibre of the shrub and known as Brazilian arrowroot, tapioca is made.

Manna.—A sweet exudation obtained from the bark of the Manna ash—*Fraxinus Ornus*. The tree was formerly cultivated very considerably in Calabria, but it is now mainly found in Sicily, and it is from Palermo that the manna of commerce is obtained.

Manure.—The name for all substances which are used to maintain or to increase the fertility of soils. The common farm-yard manure has been supplemented by a number of natural and artificial manures, the principal of which are noticed under separate headings. The most common artificial manure is made from bones. The natural manures include guano, superphosphates, sulphate of ammonia, nitrate of soda, potash salts, etc.

Maple.—A genus of trees growing in the temperate regions of the world, of which there are more than fifty species. The common maple has close-grained, beautifully marked wood, capable of taking a high polish, and valuable for making cabinets.

Maraschino.—A delicate liqueur, distilled from the bruised fruit of the Marasca cherry, a tree cultivated in Dalmatia and some parts of Italy. The finest Maraschino is obtained from Zara.

Marble.—A rock composed principally of carbonate of lime, but the name is popularly given to any limestone which is sufficiently compact to admit of being polished. There are certain kinds of dark-coloured marbles obtained in various parts of England, but the finest qualities, used in statuary and architecture, are obtained from different parts of the continent. The best is the white marble of Carrara, in Italy. This

is employed almost exclusively for statuary and ornamental work. Coloured varieties of marble are obtained from various countries of Europe, France, Spain, Portugal, and Greece.

Margarine.—An artificial substitute for butter, often known as oleomargarine, and also as butterine. It is chiefly manufactured in and exported from Holland. (See *Butter*.)

Marjoram.—A genus of the plants of the order *Labiatae*, of which there are about twenty species. The common marjoram is a pot herb, and yields an essential oil which is valued by farriers as a stimulating liniment.

Marking Ink.—(See *Ink*.)

Marmalade.—A preserve made by boiling the rind of oranges, quinces, etc. The best kind of marmalade is made from bitter or Seville oranges. The largest factories are at Dundee.

Marsala.—A Sicilian wine, so called from Marsala, the city whence it is exported. It resembles sherry and has been popular in England for more than a century.

Marten.—An animal belonging to the weasel family, chiefly found in North America, dark brown in colour, and highly valued for its fur, which when well dressed is often substituted for sable.

Mastic.—A gum resin obtained from the mastic tree, *Pistacia lentiscus*, which grows in the Greek Archipelago. It is used in the manufacture of varnish for varnishing prints, maps, drawings, etc., the mastic being first dissolved in turpentine. Mastic is also used by dentists for stopping teeth.

Matches.—The name formerly applied to various substances used for firing mines, etc., but now most generally signifying lucifer matches. The manufacture of matches is carried on at the present time exclusively by machinery. The most recent development in the match trade has taken place in Sweden and Norway, from which countries enormous quantities are annually exported. The centre of the trade is Jönköping.

Maté.—The leaves of the *Ilex Paraguariensis*, a shrub growing extensively in South America. In Brazil and other South American countries the leaves are used as a substitute for tea, and maté is often known as Paraguay tea.

Matico.—The rough leaves of two plants, the *Artanthe elongata* and the *Eupatorium glutinosum*, natives of Peru, which are covered with a fine hair. They

are valuable medicinally for their styptic properties, being used for stanching wounds.

Maw Seed.—(Also called Poppy Seed.) The seeds of a variety of the *Papaver somniferum*, possessing an ant-like flavour, imported from Russia as a food for cage-birds.

Mead.—The fermented liquor made from honey and water. The liquor has been a common beverage in northern Europe from the earliest times.

Meat Extract.—The concentrated essence of meat obtained by boiling down the carcasses of oxen. A large number of these extracts are made in South America, and there are many well-known extracts made in Europe by peculiar processes, which are the secrets of their manufacturers.

Medlar.—The fruit of a species of apple tree, widely cultivated in southern Europe and western Africa. The common medlar is found in parts of England. The fruit is about the size of a small apple. The golden yellow variety is most prized and is used for making jellies and preserves.

Médoc.—The wine of some of the most prized clarets of the Gironde, shipped from Bordeaux. The principal of these are Château Maryaux, Château Lafite, and Château Latour.

Meerschaum.—(Also called Sepiolite.) It is a fine-grained, soft, compact mineral, generally white in colour, though sometimes possessing a yellowish or pinkish tinge. Meerschaum occurs in beds in Asia Minor, Greece, Morocco, and Spain.

Melon.—The fruit of the *Cucumis melo*, a species of cucumber plant, widely cultivated in the South of Europe. There are many varieties, the principal, however, being the musk melon and the water melon, and the latter is the fruit most valued. The principal British supplies are obtained from Malaga, in Spain, and from various parts of Portugal.

Melton.—A kind of broadcloth. It has a soft and pliable finish, but is manufactured without any gloss.

Menhaden.—A fish of the herring family, taken in large quantities off the eastern shores of the United States. Its flesh is not used for food, but the fish itself makes excellent manure and yields an oil which is employed in leather dressing, in the manufacture of rope, and in mixing colours.

Menthol.—A kind of camphor generally prepared from the *Mentha arvensis*

purpurescens. It is a remedy in various nervous complaints, such as headache, neuralgia, toothache, etc.

Mercury.—The chemical name for quicksilver. It is the only metal liquid at ordinary temperatures. It is rarely found native, and practically the whole of the mercury of commerce is obtained from its only important ore, sulphide of mercury, or cinnabar. California has the leading place in the export of the ore.

Merino.—The name of a choice breed of Spanish sheep, celebrated for their long fine wool. The merino has, however, been introduced into Australia and South America, which now produce the chief supplies of wool.

Methylated Spirit.—A mixture of strong alcohol with about ten per cent. of impure wood naphtha or methylic alcohol. The addition of the wood naphtha, which has a disagreeable odour and taste, renders the liquid unfit for drinking, though it does not interfere with its application in many processes in arts and manufactures.

Mica.—The name of several minerals, made up of silica, alumina, magnesia, and potash, together with small quantities of lime, the oxides of iron and manganese and soda. Ordinary mica, also called muscovite, occurs in thin plates of varying sizes in different parts of the globe. It is found in Cornwall, in Sweden and Norway, and in Siberia.

Milk.—The opaque white fluid secretion with which animals sustain their young. The milk which enters into commerce is the product of the cow. As milk in its ordinary state quickly becomes sour, a large trade in condensed milk has grown up within very recent times. It is prepared from the milk of the cow sweetened with cane sugar. Switzerland takes a prominent place in the manufacture and exportation of condensed milk. Much, however, is made in Holland, France, and North America.

Millboards.—Strong flexible boards, so called because they are milled under heavy rollers to give them solidity and a smooth surface. They are manufactured out of the waste of various substances—old sacks, old rope, straw, jute, cardboard, etc., which are reduced to a pulp, though not treated so carefully as when paper is made. The whole process is carried out by machinery.

Millet.—The small grained seed of various cereals, the principal of which are the *Panicum* and *Setaria*. These

are natives of the East Indies, but the common millet, *Panicum miliaceum*, is now extensively cultivated in southern Europe and the warmer parts of Africa and America. The grain is exceedingly nutritious, and is used as a food-stuff in various countries.

Millinery.—Light articles of dress, worn mainly by women and children.

Millstones.—Circular rollers manufactured from buhr stones, a hard silicate. The best stone is obtained from the valley of the Seine.

Mimosa Bark.—The bark of different species of acacia, found in Africa, Asia, and Australia. The Australian mimosa is the best known, and is commercially useful for the tannin contained in the bark.

Mineral Oils.—(See *Naphtha*, *Paraffin*, *Petroleum*.)

Mineral Waters.—The natural waters supplied by various springs in different parts of the world. The name is also given to the numerous artificially prepared aerated waters and effervescing drinks.

Minium.—The commercial name for red oxide of lead. The oxide is chiefly found in Germany, and our supplies are entirely derived from that country.

Mink.—A small carnivorous animal, a species of weasel, valuable on account of its fur. It is found in the northern parts of America, Europe, and Asia. The best furs are obtained from North America.

Mint.—The well-known genus of useful herbs, of which there are many varieties. The most important species are spearmint, peppermint, and pennyroyal.

Mirbane.—An artificial oil of almonds. It is a yellowish liquid, and is often prepared by treating benzole, a by-product of petroleum, with nitric acid. The product is used in immense quantities in the manufacture of soap.

Mohair.—The commercial name for the long, soft, curly hair of the Angora and other Eastern goats, animals once peculiar to Asia Minor, but now acclimated in Australia, South Africa, and California. Mohair is white in colour and silky in lustre. Imported into England mainly from Australia and South Africa, it is spun at Bradford and other towns of the West Riding of Yorkshire.

Mohira Flowers.—The flowers of the *Bassia latifolia*, an Indian plant. The flowers contain much sugar, and are used as a food and also distilled into spirit.

Moire.—A term applied to silks figured by a peculiar process known as watering. The best kinds of moire are known as "moiré antique," as resembling the silks worn in olden times.

Molasses.—The sweet syrup which drains from raw sugar, used for making rum. (See *Sugar.*)

Mora.—The valuable timber obtained from the gigantic *Mora excelsa*, a tree of British Guiana and Trinidad. The timber is hard and close-grained, and specially adapted for shipbuilding, for which purpose it is largely exported from Demarara. The bark is astringent and very suitable for tanning.

Morocco Leather.—The leather of goat skins tanned with sumach, dyed, and grained. Originally made in North Africa, it is now imitated in Europe, and made from sheep skins.

Morphia.—(Also called Morphine.) It is the most important alkaloid of opium, and is obtained from opium by means of calcium chloride and ammonia. In medicine it is used as an anodyne, and is prescribed to be taken internally, or by hyperdermic injection.

Mosaic Gold.—An alloy of copper and zinc used for decorative purposes.

Moselle.—The wine made from the grapes grown in the valley of the Moselle, an affluent of the Rhine. It is prepared either still or sparkling.

Mother of Pearl.—The brilliant internal layer of certain shells belonging to the oyster family. Various kinds are obtained from the Philippine Islands, the Sandwich Islands, Singapore, and Western Australia.

Mouldings.—The carved and plane borders or edges for doors, panels, picture frames, etc. The commoner kinds of mouldings are extensively made in Sweden, and exported thence to the various countries of Europe.

Mudar Bark.—The inner bark of the *Calotropis gigantea*, an Indian shrub. The bark yields a valuable fibre which is equal to hemp in its strength.

Mulberry.—The fruit of the *Morus alba* and *Morus nigra*, eaten in India both fresh and dried. The leaves of the mulberry tree form the main food of silkworms. Another species of the tree is the paper mulberry of China and Japan, from the best of which a textile fabric and paper are made.

Mum.—A peculiar kind of beer made from wheatmeal. Some brewers add bean meal and oatmeal to the wheat meal.

Mundic.—The name given in Cornwall

to iron pyrites, a compound of iron and sulphur.

Mungo.—The waste produced in a woollen mill from hard spun or felted cloth, or from tearing up old clothes, and used for the manufacture of cheap cloth or shoddy. (See *Shoddy.*)

Muntz's Metal.—An alloy of copper and zinc, largely used for sheathing ships' bottoms. The compound is cheaper than copper and equally serviceable for this particular purpose.

Muscateles.—A variety of white and black grapes, extensively grown in the vineyards of France, Italy, and Spain. The dried grapes are exported as raisins for dessert use. The name is also given to certain strong sweet French and Italian wines which are made from the grapes.

Mushrooms.—Edible fungi, a species of *Agaricus*. They are valuable as a food delicacy.

Musk.—A strong perfume obtained from the powder secreted in a pouch of the abdomen of the male musk deer. The powder is largely imported into England from India and China, and is used by perfumers.

Muslin.—A fine cotton fabric, deriving its name from Mosel, in Mesopotamia, where it was first made. Some of the finest muslins are made in India, but Manchester and the surrounding district supply various kinds of muslin for all parts of the world. Figured muslins of special quality are made at St. Quentin, in France.

Musquash.—A fur-bearing animal of North America—the *Fiber zibethicus*. The skins of this animal are black or brown, and are exported, though in declining numbers, from North America to England and other European countries. The fur is made into muffs, capes, caps, etc., and is used as a good imitation of beaver fur.

Mussels.—A mollusc or shell-fish taken off the coasts of Great Britain, France, Holland, and the Atlantic seaboard of the United States. In England and France mussels are used as food and in Scotland as a bait. To a certain extent they are also used as a manure in England and the United States.

Mustard.—The name of several species of the plant *Sinapis*, though there are three only which contribute their seeds to the manufacture of mustard—the black, the white, and the wild.

Myall Wood.—The fragrant violet scented wood of several species of acacia which grow in Australia. The

wood is valuable for the manufacture of pipes and whip handles.

Myrobalans.—The fruit of the *Terminalia chebula* and the *Terminalia bellerica*, natives of India. The fruit resembles a nutmeg, and from it is extracted an oil which is used as a hair restorer.

Myrrh.—The gum-resin obtained from the *Balsamodendron myrrha*, a tree growing in Arabia and Abyssinia. It is composed of resin, gum, and an essential oil with a small quantity of mineral matter. From the earliest times myrrh has been used for burning as incense, and it is still used for religious purposes.

Myrtle Wax.—A vegetable wax obtained from the *Myrica cerifera* by boiling the berries of the tree. The wax is one of the commercial products of South Africa and the western States of America. It is used for the manufacture of candles.

Nails.—Small metal spikes used as fasteners by carpenters, joiners, and others. They are now manufactured almost entirely by machinery, and are made of various metals. The centres of the industry in England are Birmingham and Dudley.

Nankeen.—A cotton cloth made of buff-coloured or yellow calico, formerly exported by China, but now manufactured in Europe.

Naphtha.—The name once applied very widely to liquid hydrocarbons exuding from the ground, but now signifying the inflammable distillates of crude mineral oils and coal-tar. Paraffin and petroleum are not now included in the list. But the term does include the distillates of india-rubber, bones, wood, peat, etc.

Naples Yellow.—This is the name of a valuable pigment, yellow in colour, which is much used in oil painting and enamel painting. It is likewise employed for enamel colouring. The basis of the pigment is antimony.

Natron.—The native sesquicarbonate of soda obtained from the lakes of Egypt and from the borders of the Caspian Sea. It always contains sulphate of soda and chloride of sodium.

Neat's Foot Oil.—An oil obtained by boiling down the split feet of oxen, or by treating the feet with superheated steam in a closed cylinder. This product is exported very largely from South America, and it is used to a considerable extent for softening and dressing leather.

Needles.—These well-known steel articles are now made exclusively by machinery. The centre of the manufacture in England is at Redditch, near Birmingham.

Nephrite.—A mineral found in Turkestan and Siberia. It consists of an anhydrous silicate of lime and magnesia, and is very hard, tough, and translucent. It varies in colour from dark green to milky white. In China and Japan nephrite is highly valued for ornamental purposes, and elaborate vases are carved out of it. Quite recently the mineral has been found in British Columbia and New Zealand.

Neroli Oil.—The commercial name for the fragrant volatile oil obtained from orange flowers by distillation. It is one of the principal ingredients in the manufacture of eau de Cologne and other perfumes.

New Zealand Hemp.—The fibre obtained from the *Phormium tenax*, the hemp plant of New Zealand. It is used for rope-making in England and to some extent in France.

Nicaragua Wood.—The product of the *Caesalpinia echinata*, a tree of Central America and the tropical parts of South America. It is used as a red and black dye. The best wood is obtained from Peru. It is also known as peachwood.

Nickel.—A greyish white metal which was at one time chiefly prized as being a valuable alloy, but is now used independently for many industrial and domestic purposes. It is not found native, and its most important ore is *Küpper-nickel* (false copper), a metal with a copper-like appearance, and composed of nickel and arsenic.

Nitre.—(Also commonly known as nitrate of potash and saltpetre.) It is found naturally as an incrustation on the surface of the soil of tropical countries, especially in Bengal and Oude; and it is prepared artificially by the action of nitric acid upon potash. It is one of the principal constituents of gunpowder.

Cubic nitre, or nitrate of soda, is sometimes known as Chili saltpetre. It occurs as an incrustation of the soil in Bolivia, Peru, and Chili, and derives its name from the cube-like form of its crystals.

Nitre, Sweet.—A liquid having a smell of ether and a sharp taste, prepared by distilling alcohol with a mixture of nitric and sulphuric acid and metallic copper.

Nitric Acid.—A colourless liquid when

pure, but commercially a yellowish liquid, highly corrosive, much used in the arts and prepared by distilling nitrate of sodium with sulphuric acid. It is a powerful oxidising agent and attacks nearly all organic substances.

Nitro-Glycerine.—The oily liquid prepared by dissolving glycerine in equal parts of strong nitric and sulphuric acids. It is a violent explosive compound, and detonates when struck by a hammer. When slowly heated it decomposes quietly and burns without any explosion. (See *Dynamite, Gun (Cotton)*.)

Nut-galls.—(See *Galls*.)

Noyau.—(Also called *Crème de Noyau*.) A favourite liqueur.

Nutmeg.—The albuminous kernel of the seed of the *Myristica officinalis*, a tree of the Dutch East Indies.

Nutria Skins.—The name of the skins obtained from a South American rodent, commonly called the Coypu rat. Immense numbers are imported annually from the Argentine Republic. The fur, when unhaired, is a cheap substitute for the skin of the beaver.

Nux Vomica.—The seeds of the *Strychnos Nux Vomica*, a straggling tree of India, Cochin China, and the East Indies. The fruit of the tree is a large berry, much like a small orange, and in it the seeds are laid flat. From these seeds strychnine and brucine are obtained.

Oak.—The timber of several species of *Quercus*. There are between 250 and 300 species of this tree growing widely within the tropics and the temperate zone. In England the principal of these is the common oak. The timber is remarkable for its strength and durability, and as it is impervious to water it is admirably adapted for shipbuilding.

Oakum.—A waste substance made from old rope by untwisting the strands and rubbing the fibres free from each other. It is principally used for caulking the seams of ships.

Oatmeal.—The flour obtained by grinding oats.

Oats.—The well-known cereal *Avena sativa*. There are more than 40 species of avena, and these are widely distributed over the temperate and cold regions of the globe.

Ochre.—Compact earth or clay composed chiefly of silica and alumina together with the oxides of various metals. The principal ochres are the yellow and the red, the colouring matter of the former being hydrated oxide of iron, and that of the latter hydrated

sesquioxide. The natural product is obtained in several English counties, notably Somerset, Devonshire, and Anglesea. There are also deposits of considerable value in Holland and France.

Oil Cake.—Cake left or made out of the solid residue after the extraction of oil from various seeds, the principal being those of the linseed, the rape, the poppy, the cotton, and the palm nut. The cake possesses highly nutritious value as retaining a part of the oil and the whole of the nitrogenous and essential constituents. Oil cake is used principally for feeding sheep and cattle.

Oil, Palm.—A tree belonging to the palm order, of which the Guinea oil palm is the most important as yielding the palm oil of commerce. It is a low-growing species abounding in tropical West Africa. In Europe palm oil is employed very extensively in the manufacture of candles and soap, and for greasing the axles of railway carriage wheels. The export of palm oil is perhaps the greatest of the West African industries.

Oils.—The name applied generally to all fluid substances of whatever nature which flow with a certain degree of viscosity. They are divided into two main groups, fixed oils and volatile or essential oils.

Oleomargarine.—(See *Butter and Margarine*.)

Oleo Oil.—A compound of oleic acid and glycerine, extracted from beef suet. It is exported from the United States in very large quantities, Holland and Germany taking the greater portion. In both countries the oil is used in the manufacture of margarine.

Olibanum.—The gum resin obtained from several species of *Boswellia*, especially the *Boswellia thurifera*, a native of India, but which is now also found in the south of Arabia or in Somali Land. It is now used chiefly as a fumigant, and as an incense in religious worship, possessing a beautiful aromatic odour when burned.

Olive.—A genus of trees or shrubs of which there are about 30 species widely distributed over the warmer temperate regions of the globe. The common olive, *Olea Europaea*, is a native of Syria, but it is found in all parts of Southern Europe. The wood of the olive is used by cabinet makers. The most important product of the olive is olive oil. This substance is the cream and the butter of Italy and Spain. The

best olive oil is made in Tuscany, and Italy is the chief exporting country.

Onions.—The well-known edible bulb, the product of the *Allium cepa*, largely cultivated in the United Kingdom, and imported from Holland, Belgium, Spain, Portugal, Malta, and Egypt.

Opal.—A precious stone, a modified form of quartz. It consists mainly of silica, but other constituents are present, especially alumina and oxide of iron. The finest stones are obtained from Hungary, but precious opals are also found in Saxony, Queensland, and South America.

Opium.—One of the most valuable medicinal drugs. It consists of the dried juice of the unripe heads of a species of white poppy, the *Papaver somniferum*, grown in Turkey, Persia, India, and China. The cultivation of the poppy for the sake of the opium is mainly carried on in Bengal and Oude. It is exported from India to China in enormous quantities. Great Britain derives its supply of opium to a large extent from Persia and Turkey.

Opodeldoc.—Another name for soap liniment, a compound of hard soap, camphor, oil of rosemary, rectified spirit, and distilled water. Arnica opodeldoc is prepared from white soap, rectified spirits, camphor, and tincture of arnica.

Opopanax.—A gum resin obtained from the *Opopanax chironium*, a species of parsnip found in Southern Europe and also in Persia.

Opossum.—A pouch-bearing animal found in various parts of America, from the United States to the Argentine Republic. The animal is hunted for the sake of its fur.

Orange.—The edible fruit of a species of *citrus*, much prized for its delicacy and wholesome qualities. The common orange tree is an evergreen and bears white flowers. It is extensively cultivated in Southern Europe, and in every other part of the world where the climate is suitable. Two well-known varieties of the common orange are the St. Michael's, with thin yellow rind and sweet seedless pulp, and the Malta or blood, with the pulp streaked with crimson. Other varieties are the mandarin, introduced from China, the fruit small and flattened, the bergamot, globose or pear-shaped, and the bitter or Seville.

Orchids.—A very large family of curious plants, of which some thousands of varieties are known, mostly indigenous to tropical regions.

Orchil.—(See *Archill*.)

Ores.—The crude mineral sources of metals, or the natural form in which they are found, and from which they are extracted by various processes of smelting, etc. The most important ores are oxides, in the case of iron, copper, and tin; sulphides, in the case of lead, zinc, and antimony; and carbonates in the case of iron, zinc, and lead.

Organzine.—A variety of thrown silk. When reel threads of silk are twisted they are called "singles," but when two or more of these singles are twisted together in contrary directions the result is known as organzine.

Ormolu.—The name of a mixture of copper and zinc, which is made to resemble gold in colour.

Orpiment.—A sulphide of arsenic, a brilliant yellow pigment, known as king's yellow. The finest qualities are derived from Persia, where it occurs in its natural state as a mineral.

Orris Root.—The root of the *Iris florentina*, a plant extensively grown in Tuscany. Its chief use at the present day is for perfumery.

Osiers.—The twigs or shoots of a species of willow used for basket making and wicker-work. The common osier, *Salix viminalis*, is found in Britain and many parts of Europe.

Osmium.—A very rare metal, always found associated with platinum and alloyed with other metals, especially iridium. It is the most infusible of all metals, and is the heaviest substance known, its specific gravity being 22.5.

Osnaburg.—A species of coarse linen fabric or kind of canvas, manufactured for negro clothing. Its name is derived from the fact that it was originally manufactured at Osnaburg, in Germany.

Ostrich Feathers.—The long plumes of the ostrich, which have been valued for centuries for ornamental purposes. The chief supplies are obtained from South Africa.

Oswego Corn.—The flour made from Indian corn, the manufacture of which is carried on at Oswego, a town of the United States, situated on Lake Ontario.

Otter Skins.—The skins of two distinct animals, the land otter and the sea otter. Many skins are annually imported into Great Britain from North America, those of the sea otter being among the choicest furs of commerce.

Otto of Roses.—(Also called Attar of Roses.) It is a volatile oil obtained by distilling the flowers of the cabbage and damask roses. The supplies of this

substance are obtained from the East, the cultivation of roses for its preparation being carried on in Roumelia, Syria, Persia, and India.

Ova.—The proper meaning of this word is eggs, but it is generally applied to the spawn of fish. In the endeavours to introduce and acclimatise food fishes into various parts of the world, large quantities of ova of salmon and other fish are sent out and form no inconsiderable article of commerce. Salmon spawn is sent chiefly to Australia and New Zealand.

Ox Tongues.—The tongues of oxen prepared and tinned in South America. Enormous quantities are shipped annually from Uruguay, the most prized being obtained from Paysandu.

Oxalic Acid.—An extremely poisonous acid, the salts of which occur abundantly in the vegetable kingdom. It is produced by the oxidation of many organic compounds, but its manufacture is conducted on a large scale by oxidising sawdust with a mixture of the hydrates of potash and soda.

Oysters.—The well-known edible mollusc, that most used for culinary purposes being the common oyster. The chief home supply is obtained from Colchester. Large quantities, however, are imported from France, Holland, and the United States. The pearl oyster belongs to a genus totally distinct from that of the common oyster.

Ozokerit.—A kind of earth-wax or solid paraffin found naturally in Galicia and Moldavia. It is chiefly used in the manufacture of candles.

Palisander Wood.—The timber of several kinds of Brazilian trees, used for the manufacture of furniture. The name is sometimes given to rosewood, striped ebony, and violet wood.

Palladium.—One of the noble metals, resembling platinum in many respects, and generally associated in its ores with platinum. Owing to the fact that it does not tarnish when exposed to the atmosphere, it is very suitable for the construction of philosophical instruments, though its high price does not permit of its common use in this respect.

Palm Oil.—(See *Oil, Palm.*)

Panama Hats.—Light straw hats, made from the finely plaited leaves of a certain kind of screw pine tree of South and Central America. These hats are much prized in the tropics for their lightness, durability, and flexibility. The principal supplies are obtained from Ecuador and Colombia in South America.

Paper.—The common writing material known in various forms for many centuries. At one time it was manufactured almost exclusively from the papyrus or from the paper mulberry; now it can be made from numerous vegetable substances, but those mainly used in Europe are linen, rags, esparto grass, coarse straw, and wood pulp.

Papier Mâché.—The hard, light, and durable substance prepared by compressing paper pulp into moulds in various forms, or by pasting sheets of paper together and subjecting them to high pressure. It is much used for making small boxes, cabinets, trays, etc., and for architectural decoration. The trade is an important Birmingham industry, and imitations of the lacquer work of Japan and China are largely produced. A special papier mâché is that known as ceramic, a soft substance which can be easily worked into any required form. It is a mixture composed of paper-pulp, resin, glue, drying oil, and sugar of lead.

Paraffin.—Paraffins are a series of hydrocarbons, occurring as gases, liquids, or solids, according to the proportion of carbon present in them. They are prepared by the destructive distillation of bituminous shale, or as a by-product in the manufacture of coal gas. Solid paraffin is an odourless and tasteless substance, nearly as hard as beeswax, melting at a temperature of 100° to 140° Fahr. Its principal use is for making candles, a certain amount of stearin being added to the paraffin. It is also used in the manufacture of lucifer matches as a substitute for sulphur, and it can be utilised as a substitute for wax in modelling flowers and fruits. The natural oils of America and Russia, sometimes included under paraffins, are more commonly known as petroleum.

Paraguay Tea.—(See *Maté.*)

Parchment.—The prepared skins of various animals, used for the purpose of writing upon, especially by lawyers for deeds. Ordinary parchment is made from the skins of sheep and goats; vellum, a fine variety of parchment, from the skins of young calves, kids, or lambs. A parchment used by bookbinders is prepared from pigskin. The parchment used for drums is made from asses' skins.

Parsley.—The well-known culinary herb, found in most parts of Europe. A peculiar variety, with white carrot-like roots, is imported into England from Hamburg. Parsley is well adapted for giving flavour to soups and stews.

Parsnip.—A genus of plant of the

same natural order as parsley, cultivated on account of its root, which is, like the carrot, a palatable and nutritious vegetable. In colour it is white. The parsnip is grown in all parts of Europe, and in the north of Asia.

Partridge Wood.—The trade name for various kinds of wood imported into Europe from South America and the West Indies, having a red colour, and streaked in the same manner as the partridge. The wood is used by cabinet makers, and it is likewise employed for making walking sticks, parasol handles, and similar fancy articles.

Patchouli.—A substance used as a perfume, prepared from the dried branches of a species of pogostemon, a native of the East Indies, and grown also in India and Ceylon. In India it is used as an ingredient in the manufacture of fancy tobaccos, and also for a hair perfume.

Peach.—The velvety edible fruit of a species of trees belonging to the same genus as the almond, of the natural order *Rosaceae*. The growth of peaches is widespread throughout the temperate regions of the world, and the fruit is much prized as a peculiar delicacy. There are no less than 200 varieties of the fruit. The cultivation is most extensive in the United States, whence peaches are exported both fresh and tinned.

Pear.—The well-known fruit of the *Pyrus communis*, a tree widely distributed through Europe and Asia. It is extensively cultivated in England, especially in some of the western counties, where there are extensive orchards devoted to the purpose.

Pearl.—The substance formed by several shell-bearing molluscs, which are provided with a secretion with which they line their shells. The principal source from which pearls are obtained is the pearl oyster. The chief fisheries are off Ceylon, but others exist in the Persian Gulf, the West Indies, and Australia. Pearls are of various colours, white, black, and pink, and their value depends upon their size and purity.

Pemmican.—The name given to compressed animal food.

Pennyroyal.—A species of mint, *Mentha pulegium*, distinguished from other varieties by the size of its leaves. It is found in most countries of Europe and Western Asia.

Pepper.—The fruit of various plants of the natural order *Piperaceae*. The

principal of these plants is the common or black pepper which is cultivated in most tropical countries.

Peppermint.—The aromatic plant, *Mentha piperita*. It is largely cultivated in England in the counties of Surrey, Cambridge, and Lincoln.

Pepsine.—An albuminous substance, one of the principal constituents of gastric juice. It is a medicinal food digestive, prepared from the walls of the stomach of calves, sheep, and pigs, that derived from the pig being considered the best.

Perry.—A fermented liquor made from pears in exactly the same manner as cider is prepared from apples. When bottled it makes a very good imitation champagne, containing from 5 to 9 per cent. of alcohol. The chief counties in which the business of perry making is carried on in England are Worcester, Gloucester, Hereford, and Devonshire.

Persian Berries.—The product of a Persian tree *Rhannus coharticus*. They are of a yellow colour and are used as a dye in calico printing.

Persian Powder.—The powdered flowers of the *Pyrethrum carneum* and the *Pyrethrum roseum*, wild plants growing in Persia and the Caucasus. The powder is useful as an insect destroyer.

Persimmon.—The Virginian date plum, a tree which attains a height of 50 or 60 feet, and produces hard and elastic wood.

Peru Balsam.—The exudation of several species of trees, especially the *Toluiifera*, found in South America. It is odoriferous and has the colour and consistence of dark molasses. It is often used in the manufacture of confectionery.

Peruvian Bark.—(See *Cinchona*.)

Petroleum.—(Also called Rock Oil.) It is a thick oil consisting mainly of a mixture of paraffins, olefines, and hydrocarbons of the benzene series. It is found chiefly in the United States, Canada, and Russia, the most celebrated springs in the last-named country being at Baku. It oozes from the ground in natural springs, though additional supplies are obtained by boring and pumping.

Pewter.—A common and useful alloy used for the manufacture of jugs, pots, plates, etc. It is composed of tin and antimony, with the addition of either copper or lead, the former giving the better result. The best pewter, however, is an alloy of tin, antimony, copper, and bismuth.

Phenacetin.—A drug made from

carbolic acid. It has many of the properties of antipyrus.

Phenol.—(See *Carbolic Acid.*)

Phormium.—A plant of New Zealand, formerly known as New Zealand flax, but now classed as hemp. The fibre is exported, and in Scotland it is manufactured into sacking, sheeting, towelling, and table-cloths.

Phosphates.—(See *Manure.*)

Phosphorus.—One of the non-metallic elements. At ordinary temperatures it is a faintly yellow substance, with the appearance and consistence of wax. Phosphorus does not occur free in nature, but it is found in almost all animal and vegetable tissues.

Physic Nut.—A shrub of tropical America and also of the East Indies, called *Curcas purgans*, which yields seeds of considerable medical value. These seeds contain an acrid fixed oil which has many of the properties of castor oil, and which forms a substitute for it. In America the oil is used for lamps and also for dressing cloth. The East Indian variety is used by the Chinese for the preparation of a varnish.

Piassava.—(Also called Piassaba and Piacaba.) The name of the vegetable fibre of two species of palm found in Brazil. The fibre is obtained from the stalks of the fan-like leaves of the palm and exported in large bundles from Bahia and Para. It is used for the manufacture of coarse brooms and brushes, and also for street sweeping machines.

Picric Acid.—An acid obtained by the action of nitric acid on equal parts of carbolic and concentrated sulphuric acid. It is largely prepared in France, and is used as a yellow dye for silk, wool, and leather.

Pigskin.—The tanned skins of pigs are much used for saddlery, book-binding, portmanteau coverings, etc. They are also used in the manufacture of certain kinds of boots and leggings, and more recently they have been applied to dressing bags and to coverings for furniture.

Pilchard.—A fish of the herring family, abundant off the coasts of Devonshire and Cornwall, and off the south-west coasts of Ireland. The fish is prepared on a large scale in Cornwall, as sardines are prepared in France. The French sardine belongs to the same family as the pilchard, but is smaller.

Pimento.—The well-known spice, the dried aromatic berries of the *Eugenia Pimenta*. The tree is cultivated in

many of the West India Islands, but the supply of pimento comes almost exclusively from Jamaica, hence its alternative name, Jamaica pepper.

Pine.—A most important genus of trees belonging to the natural order of *Coniferae*. There are over 100 species of this tree, and they abound in the temperate and cold regions of Europe, Asia, and America. The only species indigenous to Britain is that erroneously known as the Scotch fir. Besides its value as a timber tree, the pine is valuable economically for the tar, pitch, resin, and turpentine obtained from its branches.

Pineapple.—A much valued and delicious tropical fruit, the product of the *Ananassa sativa*. Large quantities are exported from the Bahamas and the Azores. West Indian pines are sent to the United States where an immense trade is carried on in canning the fruit both for the home and for foreign markets.

Pins.—These wire fasteners, which are in universal demand, are now made exclusively by machinery. Their manufacture is a characteristic industry of Birmingham, though to a less extent they are made in London, Warrington, and Dublin. In the United States the pin-making centre is Connecticut.

Pipeclay.—A variety of fine white plastic clay, free from colouring impurities, used in the manufacture of tobacco pipes and certain classes of fine pottery. It resembles kaolin but contains a larger percentage of silica. Pipeclay is found in Devonshire, Dorsetshire, and Cornwall.

Pippins.—The name given to certain varieties of apples, of which the best known varieties are Ribston, Golden, and Newtown, all grown in America. Pippins is the name likewise applied to apples that have been dried in the sun, pressed, and stored for winter use. The Normandy pippins are a well-known example of these.

Pistachio Nuts.—The fruit of the *Pistacia vera*, a small tree of southern Europe, used, like almonds, as a dessert fruit and in confectionery. From the nuts an oil is expressed which is employed in flavouring wines and cordials in Greece. The galls collected from the tree are used in dyeing and tanning.

Pita.—A hempen fibre obtained from a species of *Bromelia*, a plant of Central America allied to the pineapple. The plant itself is sometimes known as silk grass.

Pitch.—The black, brittle, glossy solid obtained from the distillation of wood or coal-tar, in which process the volatile oils are driven off. A softer pitch is obtained from bone tar and stearine residues, and this is the pitch valued by varnish and tarpaulin makers. The name pitch is given to natural asphalt, to bitumen, and also to the product of the natural lakes of Trinidad.

Pitchblende.—A brownish or velvety-black mineral of slight lustre, sometimes found in silver or lead ores. Its main use in the arts is for painting on porcelain. Radium is found in pitchblende, though in very small quantities.

Plantain.—The fruit of a plant, *Musa paradisiaca*, which belongs to the same genus as the banana. The tree is a native of the East Indies, but its cultivation is widely spread in tropical America. Unlike the banana the plantain requires cooking before it can be eaten.

Plaster of Paris.—A soft white powder, originally found in the basin of the Seine, near Paris. It can be prepared artificially from sulphate of lime by reducing the sulphate to an anhydrous state by calcination.

Plate Glass.—One of the best kinds of glass, largely imported into this country from Belgium.

Plate Powder.—The ordinary plate powder is composed of a mixture of rouge, which consists of a fine oxide of iron, and prepared chalk. It is used for giving a polish to gold and silver plate or plated articles. Another kind of powder, consisting of one part of mercury and twelve parts of chalk, is frequently employed on account of the brilliant appearance it lends to plate, especially silver plate.

Platinum.—One of the so-called noble metals, greyish white in appearance, and generally associated in its ore with various other metals, such as iridium, osmium, palladium, rhodium, and ruthenium. The ores are now mainly obtained from the Ural Mountains. With the exception of osmium, platinum is the heaviest substance known. It is not affected by exposure to the atmosphere. It is of great value in the manufacture of chemical and electrical apparatus. It is also used for tipping gold pens, and for making fine wire which is capable of supporting heavy weights.

Plum.—The well-known fruit of various species of *Prunus*, valuable as a dessert fruit, as a preserve, and also in its dried state. In addition to the

plums grown at home England imports very large quantities from France, where many fine varieties of the plum tree have been cultivated, notably the Orleans, the damson, and the greengage.

Plumbago.—(See *Blacklead*.)

Podophyllin.—The resinous extract obtained from the root-stock of the *Podophyllum*, or May apple, a tree which is common in the shady woods of the United States and Canada. Medically it is of great value in liver complaints.

Pomegranate.—The orange-like fruit of a plant, *Punica granatum*, cultivated in the warmer temperate parts of Europe, Asia, and Africa.

Poplin.—A mixed fabric, used for making ladies' dresses, consisting of a warp of silk and a weft of worsted, the latter being thicker than the former. Sometimes flax or cotton is used instead of worsted. Irish poplins of Dublin are much esteemed in the market. Poplins are made at Manchester in England, and at Lyons in France.

Poppy.—A genus of milky-juiced herbs, of which there are nearly twenty species, distributed through Europe, Asia, Africa, and Australia. The most important is the *Papaver somniferum*, or opium poppy, from which opium is derived.

Porcelain.—The finest kind of china ware, made from kaolin, of a pure white colour and having a certain amount of translucency.

Porcupine Quills.—The thickened hair or spines of the porcupine, a species of rodent of southern Europe and northern Africa. These spines are exported from the Gold Coast, and are used for penholders and fancy work.

Pork.—The flesh of the pig, consisting of those parts which are not smoked and known as ham and bacon. In a pickled state it is exported in vast quantities from the great centres of the pig trade of the United States—notably Chicago.

Porpoise.—The name of a species of marine animal of the whale genus. The common porpoise is very common off the coasts of Britain and is captured for the sake of the oil supplied by its blubber, and for its skin which makes a strong and valuable leather, used for the covering of carriages and other similar purposes.

Port.—A red wine produced in Portugal, and largely exported from Oporto and Lisbon.

Porter.—A dark-coloured liquor, made in the same manner as beer, but from an inferior kind of malt. The colour

is heightened by the addition of liquorice and caramel.

Potash.—Impure carbonate of potassium obtained from the ashes of plants. Large supplies of this substance are drawn from the United States and Canada.

Potash Water.—An a rated water, often wrongly called a mineral water, which is impregnated with bicarbonate of potash before receiving the charge of carbonic acid gas.

Potassium.—One of the alkaline metals. It does not occur in its native state, and it is usually prepared by distilling a mixture of carbonate of potash and charcoal in an iron retort.

Potato.—One of the most familiar and important of vegetables, the edible root of the plant *Solanum tuberosum*. The only valuable part of the plant is its tubers. Introduced from America, the potato has been successfully cultivated in most parts of the world. At the present time there are no less than 500 varieties in existence.

Pottery.—A name which includes all vessels made from earthy materials, especially clay, for use or for ornament.

Powder.—(See *Gunpowder*.)

Printing Ink.—The thick composition made chiefly of lampblack and linseed oil varnish, and used by printers for inking type. (See *Ink*.)

Prunelloes.—The name of small plums imported from France and Austria.

Prunes.—The dried fruit of the Julian variety of the common plum. The fruit is dried either artificially or by simple exposure to the sun. Nearly the whole of the prunes of commerce are obtained from various districts of France, the major portion being grown chiefly in the Bordeaux district. After the Julian variety, the Brignoles, the Catherines, and the prunes d'Eute and Robe Sergent are the best known. From the orchards of the Loire the Tours prunes are obtained, and from Lorraine the variety called Quelche.

Prussian Blue.—A deep blue chemical precipitate useful for dyeing and also for tinting writing paper.

Prussic Acid.—The popular name for hydrocyanic acid. It is a compound of hydrogen, carbon, and nitrogen which combine directly. Prussic acid is intensely poisonous, and has an almond flavour.

Pulse.—The collective name for the seeds of leguminous plants. Peas and beans are the most common and important, and after them come kidney beans, lentils, chick-peas, etc.

Pulu.—A brown silky substance, consisting of fine hairs, obtained from the lower portion of the stalks of the *Cibotium glaucum* and other species of tree ferns found in the Sandwich Islands. It is used in medicine as a styptic. It is also used for stuffing cushions.

Pumice Stone.—A species of fibrous froth-like lava. Its composition varies, but it is largely composed of silica and alumina. The main supplies are obtained from the Lipari Islands, in the Mediterranean, and the colour of the stone is white or grey. A brown or black variety is exported in small quantities from the Canary Isles.

Pumpkin.—A plant of the cucumber family, important on account of its edible fruit. It is cultivated in all temperate parts of the world.

Purpurine.—One of the chief colouring matters obtained from the madder root, prepared by boiling madder in a strong solution of alum and then treating it with sulphuric acid.

Purree.—This is a yellow dye used principally in India. It is obtained from the urine of cattle which have been fed on mango leaves.

Putchuk.—The root of the *Aucklandia Costus*, which has an odour resembling that of the orris root. The plant is found on the mountain slopes of Cashmere and exported from Bombay, mainly to China. The root is used as an incense both in India and in China.

Putty.—A plastic mixture composed of fine dry whiting or powdered chalk and linseed oil. Putty is used mainly by glaziers as a cement for fixing glass window panes, and by painters in filling small holes and preparing irregular surfaces for their work.

Putty Powder.—The dioxide of tin, prepared from the powdered oxide which forms on the surface of melted tin. This powder is used for polishing stone and glass and for giving an opaque colour to the latter.

Pyrites.—The name given to the crude ores of certain metals combined with sulphur or arsenic. The most common are iron pyrites, a bronze-coloured ore, occurring in all parts of the world, the source of the manufacture of sulphuric acid and sulphate of iron.

Pyroligneous Acid.—A crude commercial form of acetic acid and sometimes known as wood vinegar. It is produced by the destructive distillation of wood, but requires to be freed from its many impurities before it is of any value. It is mainly employed in the manufacture

of acetates and by dyers and calico printers.

Pyroxylin.—(See *Gun Cotton.*)

Quartz. The general name for all minerals composed of silica. When pure it is colourless but in most cases it is found of various colours owing to the presence of foreign matter.

Quassia.—The bitter wood derived from the Jamaica ash, a spreading tree of considerable height, found in the West Indies.

Quebracho.—A wood derived from the *Aspidosperma quebracho*, a tree of the Argentine Republic. Its bark is valuable for its tannin and also for its medicinal properties, acting upon the system in the same manner as quinine.

Queen's Metal.—An alloy intermediate in hardness between pewter and Britannia metal. It is composed of tin, antimony, lead, and bismuth, one part of each of the last three to nine parts of the first. Its use is confined to the manufacture of the cheapest kind of spoons, jugs, pots, etc.

Quercitron.—The bark of the *Quercus tinctoria*, a species of American oak, useful for tanning leather and also for the yellow dye which it yields. The bark is exported from the United States to Europe. The timber of the tree is strong and durable, and it is sometimes used in shipbuilding.

Quicksilver.—(See *Mercury.*)

Quills.—The modification of the hair of some animals, especially of the porcupine family, and the large feathers of certain birds, such as the swan, goose, and turkey.

Quince.—The yellow pear-shaped fruit of a small tree, the *Cydonia vulgaris*, of the natural order *Rosaceae*, found in many parts of southern Europe. It is edible when preserved with sugar, and makes an excellent kind of marmalade, the best variety for this purpose being the quince obtained from Portugal.

Quinine.—The alkaloid obtained from the cinchona bark. It is a powerful tonic, and the most useful and best known remedy in cases of malarial fever. (See *Cinchona.*)

Rabannas.—A species of matting made from the fibre of the *Raphia rubea*, a small plant of Madagascar. It is almost confined, commercially, to the exports from Madagascar to Mauritius.

Rabbits.—The well-known rodent, found abundantly in Britain and in the north-west and centre of Europe. Besides the supplies obtained at home there are large quantities imported into Great

Britain from Belgium. Rabbits are commercially important on account of their skins, the hair of which is well adapted for felting purposes. The skins are chiefly used in the manufacture of felt hats and imitation furs.

Rachat-lukumia.—A Turkish sweetmeat. It is composed of sugar and starch and is soft in character.

Racoon.—A species of small bear, which is found only in the United States and Canada. Its skin, which is of a greyish colour, is highly valued as a fur, and is exported from North America.

Radish.—The well-known root eaten alone or made up into a salad. There are at least six distinct species of radish, but two forms are well marked, one having a long carrot-like root, and the other a round turnip-like root. It is grown in all parts of Europe and Asia.

Rafia Fibre.—(See *Rabannas.*)

Rags.—The remains of woollen and cotton clothing after they have served the purposes for which they were originally made. Rags are utilised for various purposes according to the substances from which they are derived. Linen and cotton are still much used for the manufacture of the best kinds of paper and to some extent for the production of surgical lint. Woollen rags are worked up into shoddy, and the fine fragments are dyed and then used for making flock papers for wall decorations.

Rails.—Iron and steel rails form a considerable body of British manufactures both for home consumption and for export.

Raisins.—Dried grapes used for various purposes, such as dessert, cooking and the manufacture of wines. The grapes are the product of certain varieties of vine grown in the Mediterranean countries. Malaga and Valencia raisins are obtained from Spain, sultana raisins, which are seedless, from Turkey, and muscatels from both countries.

Rape Seed.—One of the most important oil seeds of Russia and India, obtained from the *Brassica napus* and the *Brassica campestris*, two plants of the same order as the cabbage. The rape, which is also known as coleseed, is now grown extensively in Britain. The rape or colza oil of commerce is obtained by crushing the seed and is used extensively for oiling machinery and for burning in lamps.

Rappee.—A coarse variety of snuff.

Raspberry.—The red fruit of the cultivated variety of the *Rubus Idaeus*,

a plant widely distributed through Europe and Asia.

Rattans.—The long stems of trailing palms, a species of *Calamus*, sometimes known as cane palms. They are natives of the East Indies, and the slender and jointed stems are exported thence in bundles. They are used for a vast number of purposes in the East, such as chairs, mats, hats, baskets, ropes, and even bridges. In European countries they are of value for the manufacture of cane-bottomed chairs, couches, window screens, trellised furniture, etc.

Realgar.—A red or orange coloured mineral, a bisulphide of arsenic, occurring in prismatic crystals in various parts of Austria-Hungary. When prepared artificially it is used as a pigment.

Reindeer.—A species of deer found in the Arctic regions of Europe, Asia, and America. As a living animal it is invaluable to the natives of the districts in which it is found, and when dead its skin is used in many ways, especially for bedding and clothing, its antlers for various horn materials, and its tongue for food, particularly when tinned. Tinned reindeer tongues are exported from Russia. The flesh of the reindeer is made into pemmican.

Reindeer Moss.—An important lichen found in northern climes and forming a winter food for cattle. In Norway and Sweden it is also used for stuffing pillows. It is common in Britain and is employed largely for the purpose of giving the ground work to cases in which stuffed birds are preserved.

Resins.—A class of vegetable products of great value in the arts. Some are obtained as exudations from various trees, some are found in a fossil condition, while others are extracted from various plants through the agency of alcohol. They are largely employed in the manufacture of varnishes.

Rhatany Root.—The root of a shrub, *Krameria triandra*, found in Bolivia and Peru. The powdered root is used in the manufacture of various tooth powders. Almost the whole of the commercial supply is derived from Peru. Portugal imports the root for the purpose of colouring port wine a deeper red.

Rhea Fibre.—The inner fibre of the *Boehmeria nivea*, a plant of eastern Asia, used for the manufacture of China grass cloth.

Rhinoceros.—A horned animal of Asia and Africa, valuable for its skin and horns, these two alone entering into commerce. The skin can be tanned,

but its use is limited. The horns are made into cups, walking sticks, umbrella handles, etc.

Rhubarb.—Various species of herbaceous plants, cultivated and valued for their roots. The best comes from China, though it is called Turkey rhubarb.

Ribbons.—Fabrics of silk, satin, cotton, or other material used principally for trimmings. They have innumerable fancy names according to their texture and the uses to which they are applied. The centre of the ribbon manufacture in England is Coventry. France competes very strongly, and St. Etienne is the principal seat of the trade in that country.

Rice.—The grain of the *Oryza sativa*, a species of grass closely resembling barley in appearance. It is one of the most important of human foods, being the staple of about one-third of the inhabitants of the world. It is grown extensively in all tropical and subtropical countries, and to some extent in Spain, Italy, and Austria.

Rice Paper.—A snowy white paper made in China from the layers of the pith of the *Aralia papyrifera*, a plant which grows wild in the island of Formosa. It is largely used for receiving coloured drawings, for the manufacture of artificial flowers, and for making toys.

Rochelle Salt.—Tartrate of potash and soda, prepared from cream of tartar and carbonate of soda.

Rock Salt.—(See *Salt*.)

Rosemary.—The blue flowering tops of the *Rosmarinus officinalis*, an evergreen shrub found in most countries bordering on the Mediterranean Sea. It is cultivated chiefly for the sake of its essential oil, oil of rosemary, which is used as a stimulating ointment to promote the growth of the hair and as a perfume. It is also an important ingredient of eau de Cologne and Hungary water.

Rose Oil.—The fragrant perfume obtained by the distillation of the leaves of certain roses in water. The preparation of this oil is a characteristic industry in Persia and some parts of India. (See *Otto of Roses*.)

Rosewood.—A valuable fancy wood used chiefly in furniture making, and obtained from various South American trees. The best comes from Brazil, two distinct qualities being shipped from Rio de Janeiro and Bahia respectively. The timber is exported in large slabs and planks. An inferior rosewood is found in Honduras, and another species

of the same wood is obtained from India.

Rottenstone.—A soft siliceous stone, brown in colour, found in Derbyshire and South Wales. It is easily scraped into a powder and is used for polishing and cleaning metals and glass.

Rouge.—A fine dark powder, a variety of oxide of iron, used for polishing gold, silver, and speculum metal. The artificial colouring for the skin, also called rouge, is prepared from safflower by means of citric acid or lemon juice, with the addition of French chalk.

Ruby.—A pure transparent red-coloured variety of corundum, highly prized as a gem. In hardness it is inferior among gems to the diamond alone. Its composition is almost wholly of alumina. The best rubies are obtained from Burmah, and these have the colour of the blood of a pigeon. Rubies of darker colour are found in Ceylon, Siam, and China.

Rue.—An evergreen shrub, a native of southern Europe, but now extensively cultivated in many parts of the world. Its leaves yield a powerfully smelling volatile oil of acrid taste, and straw-like colour, medicinally used in the manufacture of syrup of rue, an infantile remedy.

Rugs.—Woollen fabrics used as carpets, bed coverings, wraps, etc. Besides the large quantities required for home consumption the woollen manufacturing districts of Great Britain supply millions a year to various parts of the world.

Rum.—The distilled spirit made in countries where cane sugar is produced from the skimmings of the sugar pans. An inferior quality of rum is made from the skimmings and molasses, and a still poorer one from molasses alone. Jamaica and Demerara are the principal places of production, and Jamaica rum is the best in the market. An inferior rum is made in France from beetroot molasses.

Rushes.—The popular name for the various species of *Juncus*, found in all parts of the British Isles, and imported by this country from the Continent, especially Holland. The stems are used for making chair bottoms, baskets, mats, etc.

Russia Leather.—The red dyed, tanned, heifer hides imported from Russia, used extensively for book-binding, travelling bags, cigar cases, purses, etc. The red colour is produced by a solution of alum and an extract of sandalwood, and the characteristic

smell is due to the use in tanning of empyreumatic birch oil.

Rye.—The edible grain of various grasses allied to wheat and barley, the commonest being *Secale cereale*. It is grown extensively in most parts of the continent, rye bread being a commoner food of the peasantry abroad than wheaten bread. In England it is grown only as fodder for cattle.

Sable.—A mammal of the weasel family, from which is derived the most valuable of all furs. The American or Hudson's Bay sable fur is the skin of the *Martes zibellina*. The fur is generally brown with greyish-spots scattered here and there. In addition to the supplies obtained by Great Britain from America, there are considerable imports to this country from Russia and Siberia.

Saccharin.—A white, semi-crystalline powder of intense sweetness, prepared by complex processes from coal-tar. Owing to various circumstances saccharin, or as it is sometimes called glucide, has not yet become a formidable competitor of sugar for domestic use.

Safes.—Repositories for the preservation and protection of valuable goods or documents from thieves and fire.

Safflower.—(Also called Bastard Saffron.) This herb is extensively cultivated in India, Persia, and other parts of the East, and is valuable for the red dye carthamine, which is obtained from its flowers by treating them with an alkaline solution. Its principal use is for dyeing silk and cotton, and for colouring toilet rouge.

Saffron.—The dried stigmata of the flowers of the *Crocus sativus*, a plant widely cultivated in Mediterranean countries. It is imported into England for culinary and dyeing purposes. The best quality of saffron is obtained from Valencia.

Sage.—A culinary herb much used for seasoning. There are many species cultivated, but the best known and the most common is the *Salvia officinalis*, found in most parts of Europe.

Sago.—A farinaceous substance of great nutritive power obtained from the pith of various species of palms, the principal of which are the *Sagus Rumphii*, the *Sagus laevis*, and the *Caryota urens*. This substance is obtained almost exclusively from the East Indies.

Sal.—The timber of a tree of northern India, the *Shoren robusta*. It is hard, dark brown, coarse grained, and very durable, though somewhat less so than

teak. The wood is used for making bridges, gun carriages, railway sleepers, etc.

Sal Ammoniac.—The hydrochlorate or muriate of ammonia of extensive use in chemistry and medicine.

Sal Prunellae.—Nitrate of potash, purified in mass, or fused into circular cakes or small balls. It is used for various chemical purposes and also for the preparation of gunpowder.

Sal Volatile.—A solution of carbonate of ammonium mixed with ammonia and dilute alcohol. It is the common smelling salts of commerce.

Salicin.—A white crystalline powder composed of carbon, hydrogen, and oxygen. It is obtained from the bark of several species of poplar and willow. It is much used medicinally as a substitute for quinine, and also to adulterate that substance.

Salicylic Acid.—An organic acid, originally prepared from salicin, but now generally obtained by heating sodium phenate in a current of carbonic acid gas. It is a valuable antiseptic, and it is also of the greatest value in cases of acute rheumatism.

Salmon.—The choice river fish caught extensively in various parts of the British Isles, and imported into this country fresh from Norway and Iceland. The fish is cured in Scotland. Large supplies are obtained from British Columbia, where the salmon are preserved and tinned and then exported to all parts of the world.

Salsify.—A purple flowered herb common throughout Europe and Asia. It is chiefly cultivated on account of its sweet edible roots.

Salt.—The universal condiment, generally known as common salt, to distinguish it from the large body of other substances known to chemists as salts. Its proper name is chloride of sodium, chlorine and sodium being its constituent parts. Salt occurs in sea-water and the supplies of some countries are still obtained by the evaporation of sea-water. For others the great natural beds of salt found in many parts are better and more serviceable. The largest deposits of rock salt are found in the mines of Wieliczka, in Galicia. In England enormous supplies are obtained from the brine springs of Cheshire.

Salt, Spirits of.—(See *Hydrochloric Acid.*)

Salt Cake.—An impure sulphate of soda, also known as nitre cake.

Saltpetre.—(See *Nitre.*)

Sandalwood.—The odoriferous wood obtained from several species of the *Santalum*, a tree of India and the East Indies. The timber is close and fine-grained, and is held in much esteem by cabinet makers, carvers, and engravers. Owing to its peculiar smell it is proof against the ravages of insects.

Sandarach.—A yellowish inflammable resin obtained by exudation from a certain cone-bearing tree of the north of Africa, principally Morocco. It resembles mastic in appearance and some of its properties, and is used for the preparation of French polish.

Sappan Wood.—The wood of the *Caesalpinia Sappan*, a large tree of southern India and Bengal. A red dye is obtained from this wood which is largely used in calico printing.

Sapphire.—A transparent variety of corundum, highly prized as a gem. Although found of different colours, blue is the prevailing hue. The sapphire is nearly as hard as the diamond. The finest sapphires are found in Ceylon and Burmah. Inferior ones are obtained in Australia and the United States, whilst those of Bohemia are of little or no value.

Sapucaia Nuts.—The edible seeds of the urn-shaped fruit of the *Lecythis zabucajo*, a tree very common in the forests of the north of Brazil. In England they are commonly known as monkey nuts.

Sardine.—A small fish very plentiful off the coasts of France and Spain, deriving its name from the island of Sardinia. It is of the same genus as the pilchard.

Sarsaparilla.—The dried roots of several species of *Smilax*, a shrub of Central and Southern America. There are two special varieties obtained from Jamaica and Lima respectively. It is much used as a tonic.

Sassafras.—A species of laurel widely spread over the United States and Canada. The wood, the bark, and the root are of great medicinal value, especially in cases of skin diseases and rheumatic affections.

Satin.—A well-known fabric composed of closely woven silk, sometimes dressed with gum, having a beautifully smooth shining surface. The best satins are manufactured at Lyons, but much satin is now made in England. Its principal uses are for making dresses and ribbons. Inferior kinds are called satinets, and fabrics made of cotton and wool, woven

in the same manner as the silk fabric, are known as sateen.

Satin Wood.—The yellow coloured wood obtained from two different species of trees, one found in Southern India, the other in the West Indies. When polished it possesses a lustre like that of satin. It is used in the manufacture of certain kinds of furniture, for panelling the cabins of passenger steamers, for inlaying, and for the manufacture of picture frames, the backs of toilet brushes, and other ornamental articles.

Sausages.—Various kinds of chopped meats, mixed with flour or bread and spices, and packed in inflated gut skins. The skins are largely imported from Australia.

Sauterne.—A French white wine produced in the district of the Gironde, made from a species of over-ripe grape. The best brand is that of the Château Yquem.

Savin.—The oil obtained from the fruit of a species of juniper, *Juniperus Sabina*, a tree found in Italy and in some parts of the United States.

Savoy.—The well-known winter cabbage, resembling the common cabbage in every respect except that it has wrinkled leaves.

Sawdust.—The waste of wood when cut or sawn. Besides its use for sprinkling floors, stuffing dolls and cushions, and packing goods, sawdust is commercially valuable in the manufacture of oxalic acid, packing for fire proof safes, and soda ash.

Scammony.—The grey gum resin obtained from the root of the *Convolvulus Scammonia*, a wild plant of Asia Minor. The best scammony is obtained from Aleppo, that of Smyrna being of a very inferior quality.

Scrap.—Waste old iron.

Screws.—These well-known articles are now made entirely by machines of ingenious construction. They are of metal or wood. The centre of the manufacture in England is Birmingham.

Seal.—The name commonly applied to all species of Pinnipedia except the walrus. They are found in the seas of the Arctic and north temperate regions of Europe, Asia, and America, and are valuable for their furs and for the oil taken from them. The greatest supplies are obtained from the Behring Strait, Greenland, and Newfoundland.

Sealing Wax.—A composition used for securely fastening letters and attaching impressions. The best red sealing wax consists of a mixture of shellac,

Venice turpentine, and vermilion, to which are added small quantities of magnesia and chalk.

Seidlitz Powders.—A common aperient sold by chemists. They are composed of bicarbonate of soda, tartrate of potash, and powdered tartaric acid. The name is derived from Seidlitz, a town in Bohemia, where there is a natural spring of water containing the same elements.

Seltzer.—The natural effervescing seltzer water is obtained from the springs at Nieder-Selters, in Nassau.

Semolina.—The grains of hard wheat which are not ground into flour in the process of milling, and purposely left in that state by the arrangement of the mill stones. Semolina is produced in Italy and the substance is almost exclusively obtained from that country.

Senega Root.—The dried root of a small herb, *Polygala Senega*, found in the United States. It is popularly known in America as the snake root.

Senna.—A drug of much medicinal value consisting of the dried leaflets of several species of *Cassia*. There are two principal varieties, the Alexandrian, chiefly grown in Egypt, and the Tinnivelly, obtained from the East Indies.

Sepia.—A brown pigment prepared from the ink-bag of a species of cuttle fish found in the Mediterranean. It is much used as a water-colour, and it is also employed by draughtsmen in the preparation of plans and drawings.

Serge.—A rough variety of twilled cloth made from worsted. It has a wide range of quality, and is generally dyed black or dark blue.

Sesame.—The herb of the genus *Sesamum*, commonly cultivated throughout the East on account of its seeds, which produce gingili oil, a pale, straw-coloured, sweet oil which is used for perfumery and also as a substitute for olive oil.

Seville Oranges.—(See *Oranges*.)

Shabrack.—The covering for cavalry saddles, made from cloth or from sheepskins with short curly wool.

Shaddock.—A tree of the citron order, a native of the East Indies, but introduced and cultivated in southern Europe and in the West Indies.

Shagreen.—A kind of parchment or leather prepared from the skins of horses and asses. It is much used for covering cigar cases, cabinets, small boxes, and similar ornamental articles. The name is also applied to the prepared skins of sharks, rays, and various other fish.

Shale.—The rock resulting from stratified and hardened mud and clay. It is composed of alumina and silica, and is coloured by oxide of iron. It is obtained in various parts of England and Scotland, and is commercially valuable for the production of paraffin.

Shawls.—Wraps, chiefly made of wool, worn in all parts of the world. Those obtained from the East have always been held in great esteem, especially the shawls of Cashmere, made from the soft inner wool of the Tibet goat.

Shea Butter.—A greenish coloured oil, of the consistence of tallow, obtained from the seeds of the *Butyrospermum parkii*, a tree of West Africa.

Sheep.—The domestic animal, of which there are about twelve species, valued for the food and the wool obtained from it. Sheep-rearing is one of the greatest industries of Australia.

Shellac.—(See *Lac*.)

Sherry.—The general name for the better sort of white wines produced in the neighbourhood of Xeres, near Cadiz, the finest vineyards being situated at Xeres de la Frontera.

Shingles.—Flat pieces of wood, generally oak or pine, cut by machinery and used for roofing like slates or tiles.

Shoddy.—A material produced in Yorkshire and Lancashire and largely used in the manufacture of cloth. The chief centres of the trade are Batley, Dewsbury, and Leeds. It is made of the wool obtained from worn and ragged woollen goods, with the addition of a certain amount of fresh wool.

Shola.—The white pith of an Indian plant, *Aeschynomene aspera*, which is a bad conductor of heat and much used in the manufacture of the helmets worn by the British in India. The substance is also employed for making fans, toys, etc.

Silk.—The fibre on the cocoon of the silkworm, chiefly the *Bombyx mori*. It is the strongest, most lustrous, and most valuable of all textile fabrics. The manufacture of silk and of silk goods is mainly carried on abroad, the principal countries manufacturing in Europe being France, Belgium, and Holland.

Silkworm Gut.—A very strong material used by anglers for dressing the hook-ends of fishing lines. It is prepared from the caterpillars of the ordinary silkworm.

Silver.—The beautiful hard white metal which has been held in highest esteem from the earliest times. It is

sometimes found in a free state, but frequently compounded with other elements, as with chlorine to form horn silver, and with sulphur to form silver glance. It exists in small quantities in samples of galena, and the most productive of the ores obtained in the British Isles are found in the Isle of Man. In Europe, silver is found in Spain, Austria, and Germany, but the discoveries of the rich deposits of the New World, from the United States to Chili, have led to the neglect of the European mines.

Simaruba.—The root bark of the *Simaruba amara*, a tree found in various parts of the tropics in Asia, Africa, and America. It has a characteristic bitter taste. The bark is often used as a substitute for quassia, and known as such.

Sisal Hemp.—The fibre obtained from the *Agave rigida*, a plant of Mexico. The greater portion is sent to the United States. The fibre is strong and glossy, and admirably adapted for rope making on account of its damp-resisting properties.

Sissoo Wood.—The timber derived from the *Dalbergia Sissoo*, a tree of the rosewood type found in India.

Size.—A species of glue or varnish used by house-painters, papermakers, gilders, etc. It is variously composed of linseed oil, red lead, vermilion, etc., mixed with turpentine.

Skunk.—A species of animal belonging to the weasel family, found in many parts of the United States. Its skin is of high commercial value, and is often passed off as Alaska sable.

Slag.—The refuse obtained from smelting works, glass foundries, etc. At one time all slag was waste, but it is now utilised for a great number of purposes.

Slate.—A hard clay-like rock which splits up into thin sheets. It is of various colours, grey, blue, green, purple, or black, and a red slate is found in the province of Quebec. The chief supplies of slate are obtained from Wales, the Lake District, and various parts of Scotland.

Smalt.—A metallic powder, blue oxide of cobalt melted with carbonate of potassium and sand, which is really pulverised glass. It is used in the manufacture of blue glass, in the colouring of porcelain and earthenware, and in tinting paperhangings, linen, calico, etc.

Snuff.—A powdered preparation of

tobacco, made by grinding the chopped leaves and stalks of tobacco in which a certain amount of fermentation has been set up by moisture and warmth. It is variously flavoured.

Soap.—The chemical meaning of soap is much wider than the commercial one. The former includes all combinations of fats or fatty acids with alkaline or metallic salts; the latter is confined to compounds containing potash and soda only.

Soapstone.—(See *Steatite.*)

Soapwort.—The root of the *Saponaria officinalis*, a herb of Asia Minor, though sometimes found in various parts of Europe. It contains a gum and a resin, and the leaves of the plant produce a lather in water like that of soap, and the liquid is used for washing silk and wool, which it thoroughly cleanses, and to which it adds a beautiful lustre.

Soda Ash.—The commercial form of carbonate of sodium, one of the most useful of chemical products. It was formerly obtained almost entirely from seaweed. Now it is made from common salt by two distinct methods.

Soda, Bicarbonate of.—Commonly known as baking powder. It is prepared by the passage of a current of carbonic acid gas over soda crystals.

Soda, Caustic.—A white solid substance, largely used in the manufacture of soap, paper, glass, various fabrics, etc.

Soda Crystals.—This is the ordinary washing soda. It is prepared by dissolving soda ash in water, boiling down the solution to a certain extent, and then allowing it to cool.

Sodium.—The most widely distributed of the metals of the alkalies, occurring in many compounds, especially common salt, caustic soda, bicarbonate of soda, etc. The chief of these compounds are noticed under separate headings.

Sodium, Chloride of.—(See *Salt.*)

Sodium, Nitrate of.—(See *Saltpetre.*)

Sodium, Sulphate of.—(See *Glauber's Salt.*)

Solder.—A fusible alloy of lead and tin used for joining metals. The exact proportions in which these metals are combined vary according to the particular work for which the solder is required.

Sole.—A genus of flat fish, very common round the shores of Great Britain, and very largely taken and sold in English markets.

Soy.—A sauce made in China and Japan from the seeds of the *Soja hispida*, a plant much cultivated in both these

countries. The seeds resemble small kidney beans and are a very nutritive food. Soy is a common and much used condiment in the East. It is exported from China and Japan to England and the United States, and it enters into the composition of the majority of English sauces.

Spanish Fly.—(See *Cantharides.*)

Spelter.—(See *Zinc.*)

Speculum Metal.—The hard alloy composed of copper and tin, two parts of the first being mixed with one part of the second. It is used for the mirrors of reflecting telescopes.

Spence's Metal.—A greyish-black substance, somewhat like cement, formed by melting together sulphide of iron and sulphur. It melts at a low temperature and is used for making busts, medallions, etc., and also like lead for joining pipes.

Spermaceti.—A white fatty substance prepared from the oil obtained from the head of the sperm whale.

Spices.—Various aromatic condiments and substances used for flavouring.

Spiegeleisen.—A variety of iron containing a large proportion of carbon and manganese. It is chiefly used in the manufacture of bessemer steel.

Spikenard.—This perfume, also known as nard, is obtained from the root of the *Nardostachys Jatamansi*, a small plant which is found in the north of India.

Spinach.—The wholesome and well-known pot herb, the deep green leaves of the *Spinacia oleracea*, a plant cultivated in all parts of Europe.

Sponge.—The horny substance consisting of the skeletons of certain marine animals which are always found fixed to rocks. The sponges of commerce are mostly obtained in the Mediterranean Sea and off the West Indies. The finest are found in the waters of Turkey, and there is a large export trade from Smyrna.

Sprats.—Well known small fishes of the herring genus. They are very abundant off the shores of Britain and the western coasts of Europe generally, especially in autumn and winter.

Spruce.—A species of pine tree. The best known is found in Norway, and supplies white deal and the substance called Burgundy pitch. Its bark is used for tanning.

Squills.—A genus of bulbous plants belonging to the order *Liliaceae*, of which there are no less than seventy species. They are natives of southern Europe, but are now widely spread over most parts of the old world. The variety

used medicinally is the *Scilla maritima* of Algeria.

Squirrel.—The skins of these little rodents are in much request for fur-linings. Large numbers of the skins are annually imported into this country from Russia and Siberia, those obtained from the latter country being esteemed the best.

Starch.—The substance occurring in grains in the cellular tissues of all plants, excepting certain kinds of sea-weed and lichens. It is a compound of carbon, hydrogen, and oxygen. The chief centre of manufacture in Great Britain is Paisley, where maize is used. At Norwich starch is made from rice, and at Belfast from wheat.

Steatite.—A hydrous silicate of magnesia, generally white or yellow in colour, occurring in many parts of the world and found in large quantities in Cornwall. It is soft to the touch and easily cut. Common steatite, or soap-stone as it is generally called, is used for various purposes, especially polishing mirrors, fulling cloth, and diminishing friction in machinery.

Steel.—One of the three varieties of iron, the other two being wrought iron and cast iron. It is formed when bars of wrought iron are heated to redness for a certain time in contact with charcoal.

Steel Pens.—The common writing instrument manufactured entirely by machinery. The centre of the industry is England, and the principal place of production in the world is Birmingham.

Stilton.—The rich cheese, originally made at Stilton in Huntingdonshire, but now manufactured in several other parts of the country. It is the best of all English cheeses.

Storax.—A resin obtained by exudation from the stem of the *Styrax officinalis*, a shrub of Greece and Turkey. It was formerly much used in medicine and perfumery, but its place has been taken by liquid storax, a soft, viscid, dark brown resin obtained from the *Liquidambar orientale*, a tall tree of Asia Minor. This substance is exported exclusively from Smyrna.

Straw.—The dried stalks or stems of various cereals. It is much used in agriculture as a bedding material and in the making of farmyard manure, and it is valuable for packing, thatching, making door mats, baskets, mattresses, etc. It is likewise a paper-making material, the straw being reduced to a pulp and transformed into sheets when it is known as straw-board.

Strawberries.—The sweet succulent fruit of various cultivated species of *Fragaria vesca*, widely distributed through the temperate regions of the globe.

Strontium.—A metallic element resembling calcium and barium in its chemical properties. It occurs as a constituent in the minerals celestine and strontianite found in Scotland, especially in Argyleshire.

Strophanthus Seeds.—The seeds of the *Strophanthus hispidus*, a plant of which there are several species, found in the tropical regions of Asia and Africa. Its medical properties are similar to those of digitalis. The imports are derived almost exclusively from West Africa.

Strychnine.—The powerful alkaloid poison obtained from the seeds of the *Strychnos Nux Vomica*, a shrub of the East Indies. Its taste is intensely bitter and its properties extremely poisonous.

Sturgeon.—A fish belonging to the Ganoid genus, of which there are about twenty-five different species. The common sturgeon is sometimes found in the rivers of Great Britain and is a royal perquisite. The sterlet is a small species of sturgeon, found principally in the Volga and the Danube. The products of the sturgeon, isinglass and caviare, form an important part of the commerce of Russia, especially at Astrakhan.

Suet.—The pure solid fatty matter which occurs in masses about the intestines of several domestic animals, especially sheep and oxen. Beef suet is mainly used in cookery, while mutton suet is employed for medicinal purposes, particularly in the preparation of ointments and plasters.

Sugar.—The well-known article of food which occurs in the juices of many plants, but which is now prepared for commerce almost exclusively from the sugar cane and the beetroot. The sugar cane is a gigantic grass found in the tropical regions of both hemispheres. Beetroot sugar is prepared from the beet, the root being crushed or sliced and the solution boiled down.

Suint.—The grease obtained from sheep's wool during the process of washing, sometimes known as wool fat, and also as lanoline. It has lately been used for soap making.

Sulphonal.—An opiate of very complex composition, only recently recognised in medicine.

Sulphur.—One of the most important

of the non-metallic elements. It occurs free in certain volcanic districts, particularly in Sicily and Iceland, where it appears as yellow transparent crystals. In combination with many metals it forms sulphides, which constitute the ores from which the metals themselves are ordinarily obtained. The chief of these sulphides are galena and blende. The principal supplies of sulphur come from Sicily.

Sulphuric Acid.—The most important acid known, as it is used not only in various arts and manufactures, but is the means by which numerous other acids are prepared. Commercially it is generally known as oil of vitriol.

Sultanas.—Small raisins imported from Turkey. They have neither pips nor stones.

Sumach.—The wood of the *Rhus colinus*, a tree of southern Europe, from which a valuable yellow dye is obtained. The bark is very rich in tannin, and is used extensively for the preparation of the finest kinds of leather.

Sunflower.—A genus of coarse plants, of which the commonest example is the *Helianthus annuus*. In Germany and Russia it is grown on a large scale for the sake of its seeds, which are variously used in commerce as a food for poultry, as a substitute for coffee, as a source of oil which is little inferior to olive oil, and as a substance for making oil cake.

Sunn Hemp.—Otherwise known as Indian hemp. It is the fibre obtained in southern Asia and tropical Australia from various species of *Crotolaria*. The fibre, which is less soft than jute, is used for the manufacture of rope, twine, sack-cloth, and other materials.

Tacamahac.—(Or Tacamahaca.) The resinous exudation of various trees of tropical America, the principal being the *Icica tacamahaca* of Brazil. It has a pleasing odour, and is often burned as incense in churches.

Talc.—A mineral composed almost entirely of silica and magnesia in the proportions of two to one. It occurs in combination with other rocks in Scotland, the Pyrenees, the Tyrol, and the United States. Talc is used for various purposes, among which may be mentioned the manufacture of porcelain clay, fulling, and the making of crucibles and crayons.

Tallow.—The harder and less fusible varieties of the fat of animals, especially that of oxen and sheep. It is composed of stearine, palmitin, and olein in varying quantities.

Tamarind.—The fruit of the leguminous *Tamarindus indica*, a lofty tree grown in the tropical parts of Asia, Africa, and America.

Tampico Fibre.—The fibre obtained from the leaves of the *Yucca baccata*, a Mexican plant, and shipped chiefly from Tampico, on the Gulf of Mexico. It is manufactured into cordage, rugs, and various fabrics.

Tapioca.—The granulated starch of a species of *Manihot*, extensively cultivated in South America, and also in the East Indies. The starch is obtained from the root of the plant, and carefully roasted. The chief exports are from Brazil and Singapore.

Tar.—The dark, semi-solid substance, of disagreeable smell, obtained as a product of the destructive distillation of various organic substances. The tars of commerce are derived from the distillation of coal and wood.

Tartar, Cream of.—(Also known as Bitartrate of Potash.) It is obtained by purifying crude argol. It is sometimes used as a baking powder.

Tartaric Acid.—An important organic acid, occurring free or in combination with bases in the fruits and juices of many plants, especially the grape. It is prepared from argol, an impure bitartrate of potash, which is deposited in wine vats during fermentation, by treatment with chalk and sulphuric acid.

Tea.—The dried leaves of a species of plants included in the genus *Camellia*. Although there are several species, the tea of commerce is derived from the *Camellia theifera* (var. *Sinensis*) of China, and the *Camellia theifera* (var. *Assamica*) of India. Tea is obtained from China, India and Ceylon, and more than one half of the supplies of the world are derived from the Empire of India. Of black teas the best are known as Congou, Pekoe, Souchong, and Bohea, while Hysons and Gunpowder are the principal green varieties. In Central Asia and Tibet tea, pressed into the shape of bricks, and hence called brick tea, is most commonly used. It is prepared with a slight admixture of butter and salt.

Teak.—The hard and durable timber of the *Tectona grandis*, a gigantic tree of India and the East Indies. It is particularly prized for shipbuilding and the construction of bridges. Teak is mainly exported from Burmah.

Teasel.—A species of herb of which the best known is the *Dipsacus fullonum*, found to a certain extent in England,

and very common in southern Europe and northern Africa. The flower heads are used by cloth manufacturers for passing over the surface of cloth and raising the nap.

Terra-cotta.—A kind of pottery or earthenware, the name signifying baked clay. It is simply a superior variety of brickwork and is largely used for decorative purposes, statuary, etc.

Thread.—The fine cord or filament of cotton, flax, or silk, used for sewing. Any fibrous substance which is woven is first spun into yarn and called thread. but sewing thread consists of two or more yarns twisted together. Cotton thread is made at Manchester and Glasgow, but the chief centre of the manufacture is Paisley, which turns out about one half of the thread required by the whole world. Silk thread is often known by the name of twist.

Thyme.—A species of shrub grown in various parts of Europe, and used for culinary purposes.

Tin.—The well-known beautiful and lustrous white metal. It is extremely malleable, and can be rolled out into very thin plates, called tin-foil. Tin undergoes little change when exposed to the air unless it is heated, when a film of oxide forms on its surface.

Tincal.—The name for crude borax which is imported from India in its impure condition.

Tobacco.—The dried leaves of several species of *Nicotiana*, the principal being the *Nicotiana persica*, the source of the highly prized Persian tobacco, the *Nicotiana rustica*, from which the tobacco of Latakia, Turkey, and Manilla are derived, and the *Nicotiana repanda*, the American variety of the plant.

Tokay.—A renowned brownish-yellow wine of Hungary, made from the grapes of the vines which grow on the slopes of the Hegyalja Mountains. There are several varieties of this wine on the market, the principal being the Essence, regarded by some judges as the best of all wines, and the Ansbruch.

Tolu.—(See *Balsam*.)

Tomato.—The well-known culinary vegetable, the fruit of the *Lycopersicum esculentum*. It is often known as the love apple. A native of South America, it was introduced into Europe nearly four centuries ago and thrives in most countries, but especially in Italy.

Tonca or *Tonquin Bean*.—The seed of the *Dipterix odorata*, a tall tree which grows in the northern part of South America, especially Guiana. It is much

used by perfumers for scenting purposes, especially for scenting snuff.

Tongues.—The tongues of certain animals are highly esteemed as food and enter largely into commerce, especially when tinned. The chief of these are ox tongues, which are exported in enormous numbers from Uruguay, and reindeer tongues which come from Russia. Sheeps' tongues, fresh and frozen, are obtained from Australia.

Topaz.—A mineral generally included among gems. It is largely composed of silica, alumina, and a small quantity of oxide of iron. It is extremely hard. Its colour is generally of a yellowish hue, but pink and blue varieties are sometimes found. It occurs in many parts of the world, but the topazes most prized by jewellers come from Brazil.

Tortoise-shell.—The epidermal horny plates which cover the back of the hawksbill turtle, the carnivorous reptile found along the coasts of the United States.

Tow.—The waste fibre or refuse which remains in carding flax and hemp. In addition to the tow obtained in Great Britain large quantities are imported from various foreign countries. Tow is largely employed in the manufacture of bags, sheetings, and yarn. It is also used in the manufacture of paper.

Toys.—In addition to those made in Great Britain, principally in London and Birmingham, there are large imports of toys from various foreign countries. Many of the toys imported into England are re-exported to the colonies and to the United States.

Treacle.—The dark, viscous, uncrystallisable juice of the sugar cane obtained in the manufacture of sugar. It is that syrup which remains when the crystallised sugar has been separated.

Truffles.—A genus of fungi which grow underground, chiefly used as a flavouring agent for culinary purposes. They are not common in England, but the crop in France is said to be of the annual value of one million sterling.

Tulips.—The well-known flowers which have been, and are still, extensively cultivated in Holland. Hundreds of acres are under cultivation in the Netherlands, principally in the neighbourhood of Haarlem.

Tulip Tree.—A magnificent tree of the temperate parts of North America. Its pale yellow timber is valued by coach builders and cabinet makers on account of its lightness, strength, and durability.

Tulle.—The thin silk lace fabric of very open structure, used for trimmings, caps, veils, etc. An imitation tulle is made of cotton. The manufacture is fairly distributed, though it was originally confined to the town of Tulle, in the department of Corrèze, France.

Tungsten.—A white, hard, brittle, heavy metal found in Cornwall, generally in combination with tinstone. It is sometimes used in small quantities to give additional hardness to steel.

Tunny.—A fish of the mackerel order, found abundantly in the Mediterranean. In addition to its use as a food, an oil is obtained from it, which, like several other fish oils, is used for dressing leather.

Turbot.—The well-known flat fish, which is highly prized as a food and which is inferior in value to the sole alone. It is very plentiful off the coasts of Great Britain and France, and the demand for it is very great in both countries.

Turmeric.—The yellow dye obtained from the roots of the *Curcuma longa*, a plant which is widely distributed throughout the tropical regions of the globe. The best turmeric is still obtained from India.

Turnip.—The hardy biennial plant, the roots of which are valuable as a cattle food as well as a flavouring agent for soups, stews, etc. There are two principal varieties, the ordinary white turnip and the yellow swede.

Turpentine.—The oily, semi-solid, resinous substance which exudes from various species of pine trees, though Venice turpentine is obtained from the larch. The chief seat of the turpentine industry is North Carolina.

Turquoise.—A mineral occurring in differently shaped masses, of a blue or bluish green colour, much used in jewellery. The best specimens are found in Persia.

Turtle.—Marine reptiles, one of the most valuable species being the green turtle annually imported in large numbers from Ascension for the manufacture of turtle soup. The hawksbill turtle of America is the source of tortoise-shell.

Tusseh.—A peculiar coarse silk obtained from several large moths of India, especially the *Antheraea mylitta*. During recent years this silk has been increasingly in demand and large imports are made annually by Lyons.

Tweeds.—A special class of Scotch woollen fabrics of a stout, close-woven texture, used for male clothing and sometimes for ladies' mantles.

Twills.—Woven ribbed cloths in which the warp is raised one thread and then depressed two or more threads for the passage of the weft.

Ultramarine.—A beautiful blue pigment used by painters, paper-stainers, calico printers, and others. It is artificially compounded by mixing china clay, charcoal, and sulphate of sodium, and roasting the whole with sulphur. Ultramarine is manufactured extensively in Germany, France, and Belgium.

Umber.—A pigment of various shades of brown, a brown earthy mineral obtained chiefly in Italy and Cyprus, though sometimes found in England and Wales.

Valencias.—A variety of raisins made from grapes grown in Turkey.

Valerian.—A well-known shrub of which there are many different species, that of Britain being the *Valeriana officinalis*, or common valerian. It is useful medically as a stimulant.

Valonia.—The commercial name of the acorn cup of a species of oak, *Quercus aegilops*, which flourishes in southern Europe, Asia Minor, and Syria. It is very rich in tannic acid, and is consequently in great demand by tanners.

Vanadium.—A very rare metal, generally found in certain iron ores and clays. It enters but little into commerce, though some of its salts are used for making aniline black, and for colouring porcelain.

Vanilla.—A species of orchid, and the only variety which has any commercial value. The most esteemed fruit is a native of the West Indies, but it is now extensively cultivated in most tropical countries. The chief imports are from Mexico, Brazil, and Mauritius.

Varnishes.—Solutions of gum resins in various volatile liquids and fixed oils, used for coating wood and metal work to protect it from exposure to air and moisture.

Vaseline.—A pale yellow semi-solid substance obtained from petroleum or paraffin. It possesses neither taste nor smell. Vaseline has the advantage over animal fats of never becoming rancid.

Vegetable Ivory.—(See *Ivory*.)

Vegetable Marrow.—(See *Gourd*.)

Vellum.—(See *Parchment*.)

Velvet.—A dress fabric made of silk, and woven with a looped surface. This surface is cut, and a thick, fine, close-set pile is the result. A mixture of cotton and silk stuffs manufactured in the same way as velvet is known as velveteen. The great centres of the velvet trade are Lyons and Crefeld.

Verdigris.—A green or blue pigment used by painters and dyers, and also employed in the manufacture of other green colours.

Verditer.—A blue or green pigment, the hydrated oxide of copper, the colour varying according to the completeness of the oxidation. It is mainly used for paper staining.

Vermicelli.—The finer form of macaroni, made entirely in Italy.

Vermilion.—The red sulphide of mercury, also called cinnabar, obtained by grinding the native cinnabar. It is, however, generally made artificially by heating a mixture of mercury and sulphur, and afterwards grinding the whole. Vermilion is used in painting and for colouring sealing wax.

Vermouth.—A bitter coloured wine flavoured with wormwood, gentian, and other herbs. It is manufactured in France and Italy, and in the latter country it is much used as a cordial and appetiser, especially when diluted. The small English imports are obtained from Geneva and Marseilles.

Vetiver.—The fragrant fibrous root of a grass called kuskus, found in swamps in India. In the East the roots are used for weaving into baskets, fans, screens, and covers.

Vevey.—The name of a peculiar kind of cigars which are manufactured and exported from Vevey, Switzerland.

Vinegar.—A form of acetic acid largely used for culinary purposes. It is a product of the fermentation of various vegetable substances. In Great Britain, vinegar is generally made from malt, while on the continent of Europe it is chiefly made from cheap sour wines.

Vitriol, Oil of.—The commercial name for sulphuric acid.

Vulcanite.—(See *Ebonite.*)

Walnut.—The popular name of the fruit of the *Juglans regia* as well as of the tree itself. The timber is extremely hard and durable, and does not split. It takes a fine polish, and is used for making furniture and gun stocks. The bark is useful for tanning purposes.

Walrus.—A marine mammal of the northern arctic regions, sometimes known as the morse. It is commercially valuable for the oil obtained from its blubber, and for the ivory obtained from its tusks, which is whiter and harder than elephant ivory.

Watches.—The best watches are made in London, but the introduction of machinery in the United States has

enabled watches and clocks to be produced at an extremely low price. Switzerland, France, and Germany also export large numbers of watches.

Water Melon.—(See *Melon.*)

Wax.—(See *Beeswax*, *Candleberry*, *Japan Wax.*)

Whalebone.—The long thin plates which are developed in the roof of the mouth of certain species of whale. They are not bone at all, but rather a kind of hair.

Wheat.—One of the most important of the food grains of commerce, the product of the *Triticum vulgare*. It is more grown in the temperate parts of the world than any other grain, and it is the staple food of the more highly civilised races.

Whisky.—The well-known spirit distilled from malt or a mixture of malted and raw grain. It is also largely made from potatoes and other starch-yielding materials.

White Lead.—A pigment much used by painters, made by the decomposition of lead with various acids, especially dilute nitric acid.

Wincey.—A textile fabric of mixed character, consisting of a cotton warp and worsted weft. The fabric is either plain or twilled. The manufacture is mainly carried on at Perth and Aberdeen, and the article is chiefly used for making gowns.

Wire.—The thin threads or ribbons of different metals, especially copper, brass, steel, and iron. Wire is most extensively used in telegraphy and for the manufacture of wire-ropes and wire netting.

Woad.—A plant which was formerly much cultivated in Great Britain for the sake of the blue dye obtained from it. The commonest species is the *Isatis tinctoria*, found in Lincolnshire.

Wolfram.—(See *Tungsten.*)

Wood.—The principal trees which are cultivated for the supply of timber are noticed under separate headings.

Wood Pulp.—A valuable commercial article used for paper-making. The pulp is obtained from the pine tree, and the main export trade is done by Norway and Sweden.

Wool.—The hairy covering of certain animals, used for the manufacture of various fabrics. Next to cotton it is the most important of all fibres.

Wormwood.—The popular name of a genus of plants of the *Compositae* order, the best known being the *Artemisia absinthium*, which is common in

Great Britain and Northern Europe. It is cultivated on account of its tonic properties, and for the volatile oil obtained from its leaves. It is from a species of wormwood that absinthe is manufactured.

Writing Paper.—(See *Paper.*)

Wurrus —(See *Safflower.*) The glands which cover the fruit of the *Mallotus Philippensis*, a tree found in the East Indies. From the glands a rich orange brown dye is obtained which is much used in India for dyeing silk. It is sometimes known as bastard saffron.

Yak.—A species of ox domesticated in Tibet. It is covered with long silky hair which is used for spinning into ropes and for making coverings for tents.

Yarn.—The name given to any textile fabric prepared for weaving into cloth. Yarn is produced entirely by machinery, and the perfection of spinning in Great Britain has led to its manufacture on a gigantic scale, not only for home consumption but also for export. The sizes of yarns vary considerably.

Yeast.—The vegetable growth to which fermentation is due, and of great value in brewing, baking, etc. The yeast obtained from the froth of fermenting malt liquors or beer mash is known as barm.

Yellow Berries.—The unripe fruit of the *Rhamnus in ectorius*, a tree of Asia Minor. The berries are shipped exclusively from Smyrna, and are sometimes sold under the name of French and Persian berries. A yellow dye is obtained from them, and this is used in the manufacture of morocco leather.

Yellow Metal.—An alloy of copper and zinc. It is much used for sheathing ships' bottoms, as the compound is cheaper than copper.

Yellow Ochre.—(See *Ochre.*)

Zaffre.—(See *Cobalt.*)

Zebra Wood.—The timber of the *Omphalobium lambestii*, a native of Brazil. The wood is light brown in colour with dark stripes, and very scarce. It is occasionally met with in commerce, its use being confined to the manufacture of furniture.

Zedoary.—The root of certain species of *Curcuma*, found in India, China, and the East Indies. The best is obtained from Ceylon.

Zinc.—One of the most important of metals, hard and malleable. Its colour is bluish-white. Zinc is never found pure in nature, but its ores, blende, calamine, and zincite, are fairly plentiful. The main source of the metal is the first

named of these ores, which is a sulphide of zinc and is obtained in large quantities in Germany.

COMMERCIAL TRAVELLER. (Fr. *Commis voyageur*, Ger. *Handelsreisender*, Sp. *Viajante de comercio*, It. *Commesso viaggiatore.*)

This term is applied to an employee who visits different places for the purpose of showing and selling goods for his principal. The nature of this agency and all other matters connected with his employment are dependent upon the special terms of his agreement with his principal. (See *Traveller.*)

COMMERCIAL TREATIES. (Fr. *Traités de commerce*, Ger. *Handelsverträge*, Sp. *Tratados de comercio*, It. *Trattati commerciali.*)

These are agreements between different countries for the regulation of their mutual trade. In countries which adopt protective principles, the tendency will be for the governments to admit freely those articles which are required for their use and manufactures, but to exclude as far as possible those which compete with their own productions. It is with a view of regulating particular tariffs in the interests of all parties that commercial treaties are framed, by which importations are permitted on more favourable terms by one of the contracting parties to the other party to the treaty than to the world in general. England having adopted a free trade policy has to offer other inducements than a lowering of tariffs in return for tariff concessions from other countries.

In consequence of the Conference of Paris, held in the early part of 1916, great changes will be effected in the future in the making of commercial treaties.

COMMISSION. (Fr. *Commission*, Ger. *Provision*, Sp. *Comisión*, It. *Commissione*, *provvigione.*)

Commission is the mode of remuneration for services rendered by agents in commercial transactions, generally taking the form of a percentage on the amount of business done.

The payment and the acceptance of commission are quite legitimate, so long as the whole matter is open and above board, but if any undue advantage is secured by means of a commission being obtained in an unfair manner, a person aggrieved may have a cause of action and a claim for damages in so far as he has been damnified. In order to check the rapid growth of corruption in

commercial circles, an Act was passed in 1906, the Prevention of Corruption Act, which made it a criminal offence for any person corruptly to pay or to receive any secret commission in connection with any work undertaken by him. The practical application of such an Act must always be attended with serious difficulties, but there are indications that this piece of legislation has had some deterrent effect upon what was undoubtedly a great and growing evil.

COMMISSION AGENTS or COMMISSION MERCHANTS. (Fr. *Négociants commissionnaires*, Ger. *Kommissionäre*, Sp. *Agentes en comisión*, It. *Commissionari, agenti, rappresentanti*.)

Persons who buy and sell goods, or transact business generally for other persons, and who are rewarded for their trouble by a certain payment, generally calculated at so much per cent. upon the amount of the transaction are known as commission agents or commission merchants.

It is always advisable that the terms of the employment of commission agents should be made as clear as possible, as disputes arise very frequently between principals and agents as to whether the remuneration or commission has in fact been earned. The courts have latterly favoured the agents if they have made it clear that their work has been in any way productive of the successful termination of any transactions in which they have been expressly or impliedly engaged. Generally speaking, they may be said to be entitled to their commission if they have brought together their principals and third persons ready and willing to conclude proposed contracts, even though the contracts are never, in fact, concluded.

Difficult questions arise when two or more agents are employed to carry on the same work, e.g., house agents employed to sell a house. The facts of each particular case are the only guide to the settlement of such adverse claims, and the decisions in the courts are somewhat conflicting.

A few examples from many reported cases may be given. In *Burton v. Hughes*, 1 *Times* L.R. 207, a house was placed by A. in B.'s hands for sale at £16,000. B. gave C. an order to view the house. The house was viewed, but C. at first gave up the idea of purchasing it. Subsequently, after an abortive attempt to sell the house by auction, C. bought it for £11,000. It was held

that B. was entitled to his commission. In *Taplin v. Barnett*, 6 *Times* L.R. 30 A was commissioned to sell a house. After three months it was put up to auction by another agent, and then bought by B. B. had already been introduced by A., but it was decided that A had no claim for commission, since it was not by his intervention that the sale had really been effected. In *Green v. Bartlett*, 14 C.B., N.S. 681, an auctioneer, A., was employed to sell an estate at 2½ per cent. commission "if the estate should be sold." It was not sold, but at the auction B. asked for the name of A.'s principal. B. afterwards bought the estate privately without any further intervention by A., and A. was successful in his claim for commission. "It has usually been decided that if the relation of buyer and seller is really brought about by the act of the agent, he is entitled to commission, although the actual sale has not been effected by him." Lastly, in *Barnett v. Brown*, 6 *Times* L.R. 463, the vendor of the lease of a house employed two agents, A. and B. A. informed C. of the house, and C. viewed it. C. applied to B., and again viewed the house. C. subsequently communicated with both A. and B., but finally continued negotiations and purchased through B. It was decided that B. was entitled to the commission, though it was strongly contended, on behalf of A., that there could only be one introduction. If A. had really brought about the sale, and B. had merely finished the negotiations, then A. would have been entitled. The question between the parties resolved itself into this, whose introduction was the effectual cause of the purchase?

All the ordinary rules as to agency are, of course, applicable to commission agents.

COMMISSIONER. (Fr. *Négociant commissionnaire*, Ger. *Kommissionär*, Sp. *Agente en comisión*, *negociante en comisión*, It. *Commissionario*.)

A commissioner is a person who is employed for a special purpose, and the name may be used in a very wide sense. In a narrower sense it is applied to a solicitor of at least six years' standing, who has been recommended by one barrister and one solicitor, and who has been appointed by the Master of the Rolls as a fit and proper person to attest affidavits made by parties who come before him. His full title is "commissioner for oaths." (See *Affidavit, Solicitor*.) A "perpetual commissioner"

is one who is duly authorised to take acknowledgments of deeds executed by married women.

COMMITTEE. (Fr. *Comité*, Ger. *Komitee*, *Ausschuss*, Sp. *Comité*, It. *Comitato*.)

A committee is a body of persons, generally limited in number, who are appointed to consider matters and questions which are submitted to them by some larger body. The name "committee"—with the accent on the last syllable—is also given to the person or persons who is or are entrusted with the care of a lunatic's estate.

COMMITTEE OF INSPECTION. (Fr. *Comité d'inspection*, Ger. *Gläubiger-ausschuss*, Sp. *Comité de inspección*, It. *Comitato d'ispezione*.)

This committee is one that is composed of a number of creditors appointed by the whole body of creditors to watch over the settlement of the affairs of a bankrupt, or of a company which is being wound up, and to supervise the trustee.

Bankruptcy.—The committee consists of not more than five nor less than three persons. They are selected by the creditors by ordinary resolution, and any creditor or the holder of a general proxy or general power of attorney from a creditor may be appointed, provided that the creditor proves his debt before he or his proxy or attorney acts upon the committee. The members of the committee must meet at least once a month, and may act by a majority of the number present at any meeting, if a majority of the whole committee are present. If any vacancies occur the remaining members may still act so long as there are at least two continuing members. Vacancies are to be filled as soon as possible by the election of additional members.

Any member of the committee may resign by giving notice in writing to the trustee, and any member may be removed by ordinary resolution at a meeting of the creditors, convened for the purpose. If a member becomes bankrupt, or compounds or arranges with his creditors, or is absent from five consecutive meetings, his office is vacated.

In some cases the creditors depute to the committee of inspection the task of appointing the trustee, and of fixing his remuneration. The trustee, when appointed, must consult the committee in respect of all important matters in connection with the administration of the estate of the bank-

rupt. By sections 56–58 of the Bankruptcy Act, 1914, the trustee can do the following things only with the permission of the committee of inspection:—

(1) Carry on the business of the bankrupt, so far as may be necessary for the beneficial winding-up of the same.

(2) Bring, institute, or defend any action or other legal proceeding relating to the property of the bankrupt.

(3) Employ a solicitor or other agent to take any proceedings, or do any business which may be sanctioned by the committee of inspection.

(4) Accept as the consideration for the sale of any property of the bankrupt a sum of money payable at a future time subject to such stipulations as to security and otherwise as the committee think fit.

(5) Mortgage or pledge any part of the property of the bankrupt for the purpose of raising money for the payment of his debts.

(6) Refer any dispute to arbitration, compromise all debts, claims, and liabilities, whether present or future, certain or contingent, liquidated or unliquidated, subsisting or supposed to subsist between the bankrupt and any person who may have incurred any liability to the bankrupt, on the receipt of such sums, payable at such times, and generally on such terms as may be agreed on.

(7) Make such compromise or other arrangement as may be thought expedient with creditors, or persons claiming to be creditors, in respect of any debts provable under the bankruptcy.

(8) Make such compromise or other arrangement as may be thought expedient with respect to any claim arising out of or incidental to the property of the bankrupt, made or capable of being made on the trustee by any person or by the trustee on any person.

(9) Divide in its existing form amongst the creditors, according to its estimated value, any property which, from its peculiar nature or other special circumstances, cannot be readily or advantageously sold.

(10) Appoint the bankrupt himself to superintend the management of the property of the bankrupt or of any part thereof, or to carry on the trade (if any) of the bankrupt for the benefit of his creditors, and in any other respect to aid in administering the property in such manner and on such terms as the trustee may direct.

(11) Make such allowance as may be

thought fit to the bankrupt out of his property for the support of the bankrupt and his family, or in consideration of his services if he is engaged in winding up his estate. Any such allowance may be reduced by the court. The allowance must, under Rule 370 of the Bankruptcy Rules, 1915, be in money, unless the creditors by special resolution determine otherwise, and the amount must be duly entered in the accounts of the trustee.

The permission given must not be a general permission to do all or any of the above-mentioned things, but only a permission to do the particular thing or things for which permission is sought in the specified case or cases.

The books kept by the trustee must be regularly audited by the committee. As the members stand in a fiduciary capacity towards the general body of creditors, no profit must be made by any one of them out of the administration of the estate, either directly or indirectly.

If there is no committee of inspection the powers authorised by the Bankruptcy Act, 1914, may be exercised by the Board of Trade, who may in turn delegate them to the Official Receiver.

There is no committee of inspection in the case of small bankruptcies.

Company Winding-up.—When an order has been made for the winding-up of a company, and a liquidator has been appointed, a committee of inspection is appointed to control the actions of the liquidator almost in the same manner as a trustee in bankruptcy is controlled. The persons who are eligible for election are

- (a) Creditors of the company;
- (b) Contributories of the company;
- (c) Persons holding general powers of attorney from creditors or contributories.

The proportion in which the above are to be elected is agreed on at meetings of the creditors and contributories. In case of difference the court must determine what the proportion shall be.

The liquidator can only exercise the following powers with the sanction of the committee of inspection, or of the court :—

- (1) Bring or defend legal proceedings in the name and on behalf of the company.
- (2) Carry on the business of the company so far as may be necessary for the beneficial winding-up of the same.
- (3) Pay any class of creditors in full.

(4) Make a compromise or arrangement with creditors or persons claiming to be creditors.

(5) Compromise calls.

(6) Compromise debts.

(7) Compromise questions in any way relating to or affecting the assets of the company.

(8) Employ a solicitor or agent.

The members of the committee are removable in the same manner as in bankruptcy, and are bound to exercise their powers with a proper appreciation of the fiduciary capacity in which they stand towards the company.

When there is no committee of inspection its functions devolve upon the Board of Trade.

COMMODITIES. (Fr. *Marchandises*, Ger. *Waren*, Sp. *Mercancías*, It. *Merci*, *mercanzie*.)

These are the movable articles of commerce, objects of any kind which can be bought or sold.

COMMON SEAL. (See *Seal*.)

COMPANIES.—(Fr. *Compagnies*, Ger. *Gesellschaften*, Sp. *Compañías*, It. *Compagnie*.)

This is the general name given to associations of individuals combined together for the purpose of carrying on trade or business.

COMPANIES, LIMITED LIABILITY. (Fr. *Sociétés en commandite*. Ger. *Gesellschaften mit beschränkter Haftung*. Sp. *Sociedades anónimas*, It. *Società o compagnia anonime in accomandita*.)

These are associations of persons formed for the purpose of carrying on trade or business, in which the liability of such persons is limited by guarantee or shares. They have been governed since 1862 by a large number of Acts passed between that date and 1907; but now the whole of the law has been drawn together in the Companies (Consolidation) Act, 1908, which repealed and re-enacted, with certain amendments, most of the provisions of the former Acts. There is, moreover, a small amending Act, dealing entirely with private companies, according to the statutory definition of the same, which was passed in 1913.

The present section deals generally with joint-stock companies, their formation, their conduct of business, and their termination.

A joint-stock company has been defined as "an association of individuals for purposes of profit, possessing a common capital contributed by the members composing it, such capital

being commonly divided into shares, of which each possesses one or more, and which are transferable by the owner."

It must be clearly understood that the individuality of the members is entirely lost in the personality of the company. Unlike a partnership, the creditors can only proceed against the property of the company in case of necessity, and ordinarily there is no remedy beyond the amount of the fixed capital of the company.

A company may be composed of members who are all of foreign nationality; but if the association is established according to English law, the foreign character of the shareholders, directors, and other officials does not make it anything but English. This point has been brought into great prominence during the war between England and Germany, and legislation on the subject may be expected at an early date.

Kinds of Companies.—There are three kinds of companies.

(a) Unlimited companies. In companies of this class every shareholder is liable for the debts of the company as in an ordinary partnership. But they possess these advantages—the liability of each member ceases at the end of a year from the time he ceased to be a member, and the shares are transferable. Such companies are now extremely rare, and for several years past not one has been registered.

(b) Companies limited by guarantee. There are very few of this class in existence. The memorandum of such a company contains a declaration to the effect that each member of the association will contribute an amount, not exceeding a fixed sum, to meet its liabilities so long as he remains a member, and for twelve months afterwards.

(c) Companies limited by shares. Here the liability of each member is limited to the nominal amount of the shares which he holds. If the capital is once fully paid up, there is no further pecuniary liability resting upon any one.

The third class is the most common and most important kind of company. In addition to what is contained in the present section, there are special rules applicable to certain companies, such as banking companies, insurance companies, and companies formed for the purposes of charity, etc. This third class is still further sub-divided into public and private companies.

Number of Persons required.—The

least number of persons that can combine to form a public joint-stock company, is seven. Though there is no maximum, except that the number of shareholders cannot exceed the number of the shares, there must never be less than seven, for where the business of a company is carried on for six months after the number of its members has been reduced below seven, every member cognisant of the fact is personally liable for payment of the whole of the debts of the company contracted after such period.

In recent years companies have come into existence which have been known as "one-man" companies. The name is generally applied to associations in which almost the whole of the shares are held by one person, the remainder being allotted to six or more other persons who are required to make up the necessary number of members. This is very frequently the case where a successful business is converted into what has heretofore been known as a "private" company, that is, one in which the shares are not offered to the public for subscription, but are carefully reserved to the relatives and friends of the former partners in the business. Thus the advantages of incorporation are gained, of which the principal is limited liability. There are also other advantages, of which the chief are the continuance of the business after the death of any of the parties interested, the power, at any time, of transferring the shares so as to introduce fresh members, and the increased facility of borrowing money.

There has now arisen a new statutory "private" company. It is defined as one which, by its articles, (a) restricts the right to transfer its shares, (b) limits the number of its members (exclusive of persons who are in the employment of the company) to fifty, and (c) prohibits any invitation to the public to subscribe for any shares or debentures of the company. By the Companies Act, 1913, this sub-section (b) now reads "limits the number of its members (exclusive of persons who are in the employment of the company and of persons who having been formerly in the employment of the company, were while in such employment and have continued after the determination of such employment to be members of the company) to fifty." Such a company may be registered with only two members, and it is exempt from many of the requirements imposed upon a

public company. It will be noticed that a "one-man" company need not necessarily be a "private" company within the meaning of this definition. A private company may, by taking certain prescribed steps, convert itself into a public company.

The whole of the obligations imposed by statute upon a public joint-stock company do not apply in the case of a private company. The most important of the exemptions are (a) the presentation of an annual summary of its financial position, (b) the restrictions as to the appointment of directors, (c) the filing of a statement in lieu of a prospectus, (d) the restrictions as to the allotment of shares, and (e) the necessity of obtaining a minimum subscription before commencing business.

The Promoter.—"The term promoter," said the late Lord Justice Bowen, "is a term not of law, but of business, usefully summing up in a single word a number of business operations familiar to the commercial world by which a company is generally brought into existence." Whether a man is or is not a promoter will depend upon his acts.

As a promoter stands in a fiduciary relationship towards the company which he is promoting, he must not use his position for the purpose of making any secret profit at the expense of the company. His position is very similar to that of an agent.

The promoter is personally liable for any acts done before the company is registered, since it is impossible for a person to contract on behalf of a non-existent person, and a company cannot subsequently ratify what has been done. (See *Promoter.*)

Memorandum of Association.—When the necessary number of persons has been obtained the memorandum of association is prepared. In it the following matters must be clearly set forth:—

(1) The name of the company. Any name may be chosen, provided it does not so closely resemble that of an existing company as to be likely to deceive. The last word of the name must be "limited"—unless the company is an unlimited one—though the Board of Trade may, if they think proper, dispense with this addition if the company is not one formed for the purposes of pecuniary gain and profit. Only a limited company may use the word "limited." It is an offence

punishable by fine for an unincorporated association to do so. The prefix "Royal" may not be used without the licence of the Home Secretary. By special resolution, and with the sanction of the Board of Trade, the name of the company may be changed.

(2) The part of the United Kingdom where the registered office of the company is to be situated, *i.e.*, England (which includes Wales), Scotland, or Ireland.

(3) The objects of the company. The greatest care is required in setting these forth with accuracy. A company only exists for the purposes which are stated in its memorandum, and any act done outside these powers is *ultra vires*, and therefore null and void. As a natural consequence a memorandum will often specify trades and businesses which have apparently only the remotest connection with the main business of the company. When a memorandum is so drawn as to contain multifarious powers of this kind, it is possible for the company to extend its operations at any time without applying to the court for leave to do so. Until 1890 no company could extend its business without first being wound up and reconstructed. Now, by special resolution and by the leave of the court, a change can generally be effected, if it is shown that the alteration is for the benefit of the company, and that the interests of all the existing members and creditors are properly safeguarded. A carefully-drawn memorandum will avoid the necessity for this procedure and its accompanying expense.

(4) A declaration to the effect that the liability of the members is limited.

(5) The amount of the nominal capital of the company, the number of shares into which the capital is divided, and the amount of each share.

The memorandum concludes as follows: "We, the several persons whose names and addresses are subscribed, are desirous of being formed into a company, in pursuance of this memorandum of association, and we respectively agree to take the number of shares in the capital of the company set opposite our respective names."

The names, addresses, and descriptions of the seven (or two if the company is a private one) subscribing persons are annexed, each of them subscribing for one share at least.

It is necessary that each subscriber should make the entry with his own

hand, and the entry must be attested. It is the common practice for each to write that he takes one share. Any person may be a subscriber: for example, a bankrupt, a married woman, an alien, or an infant. It is not advisable, however, to have an infant subscriber.

Articles of Association.—In addition to the memorandum there are usually articles of association. These are signed by the subscribers to the memorandum, and consist of regulations for the management of the internal affairs of the company. They are binding upon the company and upon each member of the same as if each had signed and sealed them. The articles may be altered from time to time in any respect by special resolution of the members of the company. An exception to this rule was made by the Companies (Foreign Interests) Act, 1917. By this Act changes affecting foreign interests can only be made with the consent of the Board of Trade.

The legislature has supplied a specimen set of articles of association. These are known as Table A, and are set out in the first schedule of the Companies (Consolidation) Act, 1908.

Registration.—When the memorandum of association has been signed it must be stamped. In addition to the ordinary deed stamp of 10s.—which is required by both the memorandum and the articles—registration stamps are necessary according to the following scale:—

Where the nominal capital does £ s. d.
not exceed £2,000 2 0 0

Where the nominal capital exceeds £2,000, the above fee of £2, with the following additional fees, regulated according to the amount of the nominal capital (that is to say):—

For every £1,000 of nominal capital, or part of £1,000, after the first £2,000, up to £5,000 1 0 0

For every £1,000 of nominal capital, or part of £1,000, after the first £5,000, up to £100,000 0 5 0

For every £1,000 of nominal capital, or part of £1,000, after the first £100,000 0 1 0

For registering any document required or authorised to be registered, other than the memorandum of association 0 5 0

For making a record of any fact authorised or required to be recorded 0 5 0

In addition to the fixed stamp duties, there is an *ad valorem* duty of 5s. per cent. imposed on the nominal capital of the company by the Finance Act, 1899, and there are certain fees to be paid upon the filing of certain necessary documents.

The memorandum and articles are left at the office of the Registrar of Joint-Stock Companies. They must be accompanied by a list of persons who have consented to become directors of the proposed company, and a statutory declaration that the requirements of the Companies Acts as to registration and all matters precedent and incidental thereto have been complied with. Thereupon a certificate of incorporation is issued by the Registrar of Companies. This certificate is conclusive evidence that everything is in order. The members then become a corporation, and the incorporation takes effect from the date of the certificate. If it is a private company it is at liberty to commence business at once, but a public company cannot as yet proceed further than the issue of a prospectus inviting the public to apply for its shares.

The Prospectus.—The term “prospectus” is applied to the document put forward by the persons interested in the company, to induce other persons to take shares, or otherwise assist the company with money. It is defined as “any notice, circular, advertisement, or other invitation offering to the public for subscription or purchase any shares or debentures of a company.”

It is generally issued at the time of or immediately after the registration of the company. It must be dated, and the date named will be deemed the date of its publication. A copy must be signed by every person named in it as a director or proposed director (or his authorised agent), and filed with the Registrar at or before the date of publication.

The preparation of the prospectus has always been a most difficult task. Its object is to induce the public to come in and take shares, and for that purpose the prospects of the company have always been painted in the rosiest fashion. This has led to the grossest frauds, and up to 1890 it was very difficult for the parties defrauded to obtain any redress. A vast change has, however, been accomplished since the passing of the Directors Liability Act, 1890, and also by subsequent statutes, the whole of which are now collected and enacted by the Companies (Consolidated)

Act, 1908. The requirements of the document are set out in the article *Prospectus*. Nothing can now be omitted which would affect the mind of a reasonable person who was a party to a private transaction. All the financial arrangements must be stated, the names and addresses of the directors, and particulars of every material contract which has been entered into.

If a prospectus is issued containing fraudulent misrepresentations, a person who has been induced to take shares in the company through such false misrepresentation will be entitled to have his name removed from the list of shareholders, or he may sue the persons responsible for the issue of the prospectus for damages sustained through such misrepresentation. (See *Director, Prospectus*.)

Underwriting.—This is a contract entered into by a person to take up shares offered to the public if the latter do not apply for them within a certain time. The object of underwriting is to insure the successful floating of the company. The contract is generally made with the promoter of the company, the consideration being a payment in cash or otherwise, but there cannot be a payment in shares. Although formerly held to be illegal, as amounting to the issue of shares at a discount, an underwriting commission is now perfectly regular, if allowed by the articles of association and expressly stated in the prospectus of the company.

Directors.—As the shareholders of a company often amount to a large number of persons, it would be impossible for each one to be consulted with respect to every transaction of the company. The management must be in the hands of a few, selected by the shareholders, who are called the directors of the company. The number, powers, and method of election of the directors are provided for by the articles of association. If no directors are named therein, the subscribers of the memorandum of association are the directors until others are appointed.

No one can be appointed as a director unless, before the registration of the articles or the publication of the prospectus, he has

(a) Filed with the Registrar a signed consent to act as a director, and

(b) Either signed the memorandum of association for, or filed with the Registrar a signed contract to take from the company, and pay for, the

shares which are necessary to qualify him for the position of a director.

If a director does not acquire his qualification within two months after his appointment, or subsequently ceases to hold his qualification, he must resign his position. If he continues to act as director, he is liable to a fine of £5 a day from the date of his ceasing to hold his qualification.

The duties and the authority of the directors are limited by the memorandum and the articles. An act done in excess of their powers is *ultra vires*, and the act itself cannot be ratified if it is also *ultra vires* the company. As the directors are in the position of trustees and agents for the company, they must not make use of their powers to obtain advantages for themselves. They must make no secret profits. Neither must they delegate their powers, unless they are authorised to do so by the articles of association.

Auditors.—It is also essential that auditors should be appointed. As to their position and duties, see the separate article, *Auditor*.

Allotment of Shares.—Hitherto in the allotment of shares nothing has been required beyond the elements which go to the formation of a simple contract—application, acceptance, and communication of the acceptance to the applicant within a reasonable time. The result has been that many companies have gone to allotment when the applications for shares have been such as altogether to exclude the possibility of the company being able to conduct any business at all.

It is with respect to the allotment of shares that the Act of 1900 first conferred so great a benefit upon the public. It was then enacted that no allotment should be made of the share capital of a company offered to the public for subscription by a prospectus unless

(a) A minimum subscription fixed by the memorandum or articles and named in the prospectus as that upon which the directors may proceed to allotment has been subscribed, and the sum payable on application has been paid to and received by the company, or

(b) The whole amount of the share capital has been subscribed and the application money paid.

Further changes were made by the Companies Act, 1907 (afterwards repealed and re-enacted by the Act of 1908), and the present statutory provisions are now contained in the article *Allotment*.

Register of Members.—Every company is bound to keep a register or list of its members for the time being, and of the shares which they respectively hold. The register must be open to inspection during business hours, gratis to shareholders, and on payment of a sum not exceeding one shilling to other people. The register may be closed for any period not exceeding thirty days in each year. Also every company which has its capital divided into shares must annually forward a list of its members to the Registrar of Companies.

In addition to the list of members, it is now necessary to forward a summary as to the financial and general position of the company. The exact requirements as to the contents of the summary are contained in sect. 26 of the Companies (Consolidation) Act, 1908.

No notice of any trust is to be entered upon the register. In cases of improper entry or omission of names from the register, the injured party may apply to the court for a rectification of the same, by striking out or placing therein the name of the member who has complained of the improper entry or omission.

Capital.—This is the sum subscribed by the shareholders for the purpose of being applied to the establishment or extension of the company's business. The proposed sum named in the memorandum of association of the company is the "nominal" capital. When the whole of the capital is not taken up, that which is represented by the number of shares held by the members is its "subscribed" or "issued" capital. That portion of the issued capital which is actually paid by the members of the company is the "paid-up" capital, the remaining portion, for which the shareholders are liable, being known as the "unpaid," or "uncalled" capital.

A company may increase or reduce the amount of its nominal capital, but no reduction can take place without the sanction of the court.

Common Seal.—Every company must possess a common seal, and the name of the company must be engraved upon it in legible characters. It must be used for the authentication of all important documents.

Also it must be borne in mind that the name of every limited company must be legibly printed or affixed to the outside of every office or place of business where the company conducts its business, and that the name must be

mentioned in all notices, advertisements, official publications, bills of exchange, orders for goods, receipts, etc., connected with its undertakings. Non-compliance with these provisions renders the company or its officials liable to varying penalties.

Share Certificates.—A person who applies for shares in a limited company becomes liable to pay for the same as soon as the allotment has been communicated to him. Until the passing of the Companies Act, 1907, there was nothing to compel a company to issue a certificate signifying that the holder was a shareholder. But now, by section 92 of the Companies (Consolidation) Act, 1908, which has replaced the corresponding provision of the Act of 1907, it is enacted,

"(1) Every company shall, within two months after the allotment of any of its shares, debentures, or debenture stock, and within two months after the registration of the transfer of any such shares, debentures, or debenture stock, complete and have ready for delivery the certificates of all shares, the debentures, and the certificates of all debenture stock allotted or transferred, unless the conditions of issue of the shares, debentures, or debenture stock otherwise provide.

"(2) If default is made in complying with the requirements of this section, the company, and every director, manager, secretary, and other officer of the company who is knowingly a party to the default, shall be liable to a fine not exceeding five pounds for every day during which the default continues."

The certificate is impressed with the seal of the company. When a purchase of shares has been made upon the faith of a duly issued certificate, the company will be estopped from denying that the person named in the certificate is entitled to the shares. Claims may also arise against the company in the case of forged transfers. (See *Forgery.*)

Transfer of Shares.—Unless there is a special restriction or limitation by the articles of association, the holder of shares in a company, whether the same were originally allotted to him or whether he has acquired them from a previous holder, is entitled to transfer them to whomsoever he pleases. The transfer is effected either by deed or by an instrument in writing, signed by the transferor and the transferee. The transfer, sometimes accompanied by the certificate, is sent to the company

for registration, and the name of the transferee is entered in the books of the company as the holder of the shares. The transferee then becomes a member of the company. On the death of a shareholder the right in his shares passes to his personal representative—executor or administrator—and in bankruptcy the trustee steps into the place of the bankrupt. The personal representative, or the trustee, may be registered as a member, or may transfer the shares which have fallen to him to another person without being registered.

Share certificates are sometimes deposited as a security for a loan, together with a blank transfer, that is, a transfer executed by the borrower only, the name of the transferee not being stated. This gives to the lender an implied authority to fill in the name of the purchaser of the shares if the borrower fails to repay the money. But this mode of transfer is only effectual where the articles of the company permit of the transfer of shares by an instrument in writing simply. If the transfer must, under the articles, be by deed, a blank transfer will be of no value, since the instrument itself is not a deed, being defective in the fact that one of the essentials of a deed, viz., the name of the transferee, is not inserted at the time of its execution.

Since shares are not "goods, wares, or merchandise," a contract for their sale does not fall within section 17 of the Statute of Frauds—now repealed and re-enacted by section 4 of the Sale of Goods Act, 1893. Therefore, the contract need not be evidenced by writing. If the contract is not to be performed within a year the case is different. By an Act known as Lee-man's Act, passed in 1867, a sale of shares in a joint-stock banking company is void, unless the contract sets out in writing the numbers of the shares as stated in the register of the company. It has been the custom of the London Stock Exchange to disregard the provisions of this Act, but such a custom cannot be upheld.

Liability of Shareholders.—While the shareholder has the same right to participate in the profits of a business that is enjoyed by a partner, unless there is some agreement to the contrary, proportionately to the amount of capital he has invested, and to take such part in the affairs of the company as is allowed by the articles of association,

his liability is limited to the amount unpaid on the shares held by him. If he has paid up the whole nominal amount of his shares, he is absolutely free from any further liability. If he has paid only a certain proportion of the nominal value, he is responsible for the portion which remains unpaid. Should the remaining portion, or any part of it, be required, a demand is made upon the shareholder by means of a "call."

Sometimes a person who has paid but a fractional part of his shares will be able to escape liability altogether for the remaining part by transferring his shares to a third party more than a year before the call is made. And the liability within the year, under such circumstances, only arises if the transferee is unable to satisfy the call when it is made, and the other existing shareholders fail to discharge in full the liabilities of the company; and even then the liability only exists in respect of debts contracted before the transfer was made.

But there is this qualification. It is a very common thing, when a company takes over a going concern, for the vendor to receive a number of paid-up shares as part of the consideration for the sale of the business. Although, therefore, nothing has been paid in cash for such shares, the holder is not liable thereon if the contract to take shares in part payment has been filed with the Registrar of Companies. Any such contract must now be clearly set forth in the prospectus.

Stock and Share Warrants.—When the capital of a company has been fully paid up, its shares are frequently converted into stock. The main difference between shares and stock is this—shares must be transferred whole; stock can be split up into fractional amounts.

A share warrant is an instrument authenticated by the seal of the company, which entitles the holder to the shares or stock mentioned, and admits of transfer by mere delivery.

Preference Shares.—The memorandum of association sometimes provides that certain holders of the shares of the company shall be entitled to a portion of the profits of the business before any payment is made to the holders of other shares. Shares to which a priority of enjoyment of profits is given are called "preference shares," to distinguish them from those which are called "ordinary shares." Various classes of

preference shares are created, their rank being settled according to circumstances and the date of their creation. Railway companies—though these are companies formed under special Acts, and not under the Companies Acts—offer good examples of the creation of numerous classes of preference shares. The priority may have reference to the profits of each year separately, or the preference may be “cumulative,” that is, a deficiency which occurs in any one year must be made up in any succeeding year before any payment whatever is made to any ordinary shareholder.

Commencement of Business.—Prior to 1901, the possession of the certificate of registration was sufficient to entitle a public company to commence business. Now, by section 87 of the Companies (Consolidation) Act, 1908, the law on the subject is as follows:—

“(1) A company shall not commence any business or exercise any borrowing powers unless—

“(a) shares held subject to the payment of the whole amount thereof in cash have been allotted to an amount not less in the whole than the minimum subscription; and

“(b) every director of the company has paid to the company on each of the shares taken or contracted to be taken by him and for which he is liable to pay in cash, a proportion equal to the proportion payable on application and allotment on the shares offered for public subscription, or in the case of a company which does not issue a prospectus inviting the public to subscribe for its shares, on the shares payable in cash; and

“(c) there has been filed with the Registrar of Companies a statutory declaration by the secretary or one of the directors, in the prescribed form, that the aforesaid conditions have been complied with; and

“(d) in the case of a company which does not issue a prospectus inviting the public to subscribe for its shares, there has been filed with the Registrar of Companies a statement in lieu of prospectus.

“(2) The Registrar of Companies shall, on the filing of this statutory declaration, certify that the company is entitled to commence business, and that certificate shall be conclusive evidence that the company is so entitled:

“Provided that in the case of a company which does not issue a prospectus inviting the public to subscribe for its

shares, the Registrar shall not give such a certificate unless a statement in lieu of prospectus has been filed with him.

“(3) Any contract made by a company before the date at which it is entitled to commence business shall be provisional only, and shall not be binding on the company until that date, and on that date it shall become binding.

“(4) Nothing in this section shall prevent the simultaneous offer for subscription or allotment of any shares and debentures or the receipt of any money payable on application for debentures.

“(5) If any company commences business or exercises borrowing powers in contravention of this section, every person who is responsible for the contravention shall, without prejudice to any other liability, be liable to a fine not exceeding fifty pounds for every day during which the contravention continues.

“(6) Nothing in this section shall apply to a private company, or to a company registered before the first day of January nineteen hundred and one, or to a company registered before the first day of July nineteen hundred and eight which does not issue a prospectus inviting the public to subscribe for its shares.”

Meetings.—The management of the affairs of a company is in the hands of the directors. But since the directors are nominated by the shareholders, and it is necessary that the shareholders should have a knowledge of the general state of affairs, meetings must be held. In the ordinary course there is a meeting held once a year. There are, however, statutory provisions as to the first meeting. Previous to the Act of 1900, the first statutory meeting was to be held within four calendar months of the registration of the company. This meeting was often a sham. Now, however, by section 65 of the Act of 1908, every company which invites the public to subscribe for shares must hold its first meeting “within a period of not less than one month nor more than three months from the date at which the company is entitled to commence business.” Before the meeting is held, a “statutory report” must be sent to each member, and in this report full particulars must be set out as to the position of the company, particularly its financial situation. At any time an extraordinary general meeting of the company may be convened on the requisition of the holders of not less than one-tenth of the issued capital of the company, upon which all

calls or other sums then due have been paid.

At general meetings of the company it is usual to decide questions raised by a majority of the members, whether present in person or by proxy. In certain cases, however, in contradistinction to the "ordinary" resolution, that is, a resolution decided by a bare majority, a "special," or an "extraordinary" resolution is required. A "special" resolution is one for which there is a majority of three-fourths of the members, and which is subsequently confirmed by a mere majority. An "extraordinary" resolution is one passed by a three-fourths majority, and which requires no confirmation.

The proceedings of a company at its meetings must be duly recorded in a book kept for the purpose. These are the "minutes." If signed by the chairman of the meeting, they are receivable as evidence in legal proceedings.

Debentures.—The most common way in which a company borrows money for extending its business or for other purposes, apart from increasing its capital, is by the issue of debentures. The debentures usually take the form of a bond or written promise by the company, under its common seal, to repay the amount lent with interest, subject to certain conditions. There are many kinds of debentures, but they are roughly divisible into two classes: (a) mortgage debentures, which form a charge upon all or some part of the assets of the company; (b) debentures which do not form a charge, but merely amount to a promise to pay a sum of money. The former class is the more common. The property charged as a security for the debenture holders is generally conveyed by way of mortgage to trustees. The deed by which this is done is called a "covering deed."

Without some stipulation to the contrary, a mortgage of this kind would prevent the company from dealing with the property comprised in the deed in the ordinary way of business. To prevent this the common form of debenture gives the lender what is called a "floating charge" over the property of the company. As a result, the company, so long as it is a going concern, can deal with its property without any regard to the charge. But if any embarrassments arise, such as an inability to pay the money lent or the interest, or if proceedings are taken for winding-up the company, or if a receiver

is appointed on behalf of the debenture holders, the charge immediately crystallises, and the property comprised in the deed can no longer be dealt with.

The company must keep a register containing particulars of all charges and mortgages affecting its property, and must file such charges and mortgages with the Registrar of Companies. The register is a public one. Any person can inspect it on payment of one shilling. An omission to register the charge within twenty-one days of the making of it renders it void as regards the property comprised in the charge. The omission does not, however, invalidate the covenant to pay the debt.

The subject of debentures is dealt with at length in the article under that title.

Dividends.—Dividends are paid out of the profits made by the company. Neither the articles of association nor the memorandum of association can authorise the payment out of capital except under section 91 of the Act of 1908, e.g., when the undertaking is of a very special character, and the time when money is likely to be earned for the payment of any dividend at all is far distant.

Winding-up.—The existence of a company is terminated by a process called winding-up. The term is generally applied to those proceedings which correspond to the bankruptcy of an individual, but it is not exclusively so. If for any reason the company considers that its business ought to come to an end, even though it is perfectly solvent, or if there is a desire to amalgamate with another company or to re-construct the company itself, the name "winding-up" is applied to the means by which the desired end is to be attained.

There are three kinds of winding-up:—

- (1) By the court, which is compulsory.
- (2) By the act of the company, which is voluntary.

(3) By the act of the company under the supervision of the court, which is partly voluntary and partly compulsory.

I. Compulsory Winding-up.—If the paid-up capital of the company does not exceed £10,000, proceedings for winding-up may be taken in the county court of the district in which the registered office of the company is situated, unless the Lord Chancellor has excluded that court from exercising jurisdiction. This applies to county courts outside London only. The Metropolitan County

Courts have neither bankruptcy nor winding-up jurisdiction.

If the paid-up capital exceeds £10,000, proceedings must be taken in the High Court, unless the registered office is situated within the jurisdiction of the Chancery Courts of the Counties Palatine of Lancaster and Durham.

A company may be wound up by the court

(1) If it passes a special resolution to that effect.

(2) If default is made in filing the statutory report or in holding the statutory meeting.

(3) If it does not commence its business within a year from incorporation, or suspends its business at any time for the space of a year.

(4) If the number of its members is reduced to less than seven, or two in the case of a private company.

(5) If it is unable to pay its debts.

(6) If the court is of opinion that it is just and equitable that it should be wound up.

What is a "just and equitable" cause depends upon the facts of each particular case. It need not necessarily be one of the same nature as the four preceding. It is quite sufficient if the principal object and the substratum of the company have gone.

The most common ground for instituting proceedings to wind-up a company is its inability to pay its debts. Any creditor whose debt amounts to £50 or more may serve a demand upon the company requiring payment of the same. If the company neglects for three weeks to pay, secure, or compound for the amount, it is deemed to be unable to pay its debts. The presumption will exist also if execution is issued against the company, and the execution is returned unsatisfied.

But apart from these presumptions, other evidence may be adduced showing that the financial position of the company is such as to negative any possibility of its paying its debts. A judgment creditor for a sum of less than £50 may present a petition to wind-up the company, but unless there are very special circumstances existing the court will generally refuse to make an order in such a case.

The proceedings for winding-up are commenced by a petition, and, if an order is obtained, the business of the company is put an end to except for the purposes of the winding-up. The management of its affairs passes into

the hands of the liquidator (*q.v.*), an officer appointed by the court. Until he is appointed, the Official Receiver in bankruptcy is, by virtue of his office, the provisional liquidator. To assist the liquidator in his work, and in certain cases to control him, a "committee of inspection" (*q.v.*) is often appointed.

The duty of the liquidator is to report upon the whole affairs of the company, to collect the debts due to it, to dispose of its property, and generally to do all such things as are necessary to end its existence in a fair and equitable manner. If the shares of the company are not fully paid up, and the assets are insufficient to meet all liabilities, the liquidator must call upon each shareholder to contribute rateably whatever is necessary, limited, of course, to the amount unpaid upon each of the shares which he holds. It has already been stated that a person who has ceased to be a shareholder within a year of the winding-up may sometimes be called upon to contribute towards the liabilities of the company. Such a shareholder is placed upon what is known as the "B" list of contributories; the other list, called the "A" list, being composed of the names of those who are members of the company at the time of the commencement of the winding-up. (See *Contributories*.)

When the liquidator has collected the whole of the available funds, and has paid the costs incidental to the whole proceedings connected with the winding-up, he must proceed to distribute the residue, if any, in the following manner:—

First, the rates and taxes due and payable within the twelve months prior to the commencement of the winding-up must be paid. Next, the wages and salaries of clerks and workmen employed by the company, limited, in the case of a clerk, to services rendered during the preceding four months and not exceeding £50, and in the case of a workman to two months and £25, are preferred to all other claims (but with special terms applied in the case of an agricultural labourer), and any sum not exceeding £100 in respect of claims under the Workmen's Compensation Act, 1906. After these preferential payments have been made, the ordinary creditors of the company are next in order, and their debts are paid proportionately to their claims if the assets are insufficient to meet the whole. Debenture holders and mortgagees occupy